

IMPACT OF STATE TREASURY OPERATIONS ON THE SAFETY OF THE BUSINESS COMMUNITY

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ABSTRACT

As a continuance of the series of articles opened with the examination and analysis of the evolution of government liquidities, the paper at hand proposes a theory on treasury operations and how they operate in the economic landscape. This paper is an abstracting which seeks to illustrate causal and related links that innovation exercises on government flows, the relationship between the innovative management tools of government liquidities and the need to optimize the financial structure of the State Treasury.

From this perspective, the paper tries to offer an improved understanding of the need to optimize the management tools from the perspective of a permanent aligning to the technological innovations of the financial ecosystem, so that a "correct dosing" of government flows through injections and/or absorptions of liquidity corroborated with proactive management of the resources mobilized on different currencies, budget sections, territorial units, etc., should allow operational cost reductions, once with a beneficial choice of defining channels: economic and financial channels. As author, I am aware that it might be seen, by a regrettable mistake, as the "sheriff of Nottingham", an important figure in the legend of Robin Hood. But, no. Of course not. But I must emphasize that the sheriff of Nottingham is abstractly represented in the article by the "activity" delegated to the treasury, while I present today the perspective of adopting innovative technologies for the role of State treasurer. Most certainly, what is today innovative in the financial field is merely the top of an iceberg and there will be so many colleagues that will share through their approach the impact of innovation on the need to optimize public treasury flows.

KEYWORDS: *innovation, technology, optimization, forecast, prognosis, treasury, collections, payments.*

1. INTRODUCTION

1.1 Public resources management from the perspective of a contextual challenge

The State Treasury has undergone extensive changes in recent years, both with regard to the size and complexity of operations. As a consequence, the management process (cash and debt) has become more and more difficult, requiring improved planning, analysis and control skills, which are meant to guide the future of the organization that is now facing spectacular evolutions of technological innovation which have an impact on social, political, and economic manifestations.

The purpose of this article is not to seek a controversy regarding the economic substance of fiscal policies from the perspective of government liquidity management, but it is worth emphasizing that financial innovation has led to the distribution and packaging of risks under the form of completely innovative products which do not allow a correct assessment of the high degree of exposure thereof to market fluctuations.

Thus, it is more and more obvious that the State Treasury's actions must be permanently assessed with respect to adopting innovation in the general picture of fiscal and budgetary management, as

well as in the duties related to financial optimization and government liquidity management. Budget execution, just like government fund management, requires the existence of clear conditions of the legislative framework, in order to ensure viable and transparent management of public finance flows and minimize risks. At the same time, medium and long term economic and financial prognosis on revenues and expenditures is an important precondition in making fund management more efficient and optimizing treasury flows and this in close relation to the correct assessment of technological innovation.

At theoretical level, the objectives of financial planning and management are quite simple; they are only difficult in practice. In theory, a person must only decide which are the necessities (specification of purposes and objectives), he/she must measure these necessities (quantification of benefits sought), and then he/she must apply the available means to obtain the highest possible value of the identified needs (maximizing the benefits).

A basic principle of financial management is that costs should be accepted only if the community or organization in question is thereby expecting to obtain progress towards reaching previously established purposes or objectives. The determination of the extent to which the commitment of budget resources improves conditions in the business community and performs the activity may nevertheless become a complicated process, especially if there is no base of assessment of the value these actions might have for the community. Therefore, today, many public choices are still open to political decision.

The common denominator of treasury resources is the cost implied by the use thereof. The production of public and quasi-public goods and services requires the purchase and allocation of relatively poor resources, whose value is measured and compared in the common unit, i.e. currency. Thus, the focus in management is often placed on financial resources.

In the current framework, given the continuously increasing role of the government and of other organizations in the economy, public interest in efficient performance of these organizations and institutions is increasing as well. In the absence of the market's verdict, the role and responsibilities of financial management in the public sector are clearly bigger and more important than in profit oriented organizations.

Starting from the basic functions awarded, the State Treasury manifests its traditional role of public financial management, that of "keeping score" - accounting of collections (revenues) and payments (expenditures) at the same time as identifying the magnitude of future needs, synchronizing them, negotiating to obtain the corresponding resources to satisfy these needs, to allocate existing budget resources and manage costs.

Today, in spite of the biggest efforts of obtaining rigor and sophistication, scientific analysis cannot provide definitive answers for many of the questions involved in the allocation of governmental resources. Nevertheless, a continuous search must be sustained in order to find more productive manners of operation of public organizations and of assessment of their capacity of adapting to fluctuating conditions and answering to service delivery requests.

As I have shown in my previous papers (Andrei & Brezeanu, 2014a, b), a decisive step for optimization of the treasury's financial structure was made when designing, developing and implementing the electronic payment system of the State Treasury (Romanian State Treasury - Electronic Payment System, RoSTEPS) and connecting it directly to the banking infrastructure and the participants to this infrastructure.

This step has led to the implementation of a modern monitoring system, both at the level of financial transactions and at the level of the IT platform and it has proven to be extremely beneficial to ensure a proactive financial management environment and an efficient tool to mitigate operational risk. From a technological perspective, the infrastructure has been permanently improved to offer compliance with the standards and regulations applicable to the banking community. In addition, forecast tools have been also added to monitor the activities and take fast decisions, which is essential in a market dominated by high financial volatility (Celent, 2016).

Developed around the FinTP (Allevo, 2017) suite, in full compliance with European public policies of good practice in the “e-governance” field, RoSTEPS is a tool used in the management and transfer of public funds in Romania, offering innovative elements ever since its implementation (Andrei, 2010).

On the business line, RoSTEPS has allowed:

- The use of IT&C instruments that allow the automation of processes and real time account management, thus being reduced and almost completely eliminated the need for human intervention, with a direct impact on increasing efficiency, decreasing costs and minimizing operational risk of the state treasury;
- The consolidation of local treasury accounts into the account of the central treasury, which allows the optimal redistribution of available funds according to the needs that exist at a certain point in time, this being made on-line, in real time, at national level;
- The use of prognosis tools to monitor payment requests and excess availabilities;
- The same level of data quality (regarding security, authenticity, safety, uniqueness), as that provided by SWIFT to its clients;
- Compliance with the latest business standards (SWIFT, SEPA, ECB, ISO 20022, etc.), as well as with the standards in the IT industry (relational databases - Oracle, IBM WebSphereMQ, IBM WebSphere Application Server);

In technical terms, RoSTEPS has paved the way for innovative features like the adaptable routing mechanism, the message improvement mechanism, the remarkable power for nonvolatile “end-to-end” transactions (six times bigger than a non-optimized middle ware solution for financial transaction processing), integrated reconciliation of financial messages.

The advantage of adopting and using ever since the implementation stage the newest standards, the communication and business tools, has proven to be a big achievement of the RoSTEPS solution, which has led to an increase of the relationships with the business environment. In this manner, it was ensured the system’s sustainability, because it has presented a step ahead with regard to compliance with the financial and banking standards and legislation, respectively creating easy interoperability with future systems, as presented in the figure below (Celent, 2016, Deloitte, 2015).

Today, from the perspective of technological developments, the State Treasury takes full advantage of the connection to the local financial architecture to improve national interoperability and the competitiveness of Romanian economy in the landscape of the European Union. The RoSTEPS project has laid the bases of automation at the level of government institutions, and we can already think about extending it at higher level of integration between institutions.

Integration + automation open the way for benefits referring to increased speed for funds transfer and collection, transparency, traceability and integration with the private business environment.

Why should the Treasury do this? Not only because it is responsible for conceiving public resource management strategies and the complete implementation thereof, but also because the complex role of “cashier of the State” is manifested through the assurance of the fact that the collected taxes and charges are managed in the interest of the best budget execution (Celent, 2016, Deloitte, 2015).

2. EXPLOSION OF FINANCIAL INNOVATION AS A RESPONSE OF THE FINANCIAL SECTOR TO CRISES. ASSESSMENT OF THE REGULATIONS, ACTIONS FOR THE PRESENT AND CONSIDERATIONS FOR THE FUTURE

The dynamic of globalization and integration of the financial industry projects the existence of a direct relationship between the persistent crises on the international markets and the manner in which the financial sector has evolved in the last decade, towards total liberalization and decoupling from the processes of real economy. Crises generate and require fast intervention reactions, materialized through innovation, because innovation is very much encouraged by difficult situations to solve either spectacular cost reductions or the facilitation of revenue increases with big margins, or the simultaneous approach of both directions (Celent, 2016, Deloitte, 2015).

The global industry of financial services which, following the crisis, has recorded in “waves” (due to the bubbles on the capital market, the credit market and the derivatives market), has been strongly regulated in recent years at regional, global and national level, imposing strict prudential measures:

- of own capital adequacy Basel III,
- of combating fraud and terrorism financing (AML),
- of agile monitoring and uniform reporting (for example, real time reconciliation, intraday liquidity) .

Also part of the Basel III Agreement, the financial industry has passed to giving customized solutions for the needs of every client, to the liberalization of the establishment of infrastructure to process PSP financial instruments of the new card schemes and of transaction processing on specialized verticals (for example, utilities), etc.

Additional pressure on the financial services industry with impact on the public treasury has also arisen due to the launch of revolutionary technologies of distributed registration of transactions in open networks of blockchain type of the BTC (the protocol behind the Bitcoin cryptocurrency), of securing the identity of participants to transactions, of restructuring the Ripple correspondent transactions (open standard of the TCP/IP Internet protocol based on routing technology) and of optimization of the payments of payment services provides (PSP), in order to erase and discount transactions in real time, through a distributed network, and to perform fast payments in several currencies on several markets (Celent, 2016, Deloitte, 2015).

The response of banking and financial institutions (from the vanguard of restructuring) was for a systematic approach of the redesign of their own institutions, portfolios and operations. Thus, the architectural nucleus of the systems of automation and making objective the processes is made up of Back-Office systems, capable of agile integration of new types of products and services, a flexible system of access to the business clients and partners, a smart analysis system of the clients’ behavior segmented on the main business targets of the institution.

September 2019 brings to the Member States of the European Union the implementation of a new open business model in the financial and banking industry. Thus, the revised Payment Services Directive (PSD2) requires banking institutions to expose data about the accounts of their clients and to allow the initiation of payments by a third-party institution, at the client’s request. These data are accessible through interfaces of API REST (Application Programming Interface Representational State Transfer) type. The data format may differ, since the European Union has adopted several standards, like Berlin Group Next Gen, PolishAPI, STET PSD2 API, etc (Network World, 2013, European Payments Council, 2013).

In order to ensure data security and integrity, the Directive imposes a technical Security regulation, TSR, which presupposes the authentication of the client through SCA (Strong Customer Authentication) mechanisms, an example used being the OAuth2 mechanism)Celent, 2016, Deloitte, 2015).

From this perspective, APIs represent means of accessing services based on high data volumes, having the potential of transforming any means of communication from the financial field (not being limited thereto):

- from technical and management operations of Back Office systems;
- to business strategies, risk management and mitigation and even sales or client support services (HM Treasury and Cabinet Office, 2014, European Commission, 2018).

API REST technologies are currently increasingly sought and used in the financial services industry, the tendency being for them to be adopted on a large scale in the near future. The concept of “Open Banking” at the level of financial and banking industry shows how a communications infrastructure which connects the financial institutions and allows real time data exchange can be created, thus reducing friction. Although financial institutions have in their own structure different applications and infrastructures, the construction of a communication level based on APIs interconnects them and allows them to interact (HM Treasury and Cabinet Office, 2014, European Commission, 2018).

3. API INTEGRATION, CHALLENGES FOR FUTURE GOVERNMENT PROJECTS

The speed at which operational concept amendments are propagating at the level of financial communications and transactions within the regional and global financial ecosystem, which was hard to imagine a while ago, imposes a correct and careful assessment of the organizational and technological model and of financial management that the public treasury must face.

In this framework, the State Treasury must keep both its safety and its operating competitiveness, so as to be able to swiftly implement the updates for interoperability with the business environment and the citizens, to optimally manage financial resources and be able to establish trading connections rapidly and at low costs.

The “lessons” of the economic and financial crisis have revealed the extrapolation at global level of the market behaviors and of the measures of protection of the players from the financial market which, under normal conditions, apply in relation to a counterpart which is undergoing a stressful situation (European Commission, 2018).

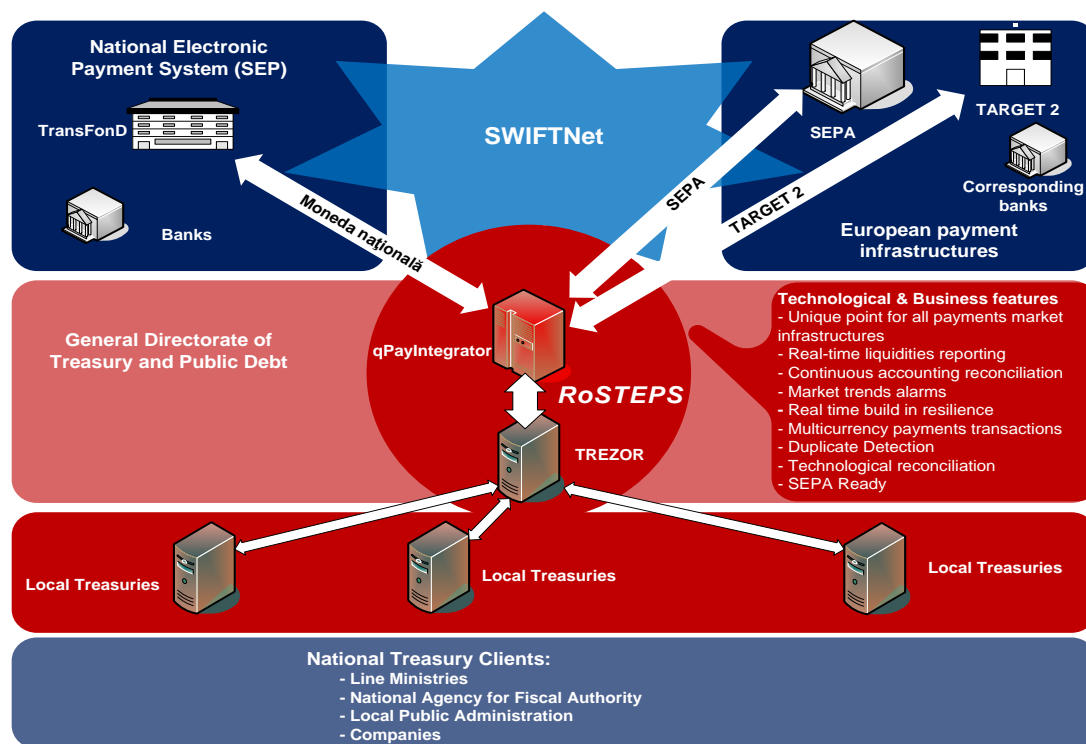


Figure 1. Architecture of the State Treasury's business platform (Andrei, 2010).

Source: own processing

Coming back to the model of the “Open Banking” concept promoted in the banking community, it is obvious that this model can be replicated at the level of the treasury (from the perspective of its own counterparts), the main advantage being that it is not necessary to change the IT infrastructure of every counterpart. Recently performed projects prove that the communication level through API can be implemented as a supplementation of existing architectures, offering a fast, secured and efficient communication level, which has a minimum impact on existing software and hardware platforms.

This model makes possible the interconnection of public institutions, without impacting day to day activity, and it makes it possible to automate the communication processes between them. From the treasury's perspective (especially of the need to optimize cash flow projections, of the business relations with its own clients, etc.), APIs implementation would contribute substantially to flow optimization. This is due to the fact that the information regarding commitments can give to the forecasts made an expected client profile or, at least, a warning regarding bigger expenditures.

In order to use such a model, considering the specificity of the State Treasury in the financial landscape, the advantages can be resumed at:

- the reduction to a single type of external interfacing through the implementation of the standard used in the financial and banking community as a result of the implementation of Open Banking projects would implicitly lead to low maintenance costs
- From the perspective of risk monitoring and control of possible illegal actions, this model offers increased security for transfer and processing of sensitive data, considering also the regulations at the level of the interface published by the European Banking Authority, namely the Regulatory Technical Standards (RTS) (European Bank Authority, 2016).
- ensuring automatic processing of payments from the bank account and automatic taking of account statements, in real time, which eliminates the effort of manual connection to every banking interface (an operation performed at this point several times a day by financial departments)
- accessing the accounts held at one or several banks/at the treasury to obtain account related information (balance check and transaction details, account statements, transaction history) in real time (European Payments Council, 2013).

In addition, it becomes possible for a main institution to aggregate information, and this institution could adopt the role of giving affirmative or negative answers without disclosing sensitive data to other institutions. Examples include affirmative or negative answer whether one person is listed with the credit bureau, if he/she pays contributions to the health insurance house, blocked charges, garnishments, etc. This process is meant to protect citizens' personal data, at the same time as making more efficient the activities that State institutions (including the treasury) carry out and this is obtained through automation of processes which are still majority based on official letters sent most of the times on paper.

Once an interconnection is ensured between public institutions in Romania through interfaces of API type, it becomes possible to implement distributed ledgers, with applicability at the level of several types of institutions. The main benefits of the distributed ledger type technology are transparency and traceability, through the existence of a history accessible and unalterable of all transactions registered in such a system.

4. CONCLUSIONS

Any research that has the purpose of optimizing a governmental financial structure of public treasury type must take as starting point the analysis of the internal economic and political profile, values studied from the perspective of the performance and institutional flexibility profile.

The economic and political profile reflects arguments with regard to the country's economic stability and that of governmental institutions, as well as the governmental capacity with regard to the elaboration of public policies. The profile regarding flexibility and performance offers reasoning with respect to the sustainability of the fiscal balance and of government debt, of the monetary balance and it is analyzed by considering the country's external position and its fiscal and monetary flexibility. The tendency towards digitalization and automation of the processes is undeniable and in the following 5-10 years State and private institutions will go through a fundamental transformation of the manner in which they are presented on the market and how they communicate. It is essential in this framework that the technological choice for reaching this objective is made responsibly. This means that the chosen software applications and hardware architectures must observe a few principles, namely:

- they must have a responsible design;
- they should be independent from a certain technology provider to a higher extent;
- they should be easily connectible and auditable;
- they should be implemented on the basis of good practices and of internationally adopted standards;

- they should be easily scalable and should protect citizens' personal or sensitive data.

Personal research actions identify:

- The positive analysis factors, which are related to the degree of liquidity of assets, to the government flows, as well as to the government capacity, on short term, of increasing government revenues or reducing government expenditures by more than 3% of GDP. This factor is based on a qualitative assessment of government policies, considering the numerous obstacles of political, constitutional, administrative nature, as well as the consequences of economic and social measures.
- The negative analysis factors which are related to revenue volatility that may boost fiscal performance; the limited short-term government capacity of increasing revenues, especially due to the difficulties related to their collection; the increase of expenditures in the education and health sectors, which can cause long-term pressure on the State budget.
- The neutral factors, but with an impact on macro-stability: the organizational architecture of the State Treasury.

Through an API interface can be sent all those data for which there is consent and for which the party requesting them is accredited and authenticated to execute the respective operations. The data stored by an institution thus remain protected and this is a key element for the success of the digital future of public administrations (European Payments Council, 2013).

If these principles are observed, the impact on Romanian society and especially on the business environment will be visible within a very short time, through:

- the increase of the degree of financial inclusion;
- the increase of the degree of taxation;
- the increase of the possibility of traceability and the decrease of the appetite for fraud and evasion;
- the decrease of the time spend to operate these processes manually, like the issuance of documents on paper, the sending, reception, registration, transmission to the corresponding institutions and departments, formulation of a response and resuming of the process (European Payments Council, 2013).

At the same time, the interaction through API interfaces allows the treasury to exchange data, without exposing the entire data structure, from which the applications which send information through the APIs extract the data, presented below.

Glossary

API - message language and format, using software applications to communicate between them;

Payment Services Providers (AS-PSP) - Institutions which offer to the current accounts a payment functionality to their clients;

API Design - the architecture of the API implemented with the purpose of ensuring performance, scalability and simplicity (the most known design principles being SOAP and REST).

Open API - Communication of software applications of the different organizations which use APIs.

Open Banking - a term which is still under construction, but which refers to promoting transparency, as well as free and unlimited access to knowledge and information.

Open Data - open data represent the idea that certain data should be free for everybody to use and republish as they wish, without restrictions arising from copyright, patents or other control mechanisms.

Open government - the open government is the governance doctrine which says that citizens are entitled to access the government's documents and procedures in order to allow efficient public supervision.

API partner - APIs for use by the partners on the basis of bilateral agreements Payment Services Directive

Payment Directive (PSD 2) - the Directive of the European Commission regulating payment services and payment services providers in the entire European Union (EU) and the European Economic Area

(EEA). The purpose of the Directive is to increase pan-European competition and participation to the payment industry, also outside banks, and to ensure equitable competition conditions, through harmonization of consumer protection and of the rights and obligations for payment providers and users

SOAP (Simple Object Access Protocol) – API design principles.

Syndication services - services offered when several market participants co-create to offer a product or a service to the clients.

Standard XML (Extensible Mark-up Language) – API data coding standard (format).

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