



## ELECTRONIC MONEY – PAYMENT INSTRUMENT NOWADAYS

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**Abstract** *Electronic payment instruments are payment arrangements materialized in a standardized electronic, secure and customized form, which allows its holder to use money held in an account under his name for the payment of goods and services from accepting merchants, and transfer funds between accounts and withdraw cash. In the specialized literature we find two types of payment instruments, first type the electronic money (E-money) and the second one is represented by internet or mobile banking.*

### Key words:

Electronic payment, card, internet banking, mobile banking, E-commerce

### 1. Introduction

The operation framework of the banking system has undergone changes in recent decades under the impact of information technology progress. D center of electronic commerce which, by its nature, knows no geographical barriers, making it necessary to adjust the payment of adequate tools, such as e-banking, helping to create global networks that determine relationships and dependencies between states<sup>1</sup>.

Electronic payments, this significant invention of the end of the twentieth century, have emerged as one of the outstanding consequences of the development of information technology and telecommunications.

The spread of personal computers, means of public telecommunications, fast and relatively inexpensive, and large private networks and, finally, the Internet as we know it today, formed national infrastructure, regional and global that s built electronic payment systems and electronic funds transfers, small and large, and in countless forms, an infrastructure today is a powerful engine of developed economies, and especially the economies of developing countries development.

These electronic payment systems are probably the most dynamic part of the economy computerized digital local, regional and global. The most important three major components of these systems are systems of

card payments, electronic commerce, and electronic transfers of funds between banks, between companies. All this presupposes the existence globally, the vast detelecomunicații networks such as Visa and MasterCard eg, the Internet, or SWIFT network.

Electronic payments are an important stimulator of growth and vitality of the economy and governments must be interested in encouraging the development and generalization of electronic payment systems and electronic funds transfers.

Good progress made in computer and communications have enabled the development of electronic payments and electronic payment systems. The new technology was first used in interbank funds transfers, and e-commerce transactions and in the services via card-based payments, internet payments and other technical systems (videotex, multicash, mobile phone). These technical systems allowed remote payments without the required presence at bank. In terms of the payment system, and the central bank's role pyramid scheme remain the same but important changes in the system circuitry especially in the banking sector<sup>2</sup>.

### 2. Electronic payment instruments

Electronic payment instruments are payment arrangements materialized in the form of a

standardized electronic, secure and customized, which allows its holder to use money held in an account under his name for the payment of goods and services from accepting merchants, and transfer funds between accounts and withdraw cash<sup>3</sup>.

In the literature we find two categories of electronic payment instruments<sup>4</sup>:

- monetary payment instruments (e-money);
- payment instruments with remote access (remote bank applications).

Electronic money or e-money is that rechargeable electronic payment instrument, other than the payment instrument with remote access, such as a chip card or another electronic device with a predetermined value, which value units are stored electronically and it allows the owner to carry cash withdrawal transactions, payment for goods or services and transfer funds between accounts and payment that is accepted by other institutions, apart from the issuer<sup>5</sup>.

Electronic money can also be defined as monetary value stored electronically, including magnetically, reprezentând a claim on the issuer issued on receipt of funds for the purpose of payment transactions and is accepted by a person other than the issuer of electronic money<sup>6</sup>.

As regards electronic money institutions needed to establish the legal framework<sup>7</sup>:

- Law no. 127/2011 regarding the activity of issuing electronic money;
- NBR Regulation no. 8/2011 on electronic money institutions;
- NBR Regulation no. 5/2012 on classification of loans and creation, regulation and use of credit risk provisions applicable to entities supervised by the National Bank of Romania, other than credit institutions;
- NBR Order no. 4/2012 reporting on the situation regarding the classification of exposures from loans / credits related to payment services and the necessary credit risk provisions related thereto, applicable to entities

supervised by the National Bank of Romania, other than credit institutions;

- NBR Order no. 27/2011 for the approval of accounting regulations compliant with European directives;
- NBR Order no. 4/2013 amending and supplementing the Accounting Regulations compliant with European directives, approved by NBR Order no. 27/2011;
- NBR Order no. 10/2012 approving the half-year accounting reporting system applicable to entities that fall under regulatory accounting National Bank of Romania;
- NBR Order no. 3/2013 amending and supplementing Annex to the NBR Order no. 10/2012 approving the half-year accounting reporting system applicable to entities that fall under regulatory accounting National Bank of Romania

Order no. 4/2014 on amending the Annex to the NBR Order no. 10/2012 approving the half-year accounting reporting system applicable to entities that fall under regulatory accounting National Bank of Romania (Annex included).

The activity of issuing electronic money is regulated by Law 127/2011<sup>8</sup> and can be done by following categories of issuers such as credit institutions within the meaning of art. 7 paragraph. (1) pt. 10 of Government Emergency Ordinance no. 99/2006 on credit institutions and capital adequacy, approved with amendments by Law no. 227/2007, as further amended and supplemented, electronic money institutions within the meaning of art. 4 paragraph. (1) e) postal service providers that issue electronic money under the national legislation applicable to the European Central Bank and national central banks when not acting as monetary authorities or otherwise involving the exercise of public authority or that the Member States and their regional or local authorities, when acting in their capacity as public authorities<sup>9</sup>.

### 3. Bank card

#### 3.1. Brief history. Notion. Classification

The cards have credit card first appeared in the United States, and the intention was to give customers a payment instrument nationwide movement to overcome the restrictions imposed in this area by the US Federal Banking Act.

Although the cards began to be used in Western Europe in the 60s to 80s only after extended use, and the number of holders of such instruments increased significantly.

In March 1994 the company was created Romcard for processing and transaction authorization on the basis of cards with international use, the system VISA International, MasterCard and Eurocard. Romanian banks which were associated for this purpose were: Romanian Commercial Bank, Bancorex Current Agricultural Bank Raiffeisen Bank, Tiriac Bank and Romanian Bank for Development. Also in the 80s they were introduced on the market debit cards (debit card).

The card is a payment instrument through which one can pay a product or service, based on a relational system organized on a contractual basis between prisoners, issuing and merchant or service provider.

Stored value card comprises two elements:

- Hardware: devices that rely on cards - electronic wallet
- Software: Programs that rely on the network - digital cash.

The cards are made of plastic material with the same size, according to ISO 7810 and ISO 7813, with the obverse inscription card with Arabic numbers (PAN<sup>10</sup>), name and surname owner, expiration date, owner of the brand logo, the logo of the issuer, possibly a hologram and an integrated microprocessor chip, or not being EMBS. On the reverse we find the magnetic strip at least three tracks, signature and number titularuri CVV (Card Verification Value) or CVC (Card Verification Code). Magnetic tape is responsible for coding data and has three tracks<sup>11</sup>:

- TRACK 1 READ - ONLY: code of the issuer, the holder's name, date of expiry.
- TRACK 2 READ ONLY: primary account number (PAN), the code issuing country, expiration date.
- TRACK 3 READ - WRITE: PAN, country code, PIN PAN, currency code, the maximum amount authorized attempts PIN number.

Along with banks, card market were imposed, as card issuers and non-bank institutions, such as VISA International, MasterCard, Eurocard, American Express, Diners Club.

Based on the same principles of operation of the cards, the major card companies give attractive names and promotional services provided by different categories of customers. For example, there are five types of VISA cards:

- Classic card - accessible to any type of applicant;
- Business CARD- addressed to individuals traveling for business;
- Gold card - for people with significant revenues;
- Electron card - Access for people with low incomes;
- Plus card - only usable at ATMs and cash dispensers.

Depending on various criteria find several cards. Thus, depending on the technological characteristics identify magnetic cards, microprocessor cards and Smart cards and hybrid cards which are equipped with both the magnetic strip and microprocessor. In terms of the functions they perform are debit cards, credit card guarantee or multifunction card. Depending on the quality of the issuer meet bank cards and cards issued by other private institutions or organizations; depending on the recipient meet individual cards or cards for legal entities; identify traffic based on national and international cards and cards on the account currency that was attached find his card in national currency or in foreign currency<sup>12</sup>.

### 3. 2. Risks of using cards

At the beginnings of the activity in Romania, cards were marked, as was expected, attempts to defraud the offenders. As the card began to be commonly used as an instrument of payment fraud have increased worryingly.

Lately, more and more individuals fall prey to criminals who cooperate after the so-called "Lebanese way". It consists of the placement, the ATM slot where the card is inserted to extract cash, a thin film, which is intended to prevent payment card reading and thus lock inside. The ATM is placed posters that advise users to call, if necessary, to one or more mobile numbers, where they are, who owns the ATM bank specialists. In fact these numbers correspond to stolen cards, and down the line are criminals whose main concern is the alpha card PIN locked in ATM. After the cardholder goes quiet as the bank announced to the situation and blocked the possibility of using criminals extract it with tweezers, then, knowing the PIN, emptied it of money.

Tips for minimizing the risk of fraud:

- Sign the card in the indicated place, as soon as you received.
- Remember your PIN. It is preferable to not write down.
- PIN is secret. Nobody, be representative of the bank or merchant may ask you not to communicate it.

The simplest method is proper in pockets theft, existing networks in recent years specialized in card stealing thieves. The advantage is that, most often, are extracted with the card and identification documents, making it possible to substitute alternate identity of the real owner. Another method is the thief cards are sent by post during the real owners. With no true signature holder back, they can be used longer than pocketing stolen or lost.

The spread of computers and improving led to the emergence of a new type of fraud. With the help of programs can be found on the Internet, they are generated credit card numbers available, but not the expiration date. In an attempt to get hold of it, criminals

may try launching an application for authorization from a POS you use after hours. Against this method, banks have developed software that detects repeated requests for the same number of card authorization, the data is not accurate and does not grant authorization of payments on such cards.

Of the offenses with cards, the one that creates the most damage is forgery. Using the new technology becoming more accessible, counterfeiters have reached performance. The most used methods of falsification is rewriting the original magnetic tape. It is copied using a device called a skimmer, usually placed in interior or into or continue a POS, then using a laptop and a card rewriting device, data is transferred on lost or stolen.

### 4. Remote bank services – electronic, internet and mobile banking

Remote bank services are instruments that allow the holder to access funds held on his behalf, through which may make payments to a beneficiary or other type of funds transfer operations which usually require in username and personal identification code/password or any other similar proof of identity. In this category we can include applications for home banking, internet banking, mobile banking.

The advantages of distance banking services are numerous, in to recall:

- be deleted manually preparing the forms, documents and signing the payment order;
- automated processing of payment orders in real time allowing the customer to obtain confirmation of required payments and statements of current accounts with such operations;
- the customer account is not required to go to the bank for execution;
- reduce errors due to non-intervention of the human factor;
- arrangement of transfer payments in the country and abroad, domestic and foreign currency;
- standardize payment order for current payments (salaries).

Electronic banking is a service that falls within the concept of "cash management" and is aimed at bank customers, especially legal persons may contact the bank by means of a computer.

Internet banking is a service that addresses customers of banks, legal entities and individuals whose computers have Internet access. Outside the tariff Internet, more user fees on banking support made through the respective bank. The program concept, nonstop access is provided, it may send trading instructions by payments in lei and foreign currency other beneficiaries; purchases / sales and remittances; RON payments on taxes and the budget, payment of salaries and other retail operations on credit / debit card.

Mobile banking is a service that addresses individual bank customers whose phones are the type of smartphone and Internet access. Mobile banking app is downloaded for free from the AppStore or MagazinPlay, nonstop access is provided, it may send trading instructions and ensure total mobility being location independent bank and customer and when the customer accesses the service, giving access fast, secure and effective access to information, which is displayed on your phone.

### **5. Trade online or e-commerce**

In February 2004, international organizations issuing cards - Visa and MasterCard - launched in Romania 3D Secure security protocol. It involves recording each card holder by assigning a code (password) for authorization of each transaction online. This code will be requested by the buyer online systems Verified by Visa or MasterCard Secure Code when issuing the command. Entering transaction data is securely with SSL certificates (Secure Socket Layer) 128-bit.

February 2004 was actually the beginning of Romanian e-commerce, 3D processor RomCard Secure înroland three banks simultaneously in both acceptance and issuance as Romanian Commercial Bank, Raiffeisen Bank and UniCredit Tiriac Bank, later

enlisting the Romanian Development Bank. Implement 3D Secure meant, however, and a pioneer in the entire CEMEA region, Romania is the only country in the region in which Visa and MasterCard have promoted the new security standard. In fact, world-wide there were only three countries that were experiencing this standard: Spain, UK and Germany.

### **5.1. 3D Secure protocol**

3D Secure is the abbreviation for 3 domains, respectively the field of Acceptance (acquirer) to the Issuance (Issuing) and Interoperability domain belonging to international organizations issuing cards - Visa and Mastercard. A transaction in 3D Secure system can not run domenii.Acest than going through three security protocol promotes the idea of authentication, which is done on two levels: one level card verification (if he is enrolled and activated in 3D Secure) verification and one trader, while being checked cardholders by introducing unique password that only the holder knows, this being found only on servers encrypted RomCard without shop to know.

Now, 3D Secure standard is the safest way to trade globally on the Internet. All four banks accepting payments via the Internet, namely Romanian Commercial Bank, Raiffeisen Bank, Tiriac Bank and Romanian Bank for Development did not conclude contracts with traders on the old standard of security. Worldwide, however, this happens.

### **6. Concluding remarks**

Electronic money is generated by electronics and informatics revolution. On magnetic tapes and disks were recorded numerous assets and liabilities of the companies were created circuits for electronic transfer of funds directly between banks and between them and most important customers.

The World Bank believes that electronic financial transactions is the use of means to exchange electronic information, transfer of symbols or representations of values and execution of information in a commercial environment.

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<sup>10</sup> Primaty Account Number.

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