



# useful white paper:

**IT SUPPORT FOR BUDGETING  
WITHIN PUBLIC FINANCE MANAGEMENT**

## EXECUTIVE SUMMARY

This document should help public finance management (PFM) specialists and IT managers to understand the advantages and also the challenges of investment into information technologies (IT) in PFM. It advocates for the reasonable development of IT as leverage to speed up PFM reforms, while at the same time highlighting the risks connected to wrong decision making in the process.

PFM reforms are implemented to bring more transparency and accountability, better targeting in the allocation of resources, higher efficiency in public spending and lower financing costs. All these objectives can be achieved through wisely proposed and implemented procedures with the substantial help of well-chosen IT solutions. A comprehensive IT system should include components for budget preparation, budget execution, accounting, liquidity management and debt management. Since investing in IT is very costly, one should analyze the current budgeting practices, implement any changes to the legislation and methodology, and only then thoroughly prepare the blueprint for the IT system.

When deciding about technical aspects, choices of custom-built vs. Commercial Off-The-Shelf (usually in the form of Enterprise Resource Planning (ERP) software) have to be made. It must also be decided whether the system should be all encompassing or if it will rather be composed of different systems covering different PFM aspects, but interlinked through data exchange. And last but not least, it needs to be determined whether the IT system will be introduced to all budget users at once, or if it will be piloted and only gradually rolled out to clients.

In this document, we focus on IT support of the allocation process, which includes sub-processes such as budget preparation, budget adjustments management, monitoring and evaluation of the public budgets. The budget allocation process plays a key role in the whole PFM system, as the state budget creates the framework for future spending while also taking into consideration the expected level of future state incomes and serves as the main tool to accomplish governmental priorities. **The state budget is the main instrument for planning the future of a particular country.**

In the first chapter of this document, we describe the importance of PFM reforms in new and aspiring EU countries and the importance of prudent decision making when considering acquisition of quality IT tools that would support the reform steps. In the following chapter, we take a closer look at major aspects and factors that affect decision making in the IT system purchasing process. In the third chapter, we focus at Slovakia, a country that implemented a wide and significant PFM reform in the first decade of our century. We also look at

a concrete solution: the Budgetary information system, which helped Slovakia to meaningfully reform its public finance management and made the state budget administration more effective, transparent and under control.

## 1. USING INFORMATION TECHNOLOGIES AS LEVERAGE FOR PFM REFORM

Public finance management reforms are an important and inevitable part of wider public administration reform efforts that are being implemented across aspiring EU member countries with the aim to make their public sectors more efficient and client oriented.

Reasons for why countries implement changes to their public finance management systems may vary, from external factors (e.g., donor requirements, fiscal crises) to internally motivated goals (e.g., improving planning procedures or increasing the transparency and efficiency of public spending). Generally, there are a few objectives that all public finance management reforms have in common. They want to pursue:

- more transparency and accountability
- more targeted allocation of resources, ability to focus on priorities
- higher efficiency in public spending – value for money
- lower cost of financing – concentration of all public-sector resources in the Treasury single account

Information technology can help to leverage these PFM reform objectives. First of all, PFM reform implementation can be sped up thanks to IT support. **With a unified approach embedded in the tools available to budget users, it takes less time and effort for the designers of a PFM reform to explain it to and enforce it on all the users.** Also, compliance with new methodology increases when IT complements the changes in legislation and methodology as it introduces a clear working environment for budget users where they have to obey the rules designed within the PFM IT system.

IT support for PFM can take various forms, from basic database support for budget and accounting data through individual applications for all related budget / treasury / accounting / debt and liquidity processes to fully Integrated Financial Management Systems (IFMS). Generally, a robust PFM IT system should include these components:

- allocation and budget management system
- budget execution and payment system
- accounting system
- liquidity and debt management

The advantages of having a developed IT system covering the entire budget process are many, among them:

- having up-to-date data for budget planning and execution purposes
- being able to analyze the underlying data with standardized tools
- allowing for fact-based negotiations within the budget preparation process
- the possibility to integrate non-financial performance data (for Program- or Performance-based budgeting)

Thus, investment into a PFM IT system should pay off for the user (Ministry of Finance or line ministry) by having accurate time series for spending and performance, consequently being able to analyze the expenditure policies and their efficiency. It allows for better utilization of public resources while also lowering the costs of debt financing.

Before an IT system is introduced and rolled out, a thorough analysis of all existing public finance management procedures should be performed. Since these procedures should be reflected in the IT system, any necessary redesign should be undertaken before a blueprint of the system is handed to the IT developer. These changes need to be embedded in the legislation of methodological guidelines. After the changes in methodology, a blueprint describing the IT system's functionality in detail should be prepared. Based on this blueprint, the IT developer prepares the system, its functionality is then tested among a limited number of users, and then the IT system is rolled out to other budget users.

The implementation of a fully-fledged IT solution for PFM support is not a task that can be achieved within one year. It takes time; one needs to understand the processes and data, then design the solution and expect at least one to two budget cycles for the actual implementation, including testing.

## 2. IMPLEMENTING AN IT SYSTEM FOR BUDGETING

In this chapter, we take a closer look at major aspects and factors that affect decision making in the IT system purchase process. We focus on the budgeting system, as the state budget<sup>1</sup> plays a key role in public finance management and our experience is closely associated with the public budgeting domain. The government prepares the budget for fulfilling defined objectives. These objectives are the direct outcome of the government's economic, social and political policies.

Among the most important objectives of state budget are these:

1. Reallocation of resources
2. Reducing inequalities in income and wealth
3. Maintaining economic stability and growth
4. Reducing regional disparities
5. Endeavoring for the achievement of government priorities

At the present, a responsible and esteemed government should possess a comprehensive and reliable tool in order to fulfill all of the above stated objectives. Usually when speaking about such a tool, **modern information technologies are implied, because modern software solutions represent the most familiar way of how to bring methodology, processes, aims, tasks, outcomes, constraints, roles and responsibilities into real life.**

### Things to consider before an IT purchase

**Implementation of an IT solution tends to be one of the most crucial parts of any public finance management reform.** For this reason, it is necessary to adopt a decision to implement an IT solution only after careful consideration of all other reform steps, especially of a legal (methodological) or institutional nature.

One should also take into account the need for change management when implementing an IT solution. On one hand, this can certainly make the lives of budget users easier and help them to accommodate the changes. On the other hand, a system of trainings for users should be set in place in order to help them understand how the new IT solution can help their work. Also, strong support for clients should be present, at least during the implementation phase, in order to alleviate any problems that might arise during the process.

**When implementing a new budgeting system, the new IT tool should fully cover existing methodology and procedures in order to minimize the risk of disharmony with current legislation and denial of the new software from the users' side.** According to experience gained from many public projects, a well-advised **Ministry of Finance should not perform fundamental legislation or methodology changes along with comprehensive IT system implementation in the same domain.** Such changes should be performed either BEFORE the IT system implementation or AFTER it. The mixture of both transitions can evoke a notable animosity towards the new software among the users. It is a necessity to allocate at least one year for software transition period. User experience and collection of feedback must be essential during the introduction of a new IT system.

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<sup>1</sup> Proper use of the term "state budget" or "public budget" or "governmental budget" may differ according to local terminology and legislation in particular country. For the purpose of the study, the term "state budget" represents a comprehensive document, that estimates the anticipated government revenues and government expenditures for the ensuing (current) financial year, including revenues and expenditures of municipalities, local governments and other public administration bodies.

**A high-quality budgetary system should be flexible enough to reflect all the requirements of the relevant stakeholders (budget officers, heads of departments, politicians) as well as local specificities. It should cover all key processes that occur within the budgetary system.** It should also be scalable and dynamic in terms of expansion of users and system functionalities. Last but not least, it should implement an intuitive and user-friendly environment.

From the technological point of view, one needs to decide about the system architecture. Modern systems tend to run centrally from a remote server, where the database is located as well. Clients access the database through a secured connection via their desktops, laptops or mobile devices. Browser-based solutions with authorized access are also possible.

#### **Institutional aspects**

Generally, an IT system is applied in order to support methodological and procedural changes in public finance management practices. It can also be applied to support the current practices, but in a reform scenario, we can assume that IT should help users to accommodate the changes that are designed to enhance the public finance management system.

Usually these include legal and methodological amendments such as requirements for medium-term budget planning or program budgeting. Without IT support, the implementation of these new requirements is very cumbersome.

Methodological changes are often translated to modified institutional arrangements. **These can range from creating new institutions (e.g. Treasury, Fiscal council) or internal units with specific tasks – e.g. internal audit units within Public Internal Financial Control (PIFC). These institutions need to have access to specific data in order to be able to execute their tasks, and the IT system helps them with access and administration of data.**

In the context of budgeting, generally a decentralization of financing tasks is done from the Ministry of Finance to line ministries. Also within line ministries, the policy departments take over the financial planning of the policies they are designing, and the financial department supports them instead of managing all the finances of the particular ministry. Under such circumstances, the IT system helps to create an environment with clear tasks and responsibilities for each user and makes the data exchange more manageable.

**Ideally, an integrated IT system supports comprehensive coverage of budget processes across all vertical and horizontal levels. The vertical line stretches out from**

**Ministry of Finance, through line ministries, to budgetary organizations<sup>2</sup>. The horizontal line represents support for different functions at the same level, e.g., budget preparation and budget execution at the Ministry of Finance level. The IT system should allow for automated data exchange between these lines.**

The implementation of an IT system also has a significant impact on how the organization functions. Since many of the tasks are automated, this fact should be reflected in the adjustment of staffing and procedures within the particular organization. Eventually, new analytical tasks can be introduced based on the improvement in quality and accessibility of data.

#### **Standardized ERP solution versus custom-made IT system**

When deciding about the technical solution for an integrated PFM system, there are generally two possible approaches. One is to opt for a **custom-built system**, the other to opt for a **universal standardized Off-The-Shelf ERP system and adjust it to the needs of the budget process.**

While the procedures in the private sector allow many companies to use a unified IT solution, this is often not the case in the public sector. In the private sector, budget planning is not that important, as the organizations tend to be less complex than those in the public sector and also the spending plans are often adjusted based on actual revenues. What counts is the profit. **In the case of the public sector, budget planning (the allocation process) is the most important management tool – together with policy planning. Also, the budget planning process differs from country to country due to historical administrative differences, and thus a unified IT solution is just very hard to implement.**

The main differences between private and public organizations affecting decision making on obtaining an ERP or custom-made IT system were described by Rainer Sommer, School of Public Policy George Mason University, in 2006. According to his research,<sup>3</sup> the most crucial difference lies in **No “Bottom Line” Incentives:** *“Public sector organizations have no strict bottom line incentives; such as profit, customer satisfaction, or competitive advantage. Although often used to describe public sector inputs and outputs, these concepts have a different meaning than in the private sector. It is often not clear who a “true” public sector customer is, because there is no straight forward “payment for services” model that can be baselined to measure performance. From an ERP perspective, if the customer cannot be readily identified, then the solution often falls prey to a host of competing political agendas that do little to enhance the business efficiency of the organization. This continual reconciliation of competing agendas causes timelines to slip and costs to increase.”*

<sup>2</sup> Self-government bodies, including subordinated organizations, can also be included.

<sup>3</sup> <http://www.ibimapublishing.net/journals/CIBIMA/2011/162439/162439.pdf>

According to the above-stated research, opting for a customized system is usually better than applying an ERP solution. Usually, ERP systems are aimed to cover the needs and processes of private-sector entities, not public bodies. Those software solutions better reflect the needs of the private sector.<sup>4</sup> In addition, practical experiences and case studies show that ERP system implementations are meaningfully risky for states. Panorama Consulting research reported in 2014 shows that 78% of public-sector ERP implementations are over budget and over schedule and 35% simply fail.<sup>5</sup>

### Complex and unitary PFM system versus specialized modules

The second decision is whether to opt for an integrated unitary system with modules covering all the above-mentioned PFM components, or whether to cover each component of the PFM system with a separate specialized IT solution and ensure exchange of data between these IT systems to gain the benefits of integration.

**In many countries, implementing a big integrated system from a single vendor at one time has failed or hasn't met the requirements on a satisfactory level, leading to significant sunk costs from the public budget.** On the other hand, the modular approach, where different components of the PFM IT architecture are developed separately, have proved to be more successful. Obviously, clear coordination must be in place and the same data and interface standards should be applied across the individual IT systems.

There are also two distinct ways of implementing and phasing in public finance management IT systems. The first is the “big bang” approach, where the system is carefully designed and prepared (which can take several years to accomplish) and then rolled out at once across all budget users. The second approach is the gradual implementation and continuous development of the IT system. Also in this case, **the gradual approach seems to be more successful** as the piloting allows for testing the IT system properly before it's fully rolled out.

### 3. COUNTRY CASE: SLOVAKIA

Slovakia started to implement its public finance management reform in 2000, and later developed a structured comprehensive reform program together with the World Bank focusing on several aspects of public finance management, including:

- fiscal forecasting and modeling
- budgeting – including medium-term and program-based budgeting
- cash and debt management – establishment of Treasury and the single account of state, definition of debt strategy and institutional setup for cash and debt management

- accounting – introduction of accrual accounting in line with IPSAS across the public sector
- public internal financial control – establishing internal control bodies and procedures together with audit structures and practices

The reform focused on several aspects, including legal and methodological amendments, reorganization of internal government processes related to PFM, creation of several new institutions and definition of their roles and responsibilities, as well as ensuring of proper staffing. The public finance management was not only reserved to the Ministry of Finance and its subordinate organizations, but also key line ministries were involved and provided technical assistance in the form of methodological guidance from the Ministry of Finance and dedicated long-term advisors.

**During the public finance management reform in Slovakia, IT was playing an important role. Changes were being implemented at an extremely high pace, and in order for the budget users to keep up, it was inevitable that tools would be made available to help them accommodate these changes. IT thus facilitated the easier and faster spreading of the public finance management reform across government.**

Specifically in the realm of budgeting, it was the continuous development of the Budgetary Information System (BIS) that allowed for the introduction of a 3-year budget framework and program budgeting.

Initially, BIS was available to only a handful of Ministry of Finance professionals to make the aggregation of data from line ministries easier. In a couple of years, BIS had also spread to line ministries, supporting the budget preparation process and data exchange with the Ministry of Finance. **After several years of development, BIS covers not only all line ministries but also all budget organizations and now is extended to cover regions and municipalities as well.**

Also, the coverage of processes was extended over time. Currently, BIS supports the top-down management of appropriations on multiple levels, bottom-up collection of data when budget aggregates are broken down into expenditure items, changes in budget allocations made during the fiscal year, **online exchange of data with Treasury**, as well as budget analyses of historical and forecasted data. **It also includes non-financial data related to program budgeting – programs, objectives and indicators.**

<sup>4</sup> <http://freebalance.com/public-financial-management/erp-in-government-fail/>  
<http://panorama-consulting.com/another-public-sector-erp-failure/>  
<http://panorama-consulting.com/the-real-reason-why-public-sector-erp-implementations-fail/>  
[http://www.purdue.edu/onepurdue/about/documents/implementing\\_erp\\_public\\_ooo.pdf](http://www.purdue.edu/onepurdue/about/documents/implementing_erp_public_ooo.pdf)

<sup>5</sup> <http://panorama-consulting.com/part-i-the-path-to-innovation-in-government/>

## POSAM'S BUDGETARY INFORMATION SYSTEM (BIS)

BIS was applied for the first time in 1996, and only served budget preparation at the Ministry of Finance. At the present, this system is being used by more than 14,000 users at more than 4,500 public administration bodies, including municipalities.

**The Budgetary Information System has been developed specifically for budgeting, employing the collective know-how of experts on budgeting, public administration and finance. This team of specialists – the analysts, consultants, developers and operational experts behind the BIS system – boasts over 21 years of experience in the budgeting domain.**

BIS uses general budget principles that can be applied to the discretionary model of budget management. That means it can be adapted to the specific budgeting rules and processes of various countries. The system makes use of modern methodologies that support the principles of performance-based budgeting and the processing of forecast budgets. Classifications can also be added and amended throughout the year without disrupting time series consistency. BIS can even display previous budgets in the structure of the current budget.

The intelligent user environment is designed with functionality, simplicity and user comfort in mind. This ensures simple navigation in a multidimensional space. **Access to the system is made online through the web interface and the data are processed in real time.** Thanks to that, users are always provided with up-to-date data.

The modular architecture of the system means the customers themselves can decide on the extent of implementation or integration with existing information systems (for example, with accounting systems of state organizations and local governments). The application can work as a standalone system or as part of a State Treasury system, and can be scaled at any time to customer requirements or any number of supported organizations. **The system comprises a universal integration interface for data synchronization or cooperation with external systems.** The centralized architecture of the BIS system was developed on proven platforms such as Oracle and according to the open standards of J2EE. The universal integration interface is SAP certified.

“In our many years of mutual co-operation, PosAm has always risen to our expectations and I am very glad that our successful partnership continues to the present day.”

**RADOVAN MAJERSKÝ,**  
Director of the Budget Section  
of the Ministry of Finance SR

The system itself ensures effective compliance with expenditure limits at all program funding levels. Automated approval mechanisms check authorizations to make budget adjustments for individual hierarchical levels and their automatic enforcement and application. BIS also facilitates easy information sharing and reporting with EU institutions, the OECD and others, in compliance with defined standards.

### Budgetary Information System architecture

The coverage of supported processes, as well as the number of clients, can be expanded over time. The Budgetary Information System comprises of all the key processes that occur within the comprehensive management of a complex state budget:

- comprehensive budget planning, including top-down setting of expenditure limits for subordinated bodies, and bottom-up detailed budget breakdown
- management of budget adjustments vital for keeping the budget data up to date so that it can be passed on to Treasury for budget execution purposes
- program budgeting, including the classification of programs (several levels supported); non-financial indicators; monitoring, evaluation and reporting on program implementation
- management of investment, comprising all projects financed from the capital budget

BIS has a separate module for keeping the classification system of budget data in place. Classifications can be adjusted by the system administrator (Ministry of Finance) or users (in the case of programs). Management of user roles and user rights is a complex process with dedicated IT support. In BIS, there is a special module called “User Management”, in which there are various roles with different user rights for particular modules. User rights are granted according to a signed request from an organization statutory.

All changes in data are logged, so there is a possibility to backtrack to find out who did the change and when, and possibly also to revert the changes to the original state. BIS also has built-in controls for data integrity so that the budget users cannot exceed the limits allocated to them from the budget supervisor. **There is an online exchange of data between BIS and other public finance management-related IT systems, particularly the State Treasury. Data integration can be secured via the SAP Process Integration platform or through other standard interfaces.**



## Advantages of BIS

### Significant savings of public finances

Thanks to its dynamic public finance management and online access to live data, using BIS ensures the more efficient use of public resources. As liabilities of the state are recorded at the time of their origin (usually when a contract between the state and a second party is signed), the budget is constantly updated and **free balance for every budget classification is calculated in real time**. Positive impact of online data availability on debt and liquidity management has also been achieved.

### Fast, flexible and efficient budget creation and management

Particular steps of the budget cycle have been accelerated significantly. Procedures that used to last for weeks or months in the past are now being processed within days or hours. For example, from the point of budget adoption in the parliament, it takes only a few days until all organizations in the state can work with their detailed budgets. In case a budget adjustment request comes from a third-level organization, the superior line ministry is informed through the system in real time. When things are prepared, a budget adjustment request can be approved within a few hours. **By introducing BIS, a significant simplification of workflow at all levels of public finance management has been achieved.**

### Simplifying the process and increasing quality

The automated processes which cover the entire budgetary cycle and their adoption on all the levels of public administration have been simplified and have streamlined the work for state administration on all budgetary levels. **Budget officials at the line ministries and their colleagues at subordinate organizations all work with the same system, sharing the same online data and legislative procedures.** The allocation of resources in regard to policy objectives is being performed in a more meaningful manner.

### Improved control and more transparency

BIS effectively controls spending limits on all budgetary levels. **Since the introduction of BIS, the number of cases of budget overrun has decreased to an all-time low.** Streamlined approval mechanisms ensure budget adjustments on individual hierarchical levels and their automatic enforcement and application. This is mainly due to real-time integration between budgetary and payment systems of the state. The transparency ensured through the publicly accessible budgeting portal helps to mitigate non-efficient utilization of public funds.

### Professional user support

A dedicated call center serves all BIS users when dealing with any issues, problems or questions. There are three levels of such support: on the first level, the calls are collected and simple questions and issues are solved; on the second level, there are skilled professionals who solve more demanding problems related to the usage of the application. At the third level, there are PosAm experts who have detailed knowledge of both the system and the legislative procedures.

"I am very glad to be able to present BIS to many countries as an example of comprehensive support for the budgeting process, established on sophisticated and complex methodologies. It is evident that the PosAm consultants have executed a perfect job at the Ministry of Finance of the Slovak Republic."

**JURAJ RENČKO,**  
World Bank Consultant, PFM expert



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## ABOUT POSAM

PosAm has been active on the Slovak market since 1990. From a humble few IT enthusiasts, the company has developed into a corporate structure with over 250 employees. In 2010, PosAm became part of the Slovak Telekom group, thereby reaffirming and boosting its position as a leading IT company in Slovakia. The main goal of the company is to provide partners and customers with usefulness by way of unique solutions using the potential of a broad spectrum of information technologies. PosAm concentrates its efforts on the provision of services and solutions for corporate customers. As part of its portfolio, PosAm offers individual software development, its own application solutions, system integration, consultation services, outsourcing and infrastructure solutions. Our partner relations with world leaders in technologies, combined with the innovation potential of the management and a strong local team supported by investments into employee education, are a sure guarantee of continual progress and top quality work.



PosAm's goal is to deliver usefulness to customers through unique solutions based on potential of information technologies. The company is certified by ISO 9001:2008, ISO/IEC 20000-1:2011, ISO/IEC 27001:2005, OHSAS 18001:2007 and ISO 14001:2004. PosAm is the holder of the National Quality Award and as the first Slovak based company it was granted the award „Recognized for Excellence in Europe“ by the European Foundation of Quality Management (EFQM).

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