

IMPLEMENTING E-GOVERNMENT IN BUDGET CASHING OF LOCAL FINANCES IN TRANSYLVANIA REGION

Răzvan E. PETRUȘEL

*PhD candidate, Faculty of Economics,
Babeș-Bolyai University, Cluj-Napoca*

The principles and the purposes of e-government are ideals, sometimes difficult to reach and to implement. In fact, it is considered a step forward implementing at least a part of those ideals. One of the key domains of e-government is the local public administration. Among the implementations of e-government in local public finances is the access to the list of fees and taxes owed and the possibility to pay them on-line. This article provides an overview of the legal framework, an evaluation of the e-tax systems already functional, and some recommendations regarding the steps that need to be taken in the future.

A broad definition considers e-government to be a 'knowledge-based government in the knowledge-based economy and society'¹. Another accepted definition of electronic government states: "Government activities that take place by digital processes over a computer network, usually the Internet, between the government and members of the public and entities in the private sector, especially regulated entities. These activities generally involve the electronic exchange of information to acquire or provide products or services, to place or receive orders, to provide or obtain information, or to complete financial transactions"². We consider that the second definition covers all major aspects of e-government and therefore it is the definition this article is based on. As showed by it, one of the interactions between the contributors and the local administration is the process of local taxation, process that can be decomposed into two main directions: exchange of information regarding the local taxes and the financial transactions between local administration and the contributor. This is why we consider that the local fees and taxes domain can be an important part of electronic government and, moreover, the nature of the activities involved makes it a perfect domain for applying the principles and values of e-government and demonstrating the possible benefits.

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¹ Brown David „Electronic government and public administration”, *International Review of Administrative Sciences*, Vol 71(2):241-254

² www.dir.state.tx.us/taskforce/Surveys/State_Survey/app_b.htm

Some of the E-government principles were stated in the “Declaration of principles” issued at the first World Summit on the Information Society (WSIS) held in Geneva in December 2003. Mainly, in this document the spread of information and communication technology (ICT) is recognized and all the participants commit themselves to building an Informational Society (IS) with equal opportunities and benefits for all persons. Representatives agree to work together in order to “improve access to information and communication infrastructure and technologies as well as to information and knowledge; build capacity; increase confidence and security in the use of ICTs; create an enabling environment at all levels; develop and widen ICT applications; foster and respect cultural diversity; recognize the role of the media; address the ethical dimensions of the Information Society; and encourage international and regional cooperation. We agree that these are the key principles for building an inclusive Information Society”³. The IS should bring benefits in all aspects of daily life and, among other deployments of IS, is stated „government operations and services”. This leads to the idea of e-government, which is: deploying ICT in order to improve government activity at all levels: national, regional and local. Romania participated to this summit and the result was a national strategy that aims to implement Informational Society in general and E-government in particular. This national strategy aims to open the road that will end in changing the local public administration. The first step on this road is the portal www.e-guvernare.ro that aims to be the point of access to central and local e-government services and information.

The European drive and commitment to create the Informational Society lead to creation of the project called “eEurope” (in which Romania is not involved yet). It is a political initiative aimed at “bringing every citizen, home and school, every business and administration, into the digital age and online; creating a digitally literate Europe, supported by an entrepreneurial culture ready to finance and develop new ideas; ensuring the whole process is socially inclusive, builds consumer trust and strengthens social cohesion”⁴.

According to David Brown, there are four domains into which e-government and public administration can be divided: jurisdiction of the state and its role within the economy and the society; legitimacy of the state and its relationship with its citizens and the rule of law; operations of state institutions; the state in international environment⁵. The research theme can be included in the third domain identified by Brown because it is a citizen-centered service that provides information as a public service and makes tax payment easier. Also, implementation and development of this service requires new skills and will develop new relationships between contributors and local public administration.

One of the most important interactions between the citizen and the local public administration occurs at the moment of establishing the taxes and imposts owed by the contributors and at the moment of cashing them. This is where the high ideals stated above must be put into practice. The following processes can and must be realized by and through the information and communication infrastructure: the establishment of the taxes bases (including modifications in land, buildings and cars owned), the calculation of the amount owed, the payment of the sums, the transparency of budgeting and the spending of the funds gathered. In this article we will discuss the steps already taken in Romania, the projects already implemented, the ones still in design phase, we will try to determine what needs to be done in order to improve the applications in use and to suggest new ways to implement the ideas and principles of e-government in local public administration.

³ The Geneva WSIS “Declaration of principles”, <http://www.itu.int/wsis/docs/geneva/official/dop.html>

⁴ “An Information Society for All”, Communication on a Commission Initiative for the Special European Council of Lisbon, 23 and 24 March 2000

⁵ Brown David „Electronic government and public administration”, *International Review of Administrative Sciences*, Vol 71(2):241-254

As showed above at the government level there is already a stated will to create and put in practice the national informational society strategy. This was already translated into several laws that enforce creation and use of instruments according to e-government principles. The portal www.e-guvernare.ro is such an instrument that contains among other chapters a separate section dedicated to on line cashing of taxes and fees. This link points to a page on the technology and communication ministry's site that displays the most important law in this field: the law number 291/2002⁶ regarding the cashing by electronic means of local taxes and imposts. We consider it to be important because it states that all cities, towns and even villages (where required) must develop and implement applications to enable willing citizens to pay the local taxes and imposts by electronic means. Moreover, it sets specific dates for cities by the first of February 2003 and for towns by the first of November 2003. By those dates the law mentions that the system must already be in place and functional. The methodology norm⁷ for this law extends and enriches the content of the law. By this norm some important aspects are stated: the public local authorities are responsible for the implementation and operation of the system, the contributors must have at least the following options: view the list of owed imposts and taxes, view the list of previous payments and pay on-line amounts still owed. The local authority is responsible also with the authentication of users, the security and privacy of information transmitted through the system. An interesting detail is that in order to promote competition the solution selected for the system must be an open standard. This facility was generically named e-tax system. The law also states e-tax must be provided with no cost to any contributor and must be able to offer information to other local public departments when requested.

The system must create and maintain an Electronic Registry for Local Taxes and Imposts, which must contain all information regarding the contributors registered as users of the system and the taxes owed and paid by them. The data contained in this registry is considered private and protected according to law 677/2001 regarding the protection and manipulation of private data and therefore each user must have access only to data regarding his account. Each contributor in order to use the system must be registered. The registration must occur in maximum two days after a solicitation is made and it is considered ended when the user account and password is issued. The identity data must be handed personally to the user in a sealed envelope. If the password is compromised the user must require a reissue.

Access to the on-line payment system must be provided after accessing the main web page of the municipality and user identification. Also, the user must be allowed to connect both from private and public computers. This clears a technical problem: the system has to allow identification based strictly on user name and password and not on security certificate because software installation on user's computer is not an option. The municipality's web page must contain clear and visible information related to local taxes and imposts, the due dates, the calculation methods, the accepted banks and credit cards and a user's guide for the system.

The contributor can choose at will the means of payment and the registration as a user of the system does not imply that traditional payment methods (at the cashier's desk or by bank order) can no longer be used.

Some important technical issues are also stated: the security level of the system must be at least in accordance with international standards ISO 15408-1, 2, 3 and ISO 17799, the level of the security protocol must be at least equal to SSL 3, the system must allow minimum 500 simultaneous connections and a log for each user's actions must be created.

⁶ Law no. 291/2002 approving Govern Ordinance no. 24/2002 regarding cashing of local taxes and imposts by electronic means, published in Official Monitor no. 346 issued on 24th of Mai 2002

⁷ Methodology norm from 28th of February 2002, published in Official Monitor no. 158, first part, issued on 5th of March 2002

Arguably, the law creates the appropriate legal environment for the use of electronic local taxes and fees follow up and cashing. However some flaws can be found at a closer look. Most important, the law states the possibility to pay taxes on line but does not specify which ones. So, in essence, each local authority can set its own taxes and fees that can be paid and followed through the electronic system. Another aspect that somehow contravenes the ideals of e-government is the registration as a user of the system. According to the law the process must take place in the following steps: the contributor must fill a form (which is available both at the desk and on-line), sign the form and personally deposit it to the local taxes department. In maximum two days the user account is created within the system and the user name and password is issued. The identity data is handed personally (identification with identity card is required) in a sealed envelope to the contributor. So far, in order to gain access to the system the user must take two trips to the town hall. And this process must be repeated any time the user considers his identity compromised. We consider this process to be too elaborate and that the time needed to register will trigger a rejection response from citizens. The process must be shorter and more accessible, without losing security. For example, the registration request can be submitted by e-mail and this way only one trip to the city hall is required in order to retrieve the user name and password in a sealed envelope.

The payment process is somehow elaborate as well. E-tax offers the possibility to select which owed taxes the user wants to pay and generates a file that can be loaded into the e-banking system. Unfortunately only one bank has a signed agreement and offers compatible e-banking system. This bank is Romanian Commercial Bank (BCR) and is the largest bank in Romania at this time. But, in order to use the e-BCR system the contributor must have an account opened at BCR and request activation of the e-banking service by filling and depositing a form at the bank. In a couple of days the user name and password is issued but it must be handed personally in a sealed envelope. And this is how a contributor that wants to use the electronic tax and impost payment system must take four trips and wait approximately a week. If the user has access to another e-banking system he must extract the necessary data from the file exported by the tax system and fill a payment order.

In order to assess the implementation of different e-tax payment systems we evaluated the existing situation in fourteen cities in Transylvania region. The selected cities were chosen randomly from the list of twenty-seven municipalities that offer functional e-tax systems. We divided the selected localities into three main categories based on number of inhabitants: large cities (population over 150.000), medium cities (population between 70.000 and 150.000) and small cities (population between 10.000 and 70.000).

At first, we accessed the list with 27⁸ cities in Transylvania that currently have functional electronic payment for local taxes and imposts. We noticed that the number of towns that implemented e-tax is less than the number of towns that should have functional e-tax systems. This only means that there are many municipalities that do not obey the law. According to some sources⁹ there are many towns that only formally declared that e-tax is functional in order to avoid payment of fines. The selected cities and their population¹⁰ were: Alba Iulia (population 67.737), Baia Mare (142.651), Brasov (286.371), Cluj Napoca (294.906), Dej (39.718), Deva (70.651), Hunedoara (73.767), Medias (56.780), Oradea (20.885), Orastie (22.648), Satu Mare (117.698), Sibiu (156.092), Sighisoara (33.407), Targu Mures (149.467). According to the categories presented above there are 4 large cities, 5 medium cities and 5 small cities.

The aspects we analyzed were: the *accessibility and user friendliness* of the application, the *registration method*, the *user interface*, the *taxes and imposts that can be followed and paid*, the *on-line payment method* and *other aspects* that draw special attention.

⁸ <http://www.mcti.ro/index.php?KTURL=page&page=1203>

⁹ <http://unpan1.un.org/intradoc/groups/public/documents/nispacee/unpan017786.pdf>

¹⁰ http://www.insse.ro/anuar_2004/zip_r2004/cap2-pop.pdf

The *accessibility*, the ergonomics and the user friendliness is considered to be very important for a system that is intended to be used by multiple persons with different knowledge level in informatics. In order to make an assessment regarding the accessibility of the system we first evaluated the easiness in reaching the user identification phase. For each city access is gained through the municipality's home page (as required by law). The accessibility grade was influenced by the time spent by a first time user to find the link towards the identification page. Another factor considered was the available information regarding registration displayed for persons that do not possess a user name (for example the availability of a printable registration form, the business hours at the municipality, the exact desk at which the request must be deposited).

The *registration method* for all localities respects basically the requirements of the law, meaning that the registration steps imposed by law, already showed above, are followed by all municipalities. However, we considered this criterion useful because this aspect can be improved without much effort if the request for password and user name can also be sent by e-mail or by post. The identification elements must be, however, relieved personally to the taxpayer in order to maintain the security. This means that without effort bureaucracy can be reduced since only one trip to the town hall is required in this case.

The *user interface* and the available information criteria was influenced mainly by the amount of explanation given regarding the tax amount calculation method, the due dates for the payments etc. The grade was influenced also by the general design of the pages and the integration within the municipality's site. We observed cases in which a first time user has not enough information to get started. This only means that, a person not already convinced to use the system will have difficulties in getting started and will end up abandoning the e-tax.

The number of *taxes and imposts paid* is directly dependant on the value and number of properties owned by the contributor. Anyway, the majority of contributors own two kinds of properties: cars and buildings. The regular taxes and imposts owed for one year can be paid in 4 trances. This means that, in fact, the regular contributor will use the e-tax system only four times a year. At this rate of usage the cost of the service becomes extremely important. Since all current e-tax systems are based on Internet banking and home-banking the cost of access to those services becomes a factor too. Of course, for users which do not pay only regular taxes but use e-banking for other purposes or also pay specific taxes (like authorization fees) the system becomes more useful. The grade for this criterion was higher if possibility of traffic fines payment, authorization fees and such was present. Another flaw in the law can be found here because the general conception of e-tax prevents citizens to pay traffic fines for a different city (a feature which can be extremely useful if included).

The available *methods of on line payment* are probably the weakest point of this system. After the choice of the imposts and sums paid the e-tax system exports one file that can be loaded into the home-banking system. Unfortunately, this file is compatible only with one home-banking system (offered by the largest bank in Romania, though). If the contributor uses another bank's internet-banking system he has to extract necessary data (the IBAN account is the most important) and fill a payment order in his own e-banking. The result is that the system in the present form is addressed to a narrow target (the contributor already using home-banking or the ones that consider using it in the near future). The second method of payment is using a POS installed at the town hall. In Cluj Napoca there is only one POS installed at one of the local taxes cashier's desk, which allows all credit card holders to make the payment very much like at the supermarket. The downside of this method is that the user must take the trip to the town hall. The third method implies the payment using an ATM machine. There are three banks that already signed agreements for payment of taxes directly from the ATM, but this agreement is at the principles level and must still be put into practice. This is a combined method because the contributor has to inform himself on the sums owed (using e-tax)

and then use the ATM to effectively make the payment. The main problem remains: there is no on-line method of payment using a credit card. The grade for this criterion was higher if alternative methods of electronic payment were stated. The presence of page display count also increased the grade. The third factor that influenced the final grade was the presence of payment restrictions (for example if the user must announce in advance to the bank the intention to make the tax payments)

Among other aspects we included the existence of a demo version that enables the user to test the system before subscribing and gain a better understanding of the possibilities offered before applying for a user name and password. Another aspect considered was the information available regarding the provider of the system. A third factor that influenced the grade for this criterion was the reliability of the system that was determined by accessing the tested systems on daily basis in a certain time frame.

The six criteria considered were given the following importance coefficients: accessibility 25%, registration method 10%, user interface 25%, payment methods 10%, taxes that can be paid 10%, other aspects 20%. The sum of all coefficients is 100%. The final score for each city was determined as an average taking into consideration the grade for each criterion and the coefficient for each category. The grades and the final score are presented in the table below. The grades are 1 (very poor), 2 (poor), 3 (medium), 4 (good) and 5 (very good).

Criterion City	Accessibility	Registration method	User interface	Payment methods	Taxes that can be paid	Other	Final score
Alba Iulia	2	3	4	3	3	4	3.2
Baia Mare	4	3	4	4	5	4	4
Brasov	2	3	4	3	3	4	3.2
Cluj Napoca	4	4	4	3	3	4	3.8
Dej	3	3	2	3	3	2	2.55
Deva	2	3	3	3	3	3	2.75
Hunedoara	4	2	4	3	3	4	3.6
Medias	3	2	4	3	3	4	3.35
Oradea	3	4	4	4	3	3	3.45
Orastie	3	3	3	4	3	4	3.3
Satu Mare	1	3	2	2	3	2	1.95
Sibiu	3	3	3	3	3	4	3.2
Sighisoara	2	3	2	2	3	2	2.2
Targu Mures	3	3	2	3	3	3	2.75
Average/Total	2.79	3	3.21	3.07	3.14	3.36	3.09

It is easily observed that Baia Mare has the highest score and Satu Mare the lowest. Unfortunately, the difference is large enough and suggests that there is not enough homogeneity, with large discrepancies between implementations.

It can be stated that the bigger the city the better the implementation of e-tax since the average for small cities is 2.92, the average for medium cities is 3.01 and the average for large cities is 3.41.

There were also other observations that caught our attention. One of those is the fact that the municipalities had two choices: to purchase a system or to develop one. There are implementations of e-tax from Industrial Software SRL (for Alba Iulia, Brasov, Cluj Napoca, Hunedoara, Medias, Sibiu and Targu Mures) and Indeco Soft SRL (Baia Mare, Oradea, Orastie), Assert (Deva) while the other cities show no logo of the software company. It is clear that the solution from Industrial Software is adopted by the most cities. The fact that the city purchased similar e-tax system did not mean

that the same grades were received since implementations, available information and accessibility differ from one city to another. Another interesting fact is that the Indeco solution shows the total number of login page displays. Those were 746 in Baia Mare, 3113 in Oradea and 351 in Orastie. It is needless to say that the number of displays is not connected with the number of actual users since one user can access the page several times. Those figures strengthen the idea of limited success for e-tax systems.

According to the facts stated above, it is obvious that the available resources are the determinant factor in construction and maintenance of each municipality's website in general and e-tax in particular. There is also evident that there are some cities that show interest in the web page in general and expand it to the e-tax system while other municipalities do not pay enough attention even to the web page and consequently to e-tax.

Even though transparency is an important concept in local administration we could not find any on-line reference to the costs invoiced by the firm that gained the contract for implementing the e-tax system. In all studied cities, there was no information regarding the costs of the project, the final amounts paid and the costs of system maintenance. The first attempt to gain this knowledge was conducted for the city of Cluj-Napoca. The first person contacted was the head of the local taxes department. She stated that no information regarding costs was available to her since all invoices regarding the purchases go directly to accounting department. The second person contacted was the head of the accounting department. She also declined any knowledge regarding costs and pointed us towards a person in the budgeting department. The third person reached, confirmed that there were a couple of invoices from the software firm but did not remember specific details since the invoices were received a while ago and she remembered that at the time with e-tax was also bought the general accounting system. As we tried to find out more about the maintenance cost the person got suspicious and stated that such information can not be shared over the phone and that an official paper needs to be registered. As a consequence we used the site www.domnuleprimar.ro (which is one of the already implemented features of e-government strategy). This site allows any contributor to make on-line demands, suggestions and reclamations directly to any municipality of important cities and towns in Romania. Even if the maximum allowed time for a response stated by the law is thirty days, there was no response from the municipality. A second inquiry was issued but it still did not receive an answer in the legal time frame. At the due date of this paper we were considering legal alternatives to gain access to this public information. Since no answer was received from Cluj Napoca we considered futile the attempt to gain cost related information from the other cities selected.

A secondary point of interest was the number of registered users. The cities that used the e-tax system provided by Indaco Software displayed the total number of log-in page displays and the largest number was reached in Oradea (3113 displays). For Cluj Napoca the number of registered users was reported to reach 1600. Unfortunately, the number of effective on-line payments was not available for any city. In a documentary broadcasted at a Romanian television an interesting fact was that in one district in the city of Bucharest (the city has approximately 3 million inhabitants and is divided into 6 districts) during 2006 were registered only 4 on-line payments for local taxes and imposts. Those facts bring into discussion the issue of cost per user, aspect neglected by all municipalities.

However, there are some good perspectives regarding the electronic cashing of local taxes and imposts. The latest project in the field was launched in 2005 and is named "The Virtual Payment Cashier's Desk" (VPCD). The selection for the developer of this project was ended in September 2005 and at the moment the system is undergoing the test phase. A press release was issued in January announcing the modification of Government Ordinance 2/2001 (change that recognized and accepted the electronic payment of fines) and the imminent launch of the first feature of the VPCD system: the electronic payment of traffic fines. The minister of Communication and Information Technology,

Mr. Zsolt Nagy, describes in an interview¹¹ in February 2006 the main ideas behind this project. He considers that the e-tax project will continue and that both projects will be functional at the same time. He explicitly identifies the one problem of e-tax that is: the need to create a relation with the bank, relation more accessible and viable for companies and not for most citizens. The minister declared that so far the municipalities of Cluj Napoca, Timisoara, Sibiu, the 6th and 2nd district of Bucharest are interested to adapt this project to the local taxes and imposts cashing.

“The Virtual Payment Cashier’s Desk” is based on the use of a portal¹² and the general conception is that of a virtual store. In this “store” the contributor can “buy” taxes and imposts instead of merchandise. At the moment the portal is in the last testing phase and the first beneficiary after the launch will be the general municipality of Bucharest for the cashing of traffic fines. VPCD portal will not allow the contributor to determine the amounts owed, but will allow the user to pay certain amounts using the credit card and will not require a home banking service. This is a very important feature since in Romania the number of valid credit cards (over six million) is significantly greater than the number of home banking users (around 100.000). Another useful feature of the portal is the scalability that means that the system can be replicated and implemented for various types of taxes, imposts, and fines and also for many different local administrations.

So far, there are a few criticisms that e-tax must face. A fact in Romania is, according to statistics released by the Minister of Communication and Information Technology, that the Romanians are reluctant to adopting changes. Since any payment of local taxes must be based on electronic cash transactions, the first issue that needs to be solved is how many contributors actually can make electronic payments. This leads to the major flaw of the e-tax system that it relies on home banking. According to official statistic there are almost 100.000 registered home banking users and therefore the e-tax system addresses itself mostly to those users. In order to achieve success the number of home banking users must increase significantly. Unfortunately the progress is great in percentage (almost 100% increase in 2005 compared to 2004) but insignificant in number of users reported to number of potential users (around 100.000 in 2005 out of 22 million Romanians). Anyway, the increase has all premises to occur since most banks offer home banking services (there are 34 licenses for home banking services nationwide). Another problem related to adoption of new technology is the costs involved. The cost for a person that wants to pay taxes through e-tax is significant considering that most home banking providers charge a monthly fee and also each transaction implies a commission and that there are only four payments a year towards local taxes and imposts (if the contributor chooses to respect all the deadlines and not to pay the entire amount). In case of payment at the cashier’s desk the charge is zero. So, in fact, the cost of this service must be compared to the uncomfortable trips to the town hall. The use of credit cards is far more inexpensive since there usually are little or no yearly tax and transaction commissions. The target is also larger because there are around 6.2 million valid cards in use. Unfortunately, the VPCD is technically functional but one administrative problem is still blocking the launch. A summary of this problem is: “for each transaction a commission (3 to 4%) will be charged. Who pays the commission: the contributor or the local public administration?”. Although this does not seem a problem, the dilemma is this: the contributor is not willing to pay more than the sum he actually owes (and presently any other on-line payment is not charging extra fees) and on the other hand, the law forbids the local administration to pay the commission. As soon as this technicality will be solved (either by modifying the law so that municipalities can pay the fee or by imposing the commission on the users) the first feature of VPCD will be launched. According to the success of this first feature the later expansion of VPCD will be decided.

¹¹ <http://www.weblog.ro/e-commerce/2006-02-24/Interviul+ministrului+Zsolt+Nagy+%2C+publicat+in+www.no-cash.ro.html#69388>

¹² <http://www.ghiseul.ro/>

The reported cost for each e-tax system implemented is 400.000 to 500.000 USD and every city is supposed to have has such a system. The drive behind this effort is the national strategy for implementing informational technology, but, unfortunately, the system was conceived to target a reduced part of population and so far the cost for one actual user is by far greater than the benefits. Although the principles and the motivations are generous, the real benefits for most of the common contributor are almost zero. In fact, we consider that the urge to implement e-tax without properly considering all aspects (the cost/user, the number of potential users, the amounts paid, the nature of electronic payment system used etc.) has more a political nature. The implementation of such a system contributes to European integration and helps achieving specific goals stated in the admission treaty. This is why the decision looks entirely a political one, without much involvement of IT&C specialists. We are convinced that the same results could have been obtained with much less efforts and money spent if the proper planning and personnel selection was conducted before the project was launched. However, the lesson of e-tax seems to lead towards a new, well designed and encompassing system. The e-government is still far of complete implementation but significant steps towards the Informational Society are taken. The future implementation of VPCD system looks promising as long as government officials learn from previous experiences.

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