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# Legal determinants of electronic money systems development in European Union

### **1. Introduction**

Money since ages has been facilitating trade, by making transactions faster and more convenient. The form of money have been developing from the commodity one, through metal and paper token, to a piece of information stored in the banking system. The process of money transformation has been caused by increasing requirements of economy, continuously and all-the-time unsatisfied. Also nowadays, the globalization of economy unfolds a challenge of new payment methods.

An appearance of information society revealed the need to share intangible products and services and caused that more and more enterprises are providing payable knowledge and entertainment on the Internet<sup>1</sup>. For these companies the electronic payment became a crucial element of digital value chain<sup>2</sup>. That is why electronic money seems to be the appropriate solution meeting the needs of modern economy.

The main goal of this paper is to evaluate the impact of European regulations concerning the matter of electronic money on the development of electronic money systems. The evaluation is based mainly on an analysis of legal acts adopted by European Parliament and the Council.

<sup>&</sup>lt;sup>1</sup> W. Cellary, *Globalization from the Information and Communication Perspective*, in: T. Janowski, H. Mohanty. *Distributed Computing and Internet Technology:* 4<sup>th</sup> International Conference on Distributed Computing and Internet Technology ICDCIT 2007. Springer-Verlag 2007, p. 291.

<sup>&</sup>lt;sup>2</sup> A. Meier, H. Stormer, *eBusiness & eCommerce: managing the digital value chain*, Springer-Verlag 2009, p. 16.

The remainder of the text is organized as follows. In order to understand the impact of legal regulation on particular types of electronic money systems, the classification of these systems is presented in Section 2. Historical overview of European regulations concerning e-money systems and main changes in regulations made in the last decade are described in Section 3. Section 4 is dedicated to the analysis of technical implications of electronic money definition provided by European authorities. The entities allowed to issue electronic money are described in Section 5. Those regulations which limit a development of anonymous electronic money systems are identified and described in Section 6. Finally, Section 7 concludes the paper.

# 2. Classification of electronic money systems

There is a lot of electronic money systems, differing in terms of electronic money form, way of performing transactions, customer privacy, and payment amount. As the legal regulations may significantly determine an architecture of electronic money systems, it is advisable to get familiar with a classification of them.

The most popular classification of electronic money systems, presented in the literature, distinguishes two types of these systems<sup>3</sup>:

- card based systems reloadable prepaid card is used to make payments;
- network money systems (software based systems) electronic money is stored in computer memory in form of named files. These files are generated and managed by dedicated software installed on holder's computer device<sup>4</sup>.

The classification presented above do not exhaust all aspects of e-money systems. For instance, Gormez and Budd consider electronic money systems in terms of form and electronic money storage place. They define following types of these systems<sup>5</sup>:

 account based systems – all transactions are recorded and authorized centrally by e-money issuer. These systems are similar to debit and credit card systems;

<sup>&</sup>lt;sup>3</sup> W. Chmielarz, *Systemy elektronicznej bankowości,*. Difin 2005, p. 137-138

<sup>&</sup>lt;sup>4</sup> A. Borcuch, *Pieniądz elektroniczny pieniądz przyszłości – analiza ekonomiczno-prawna*, CeDeWu 2007, p. 29-30

<sup>&</sup>lt;sup>5</sup> Y. Gormez and C. H. Budd, *Electronic Money Free Banking and Some Implications for Central Banking*, www.tcmb.gov.tr/research/cbreview/jan04-3.pdf 25 October 2010

 token based systems – transaction may not require authorization and electronic money in a form of electronic tokens (a number with specific mathematical properties, which is generated by use of cryptographic techniques<sup>6</sup>) circulates through telecommunication networks or is exchanged by direct connection of electronic devices (e.g., smart cards and card readers).

Other aspects of distinguishing electronic money systems are presented by Bamodu. The author distinguishes two dimensions of these systems. The first dimension is user anonymity, and the second is the necessity of having active network connection in order to use e-money system. In terms of anonymity following types of electronic money systems may be defined<sup>7</sup>:

- identified e-money systems an identity of a payee and a payer is revealed during payment transaction. Moreover, an issuer of e-money is able to track the payments as in case of debit or credit card payment<sup>8</sup>;
- anonymous e-money systems an identity of a payee is not revealed during transaction and no one is able to link a payee with a payer<sup>9</sup>.

However, it is significant to emphasise that, besides two basic types of electronic money systems listed above, there are some semi-anonymous as well. A semi-anonymous electronic transaction can be tracked if required by law. However, only trusted institutions know (or may obtain information about) payee identity and transaction details<sup>10</sup>.

The second dimension of electronic money systems mentioned by Bamodu, namely the requirement of having active connection to the network, allows to classify e-money systems as<sup>11</sup>:

 on-line systems – a connection with electronic money issuer is indispensable to complete the payment;

A. Riza, Basic Principles and Future of Electronic Money,

http://www.justice.gov.tr/e-journal/pdf/basic\_pr%C4%B1nciples.pdf 25 October 2010 G. Bamodu, *op.cit*.

<sup>&</sup>lt;sup>6</sup> G. Shamir, M. Ben-Or and D. Dolev, *BARTER: a Backbone ARchitecture for Trade of ElectRonic content*, in: W. Lamersdorf and M. Merz, *Trends in Distributed Systems for Electronic Commerc.*, Springer-Verlag, 1998, p. 71

<sup>&</sup>lt;sup>7</sup> G. Bamodu, *The Regulation of Electronic Money Institutions in the United Kingdom*, http://www2.warwick.ac.uk/fac/soc/law/elj/jilt/2003\_2/bamodu/ 25 October 2010

<sup>&</sup>lt;sup>10</sup> J. Grijpink and C. Prins, *New rules for anonymous electronic transactions? An exploration of the private law implications of digital anonymity*, in: C. Nicoll, J. E. J. Prins and M. J. M. van Dellen, *Digital Anonymity and the Law: Tensions and Dimensions*, Asser Press 2003, p. 260

G. Bamodu, op.cit.

- off-line systems – a transaction between a payer and a payee can be completed without any additional connection with a third party.

The amount of payment is the last aspect of electronic money systems classification. Systems distinguished with accordance to this aspect fall into three categories<sup>12</sup>:

- picopayment systems payments that amounts less than one cent to one Euro can be handled;
- micropayment systems payments of amount between one Euro and ten Euro are supported. Deshmukh proposes a general definition and describes micropayment as "*low-value economic activity*", which paid by check or credit card is not economically justified<sup>13</sup>;
- 3) macropayment systems transactions of large amounts are processed.

# 3. Recent changes in European regulations

In order to foster the development of electronic money systems, European authorities adopted Directive 2000/46/EC of the European Parliament and of the Council of 18 September 2000 on the taking up, pursuit of and prudential supervision of the business of electronic money institutions. This directive defined, among others, the new kind of enterprise, namely electronic money institution. However the range of business activities these institutions are allowed to undertake was significantly limited. Capital structure and investments of electronic money institutions were limited as well<sup>14</sup>.

Unfortunately, the adoption of Directive 2005/60/EC of the European Parliament and of the Council of 26 October 2005 on the prevention of the use of the financial system for the purpose of money laundering and terrorist financing (further called *Directive 2005/60/EC*), Directive 2006/48/EC of the European Parliament and of the Council of 14 June 2006 relating to the taking up and pursuit of the business of credit institutions (further

<sup>&</sup>lt;sup>12</sup> A. Meier, H. Stormer, op.cit., p. 126

<sup>&</sup>lt;sup>13</sup> A. Deshmukh, *Digital accounting: the effects of the Internet and ERP on accounting*, IRM Press 2006, p. 178

<sup>&</sup>lt;sup>14</sup> Directive 2000/46/EC of the European Parliament and of the Council of 18 September 2000 on the taking up, pursuit of and prudential supervision of the business of electronic money institutions, OJ L 275, 27.10.2000, p. 40–41

called *Directive 2006/48/EC*) and Directive 2007/64/EC of the European Parliament and of the Council of 13 November 2007 on payment services in the internal market amending Directives 97/7/EC, 2002/65/EC, 2005/60/EC and 2006/48/EC and repealing Directive 97/5/EC (further called *Directive 2007/64/EC*) caused that European legal framework for electronic money became inconsistent<sup>15</sup>.

European Commission, after evaluation of the application of Directive 2000/46/EC, has found that some of its provisions "*have hindered the take-up of the electronic money market, hampering technological innovation*"<sup>16</sup>. The first problem that arose was the unclear definition of electronic money and the scope of the Directive, which in turn generated legal uncertainty among businesses. The second one was related with an inconsistency in the regulations introduced by Directive 2005/60/EC, Directive 2006/48/EC and Directive 2007/64/EC<sup>17</sup>.

In order to liquidate legal uncertainty and to facilitate issue of electronic money, European Commission decided to propose the project of new directive. The main goal of proposal was "to enable new, innovative and secure electronic money services to be designed, provide market access to new players and foster real and effective competition between all market participants"<sup>18</sup>.

Having regard to the proposal of the European Commission, European Parliament has adopted Directive 2009/110/EC of the European Parliament and of the Council of 16 September 2009 on the taking up, pursuit and prudential supervision of the business of electronic money institutions amending Directives 2005/60/EC and 2006/48/EC and repealing Directive 2000/46/EC (further called *Directive 2009/110/EC*), that includes new legal regulations regarding the matter of electronic money<sup>19</sup>.

<sup>&</sup>lt;sup>15</sup> Proposal for a Directive of the European Parliament and of the Council on the taking up, pursuit and prudential supervision of the business of electronic money institutions, amending Directives 2005/60/EC and 2006/48/EC and repealing Directive 2000/46/EC, COM(2008)627 final, p.3

<sup>&</sup>lt;sup>16</sup> *Ibidem* p. 2

<sup>&</sup>lt;sup>17</sup> *Ibidem* p. 3

<sup>&</sup>lt;sup>18</sup> *Ibidem* p. 2

<sup>&</sup>lt;sup>19</sup> Directive 2009/110/EC of the European Parliament and of the Council of 16 September 2009 on the taking up, pursuit and prudential supervision of the business of electronic money institutions amending Directives 2005/60/EC and 2006/48/EC and repealing Directive 2000/46/EC, OJ L 267 of 10.10.2009 (further called *Directive 2009/110/EC*), p. 7

# 4. Technical implications of electronic money definition

Directive 2009/110/EC introduces quite liberal definition of electronic money which states that, "electronic money means electronically, including magnetically, stored monetary value as represented by a claim on the issuer which is issued on receipt of funds for the purpose of making payment transactions as defined in point 5 of Article 4 of Directive 2007/64/EC, and which is accepted by a natural or legal person other than the electronic money issuer"<sup>20</sup>.

From the technical point of view, this definition broadened the scope of electronic money systems architectures. Directive 2009/110/EC defines electronic money in the way that enables both token-based and account-based systems to operate, as it limits only the way the electronic money is stored (electronically or magnetically), without influencing the place of storage. In particular, European Authorities declare in the preamble of Directive 2009/110/EC that, "the definition of electronic money should cover electronic money whether it is held on a payment device in the electronic money holder's possession or stored remotely at a server and managed by the electronic money holder through a specific account for electronic money"<sup>21</sup>. The more liberal approach to the matter of electronic money aims to foster the emergence of new innovative systems, especially account-based ones, which are free from double-spending problem.

Important is the fact that the definition of electronic money broadened the range of electronic money acceptors by including natural persons besides the legal ones. This change is likely to increase popularity of electronic money as a medium of exchange, and possibly force the changes in the technical way an electronic payment is accepted. Moreover, the electronic money is defined as "*monetary value*" (the value expressed in currency), which allows electronic money to act as a unit of account. What is more, the Directive 2009/110/EC ensures that "*electronic money issuers redeem, at any moment and at par value, the monetary value of the electronic money held*"<sup>22</sup>, what cause that electronic money is very liquid financial asset having high utility value.

<sup>&</sup>lt;sup>20</sup> Ibidem p.11

<sup>&</sup>lt;sup>21</sup> *Ibidem* p. 8

<sup>&</sup>lt;sup>22</sup> *Ibidem* p. 14

The legal definition of electronic money instrument influences significantly system. electronic the architecture of money Until adoption of Directive 2007/64/EC. money instrument was defined electronic bv Commission Recommendation of 30 July 1997 concerning transactions by electronic payment instruments and in particular the relationship between issuer and holder. According to the recommendation, electronic money instrument had to be reloadable. This requirement prevented including gift cards into electronic money instruments. Moreover the monetary value (electronic money) needed to be electronically stored on the electronic money instrument. approach hampered development account-based That of systems. Unfortunately Commission restricted types of electronic money instruments to stored-value cards and computer memory, allowing only the card based and software based systems to  $operate^{23}$ .

After integration of the Recommendation 97/489/EC into Directive 2007/64/EC there is no more definition of electronic money instrument. This directive provides general definition of payment instrument defined as "any personalised device(s) and/or set of procedures agreed between the payment service user and the payment service provider and used by the payment service user in order to initiate a payment order"<sup>24</sup>. Such approach liberalise the scope of electronic money systems which may be designed, especially by broadening the range of devices that may be applied. What is important, above-mentioned definition does not require the value (electronic money) to be stored on payment instrument. This liberalisation allows payment instrument to act only as a device remotely accessing the funds stored centrally in accounts (account-based systems).

<sup>&</sup>lt;sup>23</sup> 97/489/EC: Commission Recommendation of 30 July 1997 concerning transactions by electronic payment instruments and in particular the relationship between issuer and holder, OJ L 208 of 02.08.1997, p. 52-58

<sup>&</sup>lt;sup>24</sup> Directive 2007/64/EC of the European Parliament and of the Council of 13 November 2007 on payment services in the internal market, OJ L 319 of 5.12.2007, p. 12

### 5. Electronic money issuers

In the late nineties the European Commission noted that e-money was issued only by credit institutions and decided to broaden the scope of enterprises offering this service. In order to stimulate the market new economic entity was introduced by Directive 2000/46/EC, namely electronic money institution. Mentioned directive precisely regulated the conditions of issuing electronic money and all formal requirements for electronic money institutions. However, in 2008 European Commission discovered, that in fact Directive 2000/46/EC hampered development of electronic money institutions and proposed new regulations, which were adopted in Directive 2009/110/EC<sup>25</sup>.

This new directive influenced the e-money issuers by broadening the scope of businesses entitled to issue electronic money by post office giro institutions, central banks and authorities of Member States. Presently five subjects are granted to issue electronic money. The First entity are credit institutions defined by Directive 2006/48/EC as "undertakings or businesses of which is to receive deposits or other repayable funds from the public and to grant credits for its own account"<sup>26</sup>. The next subjects allowed to issue electronic money are electronic money institutions – legal persons, which have met the requirements stated in Title II of Directive 2009/110/EC and obtained authorisation. The third entity are post office giro institutions, which has been already entitled under Member States' law to issue electronic money. European authorities decided to allow The European Central Bank and national central banks to issue electronic money, only if they are not acting as public authorities. The last electronic money issuer listed in Directive 2009/110/EC are "Member States or their regional or local authorities when acting in their capacity as public authorities "<sup>27</sup>

Broader list of subjects allowed to issue electronic money should force the development of new electronic money systems. Especially central

<sup>&</sup>lt;sup>25</sup> Opinion of the European Economic and Social Committee on the Proposal for a directive of the European Parliament and of the Council on the taking up, pursuit and prudential supervision of the business of electronic money institutions, amending Directives 2005/60/EC and 2006/48/EC and repealing Directive 2000/46/EC. INT/465 - CESE 333/2009 - 2008/0190 (COD)

<sup>&</sup>lt;sup>26</sup> Directive 2009/110/EC, p. 16

<sup>&</sup>lt;sup>27</sup> *Ibidem*, p. 11

banks and Member States' authorities may contribute to the development of Pan-European standards for e-money systems, which should convince merchants and customers to adopt e-money solutions.

## 6. Regulations limiting issue of anonymous electronic money

The anonymity of payment transactions concluded by the use of electronic money system rises a great deal of controversy. On the one hand, the possibility of making anonymous transactions eliminates the risk of merchant's fraudulent behaviours e.g. selling of personal data or even identity theft. On the other hand, people may prefer anonymous transactions when they are involved in criminal activities (e.g., money laundering) or try to evade tax authorities<sup>28</sup>.

In order to avoid money laundering and financing terrorism, financial institutions are obliged by Directive 2005/60/EC to identify the customer and verify their identity. In addition, financial institutions should monitor the business relationships of their customers including scrutiny of transactions if necessary. Furthermore, mentioned directive states that "*Member States shall prohibit their credit and financial institutions from keeping anonymous accounts or anonymous passbooks*"<sup>29</sup>. However, issuers of electronic money may not apply customer due diligence in respect of electronic money "*where, if the device cannot be recharged, the maximum amount stored in the device is no more than EUR 250, or where, if the device can be recharged, a limit of EUR 2 500 is imposed on the total amount transacted in a calendar year*"<sup>30</sup>.

Customer due diligence requirement introduced by Directive 2005/60/EC significantly influences the architecture of electronic money systems. The operation of totally anonymous systems is limited by the maximal amount

<sup>&</sup>lt;sup>28</sup> C. Nicoll, J. E. J. Prins, M. J. M. van Dellen, *Anonymity ant the law, some introductory remarks* in: C. Nicoll, J. E. J. Prins and M. J. M. van Dellen, *Digital Anonymity and the Law: Tensions and Dimensions*, Asser Press 2003, p. 1-2

<sup>&</sup>lt;sup>29</sup> Directive 2005/60/EC of the European Parliament and of the Council of 26 October 2005 on the prevention of the use of the financial system for the purpose of money laundering and terrorist financing, OJ L 309 of 25.11.2005, p. 23

<sup>&</sup>lt;sup>30</sup> Directive 2009/110/EC, p. 16

of e-money stored and spent by single user. This limitation caused that anonymous e-money systems may be applied only in case of dealing with micropayments. However, an operation of such systems may occur to be not economically justified. On the other hand, the limitation of anonymity may foster development of semi-anonymous e-money systems offering revocable anonymity. Such systems protect users privacy as well as allow to track transaction details by entitled authorities.

#### 7. Summary

The analysis of regulations concerning the matter of electronic money, carried out in this paper, reveals that European authorities provided a set of favourable changes for businesses interested in issuing and processing electronic money.

First, the technically neutral definition of electronic money liquidated doubts concerning other architectures of e-money systems, than token-based ones, and use of devices other than smart-cards and PCs. Moreover, this change should faster the development of new kinds of e-money systems, especially account-based ones, where e-money may be accessed by wide range of devices of different type and purpose. Second, the inclusion of central banks and Member States' authorities into the businesses entitled to issue electronic-money may cause the fact that governmental institutions will contribute to the spreading of e-money systems and establishing international technical standards for these systems. Finally, despite the tough regulations concerning customer due diligence measures, the anonymous systems may only conditionally operate.

Although the European authorities provided consistent framework regulating the matter of electronic-money, the effects of adoption of these regulations into Member States' legal systems will be crucial. Moreover, a level of integration of particular Member States into Single Euro Payments Area is of great importance for the development of Pan-European electronic money systems.