

## Harmonization of Information Systems in the Case of Electronic Banking Payments in South East European Countries

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### Abstract

The research paper "Harmonization and standardization of information systems in the case of electronic banking payments in SEE countries" in itself includes a current problem, because it deals with electronic payments that is every day becoming more current. The e-payment system includes the system of electronic instruments, procedures and infrastructure for transfer of money. It is important for all economic entities, since it is designed to allow quick and efficient execution of national and international payments. Central Bank is responsible for the National payment system, which manages accounts and bank depository of the institutions. In the Payment System of countries of SEE (South East Europe), Central bank has an operating function, and is responsible for development and oversight functioning of other payment systems in the country. In the following level are banks, that are responsible for the accounts of physical and legal persons. Each bank is decentralized to manage its customer accounts. This research deals with the comparisons of the management of electronic payments of different banks in Kosovo and other countries of SEE Region. The research in the paper is carried out to see and prove that economy and technology are becoming almost inseparable from one another. Electronic payments that are carried out in the financial institutions of the Republic of SEE, are managed in various ways, ranging from banks that have received great momentum in its implementation, to those institutions which do not exercise it at all. The research was conducted with several methods taking into account the method of comparison as the final approach to present achievements and conclusions. During the performing of research, we held interviews with some bank clerks, with the aim to realize and to explain System of electronic payments in the Country. The findings of the paper are that clients of banks in the Republic of Kosovo and other countries of SEE Region have just begun to realize the benefits of electronic payments, therefore this has reinvigorated their interest, to apply them. As we expected the results were positive, with the exception of some banks that do have more complicated procedures, so they have multiple levels of procedures for implementation of e-payment. The final conclusion of the paper consists on the fact that with solving of the problem of electronic payments, it will benefit both: customers, as well as financial institutions.

**Keywords:** ePayment, eBanking, CBK, ICT, Codification, SEE

### 1. Introduction

Payment system in countries of SEE Region consists of the following subsystems:

- ❑ The system of inter-bank payment-system in real time, for processing of high value payments and urgent inter-bank payments.
- ❑ Clearing inter-bank systems - net system for processing low value payments.

Financial institutions, in particular banks are increasingly investing in technology and in improving of their information systems. During the research we have noticed the growth of the number of ATMs (Automatic Teller Machine) and POS (Point of sale) terminals, and the fact that now almost every bank in Kosovo other countries of SEE Region is present on the Internet with a Web site, which provides the bank information and services offered by the institution. In recent years with the development of technology and the tremendous growth of Internet users, all modern banks in countries of SEE Region, are also offering the service of electronic banking (e-banking). With the e-banking service, bank allows the customers to access into their personal account, controlling the balance or statement of movements, allowing

to make payments and to use more other online services.

For a greater efficiency of performing these services it is first necessary to standardize the technologies, information systems and electronic payment methods bank. In this paper we have analyzed the provision of harmonizing of electronic banking payments and the standardization of information systems of banks in East Europe. As a concrete example will be analyzing the e-banking system of commercial banks in Kosovo other countries of SEE Region and execution of a payment through Visa Prepaid card powered by the banks in the Region.

## 2. Basic Approaches to Information System with IT Support

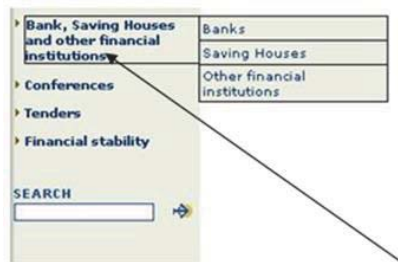
The information system is a group of elements of hardware, software and communication through which people create network to collect, store, and distribute processed data required in various organizations and financial institutions. An information system is a combination of five main elements: human, hardware, software, data and network communication. This combination enables the various companies and organizations to achieve strategic goals and improve the performance of their work in many ways. Three key things to use information systems are:

- ❑ Automation - Where information system through various manual processes can be performed automatically. Through advanced technology such work can be performed faster, better and at a lower cost. It also has consistency and greater precision.
- ❑ Organization - organizational learning, to improve monitoring in their daily activities and can affect the increase of work quality and delivery.
- ❑ Strategic planning - also an information system can help to create a vision or determination of direction, creating an objective standard of performance and creating a strategy to achieve the goals.

Besides other advantages of information systems within various companies in improving the quality and facilitate the work, has had a major role and has influenced many businesses to be open 24 hours a day, 7 days a week. Even though there are so many advantages, there are also some disadvantages, ranging from the cost to build and improve systems, unpredictable shutdowns in computer technology and communication interruption in the network. However, financial institutions are among the institutions, that use and do greater investment in technology.

## 3. Financial Institutions

Based on the Law and the regulations of Central Bank of countries of SEE Region, Financial institutions are institutions that provide financial services such as: investments, loans or deposits for their customers. In everyday life almost everyone has to deal with financial institutions, ranging from cash deposits to the acquisition of loans or currency exchange. Primary financial institutions in countries of SEE Region are banks and Microfinance institutions, so in this paper we will continue to research banks, in particular e-payments and electronic banking fees.



**Figure 1:** Sample of Banks, saving Houses and other financial institutions in a Common Web Site  
**Source:** Contribution of the Author

Banks are specialized institutions that provide financial services lending, borrowing, issuance, exchange, deposit taking, saving money and other services under the laws and guidelines of Kosovo and other countries of SEE Region. Banks offer a great array of services and benefits to current or savings accounts, credit cards, ATM machines, home loans, business loans, etc. With the development of technology and information systems, more and more banks are offering electronic driven services by advertise them and providing more guidance as to their clients.

#### 4. Electronic Driven Services from Banks and Other Financial Institutions

Electronic driven services of the Bank from the Internet is a technical decision taken in time, which allows delivering from the side of the financial institution, the use of electronic driven services is a technical decision, taken in time, which allows banks delivering services to its clients. Through the use of internet bank, possibility is that the wide banking services, can be used from any place, at any time without having to visit bank branches.

Electronic driven services from the Commercial Banks in countries of SEE Region, enables to the clients an option of different services they can achieve without going to the bank, such as:

- Execution fast and effective of the financial transactions
- Safety and maximum storage
- Payment of utility and other payments within the country
- Transfer of deposits
- Control of personal accounts
- Saving accounts for which the user has oversight
- Control of the Master Card and VISA cards
- Calculates exchange in foreign currency
- Purchase of foreign currency, etc.

#### 5. Standardization of Information Systems in the Case of Electronic Payments in Europe

Standardization is an important part of the development process and implementation of technical standards. Technical standardization is of particular importance that helps to maximize the interoperability, security, compliance and quality of the same category of devices from different manufacturers. Almost all file systems and other electronic payment systems in Europe use common basic standards, but specific in conditions they become specific to each system. European Payments Council is coordinating and decision making body of the European banking industry in relation to bank charges. Its aim is to support and promote the "Zone of single euro payments" called SEPA (Single Euro Payments Area).

SEPA is the initiative or platform where citizens, businesses, European public authorities could pay or accept payment in Euros in the same basic conditions, rights and obligations, regardless of their location. SEPA in the euro area has made it possible for all electronic banking payments be performed as easily as cash payments. Through it is now possible to make transfers quick and safe between bank accounts anywhere in the euro area. SEPA has helped these banking services to become better, transparent price, guarantee validity ensuring that payments are received promptly and in full.

**Table 1:** Countries that are part of the South-East Europe Region

Countries included in Southeast Europe	Member of SEPA
Bosnia & Hercegovina	No
Bulgaria	Member of SEPA
Greece	Member of SEPA
Kosovo	No
Montenegro	No
Macedonia	No
Serbia	No
Albania	No
Countries that less considered as part of this region States that less considered as part of this region	
Croatia	Member of SEPA
Moldova	No
Cyprus	Member of SEPA
Romania	Member of SEPA
Slovenia	Member of SEPA
Turkey	Member of SEPA

**Source:** URL address: <http://www.nordea.com/1026012.html>

Besides standardization and facilitating electronic payments, as part of SEPA, in 7 of the 14 countries belonging to South-East Europe, almost all have developed the information systems that are in full harmony with electronic payment standards set by councils relevant international and European standards.

Below we will discuss on key standards of information systems in the case of electronic banking payments which

are used in South-East Europe.

EMV, which is the shortcut that is representing Europay, MasterCard and Visa, is the system and the global standard for smart card communication with POS terminals and ATM, for verification and confirmation of debit and credit cards. This standard has helped to improve security and overall costs of dealerships, banks and clients. EMV is first introduced in 1995 and the advantages that offer has been well received in the market. With its advancement, now most bank cards and electronic payment equipment have adopted this standard.

**Table 2:** Using the EMV standard in South-East Europe

Zone	Zone Europe 1			Zone Europe 2
Countries	Andorra Austria Belgium United Kingdom <b>Bulgaria</b> Czech Denmark Estonia Finland France Germany Gibraltar Greenland	<b>Greece</b> Holland Hungary Ireland Island Italy Israel New Caledonia Letonia Lichtenstein Lithuania Luxemburg	Malta Norway Poland Portugal <b>Cyprus</b> <b>Romania</b> Slovakia <b>Slovenia</b> Spain Sweden <b>Turkey</b> Switzerland	Armenia Azerbaijan Byelorussia <b>Bosnia &amp; Herzegovina</b> Georgia Kazakhstan <b>Croatia</b> <b>Montenegro</b> <b>Macedonia</b> <b>Moldova</b> Russia <b>Serbia</b> <b>Albania</b> Turkmenistan Ukraine
EMV Cards	794 million (81.86%)			12.2 million (99.9%)
EMV Terminals	84 million (24.4%)			1.4 million (91.2%)

**Source:** URL address: <http://www.money matters101.com/banking>, 12.06.2014

## 6. SWIFT Code in Countries of South East Europe

SWIFT (Society for Worldwide Interbank Financial Telecommunication) is the format of the standardized code of the bank identifier code (Bank Identifier Code - BIC), which identifies a bank and use it instead of the full address of a bank. These codes are used for secure message transfer between banks and to facilitate international transfers. A SWIFT code consists of 8 or 11 characters. When given only 8 digits then it refers to the primary bank of a particular state. All countries of East Europe are part of the SWIFT network.

**Table 3:** Countries and Currencies in SWIFT standard.

Countries included in Southeast Europe	Currency
Bosnia & Herzegovina	Convertible Marks (BAM)
Bulgaria	Bulgarian LEV (BGN)
Greece	Euro (EUR)
Kosovo	Euro (EUR)
Montenegro	Euro (EUR)
Macedonia	Denar (MKD)
Serbia	Serbian Dinar (RSD)
Albania	Lek (ALL)
Countries that less considered as part of this region States that less considered as part of this region	
Croatia	Kuna (HRK)
Moldova	MOLDOVAN LEU (MDL)
Cyprus	Euro (EUR)
Romania	Romanian Leu (RON)
Slovenia	Euro (EUR)
Turkey	Turkish Lira (TRY)

**Source:** URL address: <http://www.theswiftcodes.com>, 14.06.2014

## 7. IBAN in Countries of South East Europe

IBAN (International Bank Account Number) is an international standard ISO 13616 that is used to identify bank accounts. An IBAN is a combination of letters and numbers up to 34 characters in length. Most states have implemented this standard. Up to 2015, the only country in South-East Europe which has not been allowed and didn't featured the standard was Kosovo. From this year, addition National IBAN Format for Kosovo is allowed with 'user-assigned' country code XK. Effective as of 01 February 2015.

## 8. Conclusion

In this paper we have analyzed the harmonization and standardization of information systems in the case of electronic banking payments in East Europe. The application of these standards has contributed significantly to increase the speed, ease and to reduce the cost of electronic payments.

After studying the bank cards it is proven that the old cards with magnetic stripe are being replaced with smart cards (smart cards) and EMV standard. In this connection it is seen that the use and adoption of this standard is always growing. At the moment in six East European countries: Bulgaria, Greece, Cyprus, Romania, Slovenia and Turkey share EMV cards is about 81.86% and EMV terminals around 24.4%, while in other countries the use of EMV cards is in the maximum phase about 99.9% and EMV terminals around 91.2%.

Also, in terms of electronic banking payments, we came to the conclusion that new IBAN numbers that identify a specific bank account used in all South-East European countries, has included from this year Kosovo, that is now part of standard "ISO 13616-Compliant IBAN Formats".

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