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# Spending Review for IT

## Final Report

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## Authors

Štefan Kišš  
Matej Kurian  
Matúš Lupták

Jozef Baradlay  
Peter Čmiko  
Lýdia Véghová

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# 1 Introduction and Summary

The Slovak Government has launched the *Value for Money* project, which aims to reform rules, set processes and strengthen institutions that would support making good decisions in the public interest and significantly increase value for money in the Slovak public sector.

One tool offered by *Value for Money* is a complex revision of most public spending. The Government made a commitment to this in its Government Manifesto and developed more detailed plans for the electoral term in the Stability Programme of Slovakia.

The review undertaken in 2016 focused on healthcare, transport and the informatisation of public administration. A spending review will check the majority of public spending during the electoral term, assessing the efficiency and effectiveness of expenditures and identifying measures to increase the value for money coming from public funds. This will allow for fiscal savings, better public services for citizens (results) and/or the directing of funds to the Government's priorities, with measures being proposed in a sustainable manner.

The interim report identified areas with the greatest room for improving efficiency. The final report, which is part of the public administration budget, develops the outlined issues and includes measures for improvement.

Governments of developed countries use spending reviews as a standard instrument to help find both room in public policies for a more efficient use of public funds and reach the savings necessary to meet national and European fiscal commitments.

A key part of the assessment is the ability to identify and correctly assess all costs and benefits in a complex manner based on financial costs and benefits. The analysis also aims to monetarily quantify non-financial benefits and costs to the maximum possible extent, bringing the state a complex picture of individual projects' benefits and costs.

## **Background and Objectives of the Review**

- The IT spending review has set a goal of identifying measures in order to create additional fiscal space of 30% of the planned investment and operational expenditures beginning its third year of implementation.
- The final report presents measures which offer direct savings of around 5 – 9% of 2017 IT expenditures (EUR 22 – 40 million per year) and add value to existing investments of at least 1% (EUR 4 million yearly). The report proposes procedural and methodological measures which allow for more efficient assessment and management of the national IT in the future.

## **Public IT Results**

- Slovakia lags significantly behind in the informatisation of the public sector. According to the Digital Economy and Society Index (DESI), it ranked 21<sup>st</sup> out of the EU-28 in 2015, and even 26<sup>th</sup> in digital services provided by the state. The assessment did not reflect the finalisation of OP IS projects by the end of 2015.
- Had the summer 2016 status been taken into consideration, Slovakia would only have ranked two places higher, reaching the 24<sup>th</sup> position. Better results were achieved in the accessibility of services while great room for improvement remains in making use of pre-filled government forms.
- There is currently no regularly updated and assessed list of result indicators for informatisation, be that in general or at the level of individual services and systems provided. Those indicators are proposed in the final report both at the operational and the investment level.

### ***Expenditures on Public IT***

- Average annual public IT expenditure from 2010 to 2015 amounted to roughly EUR 500 million, 70% of which comprised expenditures of the central government. Capital expenditures reached 60% of total spending. EU funds are a key part of investment funding, covering nearly half of total spending.
- Slovakia allocated the highest percentage of its state budget (2.5%) and the second highest GDP percentage (0.6%) to IT among OECD countries in 2011. These investments have yet to translate into the corresponding results in the area of digital services for citizens. The disproportion between the amount of expenditures and the results that citizens can perceive may also be explained by Slovakia catching up on its technical debt.
- IT spending is not calculated completely and accurately. Existing classifications do not include expenditures on human resources, combine IT expenditures with other expenditures, and are not prepared in sufficient detail to allow for cost comparison.
- Expenditures are relatively concentrated – the Ministry of Finance and the Ministry of Interior and their subordinate organisations consume 45% of the central government's total spending on IT.
- The ratio of investment to operational expenditures will reverse in 2017 – 2019. The growth in operational expenditures is also being driven by the costly operation of existing systems. The spending review must also look for substantial savings in operations, and not merely in the strategic selection of new projects.
- The final report proposes better data collection by incorporating IT expenditures into departmental budget programmes and information systems at the level of budget components. Analytical accounts will allow for other relevant operational and performance data to be tracked.

### ***Selection of Future Investments and Project Management***

- Slovakia needs to centralise the responsibilities for the national IT, develop a clear informatisation strategy and equip it with a project pipeline. Together with a rigorous economic assessment of projects using a cost and benefit analysis (CBA), these constitute essential preconditions for the selection of investments with the greatest value for money.
- The rules applicable to the investment project assessment will be unified. Today, the criteria applicable to projects funded from the national budget are looser than those applied to European projects. Repeated assessment will also apply to projects undergoing changes to their scope of services, budget, or time schedule.
- The Slovak Ministry of Finance and the Deputy Prime Minister's Office for Investments and Informatisation will handle the assessment of significant investments from the perspective of value for money. All projects with a budget over EUR 10 million will undergo assessment before an application for a grant is approved or public procurement announced.
- The state spent two-thirds of the funds it had allocated for OP IS project management on external suppliers instead of using its own employees. Externally managed projects were corrected twice as often as internally managed projects. We recommend using EU funds to build internal IT resources for project management and design rather than utilising outsourcing.

### ***2017 Priorities Resulting from the Action Plan***

- As electronic identity cards become more widespread, the value of the project will increase by at least EUR 2.3 million yearly thanks to the potential time savings. An additional EUR 2 million a year would come from the availability of services associated with identity cards to the commercial sector.
- The security necessary for digital services will be revised and the authentication procedure will be simplified for the purposes of digital services using alternative methods. Only 6% of those

citizens who possess an electronic identity card (1.7 million) have the security elements required by eight of the state's ten digital services.

- A binding plan for migration to a government cloud will be developed and its existence reflected in departmental IT budgets. Cloud deployment will be initiated without delay for systems with high savings potential. This will allow for the achievement of the declared cloud benefits of EUR 10 – 15 million per year.
- The centralisation and optimisation of IT support services in the area of telecommunication services and communication infrastructure may lead to a savings of EUR 9 – 27 million a year.
- An audit focusing on the need for and use of software licenses (Microsoft, Oracle, SAP) will be conducted in order to improve the consumption of licenses and identify the most economical method of license procurement. The possible savings on licenses to update Microsoft programs are estimated at the level of EUR 6.5 million annually.



## 2 Measures and action plan

We recommend the following measures to be taken in state IT based on this digitisation spending review:

### Saving

Task	Value	Measurable indicator	Responsibility
<b>Develop a binding cloud migration plan linked with IT budgets</b>	EUR 6.8 mil. (2017) EUR 10-15 mil. each following year	<ul style="list-style-type: none"> <li>• Cloud capacity usage (%)</li> <li>• Total cost of ISVS ownership (EUR)</li> </ul>	ÚPVII in cooperation with MF SR MV SR
<b>Centralise procurement of support IT services such as telecommunications and connectivity</b>	EUR 9-27 mil. yearly	<ul style="list-style-type: none"> <li>• Annual expenses on telecommunication services and communication infrastructure (EUR)</li> </ul>	ÚPVII
<b>Make procurement of Microsoft license products more effective</b>	EUR 6.5 mil. yearly	<ul style="list-style-type: none"> <li>• Annual expenditure on Microsoft products (EUR/person)</li> </ul>	ÚPVII

### Value

Task	Value	Measurable indicator	Responsibility
<b>Review the level of security required for electronic/digitised services</b>	EUR 2.3 mil. in 2017	<ul style="list-style-type: none"> <li>• Proportion of end services that require BOK and ZEP (%)</li> <li>• Number of electronic submissions</li> </ul>	ÚPVII in cooperation with MF SR
<b>Issue BOK with new eID automatically</b>		<ul style="list-style-type: none"> <li>• Number of electronic submissions</li> </ul>	ÚPVII in cooperation with ÚV SR
<b>Create binding UX manual for government services</b>		<ul style="list-style-type: none"> <li>• Implementation of UX manual into service process approval (yes/no)</li> <li>• Proportion of electronic submissions before and after implementation of the manual (%)</li> </ul>	ÚPVII in cooperation with ÚV SR
<b>Open eID for business by allowing access to API</b>	EUR 2 mil. yearly	<ul style="list-style-type: none"> <li>• Number of new third-party services</li> <li>• Proportion of activated eID (%)</li> </ul>	ÚPVII in cooperation with ÚV SR MV SR
<b>Explore alternative ways of identity authentication</b>		<ul style="list-style-type: none"> <li>• Proportion of alternative authentications to the number of eID authentications (%)</li> <li>• Number of citizens using digital services</li> </ul>	ÚPVII in cooperation with ÚV SR MV SR

## Management

<i>Task</i>	<i>Measurable indicator</i>	<i>Responsibility</i>
<b>Unify evaluation rules for investments from national budget and EU funds</b>	<ul style="list-style-type: none"> <li>Propose rules for IT investments</li> </ul>	ÚPVII
<b>Central management and procurement of IT commodities such as licences</b>	<ul style="list-style-type: none"> <li>Annual IT expenditures per civil servant (EUR)</li> </ul>	ÚPVII
<b>Create and publish reservoir/pipeline of projects</b>	<ul style="list-style-type: none"> <li>Published pipeline of projects (yes/no)</li> </ul>	ÚPVII
<b>Design a management concept for digitisation</b>	<ul style="list-style-type: none"> <li>Management concept designed (yes/no)</li> </ul>	ÚPVII
<b>Create a status report on public ICT</b>	<ul style="list-style-type: none"> <li>Annual ICT status report</li> </ul>	ÚPVII

## Data and methodology

<i>Task</i>	<i>Measurable indicator</i>	<i>Responsibility</i>
<b>Analyse uncategorised IT expenditures in the interdepartmental programme</b>	<ul style="list-style-type: none"> <li>Proportion of IT expenditures in 2017, that are in the interdepartmental programme (%)</li> </ul>	ÚPVII
<b>CBA methodology update for OP II (PO 7)</b>	<ul style="list-style-type: none"> <li>Proposed changes incorporated (yes/no)</li> </ul>	ÚPVII
<b>Define standardised employee position from IT perspective</b>	<ul style="list-style-type: none"> <li>Definition of standardised position with HW and SW requirements (yes/no)</li> </ul>	ÚPVII
<b>Analyse state institutions' IT expenditures structure</b>	<ul style="list-style-type: none"> <li>Report (yes/no)</li> <li>Proportion of expenditures covered (%)</li> </ul>	ÚPVII
<b>Separate telecommunication services from postal services in economic classification</b>	<ul style="list-style-type: none"> <li>Volume of expenditures that cannot be clearly classified as IT expenditures (%)</li> </ul>	ÚPVII
<b>Update information on all IT systems in public administration</b>	<ul style="list-style-type: none"> <li>Number of ISVS and data on cost and usage in metaS</li> </ul>	ÚPVII

<b>Design data collection in departmental subprogrammes with ISVS register</b>	<ul style="list-style-type: none"> <li>•Number of ISVS, where expenditures are monitored in the budget</li> <li>•Existence of classified ISVS register (yes/no)</li> </ul>	ÚPVII in cooperation with MF SR
<b>Design data collection purposed for IT operational expenses benchmarking.</b>	<ul style="list-style-type: none"> <li>•Proportion of IT expenditures that can be benchmarked (%)</li> </ul>	ÚPVII in cooperation with MF SR
<b>Analytical tasks</b>		
<i>Task</i>	<i>Measurable indicator</i>	<i>Responsibility</i>
<b>Cost-benefit analysis of all future IT projects above EUR 10 mil.</b>	<ul style="list-style-type: none"> <li>•Number of IT projects evaluated by the VfM Unit</li> </ul>	MF SR
<b>Analyse services that should be prioritised for electronic communication</b>	<ul style="list-style-type: none"> <li>•Number of services where the state prefers electronic communication</li> <li>•Savings resulting from electronic communication (EUR)</li> </ul>	MF SR
<b>Analyse the utilisation and procurement of software licences (Microsoft, Oracle, SAP)</b>	<ul style="list-style-type: none"> <li>•Analysis of software licences usage and estimation of future spending (yes/no)</li> </ul>	ÚPVII

### 3 Slovak Informatization Results

**Slovakia lags behind the EU average as well as its neighbouring countries in informatisation. This applies particularly to digital public services and the availability of broadband internet.** According to the Digital Economy and Society Index (DESI), Slovakia ranked **21<sup>st</sup> out of the 28 EU countries assessed**. What is more, it was the third worst in digital services, ranking only slightly higher than Bulgaria and Romania. Had the summer 2016 status been taken into consideration, Slovakia would only have ranked two positions higher in digital services, just barely overtaking Hungary and the Czech Republic in the original survey.

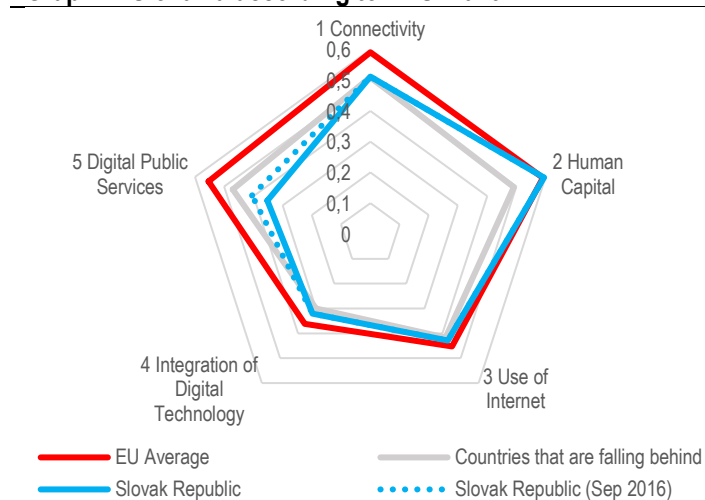
Slovakia does not measure the status or the development of its informatisation process well, nor does it communicate well about it. A uniform and binding list of result indicators is still lacking, as is regular measurement of appropriate indicators<sup>1</sup>. The same is true of monitoring progress. For example, the most recent citizen satisfaction survey for digital services took place in 2014. Information system performance data is also unavailable. Developed countries present IT expenditures publicly, put them in a detailed structure and also include system performance and cost indicators<sup>2</sup>.

#### 3.1 International Comparison

Due to the absence of local data, the spending review makes use of the DESI index that the European Commission has calculated since 2014, with total scores ranging from 0 to 1 (maximum scores). The index groups the relevant indicators in five areas:

- DESI 1 – internet connectivity (25% of the total index's weight);
- DESI 2 – human capital (25%);
- DESI 3 – use of internet services (15%);
- DESI 4 – integration of digital technology in commerce (20%);
- DESI 5 – digital public services (15%).

**Graph 1: Slovakia according to DESI 2016**



Source: European Commission, Digital Economy and Society Index 2016  
Slovakia Sep 2016 is a VIM estimate

<sup>1</sup> For example, the target values of priority axis 7 within the document *Operational Programme Integrated Infrastructure* or the *Indicators to Monitor the Digital Society Development 2014 – 2020*.

<sup>2</sup> E.g. <https://www.itdashboard.gov> or <https://www.gov.uk/performance>.

From a value for money perspective, the sub-indices of digital public services (the state as the only service provider) and internet connectivity (internet connectivity not covered by the market) are particularly relevant in the national informatisation area.

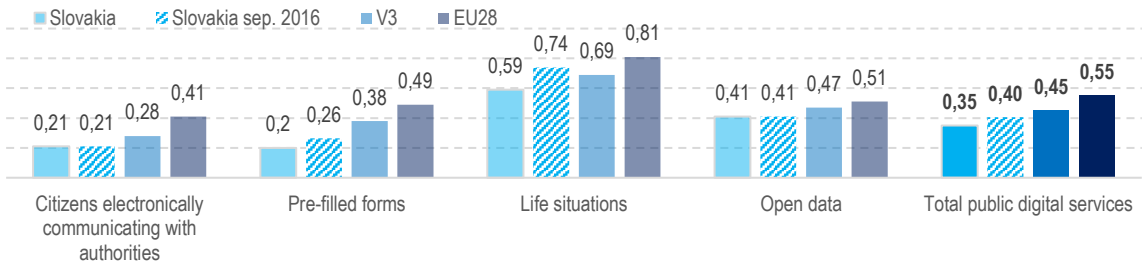
Attaining an average of the EU's results in these areas is a result indicator for the IT spending review.

Within digital public services, the DESI index reviews the following:

- percentage of eGovernment users (25% weight);
- percentage of pre-filled forms (25%);
- online service completion for life events (25%);
- use of open data (25%).

Based on the DESI 2016 results, Slovakia scored worst in the quantity of data in automatically pre-filled electronic forms and in the number of life situations which could potentially be handled electronically. It lagged behind both the EU average results and the V3 countries.

**Graph 2: DESI 2016 Index, Public Digital Services**



Note: Slovakia is a VIM estimate

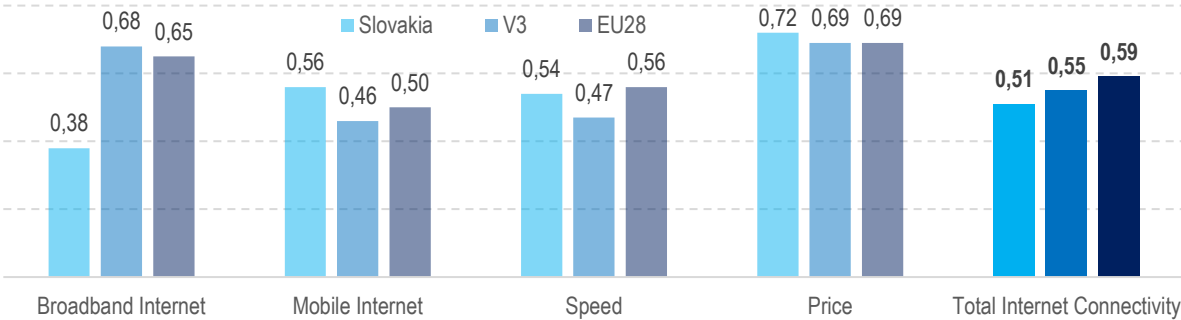
Source: European Commission, Digital Economy and Society Index 2016

The index reviews the following within the category of internet connectivity:

- the availability of fixed broadband internet connectivity for households and broadband take-up (33% of the total weight);
- mobile broadband take-up and 5G readiness (22%);
- availability and take-up of fast internet connectivity (33%);
- broadband price index (11%).

Compared with the EU average and the V4 countries, Slovakia lagged most in the availability of household broadband internet connectivity. On the contrary, good results were attained in the broadband price index and internet speed.

**Graph 3: DESI 2016 Index, Internet Connectivity**



Source: European Commission, Digital Economy and Society Index 2016

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### 3.1.1 DESI5 Score Update for 2016

**The most recently published values for the public digital service index (DESI5)** are based on data from 2014 and 2015, meaning the completion of a large part of the OP IS projects informatising state services has not been reflected. The actual value of these scores and Slovakia's consequent ranking compared with other EU countries could therefore be undervalued.

**If the figures were calculated again to take into consideration the situation of summer 2016, the results would only improve by 5 percentage points (0.40 compared with 0.35). This would still place Slovakia's digital services just two ranks higher (24<sup>th</sup>).** A complex assessment by individual services and life situations will be available as an electronic annex to this report.

**Despite Slovakia having improved by 15 percentage points in the availability of digital services, we continue to lag behind leaders in building a digital state (Graph 2).** Slovakia's overall position in the assessment of digital services is affected by the significant disproportion between electronic service availability (73% of the maximum) and online form pre-filling with the data available to fundamental registers (26% of the maximum).

**True compliance with the "once only" principle and the ability to make full use of the state's fundamental registers and automatic communication between authorities is therefore a challenge for the upcoming years.** If improvement equivalent to that attained in the area of availability were to also be reached with pre-filled forms, we would leap to the 21<sup>st</sup> position in the overall DESI5 assessment rankings.

- **Measure: Use the state's fundamental registers to the fullest extent for form pre-filling and automatic communication between authorities (once only principle).**

### 3.1.2 Satisfaction with Services

The informatisation of services provided has been measured since 2009<sup>3</sup> using regular satisfaction surveys among existing and prospective users. The most recently available survey maps the situation at the end of 2014, i.e. before part of the OP Information Society had been completed.

**The satisfaction survey confirms that Slovakia has stagnated and even lags behind in the sophistication (declared development) of public services<sup>4</sup>.** Of those who did not use e-services, both corporations and citizens considered public e-services to be less developed in 2014 than in 2010. As for those citizens not using e-services, the slump reached nearly 10 percentage points.

**One positive finding from the survey was the growth of loyalty<sup>5</sup>** – both corporations and citizens who started using e-services remained loyal to them, with their loyalty continuing to grow.

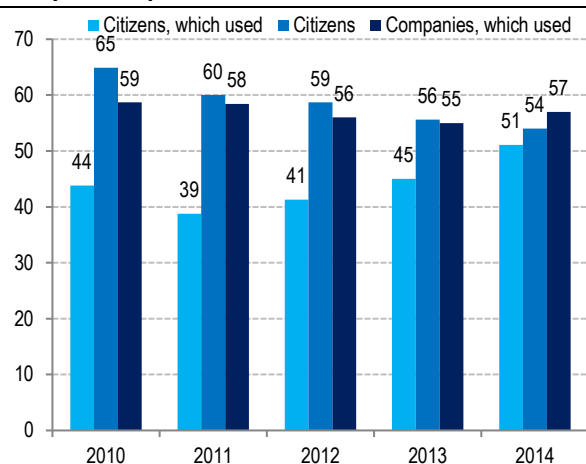
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<sup>3</sup> Available online at [https://web.archive.org/web/20150327060724/http://informatizacia.sk/prieskum-spokojnosti-2013/17214s\\_](https://web.archive.org/web/20150327060724/http://informatizacia.sk/prieskum-spokojnosti-2013/17214s_)

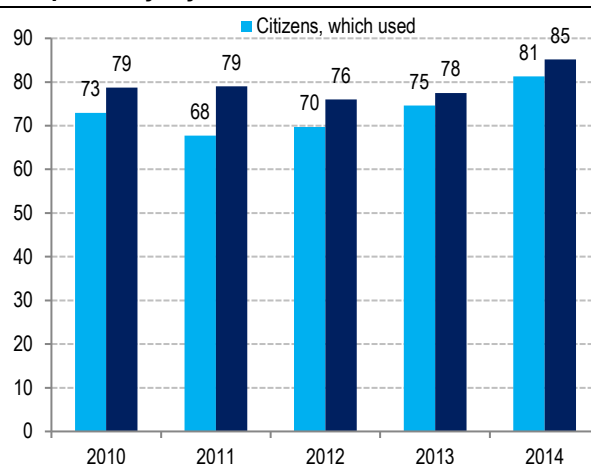
<sup>4</sup> Response to the question "How developed do you think public administration e-services are today?" The portion of responses representing "they fully correspond" and "they more or less correspond" to my expectations and needs.

<sup>5</sup> The loyalty index represents users' overall attitude to public administration e-services calculated as a mean value of three indices (the satisfaction, referral, and re-use index). It may range from 0 to 100. Low values stand for a rejecting, critical attitude to public administration e-services, while values nearing 100 stand for very positive acceptance of those services and interest in using them.

**Graph 4: Sophistication Index**



**Graph 5: Loyalty Index**



Source: Measurement of quality and satisfaction indicators for select public administration e-services, 2014

### 3.2 Results of Information Systems

**The results and benefits of informatisation can be reported using data about the utilisation of electronic services at the level of individual systems.** Utilisation and cost are about to be measured by the metalS portal<sup>6</sup>. They will, however, only be measured for projects funded by OP IS and OP II.

**However, the results of Slovak informatisation cannot reliably be checked; the data are incomplete, their monitoring is not automatic, and the data quality is very poor, if not completely unreliable.** Due to the absence of a sufficient amount of data, it is not possible to determine whether the services created, particularly those in the previous programme period, are being used at all and whether they are bringing the value which had been anticipated by the economic analysis.

**Digital services monitoring is not automatic.** The monitoring of end services is currently the responsibility of the liable person operating the service, who must proactively set and allow the automatic monitoring of services<sup>7</sup>. Even services published on slovensko.sk (particularly applications submitted by way of the general agenda) are not monitored automatically, despite this being a central portal where the coordination of individual authorities is unnecessary.

**The current status of service monitoring is unsatisfactory; fewer than one-fifth of electronic services for citizens are being monitored.** Only 18% (214 out of 1,187) of the central government's end services for 16 OP IS projects are currently monitored in any of the categories. Since the beginning of 2016, use of the relevant service (number of calls) has been reported at least once for only 12.5% of all the services which were to have reported.

**Data quality is poor and the data are inconsistent.** The reliability of the existing data in metalS is undermined by poor quality. For some services, variables which should be reported as a ratio<sup>8</sup> are sometimes being reported as whole numbers (number of calls), sometimes as a number from 0 to 100, and sometimes as a figure between 0 and 1. What is more, all central government services report zero costs for the filing of an application<sup>9</sup>. It is, however,

<sup>6</sup> Available online at <https://metais.finance.gov.sk/>

<sup>7</sup> metalS Integration Manual, available online at [https://wiki.finance.gov.sk/download/attachments/2621442/Integracny\\_manual\\_MetalS\\_v4\\_0.pdf?version=1&modificationDate=1463734089427&api=v2](https://wiki.finance.gov.sk/download/attachments/2621442/Integracny_manual_MetalS_v4_0.pdf?version=1&modificationDate=1463734089427&api=v2).

<sup>8</sup> Ratio of completed applications to all electronic applications, ratio of electronic applications to all applications.

<sup>9</sup> 62 central government services report transaction costs.

improbable that applications processed within the services, such as an "application for an identity card" or an "application for a passport", could be completely free of cost.

- **Measure: To automate service monitoring, check the data reported, and develop a public dashboard for the Slovak eGovernment, e.g. get inspired by the dashboard for Estonian digital citizenship<sup>10</sup>.**

### 3.3 Proposal of Indicators

Each public policy area should be monitored and assessed to the maximum extent possible using reliable quantitative indicators. These give both public policy-makers and the public a more objective picture of the relevant sector. The aim of the spending review is to propose a list of input, output and, particularly, result indicators for each area.

**Table 1: Proposal of IT Indicators**

Type of expenditure	Type of indicator	Indicator	Unit of measure	Value	Source	Year
<u>Investment</u>	<u>Costs</u>	Proportion of investment costs as a % of total central government IT spending	%	61	DIS	2016
		Average time of return on a project	years	8	DPMOII	2015
		Average ratio of the total costs of ownership to the initial investment for projects	%	187	DPMOII	2015
	<u>Benefits:</u>	DESI scores – digital public services	DESI5 scores	0.41	DESI 2016	2016
		Faster decision-making	%	N/A	DPMOII	
		Satisfaction with services provided	%	51	DPMOII	2014
<u>Operations</u>	<u>Costs</u>	Proportion of operating costs as a % of total central government IT spending	%	39	DIS	2016
		Expenditures on 1 employee	EUR	4,321	DIS	2016
		Expenditures on 1 workstation	EUR	N/A	DPMOII	
	<u>Benefits:</u>	Satisfaction of internal clients with services provided	%	N/A	Survey	
		Ratio of completed electronic applications to all applications	%	N/A	metaIS	

DIS – departmental information system; DPMOII – Deputy Prime Minister's Office for Investment and Informatisation

## 4 Expenditures

### 4.1 Overview of Informatisation Expenditures

**Annual public IT spending<sup>11</sup> in 2010-2015 is estimated at approximately EUR 500 mil (0.6% of GDP).** The expenditures reached its peak in 2015 (EUR 777 mil.); the growth was caused by projects financed from the second programming period.

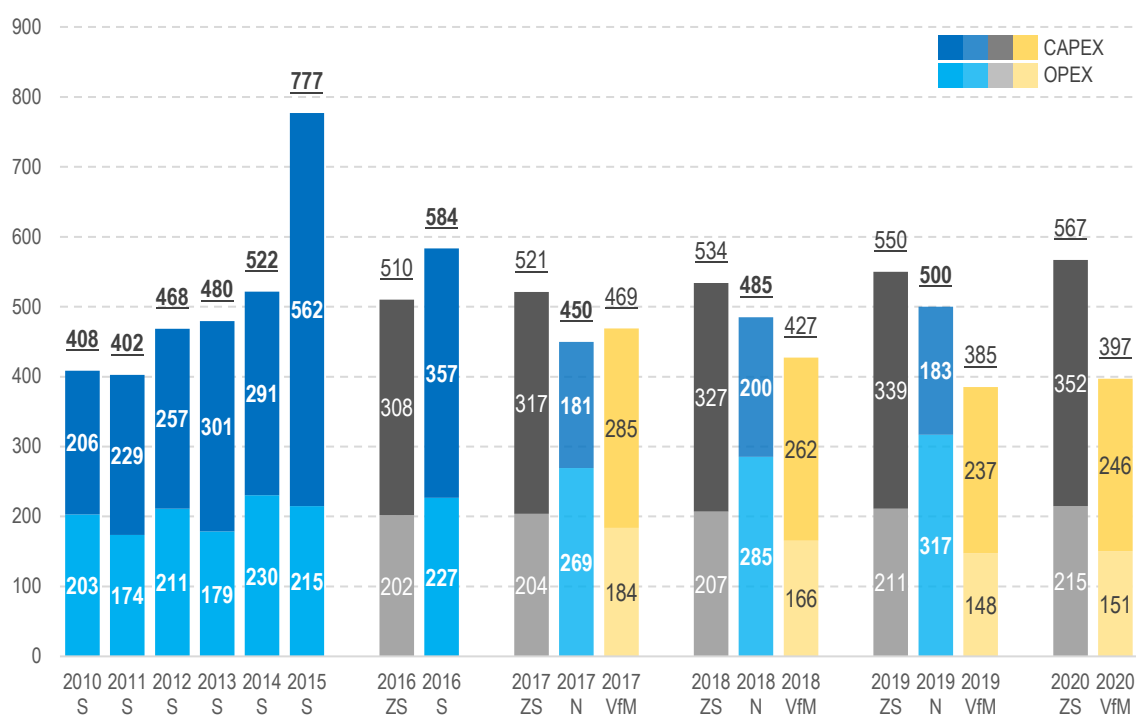
<sup>10</sup> Available online at <https://app.cyfe.com/dashboards/195223/5587fe4e52036102283711615553>.

<sup>11</sup> The existing budgetary classifications do not enable precise identification of IT expenditures. In this report, IT spending is estimated by mapping the economic classification described in Annex No. 1, unless stated otherwise. The estimated spending is a conservative estimate including only those expenses which are predominantly attributable to IT spending. A detailed estimate of spending is in Box 7.



In 2016, expenditures are expected to be EUR 584 mil. and 2017 is expected to see a year-on-year drop in spending by approximately EUR 130 mil., to the resulting EUR 450 mil.

**Graph 6: Informatisation spending trend (in MEUR)**



Notes: 2010-2016 actual – the 2016 figures based on the approved budget, adjusted as at 30.9.2016 (S), 2016-2020 baseline spending scenario (ZS), Source: RIS BI, 2016 2017-2019 draft budget (N), 2017-2020 spending review scenario (VfM)

The baseline scenario of IT spending under the Stability Programme scenario<sup>12</sup> assumes that IT spending in 2017-2020 will be around EUR 2.2 billion. Under the draft public administration budget, the spending will be by EUR 200 mil. lower. The difference most likely results from slower drawdown of funds under OP II.

On the contrary, in 2016, IT spending under the updated budget will be by EUR 74 mil. higher than assumed by the baseline scenario; the budgeted IT spending equals EUR 584 mil. (including down-payments for OP II projects). The draft budget assumes a year-on-year drop in spending in 2017 by approximately EUR 130 mil., to the resulting EUR 450 mil., followed by a mild increase to EUR 485 mil., and EUR 500 mil. in 2018 and 2019, respectively. Compared to the baseline scenario, the expenditures are expected to be, on average, by EUR 59 mil. lower.

Under the draft budgetary plan, operational costs in 2017-2019 should reach EUR 872 mil., almost a third of which refers to operation of OP IS projects. The expected costs are by EUR 256 mil. higher than assumed by the baseline scenario – in 2017 by EUR 67 mil., in 2018 by EUR 80 mil. and in 2019 by EUR 109 mil.

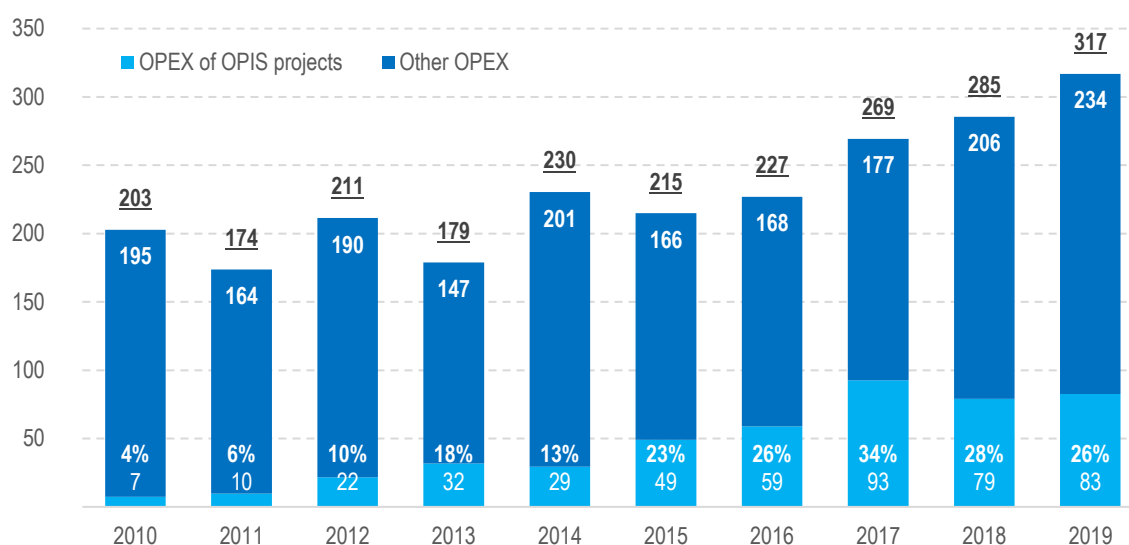
Meeting the assumed level of expenditures would mean a substantial change in the structure of IT spending. While in 2010-2015 40 % of the Slovak public administration's spending were expenditures on operation and maintenance (purchase of goods and services, OPEX) and 60% were capital expenditures (CAPEX), the draft budgetary plan for 2017-2019 counts on an inverted proportion.

The growth of operational costs is also driven by the costly operation of OPIS projects and other IT projects. With launching of OP II, the proportion of OPEX in total spending is likely to grow at a slower pace. It appears, however,

<sup>12</sup> Stability Programme of the Slovak Republic for 2016 - 2019, p. 68-69, available at <http://www.finance.gov.sk/Default.aspx?CatID=120>.

that the spending review should find major savings in operations and not only in the strategic selection of OP II projects.

**Graph 7: Operational expenses of IT and proportion of OP IS projects (in MEUR)**



Source: RIS BI 2016, Deputy Prime Minister's Office for Investments and Informatisation, VfM Unit

#### Comparison of IT spending with other OECD countries

**In 2011, among 20 OECD countries, mostly EU15, Slovakia was the one that spent the largest percentage of its state budget on IT. However, despite higher investments, Slovakia's results from measuring the Digital Society Index in 2014 were the worst among the compared OECD countries (Graph 8)<sup>13</sup>.**

In 2011, almost 2.5% of Slovakia's state budget expenditures were spent on IT<sup>14</sup>. Half of the countries – including Estonia – spent on IT 1% or less of the state budget. Slovakia's high IT spending compared to other OECD countries<sup>15</sup> were not reflected in 2014 or 2016 results, when Slovakia's IT ranked below average of other countries.

<sup>13</sup> OECD. (2012). *OECD E-Government Project: Building the basis for new e-government performance indicators: ICT spending by central government*. Available online at [https://one.oecd.org/document/GOV/PGC/EGOV\(2011\)3/REV1/en/pdf](https://one.oecd.org/document/GOV/PGC/EGOV(2011)3/REV1/en/pdf).

<sup>14</sup> The state administration's spending excluding insurance funds and municipalities and local government spending. According to System of National Accounts. Available at: <http://unstats.un.org/unsd/nationalaccount/sna.asp>.

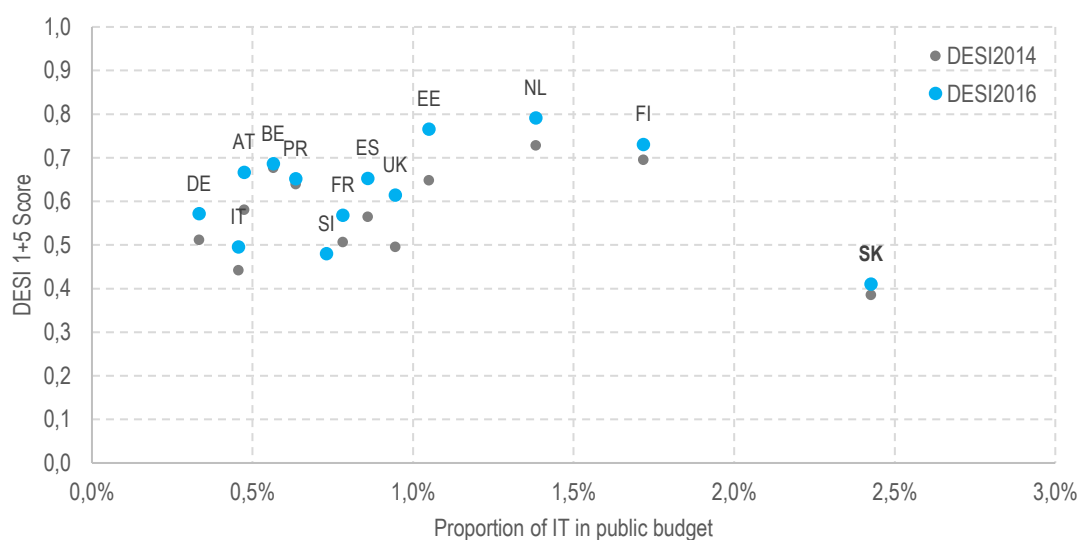
<sup>15</sup> Slovakia's standing has been calculated using the same methodology from data provided by the budgetary information system of 2011, as Slovakia was not included in the initial survey.

### Box 1: Possible explanations of Slovakia's standing compared to DESI1+5 and percentage of budget on IT

The disproportion between the level of spending and the DESI score can result from catching up with technical and historical debt. Expenditures on OP IS in 2010-15 were mostly intended for development of agenda systems (internal use by the state administration), which are not measured by the DESI indicator. DESI is focused on life situations and services intended for citizens; in this area Slovakia just started catching up with other countries.

Additionally, comparability of expenditures can be partly impaired by the fact that approximately a third of the countries involved in the survey reported expenditures for a different year. For overview of countries included in the survey, and the years of the provided data, see Annex 5.

Graph 8: Relationship between DESI1+5<sup>16</sup> and IT budget (DESI 2014 and 2016, 2011 expenditures)

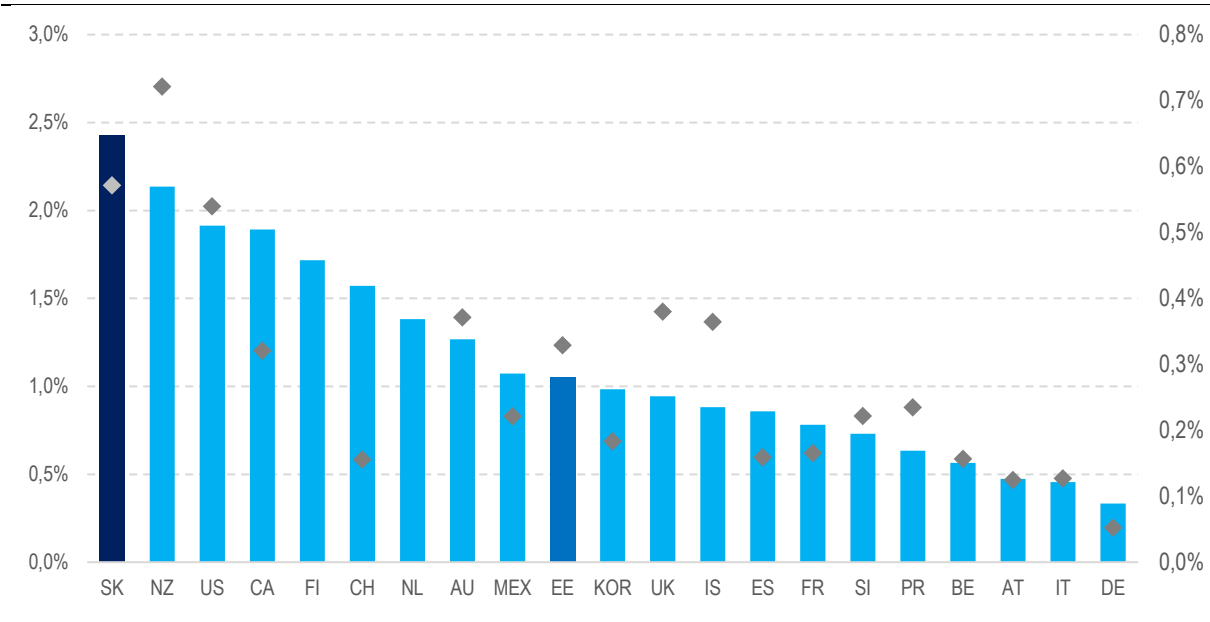


Source: OECD, RIS 2016, European Commission, VřM Unit

Slovakia's ratio of IT spending to GDP amounting to **0.6%** ranked in the survey as the **second highest spending**. New Zealand (0.7%) was the only country whose IT spending, expressed as a percentage of annual GDP, exceeded Slovakia. Estonia with IT spending at 0.3% of GDP, or 1% of the budget, ranked first in DESI (DESI 5) evaluation of digital public services in 2016. More than half of the countries spent 0.2% of GDP or less.

<sup>16</sup> DESI1 weighted average (internet connection) and DESI5 (digital public services).

**Graph 9: Proportion of IT expenditures in the national budget (left axis) and GDP (right axis) 2011 or the latest available year<sup>17</sup>**

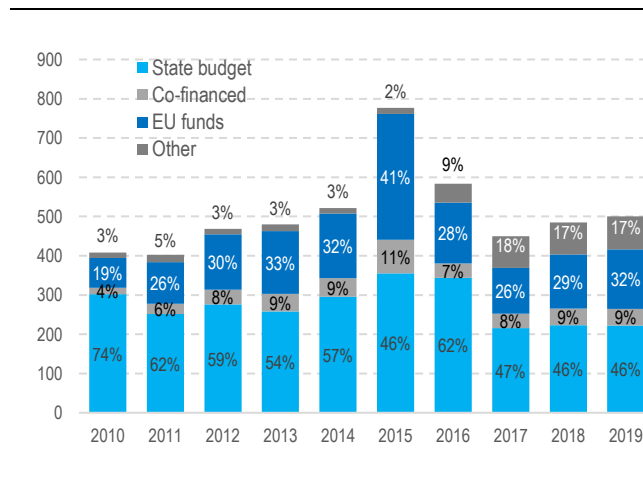


Source: OECD, RIS BI, World Bank, VFM Unit 2016

### Funding Sources

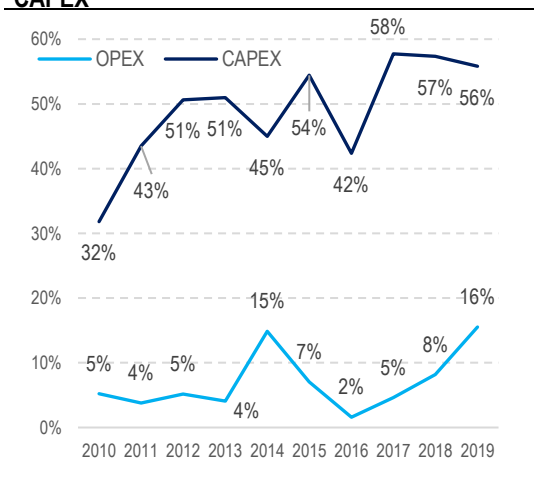
The major IT funding source is the state budget covering approximately 60% of total IT spending. The proportion of EU funds is 30% and by the end of the last programming period the importance of EU funds kept increasing. This trend became clearly apparent during drawdown of EU funds in 2015, when as much as 41% of total IT spending was financed from EU funds. The remaining portion of the expenditures is covered by national co-financing and other funds. **EU funds are primarily directed to capital investments**, and in 2010-2016 EU funds covered, on **average, 46%** of total CAPEX. On the other hand, the percentage of EU funds in OPEX financing was only 6%. In 2017-19, the proportion of EU funds in CAPEX financing is expected to grow by 11 percentage points compared to the 2010-2016 average, to the resulting 57%.

**Graph 10: IT funding sources (in MEUR)**



Source: RIS BI, 2016

**Graph 11: Proportion of EU funds in OPEX and CAPEX**



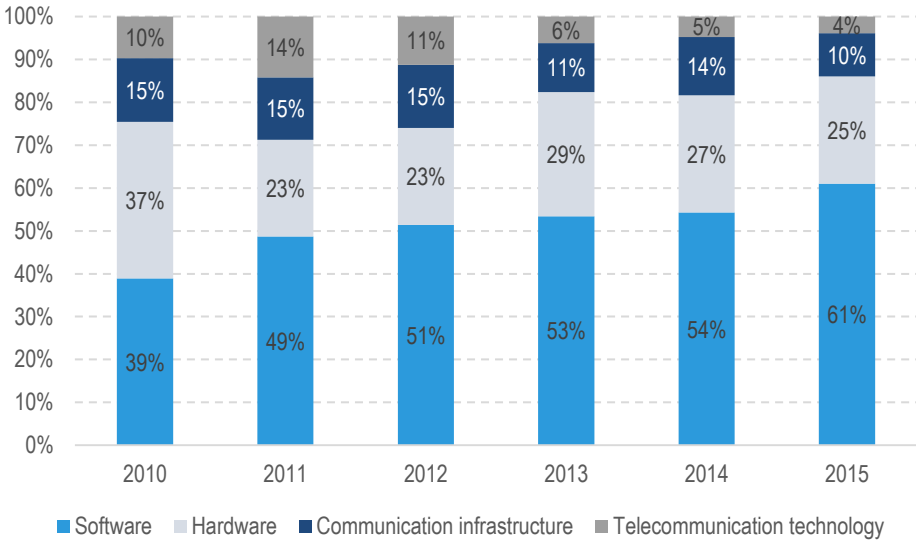
<sup>17</sup> Annex 5.

### Expenditures by Purpose in 2010 - 2015

IT expenditures incurred by individual authorities can be divided into four main categories: *software, hardware, communication infrastructure and telecommunications*<sup>18</sup>.

**The major portion of IT expenditures incurred by the state is spent on software**, including licences and software development and testing works, which, **on average, cover 51% of total spending**. In the period between 2010 – 2015 these expenditures were growing and in 2015 the expenditures on software reached 61%. The proportion of expenditures on hardware in total spending was 27%. Expenditures on communication infrastructure and telecommunications cover, on average, 13% and 8 %, respectively, of total national IT spending.

**Graph 12: Expenditures by purpose in 2010 – 2015**



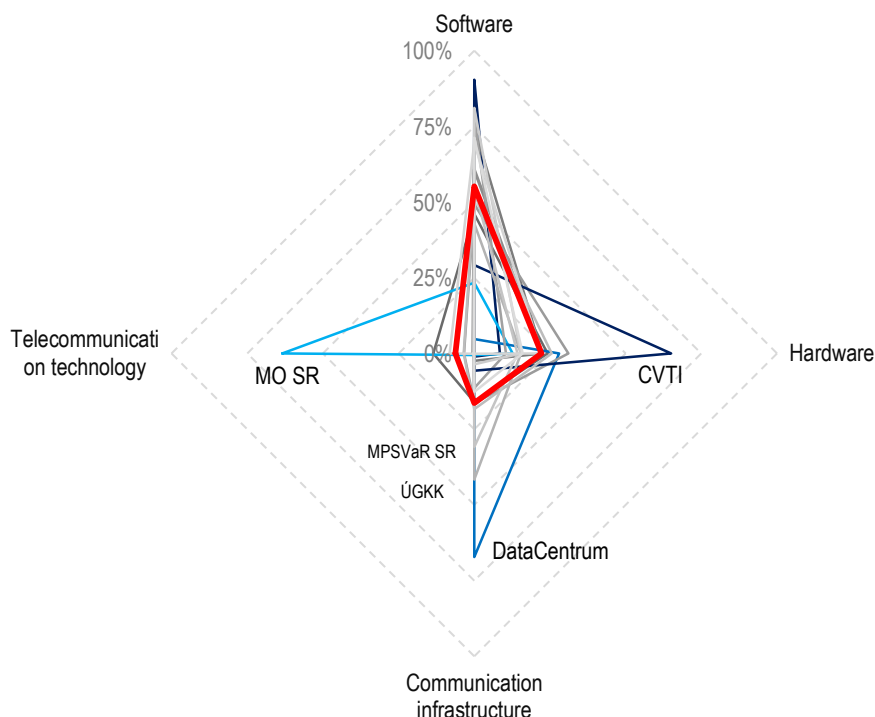
Source: RIS BI, 2016

Graph 13 shows the average division of IT spending into the four categories (thick red line) and the breakdown by individual central government authorities.

**The authorities highlighted in the graph are those which differ the most from the average:** Ministry of Defence spend the most on telecommunications (63%), while the Slovak Centre of Scientific and Technical Information spends the most on hardware (65%). The highest expenditures on communication infrastructure were spent by the DataCentre of the Ministry of Finance (67%).

<sup>18</sup> IT spending is classified into four categories in accordance with the Economic Classification; for detailed breakdown see Annex 1.

**Graph 13: Expenditures of Ministries for IT by economic classifications in 2010-2015**



Source: RIS BI, VřM Unit

The deviations can reflect specialisations of each authority: safe communication is the priority for the Ministry of Defence, a powerful and dedicated hardware is the priority for Slovak Centre of Scientific and Technical Information and infrastructure (connection, networks) is the priority for the DataCentre.

The Geodesy, Cartography and Cadastre Authority of the Slovak Republic and the Office of the Ministry of Labour, Social Affairs and Family of the Slovak Republic also have an above-average expenditures on communication infrastructure - 42% and 31%, respectively. For these two authorities, there are no obvious reasons why their communication infrastructure expenditures should exceed the standard level.

However, such comparison has a limited informative value. A better comparison requires a more detailed classification of expenditures and identification of relevant reference groups for institutions considering the manner of using IT.

- **Task: Analyse state institutions' IT expenditures structure.**
- **Task: Design data collection purposed for IT operational expenses benchmarking.**

## 4.2 Better Data Collection

**Collection of IT spending data will be improved by development of standardized departmental budget sub-programmes with information systems on the level of budgetary elements.** Development of the inter-departmental budget programme is a considerable improvement compared to 2010-2016, as it enabled a more precise monitoring of IT expenditures than the economic classification. On the other hand, keeping expenditure records under a separate interdepartmental budget programme distorts international comparability of spending in accordance with the Classification of the Functions of Government (COFOG). This problem can be eliminated by development of standardised departmental sub-programmes in combination with analytical accounts, using the approach applied in CAPEX projects register (e.g. meta-IS), which would enable monitoring of additional expenditures and systems performance (utilisation) data.

**The short-term goal for 2017 will be to classify all IT expenditures, as precisely as possible, under the inter-departmental budget programme<sup>19</sup> with gradual transfer of the expenditures into standardized sub-programs in 2018 and, to use the analytical accounts for monitoring of human resources costs incurred by the systems.**

### Box 2: Absence of a binding method and impact on the OP II

**Considering the non-existence of methodology for total cost of ownership<sup>20</sup> and absence of historical data, we believe that there will be a problem with future evaluation of the targeted savings in expenditures on information systems. In our opinion, the measurable OP II indicator to decrease, by 2020, total cost of ownership of national IT by 10% compared to 2012 cannot be quantified without expenditures recorded at the systems level, or without keeping records of HR expenditures in IT. It may be extremely difficult to quantify historical cost.**

Nowadays, the obligation to calculate total cost of ownership is a paper exercise with an unclear methodology<sup>21</sup>, mostly for projects financed from EU funds. There has never been a unified methodology for calculation of total costs in the Operational Programme Informatisation of Society, which resulted in a situation when the Ministry of Interior calculated total cost including HR costs for employees using the systems. Other beneficiaries did not do it that way.

Thus we are unable to compare existing estimates of total cost of ownership to one another and the information systems financed from the state budget do not keep any records of cost of ownership. **The Deputy Prime Minister's Office for Investments and Informatisation should provide a detailed specification of a unified methodology for cost of ownership calculation for the needs of OP II and the state budget, in particular in respect of HR costs, and then ensure implementation of the methodology and enforcement of the obligation to keep records of the data in metaIS.**

- **Task: Analyse uncategorised expenditures on IT in the interdepartmental programme.**
- **Task: In the economic classification, separate telecommunication services from postal services, which are now presented jointly under the economic sub-item Postal and Telecommunication Services.**
- **Task: Design data collection in departmental sub-programmes with ISVS Register.**

<sup>19</sup> See Annex 1 for detailed discussion about classification of IT expenditures in the budget

<sup>20</sup> CAPEX and OPEX on information systems over their useful lives (for IT 5 years after placed into service).

<sup>21</sup> Methodological instruction for standard details in describing the subject matter of contract, standard terms and conditions of participation in public procurement and optimum contractual terms and conditions in relation to IT projects. Available online at: [http://www.informatizacia.sk/ext\\_dok-metodicky\\_pokyn\\_std\\_obstaravanie\\_1-0/15176c](http://www.informatizacia.sk/ext_dok-metodicky_pokyn_std_obstaravanie_1-0/15176c).

## 5 Project Management and Investment Selection

### 5.1 Strategic Planning and Project Management

**Existence of a strategic framework** identifying priorities in investments, defining relations and priorities of possible interventions **is a prerequisite to development of eGovernment, including the infrastructure and information systems.** Presently there is no such **public reservoir/pipeline of projects**<sup>22</sup> in Slovakia. The National eGovernment Concept<sup>23</sup> is a potential framework for such plan.

**Development of a reasonable reservoir/pipeline of projects is a prerequisite to assessment of spending irrespective of formal source of funding.** A high-quality pipeline of projects prioritizes projects based on benefits towards meeting the existing goals, costs of the project and complexity of implementation. Thus, it necessarily compares various projects. The best investment can only be selected by mutual assessment. The pipeline of projects will be created and published.

Effective fulfilment of the plan also depends on proper setup of the governance of public sector informatization, which is understood as establishing rules, designing solutions, implementation, enforcement and controls. Presently these responsibilities are split between at least six players<sup>24</sup>.

- **Task: Create and publish reservoir/pipeline of projects.**
- **Task: Design a management concept for digitization.**
- **Task: Create a status report on public ICT.**

The Deputy Prime Minister's Office for Investments and Informatisation shall also consider centralization of tasks in institutions and creation of sufficient internal capacities to bear exclusive responsibility for their respective functional areas, e.g.:

- architecture and standards of the national IT,
- operation of the supporting physical infrastructure,
- operation of the supporting application infrastructure,
- security,
- monitoring, quality and coordination control and enforcement of performance.

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<sup>22</sup> Identified similarly to Strategic Priorities <http://www.informatizacia.sk/suvisiace-dokumenty/22701s>.

<sup>23</sup> Approved on 28.9.2016. Document available online at: <http://www.rokovania.sk/Rokovanie.aspx/BodRokovaniaDetail?idMaterial=25951>.

<sup>24</sup> E.g.: <http://www.itapa.sk/6040-sk/zmeny-v-riadeni-egovernmentu/>.



### Box 3: Comparison between declared costs and benefits of OP IS projects

The project added value can be measured as a ratio between total benefits of the project (NPV) to total costs (TCO) over the lifespan of the project:

$$\text{Added value} = 1 + \frac{NPV}{TCO}$$

Projects with negative NPV (added value lower than 1) shall not be approved. If added value equals 1, it means that every EUR 1 invested returns a value of EUR 1. Projects with added value equal to 2 generate benefits which are double the amount of costs.

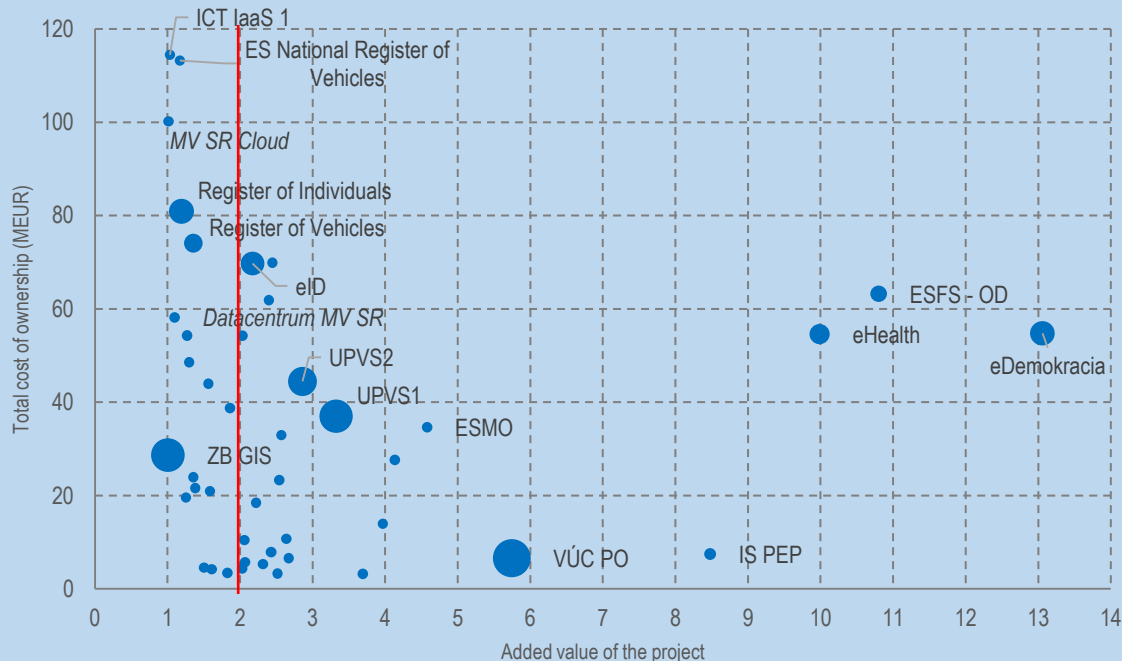
**In OP IS, we identified 16 projects, which, pursuant to the project documentation are expected to return less than EUR 2 for every EUR 1 of costs<sup>25</sup>.** This group includes cloud projects of the Slovak Ministry of Interior under OP II. Net benefit of those projects is positive, however, with limited amount of financial funds, priority should be given to projects with higher added value (under OP IS e.g. IS PEP, ESMO or IOM).

Under the existing metrics, in case of projects with equal costs, priority should be given to the one with higher rate of return. In the reservoir/pipeline of projects, multiple-return projects should be prioritised over projects generating social benefits at a relatively more expensive rate.

Moreover, expensive projects do not always bring higher benefits per 1 euro invested. The declared added value (benefit per 1 euro invested) is falling with higher expenditures of OPIS and OP II projects implemented to-date. On the other hand, the increasing amount of investments was associated with higher probability of correction.

#### Graph 14: Relationship of total cost of project ownership and the NPV of OP IS and OP II projects

The size of the points illustrates % correction of funds by the European Commission



Source: TCO calculation for OP IS projects, SORO OP IS, CKO

<sup>25</sup> For list of all OP IS projects, with acronyms thereof and the amount of grant and correction rate see Annex 6.

## 5.2 Internal Resources: Readiness to Manage Projects

There is almost no information available about internal human resources involved in national IT. The only available source is the itSMF survey indicating poor professional competence of managerial staff in national IT<sup>26</sup>.

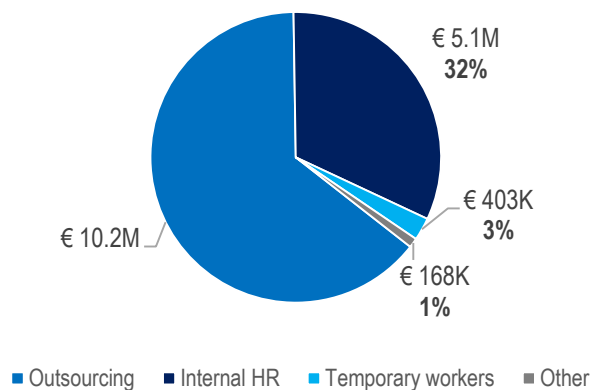
The necessity of good-quality internal resources is also confirmed by the experience from OP IS projects management and design. In two thirds of projects (EUR 10 mil. from total amount of EUR 16 mil.) the state outsourced the liability for management to external suppliers – and the high percentage of outsourced management pushed up the rate of EU corrections. Analysis and functional specification of projects totalling EUR 121 mil. were also almost completely the responsibility of the external suppliers.

### Project Management

The Operational Programme Information Society (OP IS) facilitated drawdown of funds for project management. It enabled refund of internal wage costs, external services and compensation paid to temporary workers. Total amount earmarked for management was EUR 16 mil., which was approximately 2% of all OP IS project budgets.

Analysis of final project budgets<sup>27</sup> shows that **64% of expenditures (EUR 10 mil.) for project management in the first priority axis of OP IS projects were intended for external services**. Only one third of expenditures were spent for internal management of projects. For the EUR 10 mil. spent for external services, the **OP IS projects could have been managed for 5 years by at least 34 internal IT managers<sup>28</sup>** and resources could have been developed for further projects.

**Graph 15: Types of expenditures on OP IS project management**



Source: Final budgets of OP IS projects, calculation of the VfM Unit, 2016

**From among 56 completed projects, in 23 projects (in the amount exceeding EUR 260 mil.) management was fully outsourced and in another 13 projects (at EUR 242 mil.) the scope of outsourced management was above half.** Those projects include almost all key systems of Slovak eGovernment, eID and *slovensko.sk*, fundamental registers and central registration office.

**Projects under outsourced management were corrected twice as much as internally managed projects.** Corrections of the European Commissions on those 36 projects cover 90% (EUR 38 mil.) of all corrections of OP

<sup>26</sup> itSMF Slovakia, Assessment of IT operation management at central government authorities, available at [http://www.itsmf.sk/files/documents/front/benchmarking/itsmfassessmentreport\\_final.pdf](http://www.itsmf.sk/files/documents/front/benchmarking/itsmfassessmentreport_final.pdf)

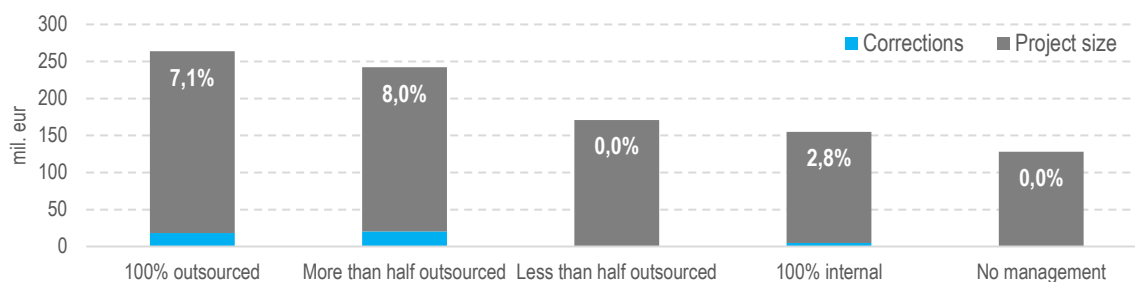
<sup>27</sup> Data from SORO OPIS. Calculated based on declared expenditures, as, at the time of the analysis, not all requests for payment have been closed and thus the funds drawing data were incomplete.

<sup>28</sup> Assuming total monthly labour cost of EUR 5,000 (net salary: EUR 2,570) EUR 10 mil. would pay 169 man-years of work.

IS projects. Compared to the size of the projects, the corrections amounted to 7.5%. Internally managed projects have been corrected by EUR 4.3 mil., which is 2.8% of total amount of the projects.

Under Operational Programme Integrated Infrastructure (OPII), the amount that can be spent for project management is up to EUR 56 mil.<sup>29</sup>, which can also be used for internal wage costs. **We recommend that upon assessment of project proposals, preference is given to project management carried out by internal resources and this requirement is communicated to applicants.**

**Graph 16: Corrections of projects in % by the scope of outsourced management**



Source: Final budgets for OP IS projects (project size and management), Government Office of the Slovak Republic (corrections), Calculation by VFM Unit, 2016

### Project Analysis and Design

The necessity of development of key internal competences is also illustrated by analysis and design of processes applied to projects under OP IS, where the state, owing to absence of internal resources, was unable to provide a detailed definition of technical requirements for projects. **In the solutions analysis phase only 0.3% of total amount of the spent EUR 121 mil. were used for wages of internal civil servants.**

**Half of that amount would pay 134 generously compensated IT civil servants over five years.** Those resources could be used not only for development of functional specification, delivery of the work under the specification but also in placing the deliverables in routine operation, which would considerably improve the estimate of necessary financial funds for operation during the entire sustainability period.

**Table 2: Number of internal employees for a half of expenditures on analysis and design**

Total monthly labour cost	Man-month	Man-year	Employees for 5 years
EUR 5,000	12 086	1 007	201
EUR 7,500	8 058	671	134
EUR 10,000	6 043	504	101
<b>Total budget for wages</b>			<b>EUR 60 mil.</b>

Source: VFM Unit.

**Lack of internal resources** for specification of required functionalities and systems integration in OP IS projects resulted in joint procurement of analysis and solution delivery. The state was choosing winning tenderers without a detailed specification of applied technologies, involved functions and integrations of the supplied system<sup>30</sup>. Thus, the external suppliers took responsibility for the documentation and for implementation. The activities were monitored by the state.

<sup>29</sup> Under the "Guideline of Expenditure Eligibility for the Priority Axis 7 – Information Society, Operational Programme Integrated Infrastructure", page 34., indirect expenditures (i.e., also management) shall not exceed 7% of eligible expenditures. 7 % of total allocations to OP II (EUR 806 mil.) is EUR 56 mil. Available online at: <http://www.informatizacia.sk/prirucky/22107s>.

<sup>30</sup> An equivalent of such approach upon construction of a building would be procurement of building works without having a clear architectural design, solely based on description of requirements to be met by the building (office building for 500 employees with meeting rooms).

### 5.3 How to Find a Good Project –CBA Method

Upon selection of investments, it is necessary to identify projects generating the highest value for money. **The investment to be chosen by the state, shall be advisable by itself, and, at the same time, it shall be preferable compared to other options.** Therefore, evaluation of economic and social benefits generated by IT projects shall be based on a reasonable and reliable analysis and selection methodology, which shall be applied to all proposed investments, whether financed from EU structural funds or from the state budget.

As a rule, cost-benefit analysis (CBA)<sup>31</sup> starts by *description of goals*, and/or reasons why we want to implement the project. That is followed by identification of *alternative solutions*, including sustaining the status quo. Then, financial calculations are made for several realistic alternatives, to quantify all monetary and non-monetary *costs and benefits*. Those can be *financial* (monetary expenditures and income and/or savings) as well as *economic*, and/or social benefits (time saving, health, or e.g., environmental effects).

The alternatives then can be compared with one another after reflecting time impatience<sup>32</sup>. The alternatives are compared based on *net present value (NPV)*, which is the sum of all benefits and costs of the proposed solution for the defined time horizon (10 years). The sum does not reflect the time needed to wait for the benefits and/or costs. NPV then can be used as the basis for an impartial conclusion as to which of the proposed solutions brings the highest value for money.

**The purpose of this chapter is to identify areas for improvement of the existing CBA methodology for Operational Programme Integrated Infrastructure<sup>33</sup>, to increase the probability of choosing the best possible solution for the problem.**

- **Task: CBA methodology update for OP II (Priority Axis 7).**
- **Task: Create a sensitivity analysis calculator.**
- **Task: Unify evaluation rules for investments from national budget and EU sources.**
- **Task: Cost-benefit analysis of all future IT projects over EUR 10 mil.**

#### Project objectives

- **Clearly defined and measurable goals to be achieved by the project**

Every analysis of economic benefits and costs shall be based on *clearly defined objectives*, and/or issues to be resolved by the proposed project. The issues to be resolved must be social issues with direct impact on citizens or on efficient operation of the state administration, and, at the same time, shall be measurable and traceable in time.

**The purpose is not the solution or the tool itself.** Building a government cloud is not the proper goal, it is the tool for achieving other goals, such as improving efficiency of expenses for operation of state information systems. Some of the goals are described among result indicators in OP II<sup>34</sup>.

Another purpose of the analysis is to estimate the impact of the solution on the defined goals. That means quantification of the change in the described metrics after implementation of the project. **The present methodology imposes the obligation to specify the part of the Priority Axis referring to the project; however, it does not**

<sup>31</sup> See e.g. European Commission's Guide to CBA, available at:

[http://ec.europa.eu/regional\\_policy/sources/docgener/studies/pdf/cba\\_guide.pdf](http://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/cba_guide.pdf), or the Handbook of CBA issued by the Australian Government, available at [https://www.finance.gov.au/sites/default/files/Handbook\\_of\\_CB\\_analysis.pdf](https://www.finance.gov.au/sites/default/files/Handbook_of_CB_analysis.pdf).

<sup>32</sup> Time discounting of cash flows, to reflect other options of adding value to investments and preference given to immediate benefits.

<sup>33</sup> *Methodological guide to preparation of financial analysis of the project, cost-benefit analysis of the project, financial analysis of the applicant for grant and TCO in programming period 2014-2020*, available at <http://www.informatizacia.sk/prirucky/22107s>.

<sup>34</sup> Operational programme Integrated infrastructure, p. 86 – 101, available at: <http://www.telecom.gov.sk/index/index.php?ids=169044>.

**require quantification of the benefit for result indicators of specific goals of the operational programme<sup>35</sup>.** We recommend that the benefit is quantified.

### Example

The Ministry of Interior's Cloud<sup>36</sup>, is a project, the purpose of which is to improve efficiency of operation of the state information systems; it reflects one of OP II priorities – reduction of total expenditures on information systems by 10%<sup>37</sup>. The analysis, however, does not give a clear answer as to which part of the savings is attributable to implementation of the project.

### Alternative Solutions

#### ➤ **Description of all possible options and clear criteria for inclusion or exclusion of an option into CBA**

Under the present OP II methodology, before approval of the project it is necessary to prove, through economic analysis, that the proposed solution brings a higher value (NPV) than the status quo<sup>38</sup>. Although the status quo test is necessary, it is not a sufficient method to find a better value for money. **In contract with the existing methodology, which does not exclude quantification of more than two alternatives, we prefer doing it always when possible.**

Besides the possibility to retain the status quo, another IT option is to use and expand the existing functional information systems of the state as the alternative plan to building a new information system. Early exclusion of alternative scenarios may lead to a sub-optimal decision.

We recommend that after clear objectives are defined, the following step should be to *describe all possible alternatives*, to achieving the objectives. After identifying the widest possible list of realistic alternatives, it is necessary to select *several representative scenarios*, benefits and costs of which will be calculated. **However, in contract to the present methodology, we need to have in place exact criteria as to the right and reason to dismiss an option as impracticable, and/or improper for further comparison.**

A multi-criteria analysis should determine which of potential alternatives will be subject to evaluation<sup>39</sup>. The criteria define various required properties of the solutions and the weight assigned to each of the properties for final evaluation. Then, we observe how each of the alternatives contribute to meeting the criteria and the number of considered alternatives is reduced. CBA is then prepared for the two or three alternatives achieving the best scores in multicriteria analysis.

### Example

In case of the Ministry of Interior's Cloud, we identified three alternatives (as described in the table below), however, the B alternative has not been considered. It is because the B alternative has been assessed *without a financial analysis* as non-prospective and unattractive from economic point of view. These conclusions cannot be verified, as CBA of this alternative has not been calculated. Thus, total costs and benefits have been quantified only for retaining the status quo and the proposed Government Cloud project. Thus, we are unable to reliably conclude that the selected alternative was the best solution to the problem.

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<sup>35</sup> *Guidelines for Grant Applicants – phased projects, version 4.0*, p. 13, available at [http://www.informatizacia.sk/ext\\_dok-ppzfpf\\_verzia\\_40/22946c](http://www.informatizacia.sk/ext_dok-ppzfpf_verzia_40/22946c).

<sup>36</sup> Feasibility study, Cloud of the Ministry of Interior, 2016 available online: <http://www.informatizacia.sk/archiv/22110s>.

<sup>37</sup> *Streamlining the operation of information systems*.

<sup>38</sup> *Methodological guide to preparation of financial analysis of the project, cost-benefit analysis of the project, financial analysis of the applicant for grant and TCO in programming period 2014-2020*, p. 4, available at <http://www.informatizacia.sk/prirucky/22107s>.

<sup>39</sup> See e.g., *Multi-criteria analysis: a manual*, London School of Economics for multi-criteria analysis in evaluation of policies. Available online at [http://eprints.lse.ac.uk/12761/1/Multi-criteria\\_Analysis.pdf](http://eprints.lse.ac.uk/12761/1/Multi-criteria_Analysis.pdf).

**Table 3: Project alternatives in the feasibility study and CBA**

Identified alternatives	Description of alternatives	CBA-assessed alternatives
Alternative A	“Conservative”, proposes retaining the status quo. Under this alternative, departments would administer ICT separately.	Assessed, the project will not be implemented.
Alternative B	“Hybrid solution”, means retaining the status quo for individual state administration authorities, and, at the same time, building a common backup data centre in a remote location.	Not considered.
Alternative C	“Cloud solution”, assumes building a cloud in the Datacentre of the Ministry of Interior of the Slovak Republic.	Assessed, the project will be implemented.

Source: *Feasibility Study of the Ministry of Interior’s Cloud*

### Quantification of Qualitative Benefits

#### ➤ Transparent quantification of qualitative benefits relevant to the project objective

After selection of alternatives to be compared through CBA, *benefits and costs shall be quantified for all scenarios*. Benefits can be either quantitative or qualitative. *Quantitative benefits* are, e.g., income from fees for services, or financial saving compared to the present situation. *Qualitative benefits* include non-financial benefits, such as time saving for citizens and/or civil servants, or higher security of personal data. Qualitative benefits are also quantified for the purpose of the project. E.g., time savings are measured at average hourly rate in the economy, as the time saved by commuting or by waiting at offices can be used for labour or other productive activities<sup>40</sup>.

**The key prerequisite is a transparent transfer of qualitative benefits into monetary quantification.** This particularly applies to projects where qualitative benefits form a significant part of benefits, as is the case with IT projects. In such cases, the author of the analysis shall describe the assumptions underlying the calculation, and the reasons why the assumptions were chosen. **Under the present methodology, it is necessary to submit the list of assumptions, however, there is no obligation to provide any reasoning thereto.**

Some of the assumptions have been determined under the present methodology (time value, material costs for filing), however, majority of assumptions underlying use of services and time savings are based on author’s estimates<sup>41</sup>. Therefore, it is not always correct to compare financial value of such benefits between projects. Moreover, poor documentation is a breeding ground for purpose-made assumptions, aiming to end up with a positive net present value of the project.

### Sensitivity Analysis

#### ➤ Use sensitivity analysis in search for ROI break-even points and test several changes at a time

Calculation of costs and benefits for each alternative is necessarily associated with certain assumptions and estimates. We estimate certain level of expansion and utilisation of a new service or the promptness at which people start using the service. We estimate financial value of time, time savings and the discount rate<sup>42</sup>. The outcome of the analysis is strongly dependent on values of those parameters.

Therefore, for calculation of uncertainty and stability of conclusions, it is necessary to test the results by sensitivity analysis. Sensitivity analysis changes values of parameters and monitors changes in the present value for all

<sup>40</sup> See e.g. *THE GREEN BOOK, Appraisal and Evaluation in Central Government*, Handbook of UK government for rating of investments and policies, p. 59-60, available at: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/220541/green\\_book\\_complete.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220541/green_book_complete.pdf).

<sup>41</sup> *Methodological guide to preparation of financial analysis of the project, cost-benefit analysis of the project, financial analysis of the applicant for grant and TCO in programming period 2014-2020*, p. 9-13, available at <http://www.informatizacia.sk/prirucky/22107s>.

<sup>42</sup> Rate reflecting social preferences for immediate benefits and other possibilities to add value to the investment.

alternatives. Thus, the *break-even point* is calculated for each parameter, i.e., the parameter value at which the net present value is zero. Thus, it is possible to calculate the risk of the project, i.e., to what extent the value for money of the project depends, for example, on the utilisation of the service.

The key parameters, which are advisable for testing, include the discount rate, time value, assumed utilisation of the service, assumed time saving, lifespan of the project and total values of benefits and costs.

**The present OP II methodology for sensitivity analysis requires testing parameters which, after being changed by 1%, change the value of the project by more than one percent<sup>43</sup>. Each of the parameters is tested separately. More beneficial in analytical point of view is to find the break-even point – to identify the terms under which the project is no longer worth implementing.**

As, in the real world, parameters seldom change separately, this analysis should also include a test with several variables changed at a time.

### Example

For the Ministry of Interior's Cloud, analysed were the following parameters with changes at -300%, -60%, -40%, -1%, 0%, 1%, 40%, 60%, 200%. The feasibility study does not provide any reasoning as to selection of the amounts and we are not aware of any methodology supporting selection of such amounts.

**Table 4: Results of the Ministry of Interior's Cloud sensitivity analysis (NPV in MEUR)**

Parameter	-1 %	+1 %	-300 %	+200 %
Number of provided cloud services	6.3	6.6	-35.9	34.6
Amount of the indicative fee	6.3	6.6	-35.9	34.6
Time of establishing the provided service	6.4	6.4	6.4	6.4
Number of employees necessary to establish the service	6.4	6.4	6.4	6.4
Qualitative benefits	6.4	6.4	6.4	6.4

Source: Feasibility study of the Ministry of Interior's Cloud

Sensitivity analysis calculated this way does not identify actual risks of the project and does not show under which conditions the project is not worth implementing. The tested parameters did not have any impact on benefits or costs of the project (service establishment time, number of employees needed and qualitative benefits). Moreover, no break-even point (when total economic net present value equals zero) was found for two parameters with direct impact on benefits and costs of the project (number of services provided and amount of fee) and no interconnection was found between the two variables (both the number of services provided and the amount of fee decreasing by e.g. 40%). Additionally, the outcome has not been tested for sensitivity to changes in discount rate.

The analysis completed in accordance with our recommendations would end up with the following results: If the number of provided services drops by less than a half (46%), the project will no longer be worthwhile. The same applies to the indicative amount of the fee. If both parameters are decreasing concurrently, the analysis could show that the project becomes no longer worthwhile if both the number of provided services and the amount of the fee drop by a quarter compared to the plan (26%).

<sup>43</sup> Methodological guide to preparation of financial analysis of the project, cost-benefit analysis of the project, financial analysis of the applicant for grant and TCO in programming period 2014-2020, p. 5, available at <http://www.informatizacia.sk/prirucky/22107s>.

## Updates for Changes

- **Obligation to revise CBA in case of material changes to the project**

**The practices under OP IS or OP II do not require updates of the analysis, not even with material changes resulting in application for amendment of the project – e.g. as to the scope of activities. Without such analysis, we are unable to conclude as to whether the initially planned costs and benefits of the project are attainable after postponement of implementation, changing the scope of the project or amendment of the budget.**

Therefore, we recommend imposing an obligation to carry out a repeated CBA for each material change of the budget or upon change of the scope of activities.

## Verifiability of Data

- **Disclosing sources, calculations and assumptions underlying all data**

All input data, estimates and calculations entering the analysis should come from reliable and, ideally, from standardised sources. It means that expert estimates should describe the method of calculation including the underlying assumptions. The analysis should always include a reference to data sources.

**It is presently not the case and analyses do not provide detailed identification of sources or references.** Therefore, the data cannot be verified. Sources and references shall be described in a way allowing the readers who have no access to internal documents, to assess the analysis and/or to check up the calculation.

### Example

The outcome of the analysis for the unrealised project of electronic health insurance cards was that qualitative benefits would cover 42 % of total savings in electronic health services<sup>44</sup>. From the second year onwards, the savings should have been almost EUR 25 mil. per annum. The analysis did not provide any explanation as to the calculation or expert assumption underlying the calculation of the savings.

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<sup>44</sup> *Electronic health insurance card. Study focused on services of agenda information systems.* Available online at [http://www.informatizacia.sk/vdok\\_simple-elektronicky-preukaz-poistenca/610s20334c](http://www.informatizacia.sk/vdok_simple-elektronicky-preukaz-poistenca/610s20334c).



#### Box 4: Risks of too early procurement

**A well-established and foreseeable process improves overall effectiveness of project management. Before tender notice is published, grant applications should be approved for all projects financed from EU funds. Nevertheless, public procurement procedures are pending for five not approved projects totalling EUR 115 mil. (Table 5).**

**In terms of selection of investments financed from EU funds, early procurement poses three types of risk.** Firstly, at the moment of tender notice, the applicant's funding is uncertain and if the project is not approved for funding, the public procurement will have to be cancelled or the burden of the investment will pass to the state budget. Secondly, when assessing the project, the managing authority will be under pressure owing to the published tender notice. Thirdly, specification of the solution approved by the managing authority may differ from the public procurement documentation, and that may be a reason for the managing authority to refuse funding for the investment<sup>45</sup>.

**An example of bad practice are public tenders totalling EUR 216 mil. for projects which have not been approved, however,** pursuant to the Journal of Public Procurement, they relied on funding from OP II (Table 5). The risk of sunk costs owing to rejection of the project is demonstrated by four National Health Information Centre tenders for the project of electronic health insurance cards (ePP)<sup>46</sup>, and the risk of pressure on approving the project is demonstrated by the discontinued public procurement for information system of the Social Insurance Company of 2013, which apparently does not comply with the rules of the new operational programme.

**The Deputy Prime Minister's Office for Investments and Informatisation will establish a requirement in the management documentation for OP II projects, that tender notice may only be published after grant applications, or at least feasibility studies, are approved.** This principle should apply accordingly to projects financed from the state budget in accordance with tasks under Art. 5.3 above. Methodological guidelines should encourage and measure competitiveness in public tenders and exert pressure on prices<sup>47</sup>.

**Table 5: Public tenders relying on funding from OP II (in MEUR)**

Project	Client	Tender date	notice date	Status of tenders	public	OP II status	Amount
Integrated information system of the Social Insurance Company	Social Insurance Company	4.4.2013		Winning tender selected		Reform submitted	71
Construction Information System (ISV)	Ministry of Transport, Construction and Regional Development	5.8.2015		Public tender in progress		No reform plan	45
Electronic services of the State Housing Development Fund	State Housing Development Fund	6.7.2015		Public tender in progress		No reform plan	10
Apartment Register IS RB	Ministry of Transport, Construction and Regional Development	27.8.2015		Public tender in progress		No reform plan	7
Comprehensive IS for involving SME in assessment of effects of regulations	Slovak Business Agency	23.6.2015		Public tender in progress		No reform plan	5
Atlas of Passive Infrastructure	Ministry of Transport, Construction and Regional Development	20.8.2015		Public tender in progress		Not approved	48
Information system for Electronic Health Insurance Card	National Health Information Centre	29.4.2015		Winning tender selected		Cancelled	12
Electronic Health Insurance Card (ePP)	National Health Information Centre	30.10.2015		Public tender cancelled		Cancelled	18

<sup>45</sup> Directive No. 25/2015, issuing the public procurement manual: Operational Programme Integrated Infrastructure 2014-2020. Available online at <http://www.telecom.gov.sk/index/index.php?ids=183641>.

<sup>46</sup> The ePP project was cancelled. The Ministry of Health SR counts on using eIDs. See press release of the Ministry of Health SR of 26.9.2016: <http://www.teraz.sk/slovensko/mz-sr-elektronicke-preukazy-poistencov/219522-clanok.html>.

<sup>47</sup> E.g. The project of ICT purchases under the National eGovernment Concept.

Project	Client	Tender date	notice	Status of public tenders	OP II status	Amount
Reader of ePP cards	NCZI	25.11.2015		Public tender cancelled	Cancelled	2
Hardware for pre-production and production environment for IS ePP	NCZI	3.12.2015		Public tender cancelled	Cancelled	

Source: Public Procurement Office

The risk of early publication of tender notice is also indicated by experience gained from OPIS projects. Corrections in three from among all nine projects, where tender notices were published before obtaining approvals, equalled 37% of all corrections under that operational programme (MEUR 17).

**Table 6: OP IS projects with tender announced before non-repayable assistance approval**

Project	Client	Invitation to tender	Tender notice	Grant approved	Outcome of the public tender	EC correction
ES Katastra	ÚGKK	30.1.2009	27.5.2009	29.6.2009	6.11.2009	25 % (MEUR 7)
IS RFO	MV SR	30.1.2009	11.6.2009	29.6.2009	17.4.2010	14 % (MEUR 2.5)
eID	MV SR	18.6.2009	6.8.2009	11.12.2009	15.7.2010	13 % (MEUR 7)
CEP	MF SR	28.8.2009	10.11.2009	9.3.2010	25.5.2010	-
IS CO	MV SR	17.7.2009	30.12.2009	4.2.2010	2.4.2011	-
IS RPO	ŠÚ SR	25.10.2012	7.2.2013	19.3.2013	11.1.2014	-
JISCD	MDVaRR SR	9.4.2013	14.2.2013	8.8.2013	5.5.2014	-
ESMO	MS SR	16.7.2013	27.6.2013	16.10.2013	16.5.2014	-
ES PPA	PPA	10.7.2013	28.6.2013	9.12.2013	Cancelled	-

Source: Public Procurement Office, Government Office – Central Coordination Authority, Deputy Prime Minister's Office for Investments and Informatisation

## 6 2017 Priorities

The final chapter describes four major areas of eGovernment that require immediate attention to ensure return on the already made investments. These are: 1) *slovensko.sk* including electronic identity cards, required level of security and user-friendliness of services, 2) readiness for usage of electronic mailboxes, 3) usage of the Government cloud and 4) potential savings resulting from centralization of support services including hardware procurement and telecommunication services.

### 6.1 Bottlenecks of Digital Services

**It is estimated that in 2016, Slovakia lost approximately EUR 3.5 mil. for the year from potential time savings<sup>48</sup> owing to underused electronic services. The fact that electronic identity cards cannot be used by third parties results in lost opportunity costs, totalling at least EUR 2 mil. per annum<sup>49</sup>.**

**The first bottleneck to full utilisation of public digital services is the electronic identity card (eID), which is necessary to gain access to the services. Although there are almost 1.7 mil. of the eID holders, only 6% of cards have activated the security features required for full utilisation of the digital services provided by the state.**

Eight out of ten electronic services are not available without an active eID equipped with personal security code (BOK) and the qualified electronic signature (ZEP). Pursuant to data provided by the Ministry of Interior of the Slovak Republic, personal security code (BOK) has been activated by 275 thousand (17%) citizens, although digital signature (ZEP) has been created for only 103 thousand (6%) of them<sup>50</sup>. However, the plan was that in 2016 digital services provided by the state will be used by 1 million citizens<sup>51</sup>. Presently, the services are available to maximum 275 thousand of citizens (27.5% of the planned figure).

**Another potential bottleneck in utilisation of digital services is the inconsistent design and cumbersomeness in usage of services integrates at *slovensko.sk* portal.** As, for many citizens, this is the only encounter with public digital services, it is in the interest of the state that the appearance and practicability of the portal are as transparent as possible.

- **Task: Issue BOK with new eID automatically.**
- **Task: Review the level of security required for electronic services.**
- **Task: Explore alternative ways of identity authentication.**
- **Task: Open eID for business by allowing access to API.**
- **Task: Create a binding user manual for government services.**

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<sup>48</sup> Compared to the development assumed in the CBA in partial feasibility study: Central Government Portal and common modules II, available at: [http://www.opis.gov.sk/data/files/4757\\_upvs-ii.pdf](http://www.opis.gov.sk/data/files/4757_upvs-ii.pdf).

<sup>49</sup> Partial feasibility study: Electronic identity card, available at: [http://www.opis.gov.sk/data/files/2463\\_5518.pdf](http://www.opis.gov.sk/data/files/2463_5518.pdf).

<sup>50</sup> Data as at 31.8.2016. Source: personal communication with the Ministry of Interior of the Slovak Republic.

<sup>51</sup> Partial feasibility study: Central Government Portal and common modules II, available at: [http://www.opis.gov.sk/data/files/4757\\_upvs-ii.pdf](http://www.opis.gov.sk/data/files/4757_upvs-ii.pdf).

## Automatic Activation of eID

**In order to encourage distribution of usable eID, we recommend that personal security code (BOK) necessary for login to *slovensko.sk* portal is automatically activated for every new eID. Implementation of this measure would make it possible to increase the value of electronic services in 2017 by EUR 2.3-2.8 mil.**

One of the reasons explaining low prevalence of personal security code (BOK) and qualified electronic signature (ZEP) is the necessity to explicitly apply for it. Therefore, we recommend considering automatic issuance of personal security codes (BOK) along with new identity cards, similarly to PIN codes automatically issued for bank cards.

According to the plan, in 2017 public digital services should have been used by more than 1.3 million of citizens, which should have resulted in time savings in the amount of EUR 5.9 mil. Every year, more than 600 thousand new identity cards are issued in Slovakia<sup>52</sup>. If, in 2017, personal security code (BOK) is automatically issued to every new identity card, the number of citizens having access to public digital services will increase to 800-900 thousand compared to the former 275 thousand. **Implementation of this measure will create precondition to meeting the existing goal at 60-67% (EUR 3.5 - 4 mil.) compared to the present 21% (EUR 1.2 mil.).**

## Reassessing Security Level of Filings

Presently, **eight out of ten electronic services** provided by the central government **require a qualified electronic signature, which, however, is activated only for 6% of electronic ID cards**<sup>53</sup>. **Using personal security codes as a sufficient authentication would triple the number of potential users.** Moreover, it is not excluded that the required security level will be higher than the present one. For example, qualified electronic signature<sup>54</sup>, is required for filing an electronic application for a parking card for people with disabilities<sup>55</sup> or income tax assignment for the benefit of a non-profit organization, while the present “hardcopy” applications may be sent by mail without official authentication of the signature.

**Another option is to develop a mobile application serving as an equivalent for eID.** In this application, each citizen would prove his/her identity just once – either in person or using his/her eID, and then no other form of authentication would be necessary for using the digital services provided by the state.

We recommend re-assessing the required security level for the existing services to make use of personal security code (BOK) in combination with automatic issuance of BOKs for new eIDs.

## Opening eID and Public Services to Third Parties

Usability of electronic identity card only in contacts with the state limits the incentives for the public to have the eID and the resulting unrealised annual benefits are estimated at EUR 2 mil.<sup>56</sup>. **Therefore, we recommend focusing efforts on increasing attractiveness of eID through prompt opening of eID to third parties for provision of meaningful services.**

One of the reasons potentially explaining the low activation level of eIDs is that, so far, eIDs cannot be used in common commercial contacts requiring verification of identity (signing contracts, safe login to websites). Along with

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<sup>52</sup> Summary statistical overview in the area of eIDs, Ministry of Interior SR. Available online at: <http://www.minv.sk/?statistiky-vo-formate-otvorených-dat-v-posobnosti-mv-sr>.

<sup>53</sup> List of published electronic services is available online at <https://metais.finance.gov.sk/cilist/KS?page=1&count=20&filter%5BglobalSearch%5D=%257B%257D>.

<sup>54</sup> Electronic filing form and procedure to be followed are available online at <https://pfseform.financnasprava.sk/Formulare/eFormVzor/DP/form.354.html> a <https://www.financnasprava.sk/sk/elektronicke-sluzby/autorizovane-sluzby/podania>.

<sup>55</sup> Hardcopy form and the reference to electronic application is available at <https://www.employment.gov.sk/sk/rodina-socialna-pomoc/tazke-zdravotne-postihnutie/parkovaci-preukaz/>.

<sup>56</sup> Pursuant to the feasibility study and CBA analysis of eID. Available online at [http://www.informatizacia.sk/vdok\\_simple-narodny-projekt-elektronicka-identifikacna-karta/610s6180c](http://www.informatizacia.sk/vdok_simple-narodny-projekt-elektronicka-identifikacna-karta/610s6180c).

other public services, third-party services, using open data, could be launched, including digital services for creation of additional applications with added value for the society.

## Binding Design Manual

**Not all services integrated via *slovensko.sk* portal accept the forms and the appearance of *slovensko.sk* portal.** For local governments and for the Ministry of Interior, the portal only serves as a crossroad referring to electronic services offered by those institutions. The usage and appearance of the modules is fully under competence of the respective authorities, which **without clearly defined criteria for services results in an inconsistent appearance and cumbersome usage** (too many steps until the user gets from *slovensko.sk* to sending a form via portal of other institution).

**Development of a unified design manual for all services irrespective of whether integrated under *slovensko.sk* portal or not, could be the solution eliminating the inconsistent appearance and the cumbersomeness of digital public services.** It is advisable to get inspired by principles and manuals applied by the UK central government, with clearly defined visual<sup>57</sup> and user standards<sup>58</sup> for all digital services.

This solution is attainable without the necessity to reform the background processes for the services. The primary goal of this is to provide a unified user experience and support to use of digital services. Additionally, this process should exert pressure on gradual integration into the central portal of digital services and information which is presently not available at *slovensko.sk*.

## 6.2 Usage of Electronic Mailboxes

Electronic mailboxes, a verified e-mail for communication with the state, form another pillar of digital services. The potential of replacing conventional mail communication between citizens and public institutions by e-mails is in faster and cheaper public services. **However, the opportunity of gaining benefits from the electronic mailboxes is compromised owing to lack of readiness of both authorities and citizens and owing to the complicated access to the mailbox.**

**The usage of electronic mailboxes is expected to be subject to two acid tests – the obligation of legal entities and authorities to communicate via the mailbox.** It has been planned that starting from August, after automatic activation of mailboxes for legal entities, the authorities will exclusively communicate electronically<sup>59</sup>. The deadline was postponed to 1 January 2017<sup>60</sup>. At the same time, in November 2016, all authorities will be obliged to communicate electronically, if it is required by the citizen.

**The repeated postponement of the mandatory use of mailboxes by legal entities confirms lack of readiness for the change – on the side of organizations and the state just as well.** As, by the end of August, less than a third of authorities and approximately 7% of legal entities and 1.5% of individuals<sup>61</sup> at least once logged in the mailboxes, **we recommend verifying and encouraging institutions' readiness to at least read the received messages.**

The readiness to use electronic mailboxes can be **encouraged through a targeted and user-friendly communication and education of key groups**, e.g., through video instructions following the Czech initiative [www.jaknainet.cz](http://www.jaknainet.cz).

<sup>57</sup> GOV.UK Elements, available at: <http://govuk-elements.herokuapp.com/>.

<sup>58</sup> Government Service Design Principles a Government Service Design Manual, available at <https://www.gov.uk/design-principles> a <https://www.gov.uk/service-manual>.

<sup>59</sup> Available at: <https://www.slovensko.sk/sk/oznamy/detail/upozornenie-pre-pravnicke-osob>.

<sup>60</sup> Guidance as to the procedure to activation of electronic mailboxes under § 60 par. 10 of the e-Government Act, available at <https://www.vicepremier.gov.sk/index.php/usmernenie-k-postupu-pri-aktivacii-elektronickych-schranok/index.html>.

<sup>61</sup> Number of identities with at least one login available at: <https://data.gov.sk/dataset/upvs-usr-aspon-1-prihlasenie>.

**We recommend improving the chance of reading the messages through pressure on activation of SMS or e-mail notifications** of new messages until users get used to using the mailboxes. The possibility to activate notifications should be offered and recommended upon first login to the mailbox and later on in regular intervals. In order to improve the user comfort, we recommend that advanced users should consider downloading full content of messages from e-mail clients, not only the message headings.

**Finally, usage of electronic mailboxes may be encouraged by exerting pressure on almost exclusive electronic communication in certain state administration agendas which have already been digitalised.** Almost exclusive electronic communication shall mean a situation where a state authority initiates electronic attending to the issue, although it may not be completed electronically.

- **Task: Analyse services that should be prioritised for electronic communication.**

### 6.3 Implementation of the Government Cloud Benefits

**Despite the fact that the state intends to spend more than EUR 270 mil. by 2025 for building and operation of the cloud, there is no binding migration strategy in place and the departmental IT budgets do not make any provision for existence of the migration plan. Already today, resources are utilised below the assumed level. The present level of utilisation of the cloud resources means an imminent loss of the planned benefits in 2017, 2018 and 2019 in the amount of EUR 6.8 mil., EUR 9.1 mil. and EUR 9.7 mil., respectively.**

In 2015, Slovakia started building a government cloud aiming for centralization of data centres and systems. The cloud is to serve as a shared data centre for all state administration authorities, which will not have to invest in purchases and maintenance of their own computer equipment. Additionally, later on, the cloud should centrally provide shared services – e.g., economic or HR system for the entire central government, so that departments do not have to operate the systems themselves.

Until 2025, the state intends to spend more than EUR 270 mil.<sup>62</sup> for construction and operation of the clouds. Pursuant to CBAs, both these projects jointly are expected to bring benefits totalling EUR 11 mil. yearly, mostly through savings in operation of departmental data centres and reductions in budgets of departments involved<sup>63</sup>.

**As yet, however, the benefits of the project are endangered by absence of a migration plan, i.e., by lower than planned utilisation and no reductions to budgets of the involved entities. Low return on the cloud projects leaves room for maximum two-years delay compared to the planned utilisation<sup>64</sup>.** If, in the given year, the cloud does not achieve the minimum threshold utilisation, and/or benefits, the investments in the government cloud is not returned within ten years (graphs 17 and 18).

It is necessary to clarify responsibilities for the migration plan and for allocation of cloud resources by the claimant between the Ministry of Finance of the Slovak Republic and the Deputy Prime Minister's Office for Investments and Informatisation. After the building of the Slovak Ministry of Interior's cloud is completed at the end of October 2016, a third entity sharing the responsibility will join the projects.

So far, the resources are utilised at a lower than planned level, only at 72% of the planned deployment in 2016<sup>65</sup>, which should have been 25% of total resources. According to the initial estimates, in 2017 the cloud of the Ministry of Finance SR is to be utilised at 60% and the Slovak Ministry of Interior's cloud is to be placed in service. Owing

<sup>62</sup> Total cost of ownership of "ICT for IaaS Part 1" projects, „Cloud of the Ministry of Interior“ and „Datacentre of the Ministry of Interior“, SORO OP IS, and/or OP II. For OP II available at <http://www.informatizacia.sk/archiv/22110s>.

<sup>63</sup> Analysis of costs and benefits for "ICT for IaaS Part 1" projects, „Cloud of the Ministry of Interior“ and „Datacentre of the Ministry of Interior“, SORO OP IS, and/or OP II. For OP II available at <http://www.informatizacia.sk/archiv/22110s>.

<sup>64</sup> Calculated by postponing the estimated benefits and the assumed learning curve of the cloud projects. With two-years postponement, both projects of the Ministry of Interior SR end up with a negative net present value. The project of the Ministry of Interior's cloud ends up with a negative net present value after a 1-year postponement.

<sup>65</sup> 18% depending on virtual processors utilisation. Based on the used main storage, it is 4% of resources. Source: MF SR internal materials.

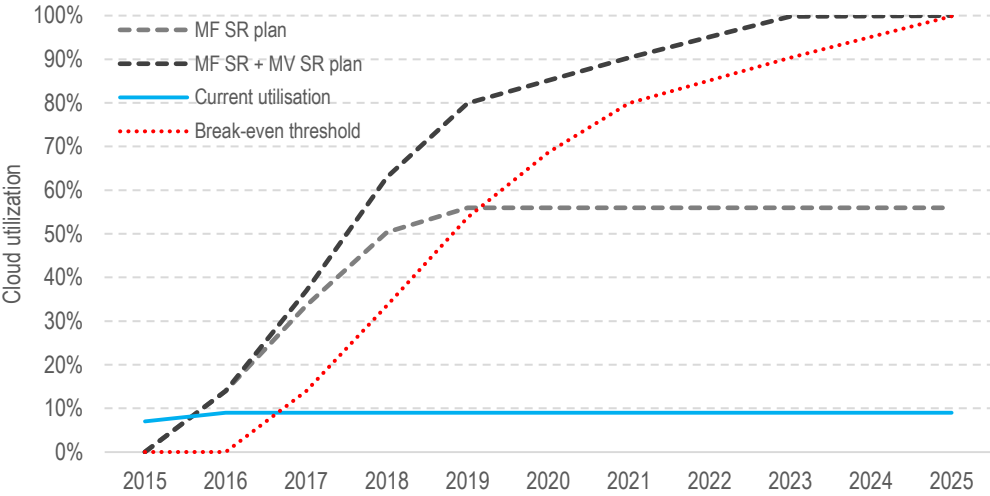
to absence of the migration plan, it is impossible to assess feasibility of the objectives. If the present utilisation rate is retained, in 2017 we will lose potential savings in the amount of around EUR 6.8 mil. (see Graph 17).

**Existence of the cloud is not reflected in IT budget expenditures chapters; presently there is no mechanism to reduce relevant budget chapters by the initial budgets necessary for providing services.** And yet, the project of the Ministry of Interior SR assumes such savings, namely in the amount of around **EUR 3 mil. yearly**<sup>66</sup>.

In terms of value, the key task is to develop a migration plan which would, as a priority, deploy in the cloud systems with high savings potential. Then, it is necessary to establish financial links between utilisation of cloud services and relevant IT budget chapters. A prerequisite to both above-mentioned tasks is to resolve competence issues.

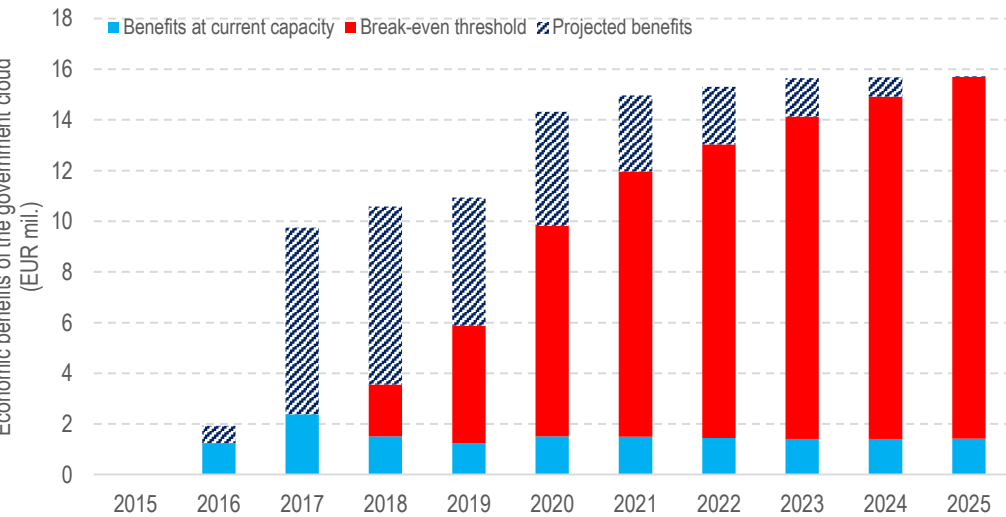
- **Task: Develop a binding cloud migration strategy linked with IT budgets.**

**Graph 17: Planned and actual government cloud utilisation**



Source: CBA for Ministry of Finance SR and Ministry of Interior SR cloud projects, Ministry of Finance SR internal data

**Graph 18: Planned benefits of government cloud with the break-even threshold**



<sup>66</sup> Pursuant to the Ministry of Interior’s cloud projects.

## 6.4 Centralisation of the IT Support Services

**Centralised provision of IT support services is the toll for improving and reduction of IT operating costs. Following the model of shared services centres, all state organisations will be provided with a set of standardised IT operation services.**

Shared services centres are a common practice in IT services in both the commercial sector and the public sector (e.g. Canada, USA, the European Union). They provide their clients with services starting from IT infrastructure to user support or administration of support application. **The economic logic of shared services centres is the specialisation and economies of scale.**

Slovak public IT, so far, do not have a single organisation providing support services, although selected services are provided to several institutions (e.g. DataCentre, government cloud) or purchases are coordinated (licences). Basic services, such as contracts for telephone and data services or purchase and servicing of common computer equipment, are purchased by each institution separately.

The expenditure review recommends consolidation of IT support services into a single organization so that common commodified IT services, such as telecommunication services and connectivity, software licences, technical support or basic software solutions, such as e-mail<sup>67</sup> have been provided to other state institutions on a central basis. In the first step, the expenditure review recommends centralization and optimization of provided telecommunication services, connectivity and licences.

- **Task: Centralise procurement of IT services, such as telecommunications, connectivity and licences.**

### Potential Savings in Common Provision of Telecommunication and Communication Services

**Preliminary estimates show that optimised utilisation of telecommunication services can save EUR 4-12 mil. (10-30%) yearly out of total EUR 40 mil.<sup>68</sup>** The past experience shows that voice and mobile contracts are not actively managed by the chapters and the chapters neither monitor utilisation nor optimise operation thereof. In communication infrastructure (internet connection), similar savings would bring EUR 5-15 mil. yearly. Nevertheless, expenditures are relatively concentrated – 65% of total expenditures are spent by 5 major ministries. The savings estimated at approximately 10% are comparable with the private sector<sup>69</sup>.

**Table 7: Expenditures on telecommunications and infrastructure (MEUR)**

Expenditure group	Average annual expenditure 2010-2015	Saving 10%	Saving 30%
Telecommunication services	39.9	4.0	12.0
Communication infrastructure	50.0	5.0	15.0
<b>Total</b>	<b>89.9</b>	<b>9.0</b>	<b>27.0</b>

Source: RIS BI, estimate: VfM Unit

### Software Licences

Another commodity which is recommended for centralised purchases are software licences. Presently, the state administers three major volume licencing contracts for software licences from Microsoft (23 mil. yearly)<sup>70</sup>, Oracle (9

<sup>67</sup> Proposal for centralization and development of data centres in the state administration estimates savings from cloud solution of software and platform services to be around 20-30% of present expenditures, see [http://www.informatizacia.sk/ext\\_dok-navrh-centralizacie-a-rozvoja-dc-v-statnej-sprave/18710c](http://www.informatizacia.sk/ext_dok-navrh-centralizacie-a-rozvoja-dc-v-statnej-sprave/18710c). The Stratoscale study available online at <http://www.stratoscale.com/resources/whitepaper/calculating-the-economics-of-a-private-cloud/> savings from the centralization into cloud vary between 25-75%, with average around 40%.

<sup>68</sup> Expenditures on telecommunication services are estimated at 75% of the Economic and Budget Classification item 632003 Postal Services and telecommunication Services. 75% is the present approximation based on data provided by departments.

<sup>69</sup> Pursuant to Gartner study concerning Deluxe Corporation, consolidation implemented by the company generated savings in the amount of USD 1-1.5 mil. (10-15%) yearly from the initial USD 10 mil. which were spent every year by the company for software and hardware maintenance. Available at <https://www.trident-it.com/pdf/GartnerReport.pdf>.

<sup>70</sup> "Software Delivery Contract" signed on 15.6.2015. Available online at <http://www.crz.gov.sk/index.php?ID=1908669>.



mil. yearly)<sup>71</sup> and SAP (12.5 mil. yearly)<sup>72</sup>. The contracts do not cover all contracted licences. The contracts will be centralised in order to manage spending and economies of scale and cost-effectiveness of the contract will be considered similarly to updates of Microsoft products in the following sub-chapter.

- **Task: Analyse the utilisation and procurement of software licences (Oracle, SAP and Microsoft).**

## 6.5 Purchase of Microsoft Product Updates

**The state pays EUR 18.6 mil. yearly for the possibility to update Microsoft software to latest versions, however the possibility is utilised at not more than a half and the amount paid is by 15% higher than the one paid by the Czech Republic. There is a poor control over licences spending by ministries which do not pay for the licences. We recommend performing audit of licences, improving the management of licence spending and negotiating new contractual terms and conditions. Potential savings amount to EUR 3.5-7.0 mil. yearly.**

Every year, the state spends EUR 18.6 mil. for the possibility to update Windows operating system and the Office package to latest versions over duration of the 3-year contract (*Software Assurance*). The original, not updated licences have been acquired by the state earlier. The contract enables either purchasing new licences (*True-up*) or upgrades (*Step-up*). Based on the purchase of additional licences in 2012-14, average annual *True-up* and *Step-up* expenditures for 2015-17 are estimated at EUR 3.9 mil. (Table 8).

**Table 8: Overview of the state's average annual expenditures on Microsoft volume licensing contract in 2015-2017**

Type of expenditure	Amount	Data source
Initial <i>Software Assurance</i>	EUR 18.6 mil.	Volume licensing contract Microsoft Enterprise 2015-17
New licences ( <i>True-up</i> )	EUR 3.3 mil.	Conservative estimate VfM based on 2012-14 period
Licence upgrades ( <i>Step-up</i> )	EUR 0.6 mil.	Conservative estimate VfM based on 2012-14 period
<b>Total yearly</b>	<b>EUR 22.5 mil.</b>	

*The prices are including VAT*

**Assuming that it is necessary to regularly pass to new software versions, under the present update rate by min. EUR 7 mil. yearly, it would be more cost-effective to purchase new licences directly than purchasing them under a framework contract.** The possibility of updates to the latest version is utilised at less than a half - between 2012-2016 updated were only 43-52% of computers connected in 2014. Direct purchases of similar amount of new licences would presently save at least EUR 7 mil. yearly (Box 5).

The present contract for across-the-board updates of all computers is cost-effective if it is used by at least 77% of computers. Nevertheless, there is also a room for improvement with this contract – **compared to Slovak unit prices, Czech unit prices for Software Assurance are by 15% lower**<sup>73</sup> (Table 11). Annual savings generated by purchases at the above-mentioned prices is approximately EUR 3.5 mil.<sup>74</sup>.

### Management of Licence Spending

Besides the form of the contract and the unit prices, another problem is the licence spending management within central government. The direct financial liability is borne only by the Ministry of Finance, as individual authorities

<sup>71</sup> "Central Framework Agreement for provision of Oracle licences and products and related services," signed on 3.11.2014. Available online at <https://www.crz.gov.sk/index.php?ID=1592705>.

<sup>72</sup> "Contract on provision of support for SAP software" signed on 15.12.2015. Available online at <http://www.crz.gov.sk/index.php?ID=2225292>.

<sup>73</sup> "Microsoft Framework Agreement", 2014. Available online at <http://www.mvcr.cz/clanek/nove-smlouvy-se-spolecnosti-microsoft.aspx>. Institutions are allowed to purchase software only under *Enterprise Agreement* (like Slovakia), or under *Select Plus* contract.

<sup>74</sup> For Desktop Enterprise product, we assume similar potential saving rate as for other products.

involved do not use their funds to pay for the licences. Nevertheless, despite the support resulting from the Government Resolution<sup>75</sup>, the Ministry of Finance does not have available an overview of actual numbers and utilisation of purchased products. Requirements for new, additional licences are not subject to any thorough necessity tests. There is no information available within the central government as to total number of computers used and there is no definition of a standardised employee position from IT view, clearly specifying which software and hardware is the civil servant entitled to.

The number of licences considerably exceeding the number of employees or diverse structure of licences at individual authorities can serve as an example of the existing problems. The number of licences held by the Ministry of Environment is almost three times the number of employees, while the Ministry of Health hold 1 licence per 8 employees. All licences held by the General Prosecution (1 932) are at Desktop Professional level, while all licences held by the Ministry of Foreign Affairs (1 434) or the Statistical Office (1 305), which are of similar size, are at the highest - Enterprise level (Table 12).

The necessity of Desktop Enterprise level is a separate issue, as, compared to the lower level, it provides advanced functionalities for e-mail and team servers and it does not differ in the operating system or in the office package. The Czech Ministry of Interior does not purchase this level of licences. Transition to the lower level of products would bring an annual saving of up to EUR 3.6 mil.<sup>76</sup>.

Considering the results of the audit of licences (which is to include as many public administration organisations as possible), definitions of the standardized employee position and negotiations with suppliers, we recommend identification and negotiation of the best cost-efficient contractual framework to procurement of licences – whether under Software Assurance or other contract type allowing for centralised direct purchases of new licences (e.g. *Microsoft Products and Services Agreement*<sup>77</sup>). The contractual framework should provide room for competition among suppliers. **Irrespective of the contractual framework, we recommend that requirements exceeding the scope of the results of the necessary licences audit, are paid by each ministry separately.** On the other hand, ministries which are able to negotiate better terms, should be encouraged to make use thereof.

- **Task: Define standardised employee position from IT perspective.**
- **Task: Develop an effective mechanism for spending management and making use of possible updates, in particular, before expiration of the contract in 2017.**
- **Task: After 2017, make procurement of Microsoft license products more efficient.**

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<sup>75</sup> Resolution of the Government of the Slovak Republic No. 208/2012 of 23 May 2012, par. B.5. Available online at <http://www.rokovania.sk/File.aspx/ViewDocumentHtml/Uznesenie-12525?prefixFile=u>

<sup>76</sup> The contractual terms enable *downgrade* during <https://www.microsoft.com/en-us/Licensing/learn-more/brief-downgrade-rights.aspx>.

<sup>77</sup> The volume licensing contract, which does not bind the state to 3-year payments, enables to make additional purchases of software – and *software assurance* – at any time. For further details see <https://www.microsoft.com/en-us/Licensing/MPSA/default.aspx>.

## Summary of potential savings

**Table 9: Potential savings under better contract conditions**

Source of savings	Annual saving	Share of present spending
<i>Direct purchase of licences w/o Software Assurance</i>	<i>Min. EUR 7 mil.</i>	<i>31%</i>
Unit prices as Czech Republic	EUR 3.5 mil.	16%
Desktop Professional instead of Enterprise	EUR 3.6 mil.	16%
<b>Prices as the Czech Republic + w/o Enterprise</b>	<b>EUR 6.6 mil.</b>	<b>29%</b>

Source: VfM

### Box 5: Direct licence purchase instead of Software Assurance

In case of direct purchase of new licences instead of annual payment of *Software Assurance* (e.g. following the model applied by the Czech Ministry of Foreign Affairs<sup>78</sup>) the state could save at least EUR 21 mil. every three years. The amount of the saving has been estimated based on actual software updates in 2012-2016 and purchases of new licences in the amount of approximately EUR 23 mil. once in three years. We count on usual 19% volume discount on list prices<sup>79</sup>.

In the period between 2013 and 2016, state computers switched over to Windows 7. If, instead of annual *Software Assurance* fees, in 2013 the state purchased multi-user Windows 7 licences for computers that switched over to versions 7 and 8 in 2013-16 (45 thousand, see Graph 19), it would cost EUR 7 mil. at list prices<sup>80</sup>.

The transition to Office 2013 did not get properly underway until 2015. If the state purchased multi-user Office 2010 licences for all computers that switched over to Office 2010 since 2012 (10 thousand) and Office 2013 in 2015 (or to Office 2016 in 2016) for all computers that switched over to Office 2013 or 2016 (27 thousand) since 2012, it would cost EUR 15 mil. at list prices<sup>81</sup>.

**Table 10: Calculation of purchase prices of new licences instead of Software Assurance**

	Unit price	Number of licences	Total price	Annual average
Windows (Licence)	EUR 158	44 758	EUR 7.1 mil.	EUR 2.4 mil.
Office Professional (Licence)	EUR 416	37 041	EUR 15.4 mil.	EUR 5.1 mil.
Core CAL (Software Assurance)	EUR 45	90 817	EUR 12.1 mil.	EUR 4.0 mil.
<b>Total</b>			<b>EUR 34.6 mil.</b>	<b>EUR 11.5 mil.</b>
<i>Present costs of Software Assurance</i>			<i>EUR 55.8 mil.</i>	<i>EUR 18.6 mil.</i>
<b>Saving</b>			<b>EUR 21.2 mil.</b>	<b>EUR 7.1 mil.</b>

Source: Contract between Czech Ministry of Foreign Affairs and VfM Unit

Three-years costs of *Software Assurance* are EUR 56 mil. To make this investment worthwhile compared to direct licence purchases, at least 70 thousand (77%) computers would have to switch over to new software versions during the 3-years period. This estimate is based on the existing structure of licences Office Standard and Professional Plus (25 thousand Office Standard, the rest are Professional Plus licenses).

The third part of the packages under the existing contract are CAL packages<sup>82</sup>, providing access to Microsoft server services as *Exchange* server (e-mail) and *Sharepoint* (collaboration platform). For conservative estimate of savings, the calculation

<sup>78</sup> As list prices are not publicly available, we use prices from Czech contracts which are based on the *Select Plus* price list (purchasing full licences, not only *Software Assurance*). Such is the Contract signed by Czech Ministry of Foreign Affairs, available online at: [https://www.zakazky.mvcr.cz/document\\_download\\_70048.html](https://www.zakazky.mvcr.cz/document_download_70048.html).

<sup>79</sup> Such discount is available to Slovakia under the report on performance of volume licensing Microsoft Enterprise Agreement and the draft continuation of the Agreement of 2012. Available online at: <https://lt.justice.gov.sk/Document/DocumentDetails.aspx?instEID=1&matEID=4838&docEID=231394&docFormEID=-1&docTypeEID=1&langEID=1>.

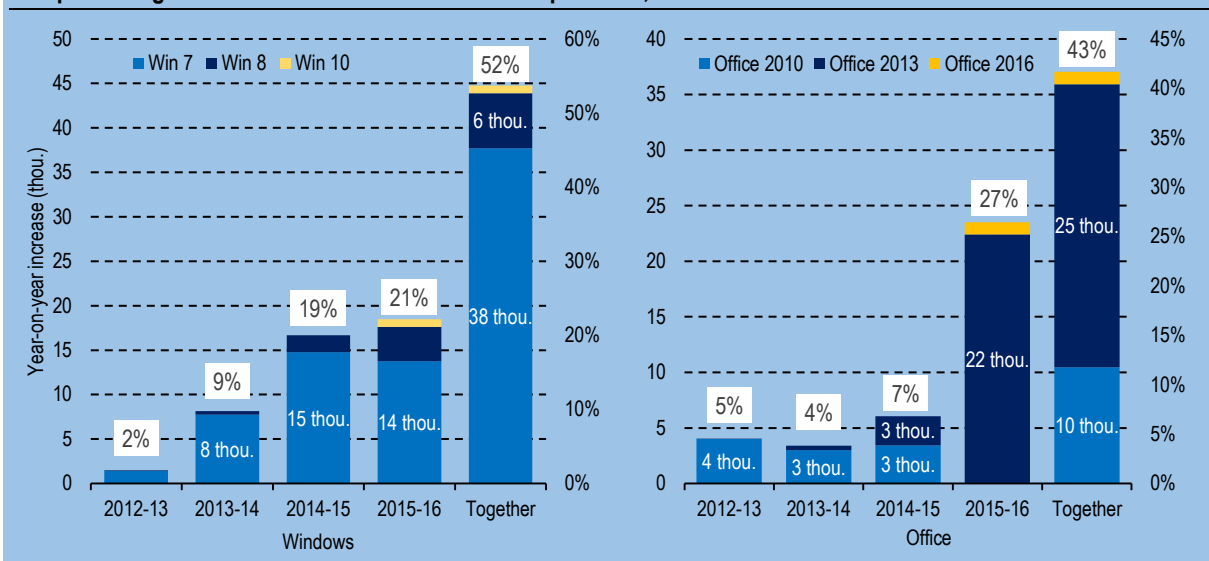
<sup>80</sup> Under the Contract signed by Czech Ministry of Foreign Affairs, the price for Windows 8.1 upgrade is EUR 158 excl. VAT (no discount).

<sup>81</sup> Under the Contract signed by Czech Ministry of Foreign Affairs, the price of Office 2013 Standard is EUR 313 excl. VAT (no discount). The price for Office Professional Plus is estimated at EUR 416 excl. VAT (no discount), based on proportion of *Software Assurance* prices of the two packages (1.33:1).

<sup>82</sup> *Client Access License* as a package available only with *Software Assurance*. However, the components can be purchased separately without *Software Assurance*. See <https://www.microsoft.com/en-us/Licensing/learn-more/brief-cal-suites.aspx>.

assumes that the annual *Software Assurance* amount paid by the state for *CAL* packages will be around EUR 4 mil., although the existing *CAL* packages would remain the property of the state even after expiration of the *Software Assurance*.

**Graph 19: Migration to latest versions of Microsoft products, 2012-2016**



Source: Deputy Prime Minister's Office for Investments and Informatisation

**Table 11: Software Assurance price comparison in Slovakia and the Czech Republic**

Software (EUR/pcs/year)	Slovakia	Czech Republic	Difference
MS Windows	*	26.29	
MS Office Standard	*	60.20	
Core CAL Suite	*	31.14	
<i>Desktop Standard</i>	138.50	117.63	<b>-15%</b>
MS Windows	*	26.29	
MS Office Professional Plus	*	80.26	
Core CAL Suite	*	31.14	
<i>Desktop Professional</i>	161.93	137.69	<b>-15%</b>
MS Windows	*	26.29	
MS Office Professional Plus	*	80.26	
Enterprise CAL Suite	*	-	
<i>Desktop Enterprise</i>	207.48	-	-
<b>Contracted amount (EUR mil.)</b>	<b>38.77</b>	<b>3.2</b>	<b>-92%</b>

Source: Microsoft contracts with the Slovak Ministry of Finance and Czech Ministry of Interior  
The prices are excluding VAT

**Table 12: Numbers of reported Microsoft licences by authorities, 2014**

Organization	Desktop Standard		Desktop Professional		Desktop Enterprise		Total number of licences	Number of employees	Licences per employee
	Number	Share	Number	Share	Number	Share			
GP SR	0	0.0%	1,932	100.0%	0	0.0%	1,932	1,812	1.07
NR SR	0	0.0%	0	0.0%	700	100.0%	700	498	1.41
KP SR	0	0.0%	92	100.0%	0	0.0%	92	81	1.14
ÚS SR	47	49.5%	48	50.5%	0	0.0%	95	91	1.04
VOP	0	0.0%	48	100.0%	0	0.0%	48	0	NA
MDVaRV SR	507	21.0%	15	0.6%	1,896	78.4%	2,418	1,309	1.85
MF SR	1,168	11.4%	25	0.2%	9,095	88.4%	10,288	10,395	0.99
MH SR	361	33.8%	706	66.2%	0	0.0%	1,067	794	1.34
MK SR	0		0		0		0	1,223	0.00
MO SR	5,789	100.0%	0	0.0%	0	0.0%	5,789	19,855	0.29
MPaRV SR	2,383	60.5%	881	22.4%	672	17.1%	3,936	2,695	1.46
MPSVaR SR	8,811	86.0%	1,430	14.0%	0	0.0%	10,241	13,086	0.78
MS SR	9,164	95.5%	431	4.5%	0	0.0%	9,595	11,268	0.85
MV SR	409	1.3%	0	0.0%	31,758	98.7%	32,167	49,033	0.66
MZV SR	34	2.3%	0	0.0%	1,434	97.7%	1,468	1,178	1.25
MZ SR	0	0.0%	0	0.0%	280	100.0%	280	2,336	0.12
MŽP SR	1,414	79.8%	359	20.2%	0	0.0%	1,773	702	2.53
NKÚ SR	0	0.0%	0	0.0%	317	100.0%	317	285	1.11
NS SR	308	98.4%	5	1.6%	0	0.0%	313	201	1.56
NBÚ	100	32.3%	210	67.7%	0	0.0%	310	215	1.44
PMÚ SR	0	0.0%	0	0.0%	85	100.0%	85	54	1.57
SIS	300	100.0%	0	0.0%	0	0.0%	300	0	NA
SŠHR SR	80	80.0%	20	20.0%	0	0.0%	100	107	0.93
ŠÚ SR	0	0.0%	0	0.0%	1,305	100.0%	1,305	822	1.59
ÚGKK SR	0	0.0%	331	100.0%	0	0.0%	331	242	1.37
ÚJD SR	93	86.1%	15	13.9%	0	0.0%	108	101	1.07
ÚOOÚ	29	55.8%	23	44.2%	0	0.0%	52	0	NA
ÚDZS	440	93.6%	30	6.4%	0	0.0%	470	0	NA
ÚNMS SR	61	89.7%	7	10.3%	0	0.0%	68	114	0.60
ÚVO	0	0.0%	0	0.0%	172	100.0%	172	165	1.04
ÚV SR	131	20.2%	516	79.8%	0	0.0%	647	533	1.21
ÚPN	71	87.7%	10	12.3%	0	0.0%	81	0	NA
<b>Total</b>	<b>31,700</b>	<b>36.6%</b>	<b>7,134</b>	<b>8.2%</b>	<b>47,714</b>	<b>55.1%</b>	<b>86,548</b>	<b>119,195</b>	<b>0.73</b>

Source: Slovak Ministry of Finance, recalculated by VFM Unit

## 7 Annexes

### 7.1 Annex 1 Classification of IT Expenditures in the Budget

Until 2017, expenditures can be classified in particular by economic classification codes, which are mostly or exclusively assumed to be identical with IT expenditures.

Analysis by economic codes is inaccurate. For example, code 632003 *Postal services and telecommunication services* refers to only a part of IT expenditures (telephone contracts, mobile internet connectivity, etc.). On the other hand, some of the codes do not include certain categories – e.g. HR expenditures in IT.

**Table 13: IT codes of economic classification**

<u>Item</u>		<u>Sub-item</u>	
Code	Description	Code	Description
632	<i>Energy, water and communications</i>	632004	<b>Communication infrastructure</b> Fees for LAN, WAN communication networks, fees for using departmental, national and international communication networks (SANET, GOVNET, VSNET), computer networks, access to internet, etc
633	<i>Materials</i>	633002	<b>Computer technology</b> Procurement of personal computers, computer equipment (mice, keyboards, monitors, printers)
		633003	<b>Telecommunication technology</b> Procurement of audio and video media, communication equipment.
		633013	<b>Software</b> Procurement of software, including related software licences
		633019	<b>Communication technology</b> Materials supporting operation of LAN, WAN communication networks
635	<i>Routine and standard maintenance</i>	635002	<b>Computer technology</b>
		635003	<b>Telecommunication technology</b>
		635009	<b>Software</b> Application updates
		635010	<b>Communication technology</b>
636	<i>Rental charges</i>	636006	<b>Computer technology</b>
		636007	<b>Software</b>
		636008	<b>Communication technology</b> Optical fibres, OVID equipment
637	<i>Services</i>	637040	<b>ICT services</b>
711	<i>Purchase of land and intangible assets</i>	711003	<b>Software</b> Procurement of software, including multi-licensing and group licences
713	<i>Purchase of machinery, appliances, equipment, technology and tools</i>	713002	<b>Computer technology</b> Procurement of personal computers and special materials for computers
		713003	<b>Telecommunication technology</b> Special communication and support materials
		713006	<b>Communication technology</b> Procurement of communication networks
718	<i>Renovation and modernization</i>	718002	<b>Computer technology</b>

<u>Item</u>	<u>Sub-item</u>
	718003 <b>Telecommunication technology</b>
	718006 <b>Software</b> Upgrade (functionalities added)
	718007 <b>Communication technology</b>

The new interdepartmental programme *Information Technologies Financed from the State Budget* and establishing a new economic item 637040 *Services in information and communications technology* is expected to improve the expenditure records after 2017. Under the existing methodological guide, all IT expenditures financed from the state budget should have already been classified under this programme<sup>83</sup>. In this programme, expenditures are further divided into internal administration system, support infrastructure, specialised components or other dedicated systems<sup>84</sup>. The benefits of the new classification include better transparency and targeted structure of expenditures.

#### **Box 6: Economic and budget classification codes: Classification of postal and telecommunication services**

**Thanks to establishing the new economic item 637040 *Services in information and communications technology*, classified were more than EUR 40 mil. of previously unclassified IT expenditures.** Since 2017, there is a new economic code separating IT services from the previously heterogenous expenditure categories. Pursuant to the draft budget for 2017-19, expenditures on the services exceed EUR 40 mil. yearly. Until 2016, these expenditures were classified under codes 637005 *Specialised services* or 637011 *Studies, expert opinions and appraisals* and thus it was impossible to separate the IT expenditures.

**The item 632003 *Postal services and telecommunication services* is expected to undergo similar separation to achieve a more precise classification.** Based on the survey carried out by five ministries<sup>85</sup> it can be concluded that in 2010-15 approximately 70-90% of expenditures were spent for telecommunication services. After classification of the expenditures under IT, total annual expenditures of the state would increase by EUR 43 mil.

#### Limitations of the present classification

**A complete and accurate classification of expenditures is the key prerequisite to successful review of spending policies. However, neither the economic classification, nor the interdepartmental programme comply with the criteria for IT.**

Firstly, none of the existing classifications includes expenditures on human resources. Thus, the identified IT expenditures are understated by that amount.

Secondly, despite the fact that the methodology of the interdepartmental programme defines IT expenditures in two levels, it only captures the first, the aggregate, one. We can only see total expenditures on the internal administration system, but no detailed expenditures on the accounting system, assets management or HR system. Similarly, we do not know whether an expenditure intended for support infrastructure has been used for purchase of network equipment or for local network maintenance.

Finally, as the interdepartmental programme only refers to the central government's expenses financed from the state budget, we do not have available detailed information about 54% of expenditures, which are expenditures incurred by other public administration authorities or covered from EU funds<sup>86</sup>. Those expenditures are not classified

<sup>83</sup> Methodological guidance of the Ministry of Finance of the Slovak Republic on budgeting of IT expenditures financed from the state budget, available at <http://goo.gl/G1omeH>.

<sup>84</sup> Internal administration systems include standard systems such as: accounting, HR system, e-mail, analytical tools, etc. The support infrastructure includes connectivity, access to internet, local networks and all technologies related thereto. Specialised systems and elements include individual systems and projects specific for the given authority.

<sup>85</sup> Annex 7 presents the collected data.

<sup>86</sup> Municipalities, universities, higher territorial units, health insurance companies, etc.

under the above-described elements of the interdepartmental programme and the only available expenditure analysis is based on the inaccurate economic classification.

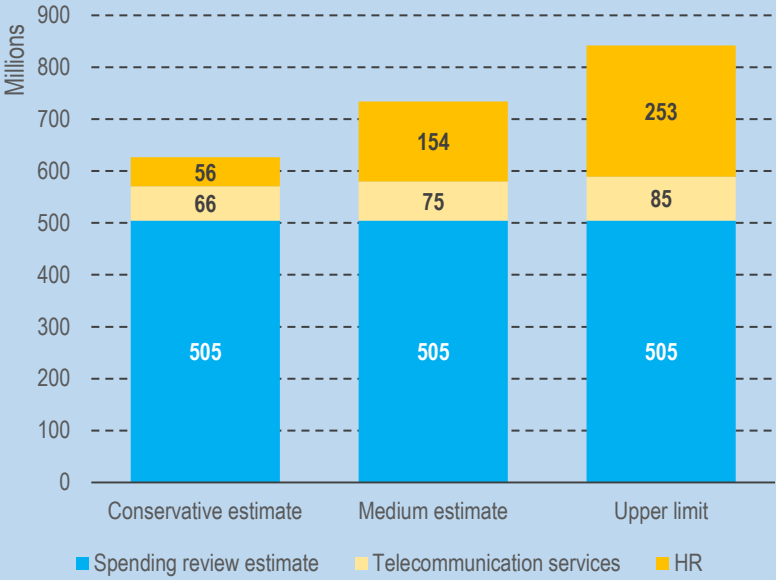
**Box 7: Estimate of expenditures with the cost of human resources and telecommunications**

The review of informatisation expenditures estimates that in 2016-2019 total yearly IT spending will be by EUR 122-337 mil. (24-67%) higher than expenditures on IT economic items. The present classification of IT expenditures does not include costs of human resources in IT. Moreover, telecommunication services are classified jointly with postal services under one sub-item (632003). Therefore, actual IT expenditures can only be estimated.

HR costs have been estimated at 10-30 % (EUR 56-253 mil. yearly)<sup>87</sup> of total IT expenditures based on the OECD survey. Pursuant to the 2011 OECD countries IT spending review <sup>88</sup> expenditures on human resources in IT covered, on average, 20-25% of total IT spending. The lowest percentage was 10 % (South Korea) and the highest percentage was 50% of IT spending (Canada).

Pursuant to the interdepartmental review survey, telecommunication services have been estimated at 70-90% (EUR 66-85 mil. yearly) of expenditures on postal and telecommunication services (Box 6).

**Graph 20: Estimate of actual cost of IT for 2016-19 (yearly average, MEUR)**



Source: RIS BI, OECD, estimate of VfM Unit

**Illustration of Issues**

As much as 65% of IT expenditures can be only be described based on an inaccurate economic classification. The 2017 IT spending of the public administration, as identified by the economic classification, is EUR 450 mil.

Total IT spending of the central government<sup>89</sup> equals EUR 349 mil. (77% of total expenditures). Thereof, EUR 205 mil. (45%) are paid directly from the state budget. The interdepartmental programme includes EUR 170 mil., thereof, under the existing economic classification, IT expenditures equal to EUR 158 mil., i.e., 35% of total IT spending. Information about the remaining 65% of the public sector’s IT spending will not be available in detail captured by the new interdepartmental programme.

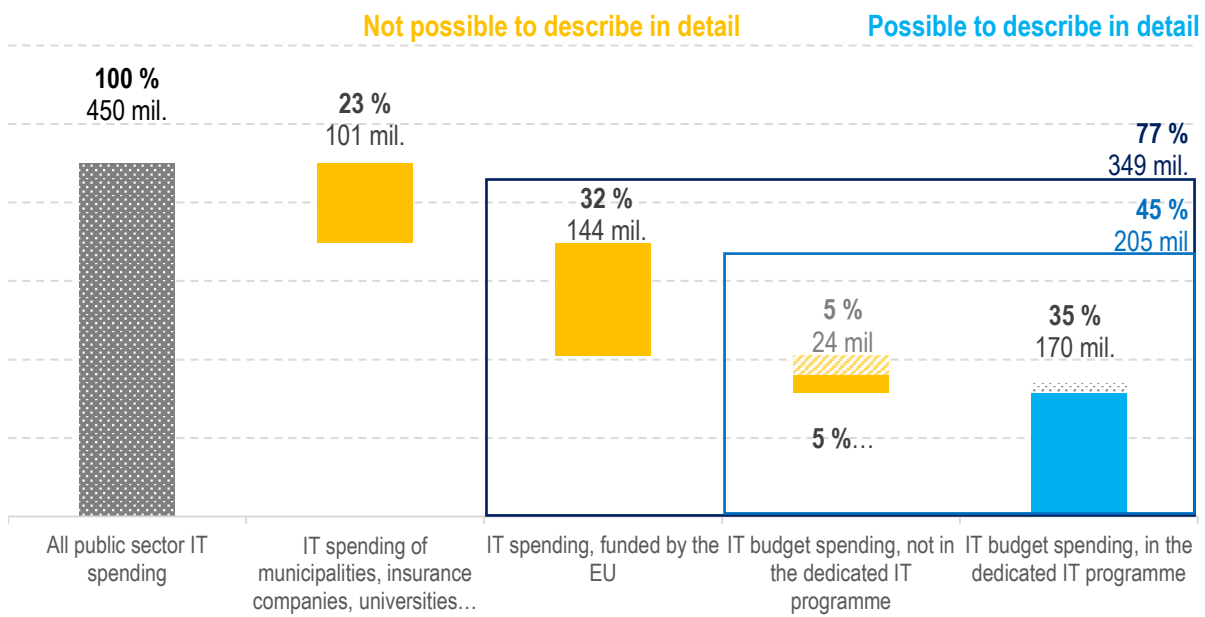
<sup>87</sup> The lower estimate has been calculated as 10% of IT spending excluding telecommunication services. The upper estimate has been calculated as 30% of IT spending including telecommunication services.

<sup>88</sup> OECD. (2012). *OECD E-Government Project: Building the basis for new e-government performance indicators: ICT spending by central government*. Available online at [https://one.oecd.org/document/GOV/PGC/EGOV\(2011\)3/REV1/en/pdf](https://one.oecd.org/document/GOV/PGC/EGOV(2011)3/REV1/en/pdf).

<sup>89</sup> State-funded organisations, such as ministries and central bodies of state administration, and state-subsidised organisations reporting thereto.



**Graph 21: Structure of 2017 public administration IT expenditures, including down-payments for EU projects**



Source: RIS BI, VfM Unit

#### Application – correct classification

**Another problem is the failure to include IT expenditures in the interdepartmental programme *Information Technologies Financed from the State Budget*. The interim report identified EUR 47 mil. of IT expenditures financed from the state budget, which were not classified under the economic classification.** In the draft budget as at 30.9.2016, the amount of not classified expenditures remained unchanged (EUR 47 mil.).

The unclassified expenditures include EUR 28 mil. for software (50%), EUR 11 mil. for communication infrastructure (20%), EUR 9 mil. for telecommunication technology (16%) and above EUR 8 mil. for computer technology (14%). Table 14 shows unclassified IT expenditures by central government organisations.

The Deputy Prime Minister's Office for Investments and Informatisation communicated with organisations which failed to classify the IT expenditures and the organisations were asked to correct the classification. Nevertheless, as at 30.9.2016, the required changes have not been made.

**It is possible to include EUR 22 mil. (5%) in the programme.** The unclassified IT expenditures of the National Health Information Centre are financed from revenues of health insurance companies and, therefore, so far have not been included in the interdepartmental program, although no exemption is granted by the methodological guidance. The National Agency for Network and Electronic Services (NASES), and the Central Office of Labour, Social Affairs and Family of the Slovak Republic promised to submit, by 30 September, a plan for inclusion of the expenditures in the interdepartmental programme. Other organisations were contacted with a request for remedy, however, no amendments have been made to date. The organisations are allowed to make the amendments after approving their budgets through implementation of budgetary measures.

**The remaining unclassified expenditures in the amount of EUR 25 mil. (5%) do not belong into the interdepartmental program.** The existing methodological guidance grants an exception to the General Treasury Administration as the funds for IT are included there just temporarily – the funds are intended for performance of contracts with Microsoft. IT expenditures of the Ministry of Defence SR will not be included in the interdepartmental program as they include confidential information.

**Table 14: 2017 IT expenditures by organisations not included in the interdepartmental program**

<b>Organization</b>	<b>Unclassified expenditures (MEUR)</b>	<b>Results of inspection by Deputy Prime Minister's Office for Investments and Informatisation</b>
General Treasury Administration	17.2	Fulfilment of Microsoft contract, exemption granted
Ministry of Defence SR	7.5	Confidential information
National Health Information Centre	3.6	Financed from revenues of health insurance companies
NASES	2.5	Draft plan for amendment sent on 28.9.2016
Central Office of Labour, Social Affairs and Family	2.1	Draft plan for amendment sent on 28.9.2016
General Prosecution SR	1.8	Organisation called upon to make the amendment
Slovak National Library	1.6	Organisation called upon to make the amendment
Slovak Centre of Scientific and Technical Information	1.3	Organisation called upon to make the amendment
Other	9.4	Organisation called upon to make the amendment
<b>Total</b>	<b>46.9</b>	

Source: RIS BI

**Table 15: 2017 IT expenditures by economic classification, not included in the interdepartmental program**

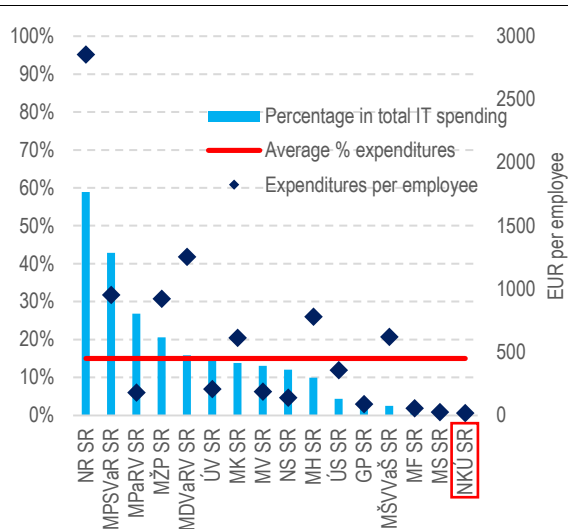
<b>Economic classification</b>	<b>Expenditures (MEUR)</b>	<b>Share</b>	<b>Total (MEUR)</b>	<b>Total share in IT</b>
635009 Software – applications update	25.1	29.3 %	25.1	29.3 %
632004 Communication infrastructure	7.9	9.2 %	33.0	38.5 %
633002 Purchase of computer equipment	3.6	4.2 %	36.6	42.7 %
635010 Maintenance of communication infrastructure	2.7	3.2 %	39.3	45.9 %
713002 Purchase of computer equipment	1.5	1.8 %	40.8	47.7 %
635002 Maintenance of computer equipment	1.4	1.6 %	42.2	49.3 %
718006 Software - upgrade	0.9	1.1 %	43.1	50.3 %
635003 Maintenance of telecommunication equipment	0.9	1.1 %	44.0	51.4 %
711003 Purchase of software	0.9	1.0 %	44.9	52.4 %
633013 Procurement of software	0.7	0.8 %	45.6	53.3 %
713003 Purchase of telecommunication equipment	0.6	0.7 %	46.2	54.0 %
633003 Procurement of telecommunication equipment	0.4	0.5 %	46.6	54.4 %
718007 Renovation of communication infrastructure	0.1	0.1 %	46.7	54.5 %
637040 ICT services	0.046	0.1 %	46.7	54.6 %
636008 Rent of communication infrastructure	0.042	0.0 %	46.8	54.6 %
636007 Rent of software	0.025	0.0 %	46.8	54.7 %
633019 Purchase of communication infrastructure	0.015	0.0 %	46.9	54.7 %
713006 Purchase of communication infrastructure	0.003	0.0 %	46.9	54.7 %
636006 Rent of computers	0.002	0.0 %	46.9	54.7 %
<b>Total – outside the interdepartmental programme</b>			<b>46.9</b>	<b>100 %</b>

Source: RIS BI

## Application – Irregularities in Categorization

Finally, analysis of average annual expenditures of central government authorities in the interdepartmental program can be used for testing irregularities in application of the methodology. There are remarkable differences in the share of IT expenditures on the internal administration systems and support infrastructure. The share should be almost similar for each authority, as the expenditures do not include a specialised agenda.

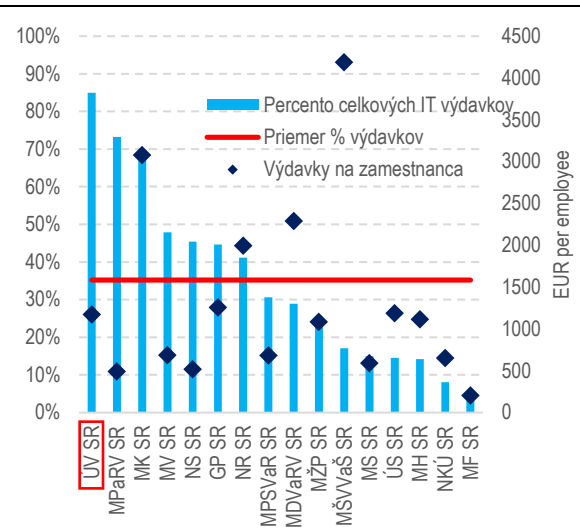
**Graph 22: Expenditures of central bodies of state administration on the internal administration systems (2017)**



Source: RIS BI, VfM Unit

Legend: Percentage in total IT spending – Average % expenditures – Expenditures per employee EUR per employee

**Graph 23: Expenditures of central bodies of state administration on support infrastructure (2017)**



Source: RIS BI, VfM Unit

Legend: Percento celkových IT výdavkov – Priemer % výdavkov – Výdavky na zamestnanca EUR per employee

It appears that the classification applied by the entities is mutually inconsistent – it is unlikely that the Supreme Audit Office has almost zero expenditures on public administration systems, or that the Government Office spends almost all its expenditures on support infrastructure.

## 7.2 Annex 2 Expenditures of State Administration Bodies on IT

**Major portion of IT expenditures is concentrated in the Ministry of Finance and the Ministry of Interior.** Their share in **total expenditures** of the central government entities is as high as **49%**. The share of expenditures spent by the Ministry of Finance is approximately 28%. The high percentage is caused, *inter alia*, by central purchases of software and licences, which are also used by other public administration institutions and organizations. Moreover, there are state-subsidised organisations with high IT expenditures - DataCentre and the Financial Directorate – reporting to the Ministry of Finance. The expenditures of the Ministry of Interior participating in informatization of both central government and local governments, cover 22% of total informatization expenditures of the central government.

**Table 16: Average annual IT expenditures of the bodies of central state administration in 2010-2015**

Budget chapters	Expenditures (MEUR)	Share	Total
Ministry of Finance	130	28 %	28 %
Ministry of Interior	101	22 %	49 %
Ministry of Education, Science, Research and Sports	39	8 %	57 %
Ministry of Defence	30	6 %	64 %
Ministry of Justice	22	5 %	69 %
Ministry of Labour, Social Affairs and Family	29	4 %	73 %
Government Office	18	4 %	76 %
Ministry of Culture	16	3 %	80 %
Ministry of Health	14	3 %	83 %
Ministry of Agriculture and Rural Development	14	3 %	86 %
Ministry of Transport, Construction and Reg. Development	13	3 %	89 %
Geodesy, Cartography and Cadastre Authority	12	2 %	91 %
Statistical Office	8	2 %	93 %
Slovak Academy of Science	7	2 %	94 %
Other	27	6 %	100 %
<b>Total</b>	<b>470</b>	<b>100 %</b>	<b>-</b>

Source: RIS BI, 2016

### Expenditures of agencies and authorities of Ministries

Expenditures of central government entities include expenditures of their subordinate state-funded organisations and state-subsidised organisations. Major specialised agencies and institutions report higher expenditures than certain smaller ministries. The Financial Directorate incurred 9% of the central government's total expenditures on informatization. The DataCentre's proportion in total expenditures is 4%.

**Table 17: Average annual IT expenditures of agencies and authorities of ministries 2010-2015**

<b>Authorities and agencies</b>	<b>Expenditures (MEUR)</b>	<b>Share</b>	<b>Total</b>
Office of the Ministry of Interior	99	21%	21%
Ministry of Finance	78	17%	38%
Financial Directorate	40	9%	46%
Ministry of Defence	24	5%	51%
Ministry of Justice	18	4%	55%
DataCentre	17	4%	59%
Ministry of Education, Science, Research and Sports	16	3%	62%
National Agency for Network and Electronic Services	16	3%	66%
Slovak Centre of Scientific and Technical Information	12	3%	68%
Geodesy, Cartography and Cadastre Authority	11	2%	70%
Ministry of Transport, Construction and Reg. Development	10	2%	73%
Ministry of Labour, Social Affairs and Family	10	2%	75%
Statistical Office	8	2%	76%
Ministry of Health	8	2%	78%
Ministry of Agriculture	7	1%	79%
Other	97	21%	100%
<b>Total</b>	<b>470</b>	<b>100%</b>	<b>-</b>

Source: RIS BI, 2016

**Central government authorities differ significantly in their share in the IT budget.** The average annual proportion varies between 66% (National Agency for Network and Electronic Services, NASES) and 1% (Ministry of Health). **More than a half of total IT budgeted amount is spent by four authorities: NASES, Geodesy, Cartography and Cadastre Authority SR, and the Offices of the Ministry of Finance SR and the Ministry of Justice SR.** The considerable differences, however, shall be understood in the context of responsibilities performed by these authorities and their size.

**Table 18: Percentage of IT expenditures in the institution's budget for 2010-15**

<b>Authority</b>	<b>Percentage of IT expenditures in the institution's budget</b>
National Agency for Network and Electronic Services	66%
Geodesy, Cartography and Cadastre Authority SR	64%
Ministry of Finance	58%
Ministry of Justice	54%
DataCentre	43%
Statistical Office SR	38%
Financial Directorate of the Slovak Republic	17%
Ministry of Interior	9%
Ministry of Agriculture and Rural Development	8%
Ministry of Defence	8%
Ministry of Foreign Affairs	4%
Ministry of Environment	3%
Ministry of Labour, Social Affairs and Family	2%
Ministry of Economy	2%
Ministry of Education, Science, Research and Sports	2%
Ministry of Culture	2%
Ministry of Transport, Construction and Reg. Development	1%
Ministry of Health	1%

Source: RIS BI, 2016

### 7.3 Annex 3 Main Groups of Economic Classification

<b>Expenditure groups</b>	<b>Sub-item</b>		
<b>Description</b>	<b>Item</b>	<b>Code</b>	<b>Description</b>
<i>Software</i>	Materials	633013	<b>Software</b>
	Rental charges	636007	<b>Software</b>
	Routine and standard maintenance	635009	<b>Software</b>
	Purchase of land and intangible assets	711003	<b>Software</b>
	Renovation and modernization	718006	<b>Software</b>
<i>Computer technology</i>	Materials	633002	<b>Computer technology</b>
	Routine and standard maintenance	635002	<b>Computer technology</b>
	Rental charges	636006	<b>Computer technology</b>
	Purchase of machinery, appliances, equipment, technology and tools	713002	<b>Computer technology</b>
	Renovation and modernization	718002	<b>Computer technology</b>
<i>Communication infrastructure</i>	Energy, water and communication	632004	<b>Communication infrastructure</b>
	Materials	633019	<b>Communication technology</b>
	Rental charges	636008	<b>Communication technology</b>
	Routine and standard maintenance	635010	<b>Communication technology</b>
	Purchase of machinery, appliances, equipment, technology and tools	713006	<b>Communication technology</b>
<i>Telecommunication technology</i>	Renovation and modernization	718007	<b>Communication technology</b>
	Materials	633003	<b>Telecommunication technology</b>
	Routine and standard maintenance	635003	<b>Telecommunication technology</b>
	Purchase of machinery, appliances, equipment, technology and tools	713003	<b>Telecommunication technology</b>
	Renovation and modernization	718003	<b>Telecommunication technology</b>

### 7.4 Annex 4 Comparing the Review's and the OECD's IT Expenditure Categories

	<b>OECD (2011)</b>	<b>Spending review</b>
<b>CAPEX</b>	Purchase of computer equipment	713002 Purchase of computer technology
		718002 Modernization of computer equipment
		713003 Purchase of telecommunication technology
	Building of infrastructure	713006 Purchases of communication technology;
		718003 Renovation of telecommunication technology
		718007 Renovation of communication technology
	Software development	711003 Software purchases
Software upgrade	718006 Software upgrade	
Purchase of ICT, classified differently from the CAPEX		
<b>OPEX</b>	Telecommunication services	632004 Communication infrastructure
		633002 Computer technology
	Low-value ICT purchases	633003 Telecommunication technology
		633013 Software
		633019 Communication technology
	Maintenance and operation of data centres	635002 Maintenance of computer technology
		635003 Maintenance of telecommunication technology
		635010 Maintenance of communication technology
	Fees for external services	637040 ICT services
		635009 Software maintenance
	Other	636006 Rent of computer technology
636007 Rent of software		
636008 Rent of communication technology		

## 7.5 Annex 5 Countries Included in the OECD Survey

<b>Country</b>	<b>Acronym</b>	<b>Data year</b>
Slovakia	SK	2011
New Zealand	NZ	2008
USA	US	2011
Canada	CA	2011
Finland	FI	2011
Switzerland	CH	2010
Netherlands	NL	2011
Australia	AU	2010
Mexico	MEX	2011
Estonia	EE	2011
South Korea	KOR	2010
UK	UK	2008
Island	IS	2008
Spain	ES	2010
France	FR	2008
Slovenia	SI	2009
Portugal	PR	2010
Belgium	BE	2009
Austria	AT	2010
Italy	IT	2010
Germany	DE	2010

## 7.6 Annex 6 List of OP IS Projects

Project title	Beneficiary	Acronym	Grant (MEUR)	Amount of correction	Rate of correction
Data Centre for Municipalities	DCEÚS	DCOM	47.06		
Electronic Learning/Regional School System	MŠVVaŠ SR	EVS RŠ	45.93		
Electronic ID card	MV SR	eID	44.56	7.14	12.9%
ICT infrastructure for IaaS part 1	MF SR	ICT for IaaS 1	42.02		
Electronic services - Financial Administration–Tax Issues	MF SR	ESFS-OD	40.15	2.4	5.8%
Electronic services – Police Force Information Systems	MV SR	ES PZ	40.0		
Electronic services - Health	MZ SR	eHealth	40.0	4.54	9.4%
Electronic services – Land Registry	UGKK SR	ES Kataster	33.69	6.97	25.0%
Electronic services – Ministry of Labour, Soc.Affairs and Family	MPSVaR SR	ES MPSVaR	33.02	0.1	0.3%
Electronic services – National Register of Vehicles	MV SR	ES NEV	30.44		
Digital Learning ( <i>Digitálne učivo na dosah</i> )	MŠVVaŠ SR	DUD	29.41		
eDemocracy and open Government	NASES	eDOV	28.79	3.93	13.6%
Development of e-services for judicial system	MS SR	RESS	27.18		
Project of future applic.arch. and security.infrastruct.MJ SR	MS SR		27.13		
E-services - monit. of accused and convicted persons	MS SR	ESMO	26.95		
JISCD – Electronic services in transportation	MDVaRR SR	JISCD	25.98		
E-services for vehicle registration certificate	MV SR	ES OoEV	25.84	2.45	8.0%
E-services for common modules of Central GG portal II	NASES	ÚPVS 2	25.53	4.54	17.8%
E-services – Statistical Office	ŠÚ SR	ES ŠÚ	22.57		
E-services for common modules of Central GG portal	NASES	ÚPVS 1	22.05	4.84	22.0%
IS Register of Individuals	MV SR	IS RFO	17.38	2.49	14.0%
Departmental information system - Education	MŠVVaŠ SR	RIS Š	17.34		
E-services for central electronic P.O. Box	MF SR	CEP	16.95		
National project: Integrated service points	MF SR	IOM	16.61		
Data centre for eGovernment	MF SR	DC	15.0		
Electronic services - General Prosecution SR	GP SR	ES GP	13.5		
IS Central Admin of Gen. Government Reference Data	MF SR	IS CSRÚ	13.09		
Register a identifier of legal entities	ŠÚ SR	RPO	12.0		
Meta-Information System	MF SR	metaIS	11.95		
Information System of Bankruptcy Register	MS SR	IS RÚ	11.76		
Electronic Services in Protection of Rights	MZV SR	ES ÚOP	9.93		
Electronic Archive of the Ministry of Interior SR	MV SR	EA MV SR	9.84		
Electronic Collection of Laws (Slov-Lex)	MS SR	SLOVLEX	9.5		
E-services -Land Registry internet map application	UGKK SR	ZB GIS	9.46	2.12	22.4%
Electronic Services – Vital Records	MV SR	ES M	9.06		
E-services - Central Registration Office	MV SR	ES CO	8.85		
Electronic Services – Ministry of Economy	MH SR	ES MH	8.63		
IS - Individuals Identifier	MV SR	IS IFO	8.4		
Information System of the Addresses Register	MV SR	IS RA	7.7	0.76	9.9%
Electronic Services - Health - extension	MZ SR	eHealth+	6.88		
Spatial Data Registry	MŽP SR	RPI	6.5		
Consolidation - ICT tools – Ministry of Culture SR	MK SR	IKT MK	5.98		
Legal Info Portal – Development of Collection of Laws project	MS SR	PPI	5.54		



Project title	Beneficiary	Acronym	Grant (MEUR)	Amount of correction	Rate of correction
Payments and Records System (IS PEP)	NASES	IS PEP	5.28	0.07	1.4%
Electronic Services VÚC Trnava	VÚC TT	VÚC TT	4.27		
Electronic Services VÚC - Nitra	VÚC NR	VÚC NR	4.27	0.03	0.6%
Electronic Services VÚC - Košice	VÚC KE	VÚC KE	4.25	0.01	0.2%
Electronic Services VÚC Ban. Bystrica	VÚC BB	VÚC BB	4.25		
Electronic Services VÚC - Prešov	VÚC PO	VÚC PO	4.23	1.17	26.5%
Electronic Services VÚC - Žilina	VÚC ZA	VÚC ZA	4.08		
KIS NKÚ SR – E-services NKÚ SR	NKÚ SR	ES NKÚ	3.52		
Electronic Services Constitutional Court SR	ÚS SR	ES ÚS	3.5		
Electronic public procurement services	ÚVO	ES VO	3.48		
Development of KIS NKÚ SR	NKÚ SR	ES NKÚ+	3.48		
Electronic services - Industrial Property Office SR	ÚPV	ES ÚPV	3.31		
Electronic Services – Košice City	Košice City	Košice City	1.83		

Source: SORO OPIS. 2016

## 7.7 Annex 7 Postal and Telecommunication Services by Authorities

Ministry office (EUR thousand)	2010	2011	2012	2013	2014	2015	Median value
<b>Ministry of Health</b>							
Postal services	19.4	25.6	26.9	31.0	3.4	39.4	26.3
Telecommunication services	74.5	95.8	70.6	86.8	54.9	49.2	72.5
<i>Proportion of telecommunication services</i>	79%	79%	72%	74%	94%	56%	73%
<b>Ministry of Justice</b>							
Postal services	24.6	34.9	42.5	2 768.0	86.4	48.5	45.5
Telecommunication services	110.3	106.8	76.5	70.3	57.4	75.2	75.9
<i>Proportion of telecommunication services</i>	82%	75%	64%	2%	40%	61%	63%
<b>Ministry of Labour, Social Affairs and Family</b>							
Postal services	25.2	20.7	13.6	16.2	17.4	16.8	17.1
Telecommunication services	113.4	99.6	105.9	95.7	71.5	72.	97.7
<i>Proportion of telecommunication services</i>	82%	83%	89%	86%	80%	81%	85%
<b>Ministry of Finance</b>							
Postal services	23.7	26.2	31.9	43.3	1.2	37.9	29.1
Telecommunication services	205.	181.3	166.8	150.9	126.0	83.6	158.9
<i>Proportion of telecommunication services</i>	90%	87%	84%	78%	99%	69%	85%
<b>Ministry of Foreign and European Affairs</b>							
Postal services	N/A	N/A	213.	240.6	262.1	294.7	251.3
Telecommunication services	N/A	N/A	4 311.9	4 206.9	3 566.8	3 375.5	3 886.8
<i>Proportion of telecommunication services</i>	-	-	95%	95%	93%	92%	94%

Source: RIS BI, data provided by ministries, 2016

## 7.8 Annex 8 Number of Employees by Ministries

<b>Number of employees</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Ministry of Foreign Affairs	1,104	1,136	1,135	1,155	1,177	1,214
Ministry of Defence	21,250	20,785	20,322	19,888	19,855	19,954
Ministry of Interior	36,012	34,128	33,940	45,695	49,032	49,188
Ministry of Justice	11,046	11,017	11,157	11,207	11,268	11,215
Ministry of Finance	10,993	10,125	9,893	10,214	10,395	10,416
Ministry of Environment	1,085	1,497	1,450	1,256	702	673
Ministry of Education, Science, Research and Sports	11,966	11,812	11,715	2,150	2,159	2,106
Ministry of Health	2,728	2,493	2,484	2,419	2,335	2,336
Ministry of Labour, Social Affairs and Family	13,069	12,135	12,134	12,295	13,086	13,509
Ministry of Culture	1,127	1,058	1,096	1,162	1,222	1,252
Ministry of Economy	1,009	861	787	762	793	774
Ministry of Agriculture and Rural Development	4,113	3,496	3,495	3,257	2,695	2,687
Ministry of Construction and Reg. Development	327					
Ministry of Transport, Construction and Reg. Development	1,602	1,912	1,937	1,618	1,309	1,292

Source: RIS WAGES, 2016

## 7.9 Annex 9 Number of Employees of Ministries Less the State-Subsidised and State-Funded Organisations

<b>Number of employees</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
Ministry of Foreign Affairs	1,092	1,126	1,120	1,129	1,152	1,188
Ministry of Defence	632	599	574	531	534	541
Ministry of Interior	1,470	1,343	1,361	1,469	1,067	1,175
Ministry of Justice	261	256	267	281	305	326
Ministry of Finance	692	647	660	669	679	680
Ministry of Environment	314	454	449	461	479	450
Ministry of Education, Science, Research and Sports	478	452	456	468	494	522
Ministry of Health	236	231	248	254	264	270
Ministry of Labour, Social Affairs and Family	441	386	380	387	393	418
Ministry of Culture	169	165	185	179	181	183
Ministry of Economy	491	363	370	368	388	409
Ministry of Agriculture and Rural Development	569	551	572	578	575	551
Ministry of Transport, Construction and Reg. Development	386	584	620	590	597	589

Source: RIS WAGES, 2016

## 7.10 Annex 10 List of Acronyms

<b>BOK</b>	Personal Security Code	<b>MZV SR</b>	Ministry of Foreign Affairs of the Slovak Republic
<b>CAPEX</b>	Capital Expenditures	<b>MŽP SR</b>	Ministry of Environment of the Slovak Republic
<b>CBA</b>	Cost-Benefit Analysis	<b>NASES</b>	National Agency for Network and Electronic Services
<b>CVTI</b>	Centre of Scientific and Technical Information	<b>NFP</b>	Non-repayable financial assistance/ Grant
<b>DESI</b>	Digital Economy and Society Index	<b>NKIVS</b>	National eGovernment Concept
<b>eHealth</b>	Electronic healthcare	<b>NKÚ</b>	Supreme Audit Office
<b>eID</b>	Electronic identity card	<b>NPV</b>	Net present value
<b>EU</b>	European Union	<b>NC SR</b>	National Council of the Slovak Republic
<b>FD SR</b>	Financial Directorate of the Slovak Republic	<b>NS</b>	Supreme Court of the Slovak Republic
<b>GOVNET</b>	Government information network	<b>OP EVS</b>	Operational Programme Effective Public Administration
<b>GP SR</b>	General Prosecution of the Slovak Republic	<b>OPEX</b>	Operating expenses
<b>GDP</b>	Gross Domestic Product	<b>OPII</b>	Operational Programme Integrated Infrastructure
<b>HR</b>	Human Resources	<b>OPIS</b>	Operational Programme Information Society
<b>IaaS</b>	Infrastructure as a Service	<b>PaaS</b>	Platform as a Service
<b>ICT</b>	Information and communications technology	<b>LE</b>	Legal entity
<b>ISVS</b>	General Government Information System	<b>RIS BI</b>	Budgetary information system, Business Intelligence module
<b>IT</b>	Information technologies	<b>SaaS</b>	Software as a Service
<b>ITMS</b>	IT Monitoring System	<b>SSC</b>	Shared Services Canada
<b>DVaRR SR</b>	Ministry of Transport, Construction and Regional Development of the Slovak Republic	<b>ŠÚ SR</b>	Statistical Office of the Slovak Republic
<b>MF SR</b>	Ministry of Finance of the Slovak Republic	<b>ÚGKK SR</b>	Geodesy, Cartography and Cadastre Authority
<b>MH SR</b>	Ministry of Economy of the Slovak Republic	<b>ÚPSVaR SR</b>	Central Office of Labour, Social Affairs and Family of the Slovak Republic
<b>MK SR</b>	Ministry of Culture of the Slovak Republic	<b>ÚS</b>	Chancellery of the Constitutional Court of the Slovak Republic
<b>MO SR</b>	Ministry of Defence of the Slovak Republic	<b>ÚV SR</b>	Government Office of the Slovak Republic
<b>MPaRV SR</b>	Ministry of Agriculture and Rural Development of the Slovak Republic	<b>V4</b>	Visegrad Four
<b>MPSVaR SR</b>	Ministry of Labour, Social Affairs and Family of the Slovak Republic	<b>VoIP</b>	Voice over Internet Protocol
<b>MS SR</b>	Ministry of Justice of the Slovak Republic	<b>ZEP</b>	Qualified electronic signature
<b>MŠVVaŠ</b>	Ministry of Education, Science, Research and Sports		
<b>MV SR</b>	Ministry of Interior of the Slovak Republic		
<b>MZ SR</b>	Ministry of Health of the Slovak Republic		

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