

**Tomasz R. Smus**

Opole University

e-mail: tomasz.smus@uni.opole

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## **VIRTUAL MONEY – MONEY OF THE FUTURE? ECONOMIC ASPECTS, FINANCIAL AND LEGAL ENVIRONMENT**

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**Abstract:** The paper explores virtual reality and objects as well as the dawn of the virtual money age on the Internet and the related issues of its economic, financial and legal environment. The author will focus on presenting the phenomenon of omnipresent virtual reality including the birth of virtual money, and next attempts to define the form of money used nowadays, to conclude with the identification of virtual money characteristics as a new form of payment in electronic environment compared to electronic money against the background of regulations of Polish law.

**Key words:** virtual money, electronic money, e-payments.

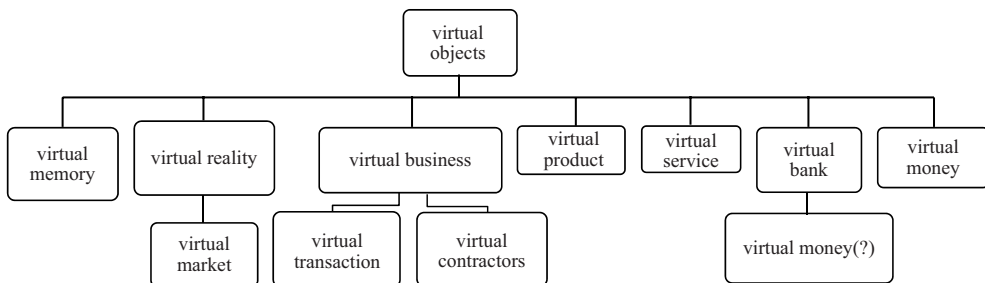
### **1. Virtual money – origin and rationale**

Nowadays, the Internet has gained the position not only of a source of knowledge or entertainment centre but also of a powerful tool for managing finances in both worlds – the real and the virtual one. The virtual market along with all its online services has the status of an important market participant these days, according to Niemiec [2009]. The development of the global Internet gave rise to the phenomenon called cyberspace, i.e. virtual reality, thus changing the nature of business relations between partners which have evolved from a traditional direct relation, such as shop assistant – customer communication, to electronic or virtual connections [Dereń 2004, p. 311]. This being the reason, the virtual market with its [Małachowski 2005, pp. 27–28] virtual space (market), virtual transaction, virtual business, virtual contractors, virtual goods as well as virtual money are referred to more and more frequently.

Virtual money has real value on the Internet so businesses that deal with on-line games recognised the potential in selling virtual units of the currency they manage thus launching a huge and profitable flow of cash in the world of imaginary reality. The introduction of a standardized, cross-system virtual money unit would simplify numerous online transactions, ensure the high conversion of such a currency and create an exchange market. The concept of virtual money is growing rapidly along with the occurrence of 500,000 applications on the *Facebook* global portal using

virtual values and products. According to D. Liu [2010], the applications attract masses of users thus challenging the development of virtual currency systems and could contribute significantly to the users' experience in the potential world of virtual money.

The term *virtual*, derived from Latin *virtus*, meaning skills, efficiency, courage and bravery as well as *virtualis*, i.e. effectiveness (cf. [Kumaniecki 1981, p. 540; Hughes 2001, p. 52]) seems one of the most overused terms in the contemporary world, however the very concept has gradually been gaining the status of a key term when discussing contemporary social and economic transformations. Ancient philosophy uses the term virtual to describe phenomena which will be revealed through their effects rather than formally. This means that power is not the attribute of one's physical presence. Nevertheless, contemporary reality requires further discussion on the concept – is it only a hot and meaningless slogan, or perhaps the idea reflecting revolutionary changes in one's everyday professional and private life in a certain social, economic and technological environment? Detailed examination of our reality will indicate the overwhelming *creation of ubiquitous virtuality* in the shape of various forms such as virtual bank, virtual reality or money and many new other ones, which are slowly gaining common recognition due to their revolutionary character. Literature indicates a continuous evolution of the concepts, therefore B. Wooley's [Hughes 2001, p. 52] theory comparing virtuality with a huge, yet still empty, semantic vessel being slowly filled and waiting to be filled up with appropriate *virtuality* meanings seems valid.



**Figure 1.** Virtual objects

Source: own study based on: [Brzozowski 2005, p. 2].

Computer science is believed to contribute most to the understanding and common use of the concept of virtuality. Virtual objects are the objects that are likely to exist, are assumed to be likely to exist or are imaginary in nature [*Słownik języka polskiego*]. According to computer technology, virtual objects are the effect of its artificial creation [Dunaj 2007]. Notably, virtual memory was the first practical application of the theory of virtuality in computer technology. It would

enable computer systems to handle software reaching beyond the physical memory (real storage). Next the concept of virtual reality was introduced – it assumed using computer technology to develop a world modelled on the real one thus making the user of the new environment (computer generated one) show the same authentic behaviour [Brzozowski 2010, pp. 32–33]. Discourses on the concept of virtuality were moved on to other academic domains which would define virtuality in their own specific ways, for instance in philosophy [Kiepas, Sułkowska, Wołek (eds.) 2009, pp. 159–174] or in physics.<sup>1</sup> Confronted with virtual reality, the world of finance and related services, too, has been undergoing revolutionary changes since the last century. In their efforts to meet the rising demands of the information society, financial institutions have been implementing various ICT systems aimed at improving the comfort and the quality of customer service as well as at increasing revenues. Systems of virtual currency facilitate mostly non-cash electronic turnover not only in virtual reality. They would introduce low-cost solutions for credit cards used for micropayments or challenge pre-payment systems for young consumers (less likely to receive a credit card). In the virtual economy, enterprises use virtual money to develop attractive loyalty programmes, while the virtual money systems themselves are not used solely to sell digital content any longer. Becoming more and more complex they enable the purchase of physical goods and services from many traders, facilitate P2P payments along with a cash purchase option thus giving rise to a distinctive form of virtual reality – Internet based environment described as cyberspace.<sup>2</sup> According to Brzozowski [2005, p. 3], it is cyberspace that contributed to virtual reality being perceived as a safer environment which became its primary attribute. There was no evidence to challenge the virtual reality fundamentals, i.e. no impact on the real world whatsoever. Having left the virtual reality, its users were observed to abandon all the simulated activities, hence all the potential effects became invalid. Notably, real world based operations accessed in virtual reality could involve prolonged effects lasting and developing even beyond cyberspace.

Admittedly, nowadays there are many associations between virtual subjects in cyberspace and related activities that cross the limitations of virtual reality to change the real environment. Not long ago, customers would satisfy their demands for a particular product or service by spending real money usually stored in a bank. They would transfer the money to the systems of electronic payments, such as electronic purses, transfer cash to a recipient's account or use a credit card thus meeting their financial obligations on the virtual market [Bielecki 2001, p. 177]. These days, however, payments due for goods or services ordered in virtual space have a different character. A customer can choose the option of traditional payment, i.e. by means

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<sup>1</sup> Quantum Field Theory assumes the occurrence of virtual particles responsible for interactions within electro-magnetic fields.

<sup>2</sup> In his novel *Neuromancer* (1984) William Gibson used the notion cyberspace. The term is believed to have been coined as a result of setting up and further developing numerous virtual objects in extensive computer networks. The objects' immaterial structure is only a simulation of a physical one.

of electronic bank transfer, money order, direct payment to the recipient's account, cheque or pay upon receipt. It is also possible to make electronic payment, i.e. by means of an electronic cheque, a credit or debit card, electronic cash or electronic money instruments (see more in: [Smus 2010]) and, starting from 1 July 2011, by virtual currency of the *Facebook Credits* [tigi 2011] for products and services available for example in cyberspace.

Global communication with its modern forms of communication supported by state-of-the-art technology, first and foremost related to electronic (virtual) environment, will make a direct impact on economic exchange and following on the development of contemporary payment system. *Facebook Credits* currency is considered a remarkable leap in the process of payment modernisation. The virtual market is perceived as a communication platform for suppliers and recipients using media and technologies to facilitate the information swap and also the exchange of products, goods and services, i.e. sales [Małachowski 2005, p. 27].

These days the legal status of virtual currency in Poland is not clear. The issuer is responsible for meeting the transaction related obligations which may impact on its financial and non-financial liabilities, provided the issuer is deemed to be an institution dealing with electronic money and conducting its activities in compliance with the Law on Electronic Payment Instruments.

Additionally, the issuers' limitations arising from the potential expiry of virtual money or payments imposed on inactive virtual values should also be considered. The requirements regarding cash back procedures for unused virtual currency as well as such institutions' liabilities to unused virtual balance denominated in the local currency of virtual money origin countries should be concerned as well. There seems to be a potential for legal regulations governing the activities of a virtual money issuer acting as a financial institution. This would entail the adjustment of a clearing system to prevent illegal operations of issuing and using virtual money. The problem should be approached in terms of privacy and data protection as well as security of all the entities involved in clearing virtual money transactions.

According to Figure 1, illustrating the system of virtual objects, the increasingly popular virtual money generated in public does not come from virtual banks at all. It is an independent virtual object generated by private entities engaged in sell and buy transactions or in exchange operations for clearing purposes on the virtual market. It is unlike electronic money that can be issued by a virtual bank<sup>3</sup> which meets the local legal requirements of a given state. Polish legislation refers to electronic money in the Banking Law which defines it as monetary value providing an electronic equivalent to currency [Ustawa z 29 sierpnia 1997..., Art. 4 clause 5]. The legislator provided for the list of three cumulative conditions to be satisfied in

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<sup>3</sup> Until recently, mBank was considered the largest virtual Polish bank offering exclusively e-banking products. Launching mKiosk project dedicated first and foremost to a retail client has changed the bank's category.

order to classify a monetary unit as electronic money. The list is closed to eliminate reservations regarding clear identification of differences between electronic money and similar products, such as pre-paid telephone cards where the issuer measures used impulses instead of monetary units (see [Targosz 2004, p. 272; Masiota 2003, p. 173; Grodzicki 2002, p. 9]).

## 2. What is the nature of contemporary money?

Present-day money is a binary system described by bit-encoded information hence it provides a considerable challenge for societies entering the era of digital economy. Reservations about virtual production based on some knowledge only result from one's incapacity for materialising electronic products and services, including virtual money, in the real world. Recognition of the above by all the market players requires revolutionary changes in the financial industry, law and new technologies as well as a change in social behavioural patterns.

Financial institutions have failed to develop uniform standards for electronic money as a new payment solution in the system of electronic economy, yet virtual money<sup>4</sup> has been gaining a powerful position on the Internet following the hard times of the financial crisis. Attempts to regulate the electronic payment system by means of electronic money were already made in the 1990s; the 21st century sees new challenges of the virtual money appearing.

Why do financial experts fail to identify the appropriate legal status for new money in terms of a free market economy? Legal status seems to influence the total amount of money in circulation, which seems a major impediment. According to the literature [Łuczak 2010, p. 5], total amount of money in circulation is determined by two factors, i.e. its nominal amount and a value of a currency unit. Therefore, the selection of a legal form for money can increase or decrease its nominal amount, which is likely to be unlimited, e.g. due to activities aimed at extra fiat money printing or limited by technological constraints, such as technological curbs on gold mining.

The European Central Bank (ECB) made an attempt to develop the definition of electronic money as an electronic source of the cash available on a technical device. E-money itself may be used to make payments outside bank accounts. The general ECB definition involves e-money characteristics which will certainly remain valid in the world of rapidly changing technologies. Unfortunately, with no uniform standards, diverse systems based on chip cards (so called electronic purses) and systems installed on a computer's hard disc would appear on the market.

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<sup>4</sup> Facebook, the greatest ever social portal implemented Facebook Credits which may be used for purchasing virtual gifts or converted for any game currency including Farmville where Facebook Credits can be exchanged into Farm Cash! 10 credits is equal to 1 USD, which is enough to buy 4FV (Facebook FarmVille currency).

Presumably, virtual money will threaten the position of cash resources issued by the central bank, although no testimony has been reported in practice. The institution of money, as such, is founded on trust, yet the value of money gets the credible support of the state with its independent central banking system. Reservations expressed about electronic money refer to the common belief [see *Report on Electronic...* 1998, p. 14; Janson 2003, p. 3] that it is private money embodied in electronic data records stored on electronic payment instruments, not in the form of paper notes, just like in the era of free banking when banks were allowed to print their own money with no restrictions imposed by the central bank whatsoever.

Notably, electronic money is issued within the internal currency system used for clearings with the central bank. Moreover, although no new currencies have been introduced,<sup>5</sup> the process of developing electronic money may resemble the process of private currency issue. B. Friedman [1999, pp. 321–338] proves that although electronic money will be converted from notes, coins or bank account money, it will not be exchanged the other way round. Consumers using the money for their own successive payments will be the only ones to exchange, which is going to modify both the amount of traditional money (i.e. decrease the volume) in circulation and the amount of electronic money (i.e. increase the volume) in the electronic money systems.

The Act on electronic payment instruments [Ustawa z 12 września 2002...] has introduced a new definition of an electronic payment instrument. According to the definition, an electronic payment instrument is every payment instrument, including the one with a remote access to capital resources, which enables a user to make transactions by means of electronic data media or electronic user identification necessary to perform an operation. It refers, in particular, to payment cards, but also to electronic solutions for servicing bank accounts or electronic paycheques. Electronic payment instruments can be divided according to the scheme in Figure 2.

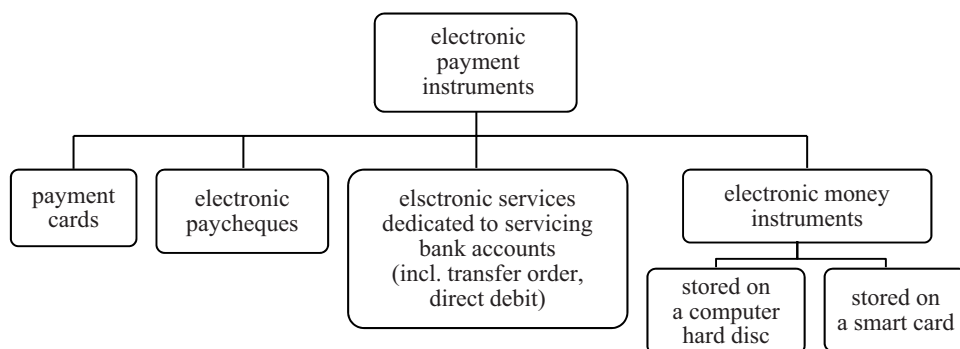
At present, the Polish legislation allows the following currency and payment instruments: cash in the form of coins and notes as well as electronic money, i.e. impulses stored on a smart card or in a computer's hard disc [Smus 2010, pp. 29–39]. However, bank money (scriptural money) is considered to be a deposit accessed by a user by means of payment instruments, such as payment cards, transfer orders, or electronic paycheques, etc.

In Europe it is a commercial bank or a dedicated e-money institution that play the role of e-money issuer. It would convert cash or bank money into electronic currency with expected monetary parity assuming no more than 1 unit of the approved currency per 1 electronic unit, e.g. 1 Euro in the form of cash or bank money in the account into 1 electronic Euro. Such monetary parity will ensure the security of the EU monetary policy,<sup>6</sup> nevertheless, central banks hold the right to demand the banks

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<sup>5</sup> Contrary to e-gold, IthacaHours, Liberty dollars systems.

<sup>6</sup> Monetary authorities would raise doubts about electronic money obstructing state monetary policy that involves accounting banks and e-money institutions for their electronic money transactions.



**Figure 2.** Electronic payment instruments

Source: own study based on: [Szmydt 2004, p. 16].

to make mandatory provisions for the electronic money issued [Friedman (ed.) 1973, p. 18] in the event if effective monetary strategies are seriously threatened [*Report on Electronic...* 1998, p. 15]. The obligation to make a compulsory provision is likely to be questioned in terms of effective legislation, though. Following the assumption that e-money cannot be considered value created, it should be approached as an equivalent form of traditional money.

Electronic money appears to be both the currency and the payment instrument. In the standard economic environment it enables immediate settlement of payment or delivery *versus* payment. The so called network effects,<sup>7</sup> strictly limited convertibility into national currencies and lack of confidence in e-money issuers are believed to

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Taking into consideration that e-money itself will not affect directly the structure of the monetary aggregates, in particular M1 aggregate (including cash and a vista deposits), hence it will not have an impact on the supply of currency. M1 aggregate would become sensitive to e-money performance in the event it became a credit instrument and lost its current pre-paid character. Growing popularity of electronic money instruments will translate into decreased number of notes and coins in circulation thus increasing the value of a vista deposits, which means the reformulation of M1 aggregate structure. Declining volume of traditional cash will affect the balance reported by the central bank. Issued currency liabilities account for a substantial portion of its total liabilities. Central bank's revenues from the issue of traditional currency as well as the cost of cash turnover should fall, which is likely to result in the bank's introduction of the compulsory provision for e-money or its issuance.

<sup>7</sup> E-payments as payment systems have the opportunity to enjoy the economies of scale and network effects. Both of them usually happen to occur simultaneously. Network effects will be measured by number of users while the economies of scale by the production volume, i.e. the turnover value in the payment system. Economy would define network effects as a demand-oriented while the economies of scale as the one based on supply and production. Economies of scale assume unit costs decline along with the rise of production. In payment systems economies of scale involve decreasing costs of a single transaction based on a particular payment instrument when the network is expanding. Economies of scale can be measured by means of monetary units, however the network effect requires abstract units, such as number of interactions between the network users.

significantly impede the process of bringing electronic money into general use. 19th century bank institutions – private note issuers – appeared to face similar difficulties. The users would find it hard to approve that form of money in the era of industrial economy as well.

Literature suggests the concept based on the assumption that e-money should be perceived as the hybrid of cash and bank money. An issuer's liabilities accounts disclose *outstanding e-money volume* [Górka 2009, pp. 14–15] (simultaneously there is also e-money in the shape of impulses encrypted in a given digital media device (usually on smart card or a computer's smart disc – *smart money*)).

central bank		domestic bank	
ASSETS	LIABILITIES	ASSETS	LIABILITIES
	cash		bank/fiduciary money

domestic bank/e-money institution		private issuer	
ASSETS	LIABILITIES	ASSETS	LIABILITIES
	e-money		virtual currencies (virtual money, digital gold standard), and alternative currencies (complementary, local)

**Figure 3.** Selected forms of money according to the issuer

Source: own study based on [Górka 2009, p. 15].

According to Figure 3, electronic money fails to be assigned directly to the central bank liabilities. The model would not assign e-money to a central deponent, which complies with effective legislation on electronic money and on the money issued by the Polish central bank, including the laws limiting the e-money capacity to be used for rendering payment services and recognised as legal currency in the territory of Poland [Smus 2010, pp. 44–47]. Electronic money, in general, provides a tax-free source of financing for a central bank, while the revenues from the issue are deemed to constitute a source of income.<sup>8</sup> Although coins and notes provide a certain income for the government, it still seems too expensive for the state economy. Assumingly, annual cash business (issuance, cash counting, transport, distribution, storage and security facilities) costs about 1% GDP [Grodzicki 2004, p. 62] in Poland, which in 2004 accounted for ca. PLN 8.84 billion.<sup>9</sup>

<sup>8</sup> Income from currency issue is called seigniorage.

<sup>9</sup> GDP as of the end of 2004 – PLN 884.2 b according to GUS data.



### 3. What is the nature of virtual money?

The above dissertation indicates that the concept of *virtual money* is the opposite of any form of money used at any time in history – the opposite of real money in the general sense, according to Smus [2010, p. 35].<sup>10</sup>

Separated from ore, with no coverage in gold, money evolved into so-called fiduciary money which ensures fast capital flow, accelerated investment delivery as well as substantial support for development. The issuer of fiduciary money is obliged to monitor its value through maintaining a relatively low supply. Fiduciary money owners' claims are not duly legitimised in terms of an issuer's responsibilities regarding the duty referred to above, hence in the event the value declines<sup>11</sup> (for instance, due to inflation), the owner holds no right to claim damages from the issuer. Confidence in common sense and responsibility seem to be the only guarantee for the owner which is reflected in the term *fiduciary* originating from the Latin word *fides* meaning *faith*. Unfortunately, frequent cases of using technical shortcomings to the unauthorized creation of such money have been reported. That will result in interest groups' growing wealthy through gross speculations on numerous markets, inflating speculative bubble across the world, fast trading with virtual millions, making use of private near monies.

Although the combination of the meaning of Latin-based term *wirtualny* (*virtus* stands for skill, efficiency, courage, and bravery and *virtualis* stands for effectiveness) with the term money will get the owner convinced of the money's capacity, in particular in terms of recognising its value in virtual world.

Virtual money is never issued by a bank, only by a private issuer to satisfy its own purposes. Virtual money has no coverage in ore; its value is determined by values specified either by an issuer or by an owner. It has never the shape of coins or notes; it is a mere digital record like e-money units encrypted in electronic money instruments in a computer's hard disc. Apart from that it has real value and there are people who make a good living dealing with e-money. Unreal money is virtual currency used in many virtual worlds<sup>12</sup> while the real-virtual money exchange transactions

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<sup>10</sup> Money understood as every available instrument which may release and discharge a person from their monetary obligations in trading goods and services under various legal conditions. Therefore, money can occur in the shape of: commodities (gold, silver, etc.), an issuer's obligations (banknotes, coins issued by the central bank, with full or partial coverage in goods or fiduciary money) and trading obligation of an entity (as a commercial bank's, business entity's or an individual's liability).

<sup>11</sup> No preventive measures have been taken to efficiently prevent the loss of value due to the inflation of fiduciary money. The only way to stop inflation is low supply of money in the market which in turn has adverse effect on the market.

<sup>12</sup> Virtual worlds referred to are social games, such as Massively Multiplayer Online Game (MMOG or MMO), which settled onto the market in the 1980s with the birth of first PC network games, before the Internet era. Even then, first exchange of virtual objects could be observed. At the same time first virtual objects were put up for sale; they included money for sale in real world to acquire real currency. 1997, with the occurrence of first mass-scale network games, proved a turning point

are referred to as *RMT* (*real money trading*), and the economic phenomenon in its entirety – RMT market [Niemiec 2009, p. 6].

Virtual money is the issuer's liability hence it is the issuer's responsibility to prevent its depreciation. *Farm Ville* [Minta, Stodolak 2011, pp. 72–73], one of the most famous global social games, requires the participants to take good care of virtual objects and the virtual world so that they maintain their value. Any negligence will result in the decline in the quality of liabilities. The more attended by participants interested in the value created, the more demand it gets. The above describes the virtual nature of currency and value created in cyberspace. Nowadays, the virtual world allows operations that can instantly increase or decrease its value. A few dollars converted into virtual money<sup>13</sup> would be enough to acquire higher value right away and also, like in the real world, time, prestige and further growth opportunities.

Virtual money creation is an immediate process of a private issuer's increasing the balance available in many ways including prolonged, effective and regular performance or a short path of acquiring virtual value using real money in every sense of the word. The creation mechanism is not subject to any technical limitations, yet, and seems to be restricted only by the participant's affluence or his/her virtual skills. A decline in virtual money value does not appear to be resulting from real or virtual world's inflation while the increasing amount and value of such money could inflate the cash volume in real circulation in the case if exchanged into real currencies. All things considered, the rising volume of money created in the virtual environment must influence its growing value, however, increased transfer due to the exchange transactions could have an adverse effect on the supply of real money, and next on the economic growth.

To sum up, the exploration of the issue of virtual money with regard to the financial and legal framework shows that the transition to the new era of virtual money will take place by means of electronic money and proves the inevitability of the process correlated with technological development, growing market needs and expectations in times of a knowledge-based economy in the information society.

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in the market of social games. One of the first mass-scale games was Ultima; here the players for the first time would put up on sale virtual gold and objects at online auction and shopping website e-Bay founded in mid 90s.

<sup>13</sup> E.g. in FarmVille dollars can be converted into virtual currency called FacebookCredits. Facebook Credits which may be used for purchasing virtual gifts or converted for any game currency including Farmville where Facebook Credits can be exchanged into Farm Cash! 10 credits is equal to 1 USD, which is enough to buy 4FV (Facebook FarmVille currency).

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## **PIENIĄDZ WIRTUALNY KOLEJNĄ FORMĄ PIENIĄDZA? ASPEKTY EKONOMICZNE, FINANSOWE I PRAWNE**

**Streszczenie:** Artykuł porusza kwestie związane z rzeczywistością wirtualną i obiektami wirtualnymi oraz narodzinami pieniądza wirtualnego w Internecie, a także pytaniami w ekonomii, finansach i prawie, jakie wiąże się z jego używaniem. Zamiarem autora było przedstawienie zjawiska wszechobecnej wirtualności, w tym powstania pieniądza wirtualnego. W dalszej części artykułu autor dokonuje próby odpowiedzi, z jakim pieniądzem mamy dziś do czynienia, kończąc na uchwyceniu cech charakterystycznych pieniądza wirtualnego w porównaniu z pieniądzem elektronicznym na podstawie polskich regulacji prawnych jako nowej formy płatności w świecie elektronicznym.

**Słowa kluczowe:** pieniądz wirtualny, pieniądz elektroniczny, e-płatności.