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AN EFFECT OF THE ELECTRONIC DOCUMENT CIRCULATION SYSTEM'S APPLICATION IN UKRAINE ON THE EFFICIENCY OF THE TAX ADMINISTRATION

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A *In this paper, the results of the implementation of electronic tax administration system in Ukraine are analyzed. The main factors restraining the development of electronic tax administration system in Ukraine are determined and a number of risks that accompany its development are proved. The implementation process of electronic document circulation in developed countries as a peculiar kind of innovation in the tax administration process is generalized. The further directions of electronic document circulation system's implementation are developed and justified.*

K *Efficiency of tax administration, electronic system of tax administration, the perception of innovation, risks of tax administration.*

ВПЛИВ ЗАСТОСУВАННЯ СИСТЕМИ ЕЛЕКТРОННОГО ДОКУМЕНТООБІГУ НА ЕФЕКТИВНІСТЬ ПОДАТКОВОГО АДМІНІСТРУВАННЯ В УКРАЇНІ

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А *Проведено аналіз результатів впровадження електронної системи адміністрування податків в Україні. Визначено основні стримуючі фактори розвитку електронної системи адміністрування податків в Україні й обґрунтовано низку ризиків, що супроводжують її розвиток. Здійснено узагальнення процесу впровадження систем електронного документообігу в розвинутих країнах як своєрідного виду інновацій у процесі адміністрування податків. Розроблено та обґрунтовано подальші напрямки впровадження системи електронного документообігу в Україні.*

К *Ефективність адміністрування податків, електронна система адміністрування податків, сприйняття інновацій, ризики адміністрування податків.*

ВЛИЯНИЕ ПРИМЕНЕНИЯ СИСТЕМЫ ЭЛЕКТРОННОГО ДОКУМЕНТООБОРОТА НА ЭФФЕКТИВНОСТЬ НАЛОГОВОГО АДМИНИСТРИРОВАНИЯ В УКРАИНЕ

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А *Проведен анализ результатов внедрения электронной системы администрирования налогов в Украине. Определены основные сдерживающие факторы развития электронной системы администрирования налогов в Украине и обоснован ряд рисков, сопровождающих ее развитие. Осуществлено обобщение процесса внедрения систем электронного документооборота в развитых странах как своеобразного вида инноваций в процессе администрирования налогов. Разработаны и обоснованы дальнейшие направления внедрения системы электронного документооборота в Украине.*

К *Эффективность администрирования налогов, электронная система администрирования налогов, восприятие инноваций, риски администрирования налогов.*

Statement of the problem

The general trend of the tax administration development in the world is the introduction of electronic document circulation system between tax authorities and taxpayers which is about filing tax returns and some primary documents in electronic form. The current stage of a society development is determined by its digitization which is a process of mass transfer to the submission of any information in the digital form with the distribution of capabilities of its automated processing and analysis. Digitization, in turn, is a part of the process of information and communication technologies (ICT) introduction. This process gained a momentum status in developed countries which accelerates an economic growth and increases productivity of a skilled labor. In addition, the digitalization plays an important role in promoting the development of national strategies, and in accelerating the development and reducing an unemployment. [14]

It should be noted that in the global experience the first public institutions that have implemented an interactive system for state cooperation with entities controlled were tax authorities. [13] The undisputed leader in the transfer of the tax administration system on the electronic level are the United States. In 1986,

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the five states in the U.S. launched a research program to fill tax returns electronically. The study concerned only 25,000 individual taxpayers, but the following year the experiment was extended to the scale of the whole country. In 1998, 20% of individual tax returns completed and submitted through the electronic system [12]. In 2012, already 80% of tax returns were filed electronically [12].

The introduction of electronic document circulation system takes place also in Europe. As noted by the authors in [10], "electronic completion and filing of tax returns has become a global trend in developed countries." In 2002, the EU adopted a position of 20 types of services that should be provided by the state electronically, 7 of them are services relating to taxation. It was also suggested several stages for a complete step by step transition to electronic systems [11]. In the UK , for example, in 2010 more than 77 % of individual tax returns were completed and submitted electronically [11]. Other European countries by the development of electronic taxation systems are about the same level. It should be emphasized that the introduction of electronic filling and submission of tax returns can be considered as an innovative step in the development of tax administration.

In Ukraine, the development of electronic tax administration system is also at quite high level, but the process of its implementation is of a slightly different nature. First, the need to fill tax returns by taxpayers was imposed administratively (tax authorities refused to accept the declaration of taxpayers in paper form refering to disposals of the management) – this applies mainly paying VAT and income tax. Although it's said in the tax law that taxpayers besides large ones have a choice as to the manner of submitting tax returns (payments) – in fact, they did not have such a choice. As a result, all the VAT and income tax payers switched to the use of electronic tax filing. Another difference of the introduction of electronic filing tax returns in Ukraine was that this did not begin from the individual entrepreneurs (like both in the U.S. and Europe), but for large taxpayers, while individuals-entrepreneurs and legal entities – the subjects of the simplified taxation mainly continue to fill tax returns in paper form.

The issue of development of electronic tax returns filing system began to be measured in scientific space since 2007, when it has been introduced the first instructions on electronic filing of tax returns [1]. In particular, the list of benefits of electronic filing of tax returns compared to paper is successfully shown in the works of A. Novickii [4]. At the same time, the author also notes the presence of a wide range of issues related to the implementation of the system, starting with imperfect software problems, lack of or poor quality of an internet connection, and ending with necessary of the legalization and security of electronic accounting at enterprises.

It should be noted that in the domestic scientific literature an electronic tax administration system is seen primarily as a system of an electronic flow of documents between the supervisory authority and a taxpayer [2]. This significantly reduces its potential functionality and, despite the sufficient study of this subject [7] highlights the backlog of e-taxation in Ukraine compared to other countries. First of all, the electronic flow of documents of the developed countries allows to transfer electronically not only tax returns, and not only to controlling bodies, but almost all kinds of primary documents and not just to regulatory authorities, but also to any destinations – customers, suppliers, other government agencies. The main condition is a use by them just the same software to get electronic messages about the documents received on their address. This method of workflow between contractors is more efficient, rapid and largely eliminates mistakes and frauds, and increases a controllability of transactions by the tax authorities. Therefore, an extremely important direction of the development of the tax administration system in Ukraine is to determine the content and basic functions of electronic document circulation system, the analysis of stages of its implementation and to identify the main obstacles that hinder its development.

The aim of the paper is to analyze the status and conditions of electronic document circulation system in Ukraine, to assess its social and fiscal utility, and to analyse the willingness of taxpayers and the state to enhance the degree of digitizing documents in Ukraine. Special attention should be given to the risks associated with innovations and to the ability of taxpayers to adapt to innovative services.

The main material

The electronic tax administration system in Ukraine dates back to 2007, when the mechanism of receiving electronic tax returns was first introduced for large taxpayers [1]. But because of a lot of inconsistencies, the system began to function only in 2008 under the Order of the STA from 10.04.2008 № 233 "On the electronic submission of tax returns" [1] and continues to operate today under the Tax Code of Ukraine [5]. The key features of this system are that it establishes legislatively an electronic form of document flow between tax payers and regulatory agencies. The procedure of the preparation and submission of electronic reports, as well as technical and legal aspects of this process

are defined by the order too. In the Article 49 of the Tax Code the possibility of submitting tax returns in an electronic form by electronic means is provided [5]. The contents of this system is that taxpayers fill out their tax returns electronically in an appropriate form, certify tax return using electronic signature and send files via email to the supervisory authority.

To increase comfort when filing tax returns by taxpayers the Ministry of Revenue and Duties of Ukraine in 2013 introduce a new service "Electronic cabinet of a taxpayer" [3] which implements the function of "Single window of electronic reporting submission". The content is that large taxpayers can upload there their tax returns instead of sending them via email.

In fact, the concept of electronic tax administration is far broader than imagined by domestic scholars, and is today in Ukraine. The function of the document flow is performed in most countries, and taxpayers, instead of the personal representation of tax returns and original documents, can send them by e-mail, on the condition of imposition of the electronic digital signature, which is legitimate under the law. But in developed countries, this system provides a number of significant advantages. These include the possibility of automated processing and analysis of information, the system of electronic tax payment, free software, consulting services and more.

Let's consider in more detail one of the oldest systems of electronic filing of tax returns, the system of USA. Since 1986 this system had a very rapid development, which was largely restrained by the development of telecommunications and the Internet. The system was created in the first place, to automate and speed up the process of filling out and filing mass tax returns of individual taxpayers (Ukrainian counterpart are individuals and small business entities). Also the possibility of filing declarations by enterprises developed simultaneously.

The first step in the development of the system was the creation of opportunities for filling tax returns in the electronic form without paper copies. Since 1992, the Declaration could be filled out and submited electronically "from the home", and in 1996 the electronic system of tax payments was introduced. It should be noted that before 1998 tax returns that were submitted through the Internet, were processed manually by tax inspectors. But during the reform of the Tax Service in 1998 the U.S. Congress at the legislative level introduced the procedure by which some tax returns began to be processed automatically using appropriate software without tax inspectors [14]. In 1999 in the United States, a way of paying taxes with a credit card emerged. Only in 2004, the U.S. Tax Service modernized the tax payment system of the large business and expanded the range of services provided to them via the Internet. Consequently, in 2008 60% of all tax reports filed and processed in electronic form, and in 2012 80% of all individual tax returns were filed via the Internet [13].

The European system of electronic taxation characterizes by its diversity. The countries with the most developed system of electronic taxation may include the United Kingdom, France, Germany, Belgium, and Estonia. These countries, as well as the United States, first automated filing of individual tax returns and then moved to large taxpayers.

Russia is not significantly behind the European Union and the United States in the implementation of electronic tax services. Today the Tax service of Russia proposes functions as follows: an electronic completion and filing of tax returns, paying taxes electronically, additional services on tax payments for different groups of taxpayers (individuals, legal entities and individual entrepreneurs) and others [9].

Studying the development of the systems of electronic filing of tax returns, one can trace the main stages of the system's formation. They are grouped into five main steps in the work [6] as follows:

Step 1, Information. The existence of an information service about the taxation.

Step 2, Dynamic. The information resources of the Tax Service become dynamic.

Step 3, Interactive. The possibility of electronic communication between the taxpayer and the tax authorities through an electronic document flow. Ability to email (without paper) filing tax returns.

Step 4, Transaction. Invoicing electronic tax payments, payment of taxes by credit cards, and so on.

Step 5, Fully integrated electronic tax system. Complete access to the tax services through the Internet 24 hours a day. Fully automated system for processing tax returns. Offering audit services by the tax authorities.

It should be noted that in Ukraine the development of electronic services for large businesses is stimulated, while the cooperation of controlling body with small and medium-sized businesses is insufficient and implementation of additional services for it is considered uneconomical. Let's investigate the main factors renstraining the development of the electronic tax administration system in Ukraine.

We believe that the development of electronic tax administration should be considered, depending on a number of factors that are closely related to information technologies and telecommunication systems. As is known, modern information technologies are advanced enough to satisfy almost all public demand and an urgent issue is the digitization of the society

[14]. Therefore, we propose to consider the development of electronic tax administration system in dependence of three main groups of customers: individual users, businesses and the state. The most complete picture of the prevalence of ICT in these three groups of users is given us by the Networked Readiness Index.

Networked Readiness Index (NRI) is a composite index that reflects the level of development of information and communication technologies in the context of the countries. The calculation of this index is evaluated annually by the World Economic Forum. IMG consists of four major sub-indices, including: network development environment, the sub-index of readiness, the sub-index of use, and the sub-index of impact [13]. IMG of each country is ranged from 1 to 7, where 1 is the lowest level of the development, and 7 is the highest one. Networked Readiness Index for Ukraine in the context of major sub-indices is shown in Table 1.

Each sub-indice represented in the table is calculated by the designated methodology based on several actual indexes of the state of the economy, infrastructure, and so on for the country. Thus, basing on the results of the sub-indices one can identify factors that hinder or promote the development of networks in Ukraine and have an indirect impact on the electronic system of tax administration. It should be noted that the development of the electronic tax administration in Ukraine is slightly constrained by technologies and consumers. The main constraints are influenced by public bodies. It is, first of all, the low efficiency of the public administration and legislative activity [13], a significant level of corruption in government [12], which is not conducive for an introduction of transparent forms of the interaction with taxpayers.

The development of electronic document flow system is associated with significant investments, which may be returned or not, and thus the formation of this system is risky. In our opinion, the principal in the implementation and maintenance of the electronic document flow system are the following risks:

- the risk that taxpayers reject the innovations and don't use the electronic system;
- the risk of low efficiency of the electronic tax administration system and increase of the costs for the tax administration compared to the absence of the system;
- the risk of cost's increase to compensate the effects of incorrect operation of the system.

NETWORKED READINESS INDEX OF UKRAINE **Table 1**

NAME OF INDEX	PLACE IN THE RANKING OF 144 COUNTRIES	INDEX VALUE (1–7)
Networked Readiness Index	**73**	**3,9**
A. Sub-index of network development environment	**105**	**3,5**
Political and regulatory environment	124	3,0
Environment of business and innovations	78	4,1
B. Sub-index of readiness	**29**	**5,3**
Infrastructure and Digital Content	75	3,8
Desire to use	2	6,9
Ability to use	35	5,3
C. Sub-index of use	**95**	**3,3**
Individual use	74	3,2
Using by business	84	3,3
Using by the state (government agencies)	121	3,3
D. Sub-index of impact	**81**	**3,3**
Economic impact	74	3,2
Social impact	87	3,4

Source: Author's calculations based on World Economic Forum's report [13].

Let's consider in more detail each of the identified risks. As for the risk of rejection, any innovation comes through several stages of diffusion among different groups of consumers. The most successfully the innovation diffusion process is described in the work of "Diffusion of Innovation" by E. Rogers [10]. Under this concept one understands the gradual application and acceptance of a new product by consumers as a result of various demographic and psychological characteristics of different groups of consumers. However, the distribution of consumers into different groups by the level of introduction of innovations obeys the normal distribution law (Fig. 1).

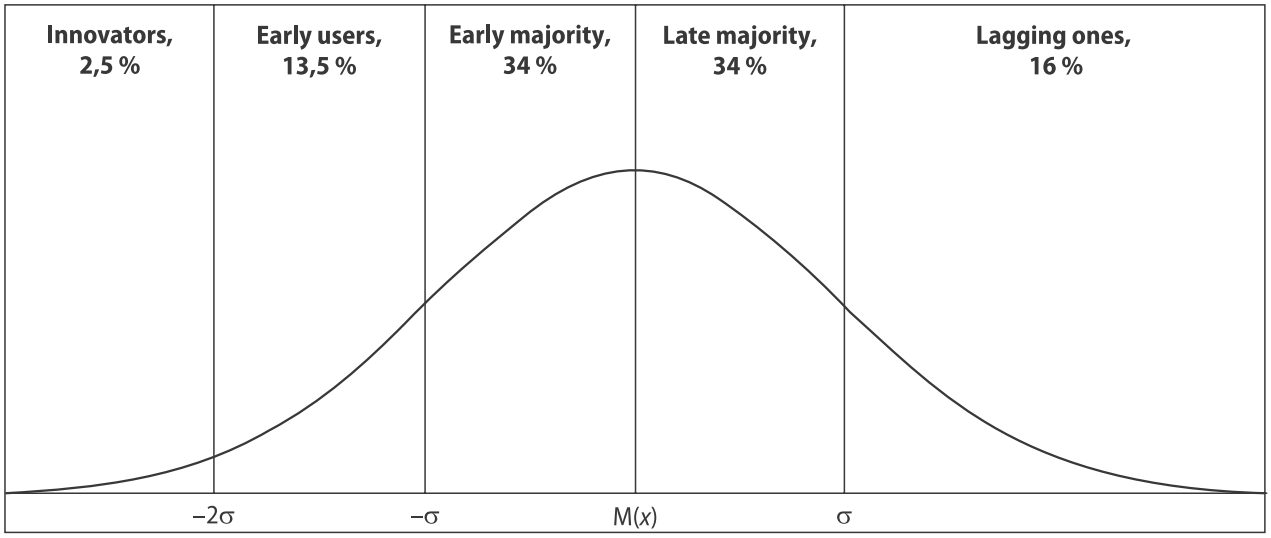

Figure 1. Distribution of consumers adapting innovation technologies

Indicated in Fig. 1 the consumer distribution model involves five main groups:

(1) *novators*, about 2.5 % of all users who knowingly take the risk of applying innovations and manifest the aspiration to try untested product;
(2) *early followers*, about 13.5 % of all users who tend to be educated and follow the practice of leaders;
(3) *rarly majority*, about 34 % of all users, who are careful consumers tending to avoid risks during the implementation of innovations;
(4) *late majority*, about 34 % of all users who are somewhat skeptical users starting to use an innovation when it becomes widespread;
(5) *lagging*, about 16 % of all users, these are users who avoid changes and do not want to use new products until the old alternative becomes unavailable.

Adapting of innovation technologies occurs in the time, where M(x) is the time in which a half of the consumer starts using innovations, σ is the standard deviation of time in the process of adaptation of technologies by consumers. While implementing the electronic tax administration system the similar scenario of dissemination of technologies among taxpayers is the most likely. And in the case when the technologies will be adapted very slowly and not by all potential consumers, it is possible of losses from non-use of technologies and decrease of innovatios' efficiency. In world practice, it's accepted that the tax is fully transferred into electronic form when it's used by 80 % of all taxpayers [12]. To avoid possible damages it's necessary to predict the rate at which consumers on 80 % switch to new technologies and, accordingly, to calculate the amount of investment and payback periods.

The function of percentage distribution of consumers who use innovative technologies in time is described by the Laplace function that belongs to a class of S- functions (s-curve), an example of which is shown in Fig. 2. Due to the complexity of the analytical representation for modeling one usually uses approximated to Laplace function logit or probit models. In our study, we use a logit model (logistic regression).

Let's analyze the time in which innovations in the field of electronic tax administration adapt in Ukraine. For this we use statistics about filing electronically VAT declarations. Statistics on the percentage of returns that were filed in electronic form, provided in the news section on the official website of the Ministry of Revenue and Duties of Ukraine monthly [4]. Combining all the data, starting from 2008, we have about 60 data points, each of which determines the percentage of VAT returns that were

completed and submitted in electronic form for each reporting month. All raw data and logistics S curve (with 95 % confidence intervals for the mathematical expectation and individual values), the parameters of which are calculated using the Statistical Analysis "Statgraphics", shown in Fig. 2.

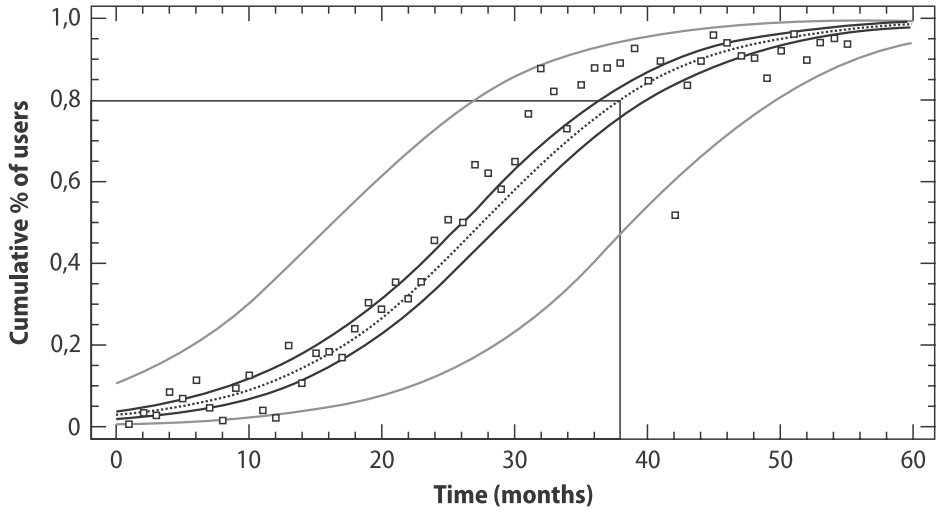

Figure 2. Logistic regression of the share of VAT returns filed electronically, at the time

Logistic regression equation is:

$$Y = e^{-3,658 + 0,1325x} / (1 + e^{-3,658 + 0,1325x}) \qquad (1)$$

where Y – is the share of VAT tax returns that are completed and submitted in electronic form at the time of x, which passed from the moment of the introduction of electronic technology of VAT payment (in months). According to the analysis the determination coefficient is R^2 = 89,38 %, indicating a sufficient adequacy of the logit model. In addition, the regression equation is significant at the level of 95 % (*F-Ratio* = 446, *P-Value* = 0,0000). Coefficients of the regression equation (free member and slope coefficient) are significant at the significance level of 95 %.

So, from the above calculation it is obvious that the increase in the proportion of consumers who adapt to innovations in the field of taxation, can be enough adequately described by equation (1) of the dependence of this indicator on the time. Also, it's necessary to keep in mind that, with the development of information society, the time of innovations' adaptation decreases.

For example, from equation (1) we find the time necessary for taxpayers to fill 80 % of tax returns electronically from the moment of the introduction of such a possibility. To do this, let's find x from the equation (1).

$$x = (3,658 - \ln(0,25)) / 0,1325 \qquad (2)$$

From expression (2) we have that $x \approx 38$. This means that it takes at least 38 months from the moment of the introduction of innovation until the time when 80 % of users use it. Thus it's clear that the risk of not using the electronic system of the tax administration by consumers is unlikely because the adaptation will not accelerate in the future.

The second risk is one of the administrative costs' increase due to the low efficiency of the electronic administration system. As mentioned earlier, the formation of electron tax system relatets to the large amounts of investment that may not pay off. Let's consider the situation where the tax authority decides to convert into electronic form the administration of a conditional tax A.

Before this moment the declaration of A were filed in paper form, and all tax records were processed by tax staff manually. On its administration annually T_Z million monetary units (normal fixed costs) were spent, and the value of revenues was E_Z million monetary units. The share of administrative costs A_Z in the structure of revenues from this tax $P_Z = T_Z/E_Z$ was about $P_Z = 0.1$. In order to transfer the tax A_Z into the electronic form A_E it's necessary in the first year to make a capital investment of T_Z for creating of an electronic system of accounting and data processing. The costs of administration with reduced below $0,3 \times T_Z$. From the very beginning of the introduction of electronic tax forms consumers begin to adopt the technology behind the curve (1), tax collection remains unchanged and is E_Z. Let's see how the share of the costs of administering the usual tax P_Z and the share of the costs of administering the electronic tax P_E over time in the condition of the introduction of the electronic system and assuming no change (Table 2).

COMPARING THE COSTS ON THE TAX ADMINISTRATION **Table 2**

TIME AFTER INTRODUCTION OF ELECTRONIC FORMS (YEARS)	COSTS T_z TO NORMAL ADMINISTRATION OF TAX A_z	THE SHARE OF COST FOR ADMINISTRATION OF USUAL TAX P_z	PERCENTAGE OF CONSUMERS OF ELECTRONIC TAX FORM A_E	COSTS T_E TO ELECTRONIC TAX ADMINISTRATION	THE TOTAL COST OF ADMINISTERING ELECTRONIC AND ORDINARY TAX	TAX CHARGES	THE SHARE OF COST TO ELECTRONIC TAX ADMINISTRATION P_E
1	T_z	$T_z/E_z = 0,1$	11,2 %	$T_z + 0,3T_z$	$1,3T_z + T_z$	E_z	$2,3 \cdot T_z/E_z = 0,23$
2	T_z	$T_z/E_z = 0,1$	38,3 %	$0,3T_z$	$0,3 \cdot T_z + (1 - 0,38 \cdot T_z)$	E_z	$0,91 \cdot T_z/E_z = 0,09$
3	T_z	$T_z/E_z = 0,1$	75,3 %	$0,3T_z$	$0,3 \cdot T_z + (1 - 0,75 \cdot T_z)$	E_z	$0,55 \cdot T_z/E_z = 0,055$
4	T_z	$T_z/E_z = 0,1$	> 80 %	$0,3T_z$	$0,3 \cdot T_z + (1 - 0,8 \cdot T_z)$	E_z	$0,5 \cdot T_z/E_z = 0,05$
5	T_z	$T_z/E_z = 0,1$	> 80 %	$0,3T_z$	$0,3 \cdot T_z + (1 - 0,8 \cdot T_z)$	E_z	$0,5 \cdot T_z/E_z = 0,05$
6	T_z	$T_z/E_z = 0,1$	> 80 %	$0,3T_z$	$0,3 \cdot T_z + (1 - 0,8 \cdot T_z)$	E_z	$0,5 \cdot T_z/E_z = 0,05$
7	T_z	$T_z/E_z = 0,1$	> 80 %	$0,3T_z$	$0,3 \cdot T_z + (1 - 0,8 \cdot T_z)$	E_z	$0,5 \cdot T_z/E_z = 0,05$

Source: author's calculations.

As can be seen from the calculations in this example, the introduction of electronic tax administration A_E in the first year has a negative impact on the efficiency of the tax increasing costs for administration by more than two times. But in the second year after the introduction of electronic form of filing tax returns administrative costs are reduced significantly, and at the same time, by the dependence shown in Fig. 2, the number of consumers of the electronic system increases. This leads to the fact that the cost of regular tax administration decreases inversely to the increasing number of users of an electronic system. And just in the fourth year after the introduction of the electronic system of tax administration the share of the cost on its administration reduces by more than two times, while 20 % of users continue to fill tax returns on paper, and are of a group of laggards according to the Fig. 1. That is, to assess the risk of low efficiency it's necessary to have the evaluation of capital investment and the cost for administration after introducing innovations.

The third important risk which may accompany an electronic system of tax administration is a risk of increased costs to compensate the effects of an incorrect operation of automated systems. The goal sought by all electronic tax administration systems is to reduce human involvement in the processing and synthesis the data of tax returns, thereby reducing the cost of tax administration. On the one hand, it reduces the impact of the human factor, but on the other increases the possibility of making bad decisions for the taxpayer.

This usually leads to a growing number of complaints from taxpayers to a court against the regulatory authorities. To reduce this risk, it is necessary to control a certain threshold of taxpayers' appeals to a court against the regulatory authorities, which excessing demonstrates the need to adjust the electronic system of tax administration and legislation .

Given that the use of electronic filing of tax returns in Ukraine has been being taken place over the past 5 years, the issue of regulation and measurement of its effectiveness becomes very urgent. For effective implementation of this system in Ukraine it's very important to have a clear concept of its development and strictly adhere to it. The effectiveness of the introduction of innovations in the tax system seems appropriate to be evaluated by the common system of indices as given in [8]. It includes indicators such as the growth of nominal tax revenues and reduce of costs on the tax administration in the structure of the tax revenue. While introducing an electronic system of taxation these figures should have a positive dynamics: the amount of tax revenue has to increase, while the share of costs for tax administration in the structure of tax revenue has to decrease. The main purpose of the introduction of the electronic document circulation system is to bring a mechanism of the tax administration to

the level of developed countries and reduce the cost of administration. The Table 3 shows the comparison of shares of costs for tax administration in the structure of tax revenue.

$P_A = (T / E)\times 100$ (where T is the total annual tax administration costs in the currency of the country, E is the total annual tax revenue in the currency of the country) in the context of many countries.

COMPARISON OF THE SHARE OF ADMINISTRATIVE COSTS IN THE TAX REVENUE OF DIFFERENT COUNTRIES **Table 3**

COUNTRIES	THE SHARE OF ADMINISTRATIVE COSTS IN THE STRUCTURE OF THE TAX REVENUE,%						
	2005	2006	2007	2008	2009	2010	2011
Ukraine	2,42	2,43	2,17	2,05	1,97	2,00	1,35
Russia	–	–	–	–	–	1,1	0,9
Austria	0,66	0,66	0,64	0,79	0,85	0,7	0,66
Belgium	1,43	1,57	1,39	1,27	1,4	1,29	1,36
Canada	1,32	1,32	1,22	1,13	1,31	1,36	1,31
Chile	0,69	0,63	0,6	0,67	0,91	0,77	0,68
Poland	1,94	1,75	1,42	1,59	1,72	3,04	2,73
Switzerland	0,3	0,29	–	0,45	0,46	0,37	0,38
United Kingdom	1,1	1,09	1,11	0,9	0,91	0,98	0,83
USA	0,52	0,47	0,45	0,49	0,61	0,66	0,62

Source: grouped by author based on [14].

As can be seen from the Table 3, the dynamics of the tax administration efficiency in Ukraine steadily improved the last years. Note that according to unofficial data in 2012, this share was 1.27. Special attention in the analysis of the effectiveness of electronic tax administration system deserves the feedback of taxpayers' side. Electronic document management system must comply with demands of convenience. And when the system does not work correctly, the number of complaints from taxpayers increases. Therefore, the number of appeals to the court against the tax authorities due to incorrect operation of the system of electronic reporting is an important indicator of the efficiency of the system [9].

Introduction of innovations in the tax system leads not only to quantitative changes (increase of tax revenues, cuts in public spending on tax administration). Qualitative changes, such as decline in corruption, increase of information transparency on the amount of tax revenue and directions for its use, improving of the business climate, etc., occurring in society at large. To assess the level of these changes may be done due to complex parameters, which are determined by international organizations, and are called the international indexes. For example, the Networked Readiness Index in addition to the development of networks in the country reflects their development in some areas (due to the sub-indices). Therefore, the growth of the sub-index of use of information technologies by the government can be considered as a positive result of the introduction of electronic tax administration. In addition, there are a number of other indices that assess the quality of the functioning of the government. These include: index of economy transparency (index of corruption or transparency international), index of doing business easiness (doing business), the index of efficiency of e-government (e-government index). Comparative performance of these indices are given in Table 4.

As can be seen from Table 4, by the absolute majority of parameters Ukraine is at the bottom of the rankings. Moreover, during the period analysed the positive dynamics haven't been being observed. This witnesses that significant qualitative changes in the system of governance is not happening. Some of the proposed in the Table 4 indexes are directly dependent on the introduction of the electronic document management system, and some of them are indirectly dependent. In our opinion, the use of international indexes for assessment of quality changes in the tax system and

INDEXES OF UKRAINE ON THE MAIN INTERNATIONAL INDICES OF THE GOVERNANCE **Table 4**

INDEX	YEARS									
	2005		2010		2011		2012		2013	
	INDEX	POSITION (AMONG COUNTRIES)	INDEX	POSITION (AMONG COUNTRIES)	INDEX	POSITION (AMONG COUNTRIES)	INDEX	POSITION (AMONG COUNTRIES)	INDEX	POSITION (AMONG COUNTRIES)
Index of networked readiness	–0,49 (+2; –2)	76 (115)	3,5 (7)	82 (133)	3,5 (7)	90 (138)	3,85 (7)	75 (142)	3,9 (7)	73 (142)
Index of ICT use by the government	–	–	–	–	3,2 (7)	75 (138)	3,3 (7)	111 (142)	3,3 (7)	121 (142)
Index of doing business easiness	–	–	–	–	–	–	48,9 (100)	152 (182)	53,5 (100)	137 (185)
Index of economy transparency	2,6 (10)	107 (158)	2,4 (10)	134 (178)	2,3 (10)	152 (182)	26 (100)	144 (174)	–	–
Index of e-government ffectiveness	0,546 (1)	48 (180)	0,518 (1)	54 (184)	–	–	0,57 (1)	68 (190)	–	–

Source: grouped by author based on [12].

public administration is very promising. Thus, a positive or negative dynamics of presented indices should be regarded as the results of the introduction of innovations in the field of taxation.

Conclusions

The study can state positive trends in the use of electronic tax returns system. The process of the electronic tax administration system introduction in Ukraine has been being performed from 2007, and the current system gradually improves and more effectively performs its functions. The main factors that slow the development of innovations in Ukraine are an ineffective governance and legislative activity and the significant level of corruption in the government. In our opinion, this is not conducive to introducing the transparent forms of interaction between the tax authorities and tax payers. However, as international experience shows, an important step in this direction is to create a transparent system of electronic tax administration by implementing appropriate electronic services.

It's proved that the use of electronic filing of tax returns is associated with a number of risks, including as follows: the risk of slow perception of innovations by consumers, the risk of low efficiency of electronic filling the tax returns, and the risk of incorrectness in the work of the electronic reporting system. Based on the data of the Ministry of Revenue and Duties of Ukraine, in the study we have analysed the results of implementation of an electronic form filing of VAT returns. It has been shown that potential consumers of electronic tax administration are ready to actively take innovations and able to adapt them to 80 % during the first three years after an implementation, and in the future this time can only decrease. In turn, an improvement of the administrating a single tax can be seen already in the second year after the introduction of the electronic system of taxation. However, these results should be adjusted to the fact that the introduction of electronic filing reports with VAT largely held administratively and not by the free will of the taxpayers.

A special attention should be paid to criteria for evaluating the effectiveness of electronic tax administration system. For the purpose of effective implementation of electronic document management system we have identified a number of quantitative and qualitative criteria, such as: the quantitative criteria include changes in volumes and revenues, the share of administrative costs to total revenue, the number of complaints regarding an activity of the tax authorities. We believe that electronic document management system is able in perspective to improve significantly the quality and effectiveness of supervisory and controlling work of the tax authorities and make more transparent its results.

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