IMPROVEMENT OF FINANCIAL TREASURY SYSTEMS EFFICIENCIES' THROUGH INFORMATION TECHNOLOGY

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Abstract

This article explores the significance and contribution of Information Technology (IT) in improving the efficensies of financial systems, especially treasury systems, related to ministry of Finance in Albania as a case study. All this process, further, will have direct impact in macro level, especially refering creating and improving a knowledge based economy, through specifically, contributing in finance and government. This new technological development in the financial industry is known as "e-finance" in the literature. Following the development of the Internet and IT and their continuously growing implementation in all fields of the contemporary society, the economic entities are provided with unlimited opportunities for improving their effectiveness and efficiency, as well as for achieving higher competitiveness on the global market. As moving from an industrial to information society will bring us soon in the path of knowledge based economy.

Should Albania be the proper case of following the model that it's based on it? Are we ready to follow up on this way? How much effective we can be? What are the Albanian experiences on this model? What we propone? These, are some of the main questions that the authors intend to gives answer. This paper is based in a detailed treatment of theory and comparing the results and discussion with Albanian case, but not only. There are treat also some other cases.

This article conclude that the use of IT has fundamentally improved the efficensy and the quality of government services and financial institutions.

Keywords: financial systems, Treasury System IT, e-Finance, Albania Ministry of Finance.

JEL Classification: G0, M15, O32.

1. Introduction

The world has already been moved from the industrial economy to the networked and digital economy. In this new informational era, characterized by the fast growth and development of IT (Information Technologies), a further and faster expansion of internationalization and globalization processes can be witnessed. The economic world has moved from cluster of national economies to a global, wide,

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international marketplace. Though, the emergence of global business models based on digital technologies and Internet has become an imperative for companies of all size.

"Information and Communications Technology" refers to all technologies and services that enable information to be accessed, stored, processed, transformed, and disseminated, including the transmission or communication of voice, image, and/or data over a variety of transmission media and exchange of information and communication services. Information system are usually applied in the newly developed industries. Moreover, the use of IT may spur the further integration of the financial institutional markets across nations. During the last decade, information technology has profoundly changed the landscape of financial markets and even the governments, becoming and transforming in this way many economies in different countries. The use of IT has fundamentally improved the quality of government services and financial institutions. This dramatic development, known as e-finance and e-government, has become a focal point of practice in many countries with aim of developing a economy based on

2. Literature review

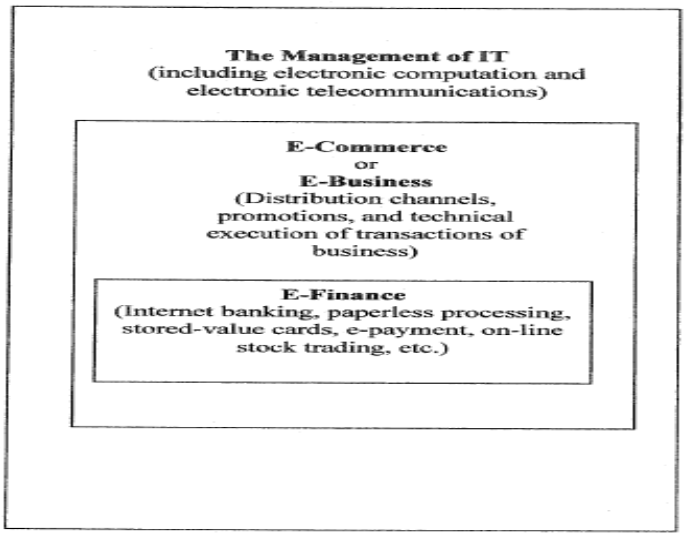
During the last decade, IT has profoundly changed the landscape of international financial markets. Some european develepd countries are changed due to this new trend, some other as emerging markets have become considering the largest customer in the IT in the economy (Frei, et al., 2008). The use of IT hav overhelmingly and fundamentally improved the quality of financial services and operation of government finance (ministries or finance agencies).

What is e-finance? Hartmann (2002) defines e-finace as "Transaction in which funding for an economic activity is provided thourugh an electronic communication medium". By definition, e-finance is a branch of e-commerce and e-government os therefore an application of e-finance (Allen et al., 2002)

Internationalization of financial institutions and governments is support by IT as a path through the e-based services. Many countries have joined the European Economic Union and the World Trade Organizations. Also, services, goods are allowed to move easily across the national boundaries, meaning that international harmonization of regulation in financial markets is expected (White, 2000). The diffusion of e-finance technology across nations further speeds up to the transmission of information in different countries. This means that, the global financial markets could become more unified than before due to the progress of e-finance (Claessesn, 2004). What result for the literature is that *financial institutions are the major customer of IT,* justifying substantial IT investment has become necessary and important (Allen et al., 2004). There are some advantages from the presence of IT in financial markets. Therefore, an investigation of the international market's integration of financial intermediaries along with the development of Information Technology is important. Also, IT has brought the "*technological change*" among the

financial institutions. This concept is too broad to capture the contribution of IT. Therefore, it is critical to evaluate the impact of IT on the financial industry. We should say that it is important to investigate and evaluate the impact of IT on financial markets, institutions, government and services *across different nations*, given that the world economy is increasingly globalizing.

Figure 1: Relationships among IT, E-Commerce, and E-Finance



This figure shows the theoretical relation between information technology, e-commerce and e-finance. This figure anticipates the treated case.

How much IT has impact on knowledge?

The use of information technologies (IT) is an essential component of modern day societies and economies. IT is required for modern businesses and governments to operate efficiently and enhance service delivery to the public and to the private sector among others. People also require IT so that they can take advantage of these efficiencies and services in order to improve their quality of life and become more self-sufficient.

Economies are increasingly based on knowledge input, which has always been the main source of long term growth. More significantly, the endogenous growth approach since the late 1980s is based on the creation of knowledge in human beings, so called "human capital". It is difficult to measure this innovative input output for modeling a knowledge based economy. What literature reflects is regard to the fact that the technological innovation is driving the globalization process and involves the increasing integration of national economic systems, which are necessary and reasonable world market oriented. What follows from the literature review concern that *computer using, or computer dependent industries as finance, insurance and*

real estate and other services have continued to lag in productivity growth.

Oliner and Sichel (1994) examined how much computing equipment have contributed to economic growth since 1970 and has arrived at three main results:

1. Under the assumption used for the baseline growth accounting, the contribution of computer hardware in gross output was low between 1970 and 1992.

2. Their estimate of adding software and computer services labor approximately doubles the contribution of hardware.

3. Continued rapid growth in the stock of computer hardware and software probably will not generate a substantial upturn in computing services' contribution to output growth, unless there is a dramatic surge in the rate of return earned by computers.

There are two important factors as the sources of the increased knowledge:

1. First, it is population growth. The other is that the rising real per capita income has made it possible specialized in the production of knowledge. A larger population leads to greater creation of knowledge. First, the larger the population is, the greater the benefit in productivity results from new knowledge.

2. Second, with a larger population, there are more individuals capable of making a significant discovery in knowledge.

Lastly, the new economy is also a knowledge economy based on the application of human know how to all output that is produced. In the new model economy, more and more of the economy's added value will be created by brain power rather than brawn, and creating new products and adapting existing products will form the future. With knowledge becoming the key source, there is only a world economy, even though the individual organization can operate in a national, regional, or local setting.

Financial Institutions, IT and Their Impact In Improving E-Government

Technology is faster improving the productivity of all financial institutions, as commercial banks, insurance companies, and other specialized financial institutions (e.g., pension funds, mortgage, and leasing companies, etc.). The major businesses of ***commercial banks*** include loans (commercial and consumer loans), deposits and financial investment (long term and short term). The ***insurance industry*** consists of property insurance, health care insurance, life insurance, and other little categorized. As we know, the new innovation in banking such as internet banking does not compare with insurance company.

The nature of heterogeneity of insurance products may cause the insurance industry to be more "brain intensive" than "capital intensive" in the use of information technology. The slow adaption to the e-finance technology in the insurance industry reflects the fact that transaction, interactions between policyholders and insurers are less frequent in insurances.

There are some strong reasons which explain the independence of all financial institutions from IT:

1. IT improves the profit efficiencies of financial institutions for all countries which insist to follow a model of knowledge based economy;

2. The impact of IT is very significant for commercial bank.

3. There are several policy implications for the commercial banks in Albania, insurance companies, governments, IT vendors, and international organizations.

4. In order to explore how IT improves the performance of financial institutions in Albania, they must adapt some methods and models, or even to apply the multivariate analysis to test whether the financial institutional markets are integrated. There are several statistical methods, discuss their underlying economic theories and explain how to use and explore the productivity of financial institutions. For instance, multivariate analysis (i.e., MANOVA) is used to test the international market integration hypothesis.

5. IT investment improves the efficiency across nations, even though IT managers are not aware of the linkage of IT to the profit generation. The level of improvement it depends by level of development. The time-varying patterns of the effects of IT and COM further signal the upward trend of the IT industries.

E- Government and economic development

E-government means using IT to provide citizens with an improved access to information related to public administrations. In addition to the traditional approach, which sought to meet internal operation needs and solve problems associated with efficiency and costs, e-government focuses on the potential of external interactions and emphasizes the importance that citizens assign to customer service, convenience and user- friendliness (Gonzalez, Gasco and Llopis, 2007). In short, e-government is the application of information technology and e-commerce to the processes of government.

Adoption of IT and the global computer networks for conducting business activities is known as e-business. The phenomenon of e-commerce is simply, the driving force of the new economy where everybody is connected everywhere and anytime. It overcomes the geographical and time constraints and serves as a great equalizer by creating a single competing field for all (small and large firms, experienced and inexperienced, domestic and foreign). In a word, e-business or e-commerce drives globalization.

E-commerce is not just buying and selling of goods and services, but also servicing customers, collaborating with business partners and conducting electronic transactions within an organization (Turban and King, 2003). As e-commerce matures and its tools and applications improve, greater attention is being given to its use to improve the business of public institutions and government (country, state, county and city).

E-government is a vital part of e-commerce. The application of information and communication technology is one of the major prerequisites for increasing efficiency in state administration business operations. Information technology represents the foundation and encourages restructuring of business processes in

state administration. It also provides interactive services on the Internet, that is, creates an electronic public administration.

E-Based Economy as a System That Is Based On E-Government and IT

Economic growth has always been the core problem of international economies, a global issue, which leads many academics to explore the economic growth of knowledge-based economy involving international economic transactions. Constructing such models of economy means first of all to develop based on human capital rather than physical capital. This model needs R&D investment as the driving force for growth, but all this must be done through the paths of Information Technology, because is the sector of IT which implement the model.

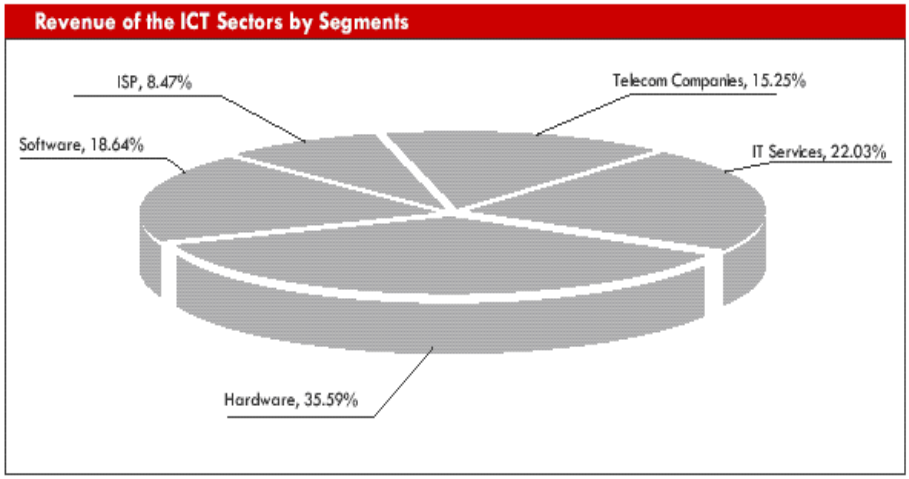
One of the main characteristics of new economy, economy based on the knowledge, is a focus on increasing globalization and expanding IT. We are in the information age. People are often frightened of technological change. Yet the world would be much more frightening without innovation. In traditional growth theory, or growth accounting theory, economies have limited resources of capital and labor. Therefore, without better ways to use these resources, growth would soon run out of steam. Traditional models of growth developed in the 1950s concentrated largely on inputs of capital and labor, and had nothing to say about the technological change. A new growth theory needs knowledge responding to market incentives such as improved profit opportunities or better education. Economic incentives for innovation have strengthened in recent years. Raising finance for innovation has become easier, and a bigger global market has increased the likely return.

Information and technology brings the economy closer to the model of perfect competition, but governments still retain an important role in ensuring that the opportunities offered by IT are fully exploited. IT is very important for each government, for each economy. IT is necessary important for government to do all basic things, because it increases the rewards for doing so. For example, open markets help to speed up technology transfer, and education increases a country's ability to absorb knowledge. One economic important rule is that new technology is not a tool which cures every economic ill. To have all the benefits from IT, governments need to pursue sound policies.

3. BACKGROUND INFORMATION ON THE ALBANIAN MINISTRY OF FINANCE TREASURY SYSTEM - CASE DESCRIPTION

Research in ICT in Albania has not been a main focus. The ICT sector in Albania has had considerable growth during the last years. It is notable to mention the number of ICT companies created and active in the last five years. In the last three years, the liberalization of the telecommunication market has been followed by the foundation of several telecom operators. The following chart provides an overview of the revenue of ICT Sector by Segment.

Figure 2: Revenue Of The Albanian ICT Sectors By Segments

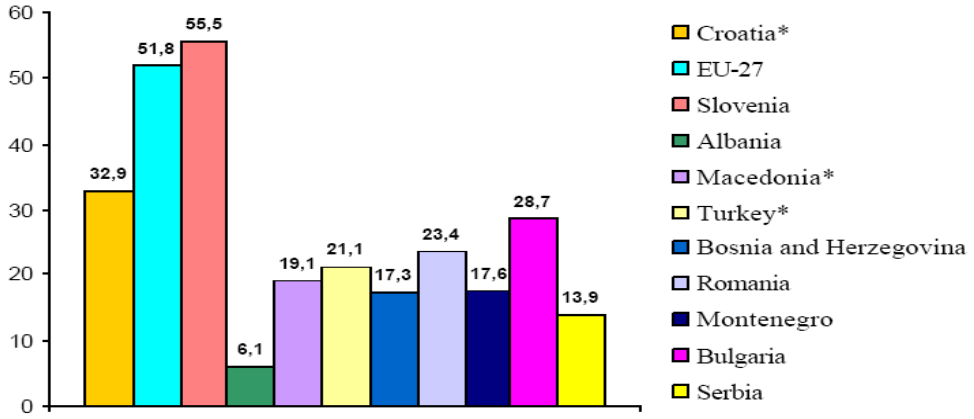


Compared to the world trend, the Albanian economy is characterized with low level of usage IT and the Internet. The companies are insufficiently utilizing the opportunities provided by the contemporary technologies in terms of improving their efficiency and their inclusion in the global information society. The current situation in the country is due to the lack of complete legal framework, international standards, competitive prices of the telecommunication (internet) services in the country, as well as the lack of founds, knowledge, skills, adequate strategy, good management etc. The weak relative position of the IT sector of the Republic of Macedonia reflects the poor development of the country's economy and a low overall purchasing power.

According to the Internet World Stats in comparison to the other countries from the Balkan region as well as countries with EU candidate status, Croatia is very high on the scale with 32.9%, and Albania is at the end of the scale with minimal 6.1%.

The Internet in Albania is mostly used for the some purposes, as internet user, were using Internet for communication (receiving/sending e-mails and communication like Chat, MSN, telephoning), searching information and requesting on-net services and for playing or downloading games, pictures, music; Internet for training and education (i.e. for acquiring knowledge, consultancies, training/courses offered or following online courses) ; e-government for finding information, downloading official forms or sending filled in forms; e-banking or offered/ sold goods/services via Internet; Persons that used the Internet ordered/bought goods or services online for private purpose.

Figure 3: Internet Penetration In Selected Countries (In %), 2007



This case is focused on treasure system of Albanian Ministry of Finance. What is moving the world is related to the fact that E-finance is helping the international economies in the process of globalization and specifically in the proces of european integration. This is done through ministries of economies, ministries of finance of finance agencies. This is exactly the focus of our paper, to show how national financial bodies, as Albanian Ministry of Finance is helping not only the globalization, moving thorugh an e-based economy, but also in the process in european integration.

The Government of the Republic of Albania considers the development of the information society and the use and deployment of ICT in the country as one of the highest priorities in achieving higher living standards and economic growth. ICT should be used to create employment, to improve working conditions, and to motivate highly educated individuals to remain in the country. National and local needs will be important factors to be considered during the development of the Information Society in Albania.

Albania has been undergoing radical changes and transitions since the dissolution of communism at the beginning of the 1990s. Although still comparatively isolated from international cooperative initiatives and lacking adequate institutions and support structures, the main actors carrying out research and development projects are the Academy of Sciences and higher education institutions. Higher education and science are mostly treated separately, and PhD programmers are often disorganized. Further progress in the reorganization of research institutes, the creation of national research centers, the introduction of standards and performance indicators, and the improvement of the infrastructure and legal framework are absolutely necessary.

Scientific research activities in Albania *are very limited*, primarily due to the lack of infrastructure and the insufficiency of financial resources. A considerable number of qualified specialists have left scientific research institutions and most of them

have emigrated abroad. Specialized ICT departments in particular have suffered considerably from the "brain drain." For the same reason, public institutions encounter major difficulties to find the specialists necessary for the daily maintenance of ICT infrastructure and systems. The academic community has been ignored and, as a result, has not been involved in important ICT projects. This not only penalizes such projects by not involving independent specialists from academic circles, but it also penalizes specialists themselves by driving them toward emigration. ICT specialists are demotivated by low salaries, which undermine the entire public scientific research work system in Albania. This leads to serious, albeit hidden, consequences for the system of scientific research institutions, bearing long-term negative effects.

The Albanian National ICT Strategy was created from a project co-financed by the Open Society Institute, the UN Department of Economic and Social Affairs, and UNDP Albania. All the documents prepared by national or local bodies' aims to introduce and clarify impact that IT has on government, business or financial systems. These documents describe the general goals and define a number of strategic actions that serve to achieve these general goals. For this purpose, the strategy is subdivided into five parts, and fourteen individual goals. The parts describe the major strategic areas to be addressed, and are directed to different target groups in the country:

1. ***Part I:*** Government as Promoter, Legislator and User of ICT, is directed at the government, and addresses the needs for suitable ICT institutional structures, policy definitions and introduction of e-government services.

2. ***Part II***: Use of ICT for Education, Research, Health and Social Services, aims at deploying ICT for the direct benefit of citizens.

3. ***Part III***: Building Infrastructure needed for an Open Information Society, addresses the need to deliver the infrastructure necessary for the information society.

4. ***Part IV***: Generating Economic Growth in the Private Sector addresses the need to promote the private sector to embrace the tools of the information society.

5. ***Part V:*** Ensuring Relevance of ICT Strategy within a Regional and European Context focuses on the need to ensure ICT policy cooperation on a supranational level.

Table 1: Some part of Albanian Strategy for IT development

Section	Goals
I. Government as Promoter, Legislator and User of ICT	1. Pro-Active, Well-Coordinated National ICT Policies 2. Creation of ICT-Supportive Legislative Environment
	3. More effective, transparent, responsive government and public services: • Sub-goal 3.1: E-government services of government institutions at central level • Sub-goal 3.2: E-government services of administrations at regional and local levels
II. Use of ICT for Education, Research, Health and Social Services	4. Promoting basic computer literacy – ICT Education for all. 5. Creating a cadre of advanced ICT specialists – Education and Research in the ICT Domain. 6. ICT in Health and Social Services 7. Supporting development of locally relevant content and applications
III. Building Infrastructure needed for an Open Information Society	8. Creation of a competitive, liberalized telecommunications sector. 9. Development of inexpensive, fast and secure ICT infrastructure throughout Albania.
IV. Accelerating Economic Growth in the Private Sector	10. Development of the ICT Sector as a Production Sector. 11. Supporting Electronic Business.
V. Ensuring Relevance of ICT Strategy within a Regional and European Context	12. Active participation in SEE regional Initiatives. 13. Active participation in EU Initiatives. 14. Monitoring of Albanian ICT Developments in Regional and European Context.

This table describes the sections and the key goals of the Albanian National Information and Communication Technology Policy

Features Of Albanian Treasury System

The Implementation of the Treasury System has adopted a comprehensive policy reform programme to strengthen Albania's institutional and governance capacity. A major element of this programme involves strengthening of the Ministry of Finance, including its public expenditure management functions (budget formulation and execution, macroeconomic forecasting/modelling, treasury and cash management, accounting and internal auditing), its revenue administration functions (in particular Tax and Customs), and strengthening of its own internal management capacities.

The primary objective of the project for strengthening Albania's Treasury functions is to contribute to the twin goals of improving governance and institution building. When fully implemented, it will achieve this by providing the ability to capture and process all government financial transactions - both payments and revenue collection - at source (or as close to source as possible) and to enable these to be managed in accordance with budgets and spending authorities. It will also enable up to date and accurate information to be available for fiscal and liquidity management.

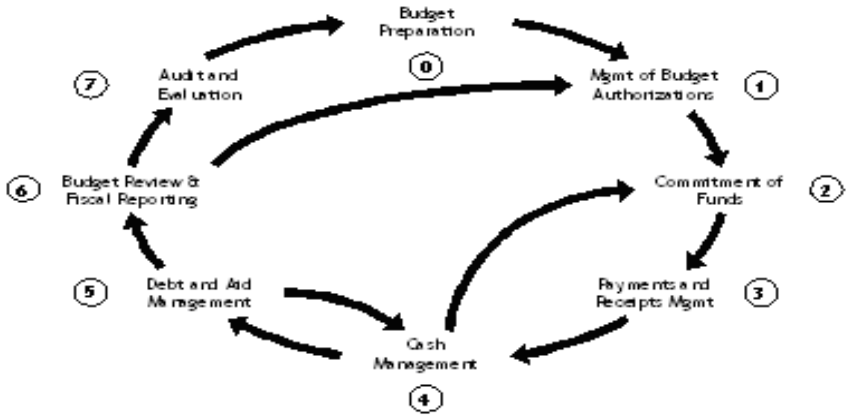
The broad benefits are expected to be delivered by successful implementation of a comprehensive Treasury system, as full integration of budget and budget execution data, thereby allowing greater financial control; Better planning for cash as well as close and timely monitoring of the government's cash position; Adequate management reporting at various levels of budget execution; Better data quality for the preparation and execution of the budget; Easier preparation of financial statements and other financial reports for budgeting, analysis and financial control.

We conclude that the establishment of an effective Treasury system will contribute directly to improving the transparency and accountability of government and to meeting the requirements of *Code of Good Practice on Fiscal Transparency—Declaration on Principles*. Also, by providing both a timely, detailed, comprehensive flow of relevant data and the tools for managers throughout government to analyze those data, the system will make a powerful contribution to the development of a "professional, merit-based, depoliticized civil service". Finally, the establishment of an effective Treasury system will contribute directly to improving the transparency and accountability of government and to meeting the requirements on Fiscal Transparency-Declaration on Principles.

The Albanian Financial Management System is designed to provide support for all public finance operations, collect accurate, timely, complete, reliable and consistent information on all financial events, and provide adequate management reporting, and support government-wide and agency policy decisions. The Public Sector Reform Strategy identifies seven major components and specific objectives to be achieved under each of these, on the basis of which an implementation plan has been prepared. Some components of the Strategy strongly focus on establishing rule of law and building trust in Government through building its capacity to put appropriate legal and regulatory frameworks in place, enforce these laws, and increase accountability.

The Public Financial Management System is designed to provide support for all public finance operations, collect accurate, timely, complete, reliable and consistent information on all financial events, provide adequate management reporting, support government-wide and agency policy decisions, Provide complete audit trail / auditable financial statements.

Figure 3 : Public Financial Management Cycle

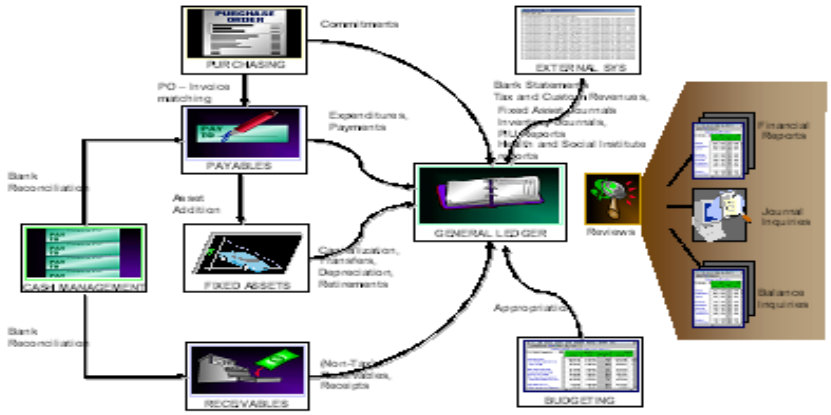


This figure shows how is designed the Albanian Public Financial Management System, which are the main part and functionality of the system.

Related the AMoFTS Business Flows the AMoFTS functional processes are classified as:

- ❑ Budgeting
- Preparation of Estimates, Consolidation and Approval
- Appropriation, Budget Breakdown and Budget Releases
- ❑Procurement and Payment Management
- Commitments and Purchase Orders, Expenditure Requests
- Payment Execution
- ❑Revenue and Cash Management
- Revenue Accruals, Revenue Reconciliation and Distribution
- Bank Statement Reconciliation, Cash Forecasting
- ❑Fixed Asset Management
- Off-line FA management, FA journaling
- On-line FA management, Asset Additions, Asset Transactions and Depreciation
- ❑Accounting and Financial Reporting
- General Ledger Accounting and Reconciliation, Period Closing
- Fiscal Reporting

Figure 4: AmoFTS System Architecture

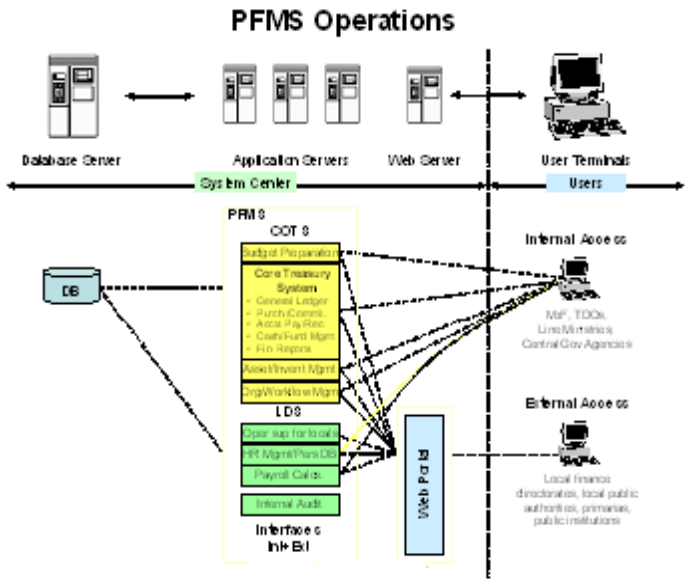


This figures show the clasiffied of AMoFTS Business Flows the AMoFTS functional processes.

Application process needs monitor systems which will look for design phase, procurement phase, system integration and implementation. The first phase start with development of application software, supporting the central servers and field hardware, with technical support systems, and finalizing the system safety or security and business solutions, and finalizing with web publishing or web portal. The main operations are shown in the following (fig.4):

Design and Implementation of Information Systems includes Secure countrywide Network infrastructure; Development of Application Software; Central Servers and field Hardware; System and network management; Technical support systems; System safety / security and business continuity solutions; Web publishing (web portal).

Figure 5: The Operations Of The Procurement System



Understanding the importance of being a part of the global (information) society, all segments banking, insurance companies, government, etc), in the Albanian society are involved in the adoption of IT in their operating as well as everyday activities. Although the figures show low level, the raising trend is what worth fostering and supporting with different projects and activities. With its aspiration to become an EU member country Albania needs to adhere to the "…strategic goal: to become a dynamic and competitive knowledge based economy in the region..."

Concluding comments

This article was focused on the fact that technology is faster improving the productivity of all financial institutions, as commercial banks, insurance companies, and other specialized financial institutions (e.g., pension funds, mortgage, and leasing companies, etc.). The analyze is done through a case study which is focus of our paper, to show how national financial bodies, as Albanian Ministry of Finance is helping not only the globalization, moving thorugh an e-based economy, but also in the process in european integration.

Macroeconomic indicators show a ***positive growth rate*** for Albania in recent years. While performance has been impressive, however, there are concerns regarding the sustainability of high rates of economic growth. In particular, the Albanian government should note with caution important changes in the distribution of GDP according to economic activity. The government should allocate a greater share for

investments in infrastructure, especially in the sectors of education, health and the environment. Improvement in these areas will serve to increase the quality of human capital by improving life expectancies, living conditions and skill levels.

The private sector's investment level in IT in Albania is still low. SMEs, or rather micro-enterprises (entities with fewer than five employees), make up the vast majority of private businesses. Their survival strategy focuses on labor intensive, low-cost production. Against this background, IT falls almost entirely under public responsibility. Overall, there are very few private institutions, and these few operate mostly in the field of Human, Social and Political sciences but their personnel structures and their financial and cooperation procedures are not stable. However, in the field of information technology, the private sector became dominant by establishing market activities with some relevance to research and development.

Several small companies operating in the IT area were established thanks to local initiatives and are run by Albanian engineers specializing in IT. The majority of products are imported from abroad. However, there is a strong tendency and increase in the IT sector to ***adapt products to local needs***, such as being adapted to the local language. There are a variety of choices with regard to equipment and programs, which are accessible and affordable for the majority of small and medium enterprises as well as for many individuals. The average annual investment in IT is about more than 2.5-3 million USD (or 2.2 million Euro) and all IT revenues total about 20 million USD (or 15 million Euro).

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