

PAPER • OPEN ACCESS

Digital technologies in households budget management

To cite this article: Natalia Chumakova *et al* 2019 *IOP Conf. Ser.: Mater. Sci. Eng.* **497** 012026

View the [article online](#) for updates and enhancements.



IOP | ebooks™

Bringing you innovative digital publishing with leading voices to create your essential collection of books in STEM research.

Start exploring the **collection** - download the first chapter of every title for free.

Digital technologies in households budget management

Natalia Chumakova ^{1*}, Elena Yarushkina ¹, Vladislav Milovanov ¹ and Vera Saprykina ¹

¹ Southern Management Institute, Stavropolskaya str., 216, 350040, Krasnodar, Russia

* E-mail: orinat@mail.ru

Abstract. The households become in the modern economic paradigm one of the most important business entities, while the personal finance is one of subjects to management. In this regard the article gives consideration to a concept of the households budget, determines a sequence of building a personal financial plan, substantiates that the role of financial awareness of general public increases under conditions of digital economy. At that, it has been revealed that the low level of financial awareness of general public jeopardizes not only the consumption of financial products, but hampers the growth of financial markets, and by the same hampers development of the country's economy as a whole. The article also gives a concept of digital economy and provides analysis of its volumes in Russia, as well as it makes a review and analysis of the main popular solutions used as financial instruments for personal finance management under conditions of digital economy, and the advantages and disadvantages thereof have been identified.

1. Introduction

Resulting from market transformations in the economy of contemporary Russia, the household gains a foothold as one of the most important business entities, since it is included into processes of organization of labor force and human capital assets, creation of many products and services, engagement and use of physical, financial and information resources. After being given a free hand to independently determine parameters of intrinsic reproduction process the domestic households enhance the impact thereof on economic processes taking place at the local, regional, national and global levels of public economy organization [1].

An important condition for an efficient households system functioning is the management of personal finance of its participants, which is based on the knowledge of activity of financial and credit, investment, insurance, pension organizations and other participants of financial market [2]. Besides, the efficient management of personal finance is in direct dependence on practical skills of running a personal budget, including planning and accounting incomes and expenditures of the household participants, consumption of financial products and services, etc.

The low level of financial awareness of general public and absence of an efficient system of personal finance management are likely to bring about the insolvency of the household system. The actions of the above factors gain momentum due to absence of necessary financial reserves and risks insurance with the households. It should be noted that a trend of an increasing financial awareness of general public is becoming evident recently. The state plays by no means an unimportant part in this



process. So, the Strategy of enhancing financial awareness in the Russian Federation for 2017–2023 was approved by the Resolution of the Government of the RF No. 2039-r dd September 25, 2017 [3].

2. System of personal finance management

2.1. Personal budget as a subject to management

The household budget corresponds to a financial and economic diagram of incomes and expenditures of its participants being a reflection of the plan, according to which the process participants dispose of the available funds taking into account the permanent or sporadic demands within a definite period of time.

It should be noted that every household constituent entity has its personal needs, which should be agreed with the public needs without prejudice to any rights or freedoms of the other participants. In order to establish an optimal budgeting structure, when the expenditures do not exceed the incomes, it is necessary to seek compromises and attain an agreement between the family budget participants reflecting one of three types of interaction: independent budgeting (when every family member individually disposes of the earnings and independently plans his personal spending); common or joint budgeting (when the expenditures go shares between all participants); mixed type of budgeting assumes a combination of two previous types.

Planning is an indispensable element of the budgeting process. A personal financial plan corresponds to a well-disposed strategy of attaining particular financial goals relying on the efficient combinations of definite financial tools proceeding from capabilities under particular conditions, as well as the predicted demands. The organization of the personal financial plan will be effected in the following sequence:

- 1) setting goals;
- 2) formation and analysis of personal financial statements;
- 3) correcting goals;
- 4) determining ways of attaining goals (building an investment plan).

A compilation of the personal financial plan shall be based not only on personal goals and capabilities, but on the assessment of actual demands and analysis of adequacy of the set goals and objectives too. Thus, it is insufficient just to fulfill a personal budget; it is important to make it efficiently.

2.2. Financial awareness as a factor of efficient management of personal finance

An efficient management of personal finance is impossible without respective financial knowledge, abilities and skills. In this regard the Strategy of enhancing financial awareness in the Russian Federation for 2017–2023 was adopted in 2017 with the main purpose of building foundation for forming financially-aware behavior of general public. ‘The issues of financial awareness of general public have become especially relevant for the majority of the countries of the world under the present-day conditions of the extended use of financial services, sophistication and emergence of new financial instruments difficult for understanding. Providing a personal financial security becomes an important factor of economic security of people’, says the Strategy text [3].

According to the rating of the Organization for Economic Cooperation and Development (OECD) the financial awareness of population of the Russian Federation has appeared to occupy a medium level. Russia took the 9th position among the countries of the Group of 20 (G20), where this study had taken place. The appraisal of the RF amounted to 12.2 points of 21 possible, moreover that the average score for G20 was 12.7 points [4].

It is customary to consider that the low level of financial awareness of general public undermines not only the consumers of financial services (products), but also tampers the economic health of the state [5]. First of all, the low level of financial awareness impedes incorporation and development of various payment systems and financial mechanisms, it hampers development of financial markets, compels the state to increase control of the finance sphere, etc. Secondly, this phenomenon reduces a

general level of different financial services, causes a failure to understand the fundamentals of financial instruments functioning, arouses mistrust in financial institutes among general public.

Unfortunately, the existing social and economic formation does not envisage a situation, when every economic entity features a high level of financial awareness. We have in mind that an overwhelming majority of educational content pertaining to fundamentals of personal finance management ‘allocates’ the following behavior markers to a financially-aware individual: an adequate approach to money, it should be managerial, but not consumer-oriented; planning and accountancy of personal finance, seeking to an efficient use of the available financial resources; establishment of mutually beneficial relations with banks; investing. In this case these ‘markers’, rules, requirements are meaningless for many economic entities and are capable in some specified sense of negative impact on the state economy under condition of mass use thereof.

3. Digital economy as an instrument of enhancing efficiency of personal finance management

3.1. Concept of digital economy

The term ‘digital economy’ has been introduced by Nicholas Negroponte, the American scholar from the University of Massachusetts, who has substantiated the advantages of new economy using an intensive development of information and communication technology.

A concept of digital economy in the RF has appeared subsequent to the adopted Program ‘Digital economy of the RF’ approved by the Resolution of the Government of the RF No.1632-r dated July 28, 2017 (hereinafter referred to as the ‘Program’). The subject matter of this program consists in creating legal, technical, organizational and financial conditions for the development of digital economy of Russia and its integration into digital economies of the members of the Eurasian Economic Union.

The segments of market, where the added value is created by means of digital information technologies are understood presently as the system of digital economy in Russia. The digital economy implies total globalization under conditions of super competitive environment, which is developing at dizzying rates as well as establishment of new spheres of activity and improving the quality of life of people, business and state services.

The investigation carried out by the Association of electronic communications (RAEC) testifies to the fact that the contribution of digital economy into the Russian economy in 2017 is rated at 2.42% of gross domestic product (GDP), while the contribution of mobile economy is rated at 3.8% of GDP [6]. According to the experts the influence of Internet markets on the economy grows 11% per annum and the contribution of digital economy into GDP of Russia will equal 4.7% by 2021. The volumes of markets under investigation are given in table 1.

Table 1. Volumes of digital economy of Russia.

Market under investigation	2016, bln. rub.	2017, bln. rub.	2017 as compared to 2016, %
Marketing and advertisement	191	224	117
Electronic commerce	1375	1725	126
Infrastructure and software	77	90	117
Digital content	63	70	111

Table 1 shows that the electronic commerce, including four segments: online retail — selling goods through Internet; electronic payments; online travel — selling travels through Internet; other, is developing at the fastest rate in Russia.

The marketing and advertisement market includes contextual advertising, ATL advertising, web — developments and mobile advertisement, video advertising and content — marketing. The digital content market includes online video, online music, games and electronic books, while the market of

infrastructure and software includes online brands, applications and computer programs. Particularly, the infrastructure and software market offers solutions for management of personal finance, which includes an analysis of incomes and expenditures, seeking methods of increasing incomes and reducing expenditures, an ability of planning incomes and expenditures, compiling reports over a period being analyzed, summing-up and studying dynamics.

3.2. Use of online systems in managing personal finance

The development of digital technologies influences favorably many aspects of our life, including its financial component. The bank system of the RF has, probably, gone already through a stage of riot growth and development, nevertheless, more and more financial instruments available for general public appear in the sphere of bank services particularly in these recent times [7]. One of them is the use of pay cards and credit bank cards, which feature a whole number of advantages, in particular: wide geography of cards application and the speed of effecting payments, replenishment, absence of need for banknotes and coins.

The number of bank cards of different types has increased significantly in the territory of Russia over the last 10 years. So, as far back as 2008 the aggregate thereof amounted to 103.041 mln pcs., when in 2018 the volume thereof amounted to 271.711 mln pcs., i.e. the number of bank cards with the general public increased by 168.670 mln pcs. or 2.64 times [8]. The average number of bank cards held by one person equals 1.88 pcs. At that, it should be noted that 87.7% of all bank cards account for the pay cards, when the credit cards make only 12.3%. The dynamics of growth of the number of bank cards of various types is shown in figure 1 [9].



Figure 1. Number of pay and credit cards emitted by credit organizations, mln pcs.

In addition to the foregoing virtues of using bank cards it is also necessary to outline the disadvantages thereof, which include: low level of security of bank cards (according to the Central Bank 960 mln rubles have been stolen from the bank cards of the Russian citizen in 2017 alone) [10]; restricted limit of cash withdrawals; restricted acceptance of payments (this problem is not so acute in the big cities of Russia, whilst it still remains to be a big problem in small inhabited localities with population under 100 thous. persons) [11, 12].

The other by no means unimportant component of using and control of personal finance includes various mobile and web applications, which help control the inherent financial expenses, perform monitoring of economic activity and personal budgeting. A comparative characteristic of different instruments of management of personal finance is shown in table 2.

Table 2. Advantages and disadvantages of different instruments of management of personal finance.

Category	Description	Examples	Advantages	Disadvantages
Manual keeping of personal financial accounts	Keeping of personal financial accounts takes place without using PC	Notebooks, writing pads, 'financial account' registers, etc.	Ease (no PC control skills are required); availability; variability	Absence of data synchronization; manual calculations; low efficiency
Microsoft programs	Keeping of personal financial accounts takes place in standard Microsoft programs	Microsoft Excel, Microsoft Office, etc.	Variability (it is possible to adjust programs 'individually'); automated calculations	Skills of 'competent' PC user are required; they are provided on commercial basis
Specialized programs	Specifically created programs for keeping of financial accounts using personal computers and laptops	MoneyTracker, Home banking, Home finance, jMoney, AbilityCash, etc.	Customer focus; convenient interface; possibility of joint keeping (e.g., in the family circle)	Can be provided on commercial basis; absence of automated data input
Mobile applications	Similar to previous category with the only exception that the accounts are kept in mobile device	Wallet, Monefy, Mobills: Personal finance, Sberbank online, etc.	Ease; mobility; automated data input; customer focus; possibility of joint keeping; convenient interface	Can be provided on commercial basis
Online (web) services	This category combines two previous ones in itself	Home banking, Cash Organizer, etc.	Customer focus; possibility of joint keeping; cross-platform feature; mobility; ease; convenient interface	Can be provided on commercial basis

Thus, table 2 shows evident advantages of using specialized programs, mobile applications and online (web) services as compared with a manual method of keeping personal financial accounts and Microsoft programs.

4. Conclusions

The development of digital economy at the present-day stage has contributed to the development of various software products and mobile applications helping an individual keep accounts of incomes and expenditures, effect planning and perform control of plan fulfillment directly in a phone, a tablet or a computer, not demanding in this case any specific practical skills of keeping accounts. The transformation of methods of keeping accounts of personal finance helps an individual save time as well as make a comprehensive analysis of personal budget by mere button depression. However, the use of digital economy in enhancing efficiency of personal finance management is only possible with provision of a due level of general public education, including digital awareness, i.e., acquisition of skills of using information and communication technologies.

References

- [1] Chumakova N A 2015 *Scientific Bulletin of Southern Management Institute* **4** 32–36.
- [2] Kravchenko N P and Berlin S I 2017 *Scientific Bulletin of Southern Management Institute* **4** 68–

- [3] Government Approved the Strategy of Enhancing Financial Awareness, <https://www.vedomosti.ru/economics/news/2017/09/29/735887-pravitelstvo-utverdilo-strategiyu>
- [4] Manuilova A 2017 *Kommersant Paper* **122** 2
- [5] Petukhov R N 2017 *Molodoi Uchenyi* **5** 217–220
- [6] Ecosystem of Digital Economy of Russia, http://raec.ru/upload/files/de-itogi_booklet.pdf
- [7] Ermolenko O M 2018 *Scientific Bulletin of Southern Management Institute* **2** 26–30
- [8] Kushu S O, Sobka Yu A 2018 *Scientific Bulletin of Southern Management Institute* **1** 76–79
- [9] Number of Pay Cards Emitted by Credit Organizations with Respect to Types of Cards, http://www.cbr.ru/statistics/p_sys/print.aspx?file=sheet013.htm
- [10] Nearly 1 Billion Rubles Were Stolen Within One Year From Plastic Cards of Russians, <https://www.vedomosti.ru/finance/articles/2018/02/16/751296-s-plastikovih-kart-ukrali-milliard>
- [11] Ermolenko O M 2016 *Scientific Bulletin of Southern Management Institute* **2** 28–33
- [12] Kushu S O 2016 *Scientific Bulletin of Southern Management Institute* **3** 42–44