

E-banking application in business companies – A case study of Serbia

Information Development
1–15
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sagepub.co.uk/journalsPermissions.nav
DOI: 10.1177/0266666914568652
idv.sagepub.com



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Abstract

This paper considers the attributes of Serbian companies in regard to their knowledge and application of e-banking, thus measuring their ability to do business with potential business partners. This, in turn, gives foreign partners the possibility to make business decisions based on reliable information about potential Serbian markets and companies. The primary hypothesis is that companies in Serbia are familiar with e-banking to the extent that enables them to use it in dealing with international companies. This paper presents the results of a survey of 104 companies in Serbia. It was found that 94 percent of companies use at least some form of e-banking in their operations. The results of this study are primarily intended to encourage researchers to focus their research toward the generation of business information that contributes to more reliable insights into the business environment. On the other hand, it presents business people the possibility and feasibility of thorough preparation for business connections, i.e. the supply of information on potential markets and channels of business operations to recover from the present economic crisis.

Keywords

e-banking, e-business, business companies, Serbia

Companies in Serbia perceive both advantages and disadvantages in electronic banking services.

Introduction

In an effort to find solutions to the global crisis and rebuild or strengthen economic flows, both business people and scholars have been testing and verifying the existing and new combinations of knowledge, information and other available resources. This includes Internet technologies and their application in the flow of information and money between business partners.

Internet technologies have completely paved the way to the concept of an electronic economy in that they enabled the creation of innovative business approaches in the field of sales, production, service delivery and purchases. The orientation of modern business toward the global market implies the integration of information and communication technologies (ICTs) and Internet technologies, thus providing data flow without spatial constraints.

The demands of the modern market and the rapid development of ICTs have changed the traditional understanding of the concept of banking. E-banking, as a form of electronic business (e-business), implies a variety of ways of performing financial transactions using ICTs and the Internet.

Modern e-business is based on the efficient and modern organization of work, customized application of modern ICTs, use of the Internet in performing most business transactions, application of modern information systems, use of standardized documents and electronic signatures, digitization of activities and the use of cryptographic protection. Companies that

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successfully use e-business can easily adapt to market changes, identify new opportunities and achieve success in business. The goal is not to run away from the competition, but to always be one step ahead (Todorovic, 2005).

The benefits of electronic service can include: satisfied and retained customers, new customers, increased sales, reduced costs and increased business performance (Bauer et al., 2005; Fozia, 2013). One of the most important criteria for the application of Internet technologies in business, according to authors from different fields of science, is user satisfaction (Babarogic et al., 2012; Mijatovic and Jednak, 2011; Kuzmanovic et al., 2013; Kostic-Stankovic et al., 2013; Filipovic et al., 2010; Lecic-Cvetkovic et al., 2010, 2012).

The development of information technology has made banks to do more and more transactions electronically. The first electronic banking facility was the automated teller machine (ATM) (Wan et al., 2005). Other forms of virtual banking include telephone banking and home banking. In the rapid evolution of the electronic age, banks will be indistinguishable from other financial intermediaries, since all their functions can be carried out by nonbanks, at least as efficiently (Bosson, 2001). In the meantime, with e-banking growing, banks have discovered its benefits and have become keener to offer it as an option to customers (Shah and Clarke, 2009).

As technology has become more accessible, cheaper and easier to use, it has had a great impact on the development of e-banking, thus enabling banks to reduce transaction costs, speed up the turnover of assets, provide safe and secure payment operations, save time, and offer clients the possibility to conduct transactions from the work place and have permanent access to account balances or transactions.

According to Liao and Cheung (2002), there has been a steady increase in the use of e-banking in developed countries since 2000. As the number of Internet users increases, more and more banks increase their investments in Internet technologies; banks are driven by the expectation that they will have better possibilities for establishing a recognizable strategic position in comparison to other banks that use only traditional forms of banking services (Evans and Wurster, 1997). E-banking is particularly well developed in developed countries such as Korea, Spain and Austria, where more than 75 percent of banks offer transaction services via the Internet (Maenpaa, 2006).

The development of e-banking has removed all geographical and industrial boundaries, creating new products, services and new opportunities in the global market, thus becoming a requirement for business connections. The technological requirements have led to the assumption that modern investors can do business only with those who know and use e-banking well, and to the necessity of each potential business partner to be able to communicate via e-banking; to be able to do so at the level of national and regional economy is even more desirable.

In the next section, 'E-banking' we point out the purpose and history of e-banking, as well as its place in contemporary business – both in the world and in Serbia specifically. We also discuss 'E-banking services in Serbia' and 'Software support in the provision of e-banking in Serbia', thus giving an idea of its development and presence in Serbia, as well as Serbian companies' ability and readiness to do business by modern concepts, in particular by using e-banking. However, given that an overview is not the same as an accurate picture of the current situation, we generate the basic hypothesis that Serbian companies are e-banking users, and that they can therefore use it in doing international business. In the section on 'Research methodology', this hypothesis is decomposed further, down to the level of individual hypotheses; at the same time we describe the sample of 104 respondents - Serbian companies that participated in the survey. The next section provides a report on the 'picture of the current e-banking state in Serbia', i.e. all the checks on the entire structure of the hypotheses. The 'Survey results', with the conclusions on the proof of the individual hypotheses as well as the mechanism for concluding the truth of the basic hypothesis, are presented in the following section. Subsequently in 'Discussion', our results are compared with those obtained in other research and finally in 'Further research', we point out the issues that the authors intend to deal with in their future research, in hope that others may also find the research topic interesting.

E-banking

Today, e-banking is implied in any modern bank offer. The availability of different, customizable and cost-competitive banking services using modern technology has become the foundation of today's banking and of society itself. E-banking is an attempt to merge a number of different technologies, each of which was

developed in a different direction and in a different way: electronic money, credit cards, ATM (cash machines), point-of-sale (POS) terminals, home banking, and mobile banking.

For some time e-banking appeared in the form of automated teller machines and transactions over the phone. It has been transformed by the Internet, a new delivery channel for banking services used both by banks and by their clients. Access is fast, convenient and always available regardless of where the user is. Banks today can provide their customers with more efficient services at significantly lower costs. For example, a typical transaction cost of about US\$1.00 in a traditional brick and mortar bank branch, is reduced to US\$0.60 when done by phone, or to US\$0.02 if done online.

E-banking facilitates comparison of banking services and products, and provides opportunities for countries with underdeveloped financial systems to skip late stages of development. In such countries, interested clients can easily use the services of foreign banks and a wireless communication system which is being developed much more rapidly than the traditional wired communication network.

At the same time, e-banking is sensitive to risks, especially to those that could endanger management, legality, operations and reputation, characteristics that are inseparable from the concept of traditional banking. This attribute of e-banking, i.e. risk sensitivity, poses new challenges. In response, many national regulatory bodies have already modified the regulations in order to achieve their main objectives: to provide security and stability of the domestic banking system, improve market discipline, protect the rights of users and maintain public confidence in banking system (Josanov, 2006).

Until the end of the 20th century, studies in e-banking were focused on analysing customers' perception of specific technologies such as direct banking, telephone banking and home banking. Earlier research was mainly focused on the perspective of personal account bank customers, frequently addressing issues such as awareness, benefits, trust, perceived usefulness and ease of use, acceptance and innovations. There is extensive literature on efficiency and productivity analyses of banking services (Allen et al., 2013), and much attention has been focused on e-banking and its application across countries (Al-Somali et al., 2009; Aries et al., 2013; Cheng et al., 2006; Wai-Ching, 2008; Liao and Wong, 2008; Wang et al., 2003; Egwali, 2008; Eriksson et al.,

2005; Shunbo et al., 2014; Purnomo and Lee, 2013; Wongsaroj et al., 2014), but all of them have investigated only personal e-banking.

Corporate customers provide the greatest profit opportunities to banks (Tyler and Stanley, 1999), but they need a greater level of business interactions with their banks (Athanasopoulos and Labroukos, 1999). Relatively little research has been done on the adoption of web-based services by assessing both the benefits and the barriers of e-banking from the viewpoint of business-to-business (B2B) transactions or corporate customers. This aspect of e-banking is in the focus of the study presented in this paper.

Naicker (2010) shows the results of a study on changing business banking trends and the adoption of technologies in South Africa's corporate business sector. The results are based on a quantitative approach, with over 500 corporate companies, with annual turnover of US\$ 20 million and above, being interviewed. While the acceptance of e-banking in 1999 was only 59 percent, by 2009 it was 100 percent. The major areas covered in this study include key aspects of business and e-banking, how the banks measure up these offerings to the corporate customers, areas that need improvement, products and services being used or neglected, trends in payment practices, and value-added services in business and e-banking. The findings point out the areas which could be improved, specifically in e-banking, i.e. speed - system response, availability, and value for money.

Riyadh et al. (2009) developed a conceptual framework of e-banking adoption by SMEs in Bangladesh by integrating pertinent parameters under three headings: internal factors, external factors and support institutions. The study develops an integrated model that captures both individual goal-oriented behaviour of firms and institutional forces of technology diffusion. Internal factors include: perceived benefits, perceived credibility and organizational capabilities. External factors include: ICT industry readiness, regulatory support, financial institutions' readiness, and institutional pressure. The authors also identified that five types of institutions - government, donor agencies, financial organizations, IT support institutions, and resource centres - are playing a certain role in technology diffusion in SMEs in Bangladesh. Seven variables that affect e-banking adoption by SMEs are identified: organizational capabilities, perceived benefits, perceived credibility, perceived regulatory support, ICT industries' readiness, lack of financial

institutions' readiness and institutional influence. This model can be tested empirically for SMEs in Bangladesh as well as in other developing countries.

The study by Khan et al. (2009) is based on 56 national and international banks operating in Pakistan. The authors did a comparative analysis of the banking sector and ranked banks according to their e-readiness. Pakistan's banks are trying hard to improve e-banking services to customers and suppliers in order to provide them with 24/7 access from anywhere. Banks are offering information access to all customers even if they cannot offer all their financial services online due to lack of IT-infrastructure, but customers hesitate to use these services online. It is therefore concluded that there is a need to establish trust between the banks and their clients. The leading banks that provide e-financial services to their customers should be benchmarked so that digitization processes can be enhanced for the improvement of banks, customers, suppliers and society at large. Businesses, including banks, should involve third parties to provide security for online transactions and customers should be educated to use the Internet and mobile banking in future.

In India, the main benefit of e-banking from the bank customers' point of view was, as found by Chavan (2013), significant timesaving through the automation of banking services and easy maintenance of tools for managing customer's money. The main advantages of e-banking for corporate customers are: reduced costs in accessing and using banking services; increased comfort and timesaving - transactions can be made 24 hours a day, without requiring physical interaction with the bank; quick and continuous access to information - corporations have easier access to information; better cash management - e-banking facilitates the speed of the cash cycle and increases the efficiency of business processes, as a large variety of cash management instruments are available; convenience - banking transactions can be performed from the comfort of home or office or from any place a customer wants; speed - the response of the medium is very fast; funds management - customers can download the history of their different accounts and do a 'what-if' analysis on their own PC before effecting any transaction on the web. No commercial bank in India has specialized exclusively in a small business segment. SMEs in India have generic problems like the inability to provide quality data or exhibit formal systems and practices, and the lack of asset cover.

Legal and regulatory compliance has also been inadequate. The problem is further compounded due to the preponderance of a large cash economy in this segment. There are many challenges involved in a web-based relationship model for SMEs in India, given the current state of regulation. India's e-banking has had a huge impact on banks' strategic business considerations as they have cut down costs of delivery and transactions.

The paper by Alnsour (2011) discusses two critical factors in the acceptance behaviour of Jordanian banking customers, namely security and trust. The article puts together an integrated conceptual model for acceptance behaviour of Jordanian corporate customers that includes these two critical issues, based on input received from 353 corporate customers. The authors concluded that e-banking needs to be easy to use so that corporate customers are able to discover its usefulness. Trust has a significant, positive effect on ease of use but not on usefulness. The more a user trusts the bank and its website, the higher their belief that e-banking is easy. Higher levels of security may also make e-banking more useful.

A study by Alam et al. (2009) focused on the adoption of e-banking services by corporate customers in Malaysia and aimed to gain a deeper understanding of the factors influencing the adoption of e-banking services by Malaysian customers. The empirical data were collected from a questionnaire survey of 223 business firms in Klang Valley. The survey results show that a large proportion of corporate customers (92 percent) would prefer to use e-banking instead of conventional delivery channels. The companies that preferred e-banking were small and medium size companies, 64 percent of which were quite comfortable with the e-banking services provided. Most of the corporate customers (82 percent) felt this service was secure while 4 percent did not. This study examines the relationship between e-banking adoption and its factors: awareness, ease of use, security, cost, reluctance to change and accessibility. The results of this study show that four examined factors (awareness, security, cost and accessibility) are significant for the adoption of e-banking. However, perceived ease of use and reluctance to change were found to be insignificant in determining its adoption. To ease transactions over the Internet, customers would prefer if banks offer online help in circumstances where they experience any difficulties. The customers felt that online transactions are not secure enough, and they were not willing to use them.

Rotchanakitumnuai and Speece (2004) examined four benefits and three barriers that influence corporate customer adoption of e-banking in Thailand. The four benefits are: information quality, information accessibility, information sharing, and transaction benefits. The three major barriers are related to trust, legal support, and organization barriers. Information quality and transaction benefit factors are far more important than the others in discriminating e-banking users from non-users. In addition, information sharing and distrust of the web are two drawbacks of Internet banking adoption in Thailand.

At the beginning of 2011, IBM completed a benchmark study of UK business and corporate banking Internet portals through a series of interviews with end users ranging from corporate treasuries to small businesses (Bray and Watson, 2011). While some good core functionality existed in key areas, many reported limited functionality, and confusing interfaces which were generic and thus non-configurable. Furthermore, major emerging technology areas such as mobile, applets, basic alerts and the use of collaborative working tools were largely absent. The survey further highlighted a gap between the needs of corporate customers and the priorities of banks. While 41 percent of corporate clients cited ease of access to service and information channels as the main criterion for selecting a bank, only 18 percent of banks cited this as their strongest selling point. While 63 percent of banks said they had lost corporate business due to inadequate products and services, none of the 35 percent of corporate clients who had reduced business with one or more banks in the past 12 months gave this as a reason. General observations of the authors of this study (Bray and Watson, 2011) are: corporate banking by the Internet is fragmented, with multiple log-in for different services; outdated user interfaces and excessively complex processes; limited site functionality; no mobile services; no product purchasing capability (e.g. extending lines of credit). Today business customers are looking for a range of modules of functionality that they can select for themselves. This yields three benefits to banks: retention – customers become more faithful, as they can do more of what they need to do with their current provider; revenue – banks can charge for these incremental modules of functionality, should they wish to do so, either by function, on a transactional basis or in groupings of additional value-added functionality; cost reduction – business customers are less dependent on high cost channels to transactions.

E-banking has been in use in Serbia since 2003, which coincides with the transition of payment systems from state institutions to banks. E-banking is part of a regular offer of all banks in Serbia.

E-banking services in Serbia

Banks in Serbia offer more types of services from which a client chooses the most suitable one. E-banking service is activated by establishing a contractual relationship with a bank, a contract governing the rights and obligations of the parties, while the application form defines the type and scope of a service to be used, authorized persons, authorization to bank accounts, etc.

To use this service it is sufficient for a customer to have an account at the bank and to apply for this service at any branch. Also, the client needs to have a standard computer configuration and access to the Internet, while other necessary infrastructure such as smart card and card reader, software and training is usually provided by the bank itself.

Basic e-banking services offered by banks in Serbia are:

- viewing account status (balance and transactions per account)
- domestic payments (RSD payments)
- international payments (foreign currency payments)
- download bank statements (excerpts of current statement/ balance sheets).

They also involve the ancillary services:

- issuance of certificates of payments and disbursements from the account
- cancellation of sent orders
- off-line creation of money orders
- foreign exchange rate list (with the possibility of choosing the date) etc.

Some banks in Serbia have started to offer mobile banking as a new kind of e-banking service. This service allows users with a mobile device to perform financial transactions wherever they are located and at any time.

Software support in the provision of e-banking in Serbia

E-business provides an opportunity for business people to organize their business more efficiently and

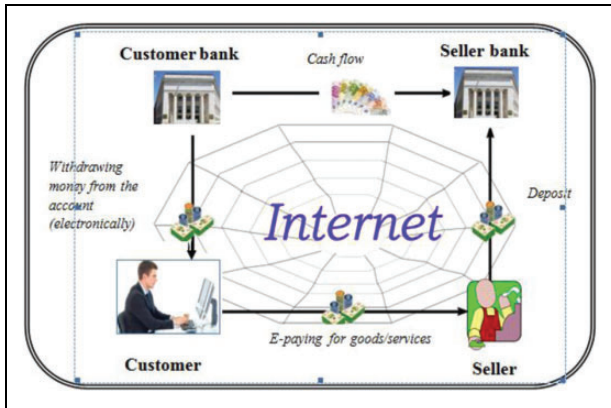


Figure 1. E-banking (B2B and B2C supported by E-banking).

Source: Adopted and modified from <http://www.watchdata.com/bank/>

much more comfortably. They can manage their financial means faster and cheaper electronically, without going to the bank, 24/7, with certain discounts on banking fees for all transactions.

Whether one is talking about B2B or B2C, e-banking has a role to play in connecting business partners (sellers and buyers – whether they are companies or individuals). Figure 1 shows a model of business partner relations (with the participation of ‘their’ banks and internet support).

Banks in Serbia offer their clients a variety of online and offline applications: Web applications (online), FX application (offline) and Halcom applications (offline). Clients can choose to use one or more applications according to their wish and need.

FX application for e-banking is intended only for legal entities; it enables work with all accounts without the need for physical presence in the bank. FX is an application built on the Windows platform. Users of this application perform all actions over the local database, and the harmonization/synchronization of data with the actual data which is stored in the bank database is done at regular intervals or as needed. Therefore, the FX does not require a constant connection to the Internet, but only occasional - when it is necessary to perform synchronization.

Halcom is a user application suitable for both small and large business systems. Based on the installed software, the user is able to do payment transactions quickly, easily and efficiently, without leaving the company. It is designed for users who want to use the Halcom application either independently or along with any other project solution, and for customers who use the Halcom application at some other bank.

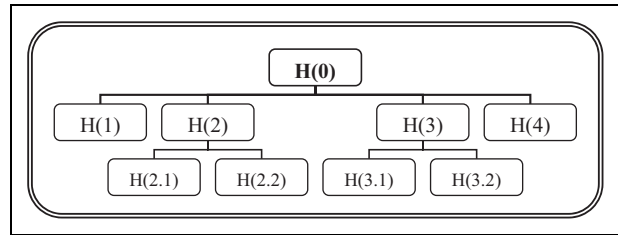


Figure 2. The structure of the hypothesis tree.

Research methodology

The aim of this research is to explore the possibility/ability of companies in Serbia to do business with international and national companies, using e-banking as a modern channel for the exchange of information and the flow of money. Consequently one basic, six individual, and two specific hypotheses are devised, as shown in Figure 2.

Basic hypothesis (H(0)) claims:

H(0): Serbian companies are able to do business both nationally and internationally by the use of e-banking.

The above hypothesis implies that Serbian companies are able to use e-banking in business both among themselves and with foreign partners, and that in doing so they apply the same applications as their peers in other countries.

The basic hypothesis H(0) is tested by the current situation in terms of the use of e-banking in companies' operations, knowledge of e-banking services, and companies' attitudes towards it.

The basic hypothesis was tested by six individual hypotheses: H(1), H(2.1), H(2.2), H(3.1), H(3.2) and H(4). There are two specific hypotheses – H(2) and H(3), containing two individual hypotheses each. Figure 3 gives the detailed structure of the hypothesis tree.

The explanation of the hypothesis tree is given as follows:

H(1): Serbian companies use e-banking in doing business.

This individual hypothesis (H1) is tested by determining the percentage of companies in Serbia that use e-banking, through the percentage of companies' total payment transactions performed electronically, as well as through the verification of how much business is done via e-banking in different types of companies. Since types of companies can be small, medium-sized or large, for each type it was evaluated whether they use e-banking.

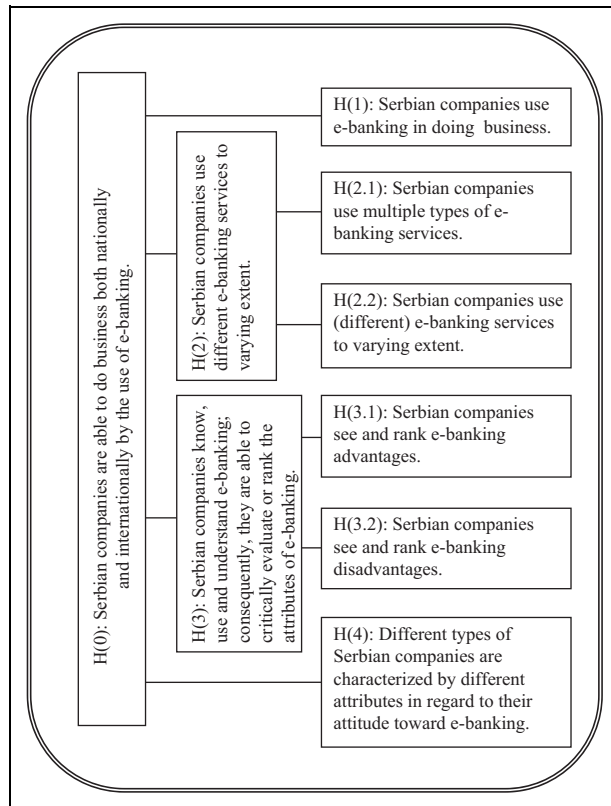


Figure 3. The detailed structure of the hypothesis tree.

H(2): Serbian companies use different e-banking services to varying extent.

This specific hypothesis is tested through determining which e-banking services are used by Serbian companies and to which extent. Hence the individual hypotheses:

H(2.1): Serbian companies use multiple types of e-banking services.

H(2.2): Serbian companies use (different) e-banking services to varying extent.

These individual hypotheses are tested through determining which e-banking services companies in Serbia use, as well as the extent to which they are used.

The specific hypothesis H(3):

H(3): Serbian companies know, use and understand e-banking; consequently, they are able to critically evaluate or rank the attributes of e-banking.

H(3) was tested on the data derived from the respondents' responses for each of the individual hypotheses:

H(3.1): Serbian companies see and rank e-banking advantages.

H(3.2): Serbian companies see and rank e-banking disadvantages.

The last individual hypothesis (H(4)) is:

H(4): Different types of Serbian companies are characterized by different attributes in regard to their attitude toward e-banking.

The research was carried out through a 15-day anonymous survey in 104 companies, in October 2013. The survey contained 15 closed, semi-closed and open-ended questions. The first five questions were related to general information about the companies (see Table 1), while others were directly related to e-banking and its application.

Table 1 shows the main attributes of the sample: by the type of organization, most surveyed companies are limited liability companies (92 percent); by the type of activity, companies in the service sector, the production sector and the combined production and service sector, are equally present; by the length of existence, most companies existed for more than 10 years (68 percent); by the size, most companies are small businesses (64 percent); by the number of banks in which they have current accounts, equal numbers of companies have an account in 1 to 2 banks, in 3 to 4 banks, and in 5 or more banks.

The survey results

As shown in the section on Research Methodology, the general or basic hypothesis is decomposed into six individual hypotheses, so that by proving them the basic hypothesis (H(0)) will also be confirmed. Since the two specific hypotheses (H(2) and H(3)) are also decomposed into individual ones, the same proving principle applies here.

Number of companies using e-banking

The first individual hypothesis, H(1), explores the number of companies in Serbia which use e-banking, determines the percentage of total payment transactions carried out electronically, and also establishes data on the volume of e-banking used by different types of companies (small, medium and large).

In order to test H(1), respondents were asked whether they use e-banking in their operations. Out of 104 surveyed companies, six companies responded negatively (6 percent), and 98 companies (94 percent) responded

Table 1. Attributes of the sample.

N ^o	Attribute	N ^o	Variants of the attributes	Number of companies	Share %
1	2	3	4	5	6
1	Type of organization	1	Limited liability companies	96	92
		2	Joint-stock companies	6	6
		3	Partnerships	2	2
			Total	104	100
2	Type of activity	1	Service sector	39	37
		2	Production and service activities	36	35
		3	Production sector	29	28
			Total	104	100
3	Length of existence of the company	1	More than 10 years	71	68
		2	From 6 to 10 years	24	23
		3	From 0-5 years	9	9
			Total	104	100
4	Size of the company	1	Small companies	67	64
		2	Medium-sized companies	24	23
		3	Large companies	13	13
			Total	104	100
5	Number of banks in which they had current accounts	1	In 1-2 banks	34	32
		2	In 3-4 banks	35	34
		3	In 5 or more banks	35	34
			Total	104	100

positively (Table 2), so that all further conclusions were made based on the responses of these 98 companies.

Based on the responses, hypothesis H(1) is confirmed, but to test it in depth, the question on the percentage of total payment transactions that companies performed via e-banking was also posed. Table 2 shows that 90 respondents (92 percent) said that more than 50 percent of their total payment transactions were carried out electronically, while only 8 respondents (8 percent) performed less than 50 percent of their total payments through e-banking. This further confirmed H(1).

In order to determine whether small, medium and large companies use e-banking equally, a stratification of the collected data was performed (Table 2).

Table 2 shows that Serbian companies use e-banking in almost the same percentage, irrespective of their type/size, thus confirming hypothesis H(1).

Types of e-banking services used

Respondents were asked which e-banking services they used.

Table 3 shows that companies used all of the basic types of e-banking services: 'Viewing account

balance' (balance and transactions of the account), 'Domestic payments' (RSD payments), 'Foreign currency payments' (International payments) and 'Download statements' (Extracts of balance sheets). This confirms hypothesis H(2.1), that Serbian companies use multiple types of e-banking services.

At the same time the respondents ranked the services by the significance for their business, as shown in Table 3.

The most commonly used service is 'Domestic payments', while 'Foreign currency payments' is least frequently used. This confirms H(2.2).

The results confirmed individual hypotheses H(2.1) and H(2.2), so it is concluded that the specific hypothesis H(2) is confirmed.

Understanding of e-banking

The third specific hypothesis - H(3) reads: companies in Serbia know, use and understand e-banking; consequently, they are able to critically evaluate or rank the attributes of e-banking. This assumption stems from the knowledge and use of e-banking by

Table 2. The presence of e-banking in Serbian companies.

N°	E-banking in Serbian companies	Variants of possible answers	Answers	
			Absolute value	Relative value %
1	2	3	4	5
1	The presence of e-banking users in Serbia	Yes	98	94
		No	6	6
		Total	104	100
2	The volume of payment transactions that companies conducted electronically	More than 50 percent	90	92
		Less than 50 percent	8	8
		Total	98	100
3	Presence of e-banking by types of companies	Presence of e-banking in SC (Small companies)	61 out of 67	91
		Presence of e-banking in MC (Medium comp.)	24 out of 24	100
		Presence of e-banking in LC (Large comp.)	13 out of 13	100
		Total	98 out of 104	–

Table 3. E-banking services used and ranked by respondents.

N°	Rank and significance	Indicators		E-banking services used in Serbian companies				
		Frequency (number of companies)	Share %	Viewing account balance	Domestic payments	Foreign currency transfer	Download statements	Total (Control data)
1	2	3	4	5	6	7	10	
1	1	Frequency		10	3	56	11	80
2	(sign. = 1)	%		12.50	3.75	70.00	13.75	100
3	Least significant	Value		10	3	56	11	80
4	2	Frequency		11	26	4	39	80
5	(sign. = 2)	%		13.75	32.50	5.00	48.75	100
6		Value		22	52	8	78	160
7	3	Frequency		38	16	6	20	80
8	(sign. = 3)	%		47.50	20.00	7.50	25.00	100
9		Value)		114	48	18	60	240
10	4	Frequency		21	35	14	10	80
11	(sign. = 4)	%		26.25	43.75	17.50	12.50	100
12	Most significant	Value		84	140	56	40	320
13	Control	Total		80	80	80	80	320
14	data	Total (%)		100	100	100	100	400
15		Total value		230	243	138	189	800
16	Order of e-banking services			2	1	4	3	–

Serbian companies. Respondents were asked to evaluate and rank advantages (H(3.1)) and disadvantages (H(3.2)) of e-banking.

To test the truth of individual hypotheses H(3.1), the respondents were asked to rank the advantages of e-banking services by the importance to their business, from the least to the most important service (See Table 4).

‘Speed of transactions’ (order N° 1), was seen as the biggest advantage of e-banking (Table 4), while the least important priority was ‘Digital record of each transaction’ (order N° 6). This proves individual hypothesis H(3.1).

E-banking, like many other ways of doing business using modern technology, has some disadvantages. In

Table 4. Advantages of e-banking according to Serbian companies.

N°	Rank and significance	Indicators	The benefits of e-banking services						
		Frequency (number of companies) Share (%)	Availability of information	Saving time	Low cost of access to the use of services	24/7 service availability	Speed of transactions	Digital record of each transactions	Total and Control data
1	2	3	4	5	6	7	8	9	10
1	1 (sign.=1)	Frequency	9	7	21	9	8	32	86
2	(Least important)	% Value	10.47	8.14	24.42	10.47	9.30	37.20	100
3		Value	9	7	21	9	8	32	86
4	2 (sign.=2)	Frequency	13	4	11	35	10	13	86
5		% Value	15.11	4.65	12.79	40.70	11.63	15.12	100
6		Value	26	8	22	70	20	26	172
7	3 (sign.=3)	Frequency	20	30	5	7	8	16	86
8		% Value	23.26	34.88	5.81	8.14	9.30	18.61	100
9		Value	60	90	15	21	24	48	258
10	4 (sign.=4)	Frequency	14	7	19	12	19	15	86
11		% Value	16.28	8.14	22.10	13.95	22.09	17.44	100
12		Value	56	28	76	48	76	60	344
13	5 (sign.=5)	Frequency	6	22	16	9	27	6	86
14		% Value	6.98	25.58	18.60	10.46	31.40	6.98	100
15		Value	30	110	80	45	135	30	430
16	6 (sign.=6)	Frequency	24	16	14	14	14	4	86
17	(Most important)	% Value	27.90	18.61	16.28	16.28	16.28	4.65	100
18		Value	144	96	84	84	84	24	516
19	Control	Total	86	86	86	86	86	86	516
20	Data	Total %	100	100	100	100	100	100	
21		Total value	325	339	298	277	347	220	1806
22	Order of e-banking services		3	2	4	5	1	6	-

the next survey question the respondents were asked to rank disadvantages of e-banking, from the least important (rank 1 and coefficient of significance 1) to the most important (rank 4 and coefficient of significance 4) to their business, in order to test individual hypotheses H(3.2).

Respondents found the 'Lack of privacy' as the least important deficiency/disadvantage (Table 5), order N° 4, while the most important disadvantage was the 'Abuse of electronic banking for criminal purposes', order N° 1. This proves individual hypothesis H(3.2).

Showing that Serbian companies know e-banking services well enough to use and critically observe/rank both its advantages (H(3.1)) and disadvantages (H(3.2)), the specific hypothesis H(3) is confirmed.

The last individual hypothesis - H(4) indicates that different types of companies in Serbia have different characteristics/attributes concerning their relation to e-banking. Given the existence of three types

of companies (SC, MC and LC), specific hypothesis H(4) is tested by different types of companies in regard to e-banking-related attributes.

The research has shown (Table 6) that, indeed, each type of company has its attributes related to the use of e-banking and that these attributes usually differ from the corresponding attributes in the other two types of companies.

Table 6 shows that the observed types of companies differ by 6 (criteria: 1,2,3,6,7,8) out of 9 observed criteria/attributes related to e-banking. This confirms individual hypothesis H(4).

As all six individual hypotheses (H(1), H(2.1), H(2.2), H(3.1), H(3.2) and H(4)) are confirmed, it can be concluded that the basic hypothesis H(0) is also true - that Serbian companies are able to do business both nationally and internationally by the use of e-banking. This in turn gives potential partners evidence that they can do business with Serbian companies using e-banking.

Table 5. Disadvantages of e-banking according to Serbian companies.

N ^o	Rank and its significance	Indicators	Disadvantages of e-banking				
		Frequency (number of companies) Share (%)	Abuse of e-banking for criminal purposes	Absence of 100% present safety	Absence of legal regulation	Lack of privacy	Total and Control data
1	2	3	4	5	6	7	10
1	1	Frequency	19	17	16	32	84
2	(sign. = 1)	%	22.62	20.24	19.05	38.09	100
3		Value	19	17	16	32	84
4	2	Frequency	3	17	40	24	84
5	(sign. = 2)	%	3.57	20.24	47.62	28.57	100
6		Value)	6	34	80	48	168
7	3	Frequency	18	30	17	19	84
8	(sign. = 3)	%	21.43	35.71	20.24	22.62	100
9		Value	54	90	51	57	252
10	4	Frequency	44	20	11	9	84
11	(sign. = 4)	%	52.38	23.81	13.09	10.72	100
12		Value	176	80	44	36	336
13	Control data	Total	84	84	84	84	336
14		Total %	100	100	100	100	400
15		Total value	255	221	191	173	840
16	Order of e-banking services		1	2	3	4	–

Discussion

In choosing the topic, the authors were driven by the idea that, in some way, the scientific potential of the Republic of Serbia should be organized and united, which could provide a synergy in the field of scientific research.

To this end this paper can be seen as a contribution to potential investors who are considering investing in Serbia: they are given scientifically verified data about the capabilities of Serbian companies to do business using e-banking. This is certainly one of the arguments potential investors should consider when they consider the feasibility of wider, or indeed, narrower location: in deciding where to invest, they will know that in Serbia they have competent partners; in addition to that, they can also assume that the other aspects of doing business in Serbia are sufficiently up-to-date to be worth considering.

For now, colleagues from other countries specialised in the area of e-banking research are offering results of research based on a few e-banking characteristics – their acceptance, valuation, ideas for improvement.

In the majority of the previously shown research papers (closing part of the Introduction of the

E-banking chapter), their authors are concerned with researching the level of acceptance of e-banking. They point out the factors which have the highest bearing on e-banking acceptance by the companies in their countries (Naicker, 2010), (Alnsour, 2011) (Alma et al., 2009) (Riyadh et al., 2009). A number of papers deal with the advantages which companies could achieve by using e-banking (Chavan, 2013), (Rotchanakitumnuai and Speece, 2004), (Bray and Watson, 2011). Some of the studies also deal with analysing the problems which affect the level of e-banking adoption by companies (Khan et al., 2009), (Rotchanakitumnuai and Speece, 2004).

The authors of this paper have come to the conclusion that there are no similar papers on e-banking in Serbia and therefore felt compelled to instigate this research. This paper is, therefore, the first paper which explores the application of e-banking in Serbian companies and also the first such research – in the hope that new business links with potential partners may be encouraged.

This paper, like the previously analysed ones, looks at the levels of acceptance of e-banking within business companies in Serbia by measuring the number

Table 6. Overview of e-banking-related attributes of the three types of companies in Serbia.

N ^o	Comparison criteria of business companies types in Serbia related to e-banking	Business companies attributes by type of company		
		SC	MC	LC
1	Number (percent) of business companies that use e-banking	Largest number (61 of 67, i.e. 91%)	All (24 of 24, i.e. 100%)	All (13 of 13, i.e. 100%)
2	Number of banks they have accounts in	Mostly in 1-2 banks	Mostly in 3-4 banks	In 5 or more banks
3	Number of banks with which these companies operate electronically	With 1-2 banks	With 3-4 banks	With more than 5 banks
4	The most common e-banking service	Domestic payments	Domestic payments	Domestic payments
5	The least common e-banking service	Foreign currency transfers	Foreign currency transfers	Foreign currency transfers
6	The most commonly chosen application for e-banking	FX application	Halcom and FX application equally used	Halcom application
7	Number of banks that business companies use to do business by the chosen application	With 1 or 2 banks	One of these (Halcom or FX) applications is used with 3 to 4 banks	More than 5 banks
8	Main advantage of e-banking	Speed of transactions	Speed of transactions	24/7 service availability
9	Main disadvantage of e-banking	Abuse of e-banking for criminal purposes	Abuse of e-banking for criminal purposes	Abuse of e-banking for criminal purposes

of companies that have responded to any question. The results of the research show that 94 percent of Serbian companies uses e-banking. The research also shows that almost all Serbian companies (92 percent) performed more than half of their banking operations with the use of e-banking. In addition, the benefits/advantages and disadvantages of e-banking in Serbia are evaluated, i.e. ranked. The biggest advantage of e-banking for companies in Serbia is 'Speed of transactions', while the least important priority/advantage was 'Digital record of each transaction'.

'Lack of privacy' was seen as the least important deficiency, while the most important deficiency was the 'Abuse of electronic banking for criminal purposes'. On the basis of these results it can be concluded that companies in Serbia, like in many other developing countries, use e-banking to a large extent (between 91 and 100 percent, depending on a type of company) and are continually noticing its advantages and disadvantages.

However, in contrast to some previous research, this paper also shows how and to what extent Serbian companies use different types of services of e-banking. This paper also shows that companies in Serbia are at the same level of knowledge and

competency in terms of e-banking as their international counterparts, so that a similar level of competitiveness can be expected in other areas of doing business with them.

This paper is also an attempt to motivate our colleagues – researchers – to join the actions of supporting business by the scientific verification of data and information – either regarding e-banking, or other aspects of business networking, as well as business as a whole and indeed ideas on how to best improve society (see Omerbegovic-Bijelovic, 2006).

Further research

It was the idea of the authors to point to the possibility of improving business networking based on science in the process of defining a favourable business environment as well as in solving problems that doing business brings (in this case: questions related to the trust in e-banking and financial literacy of companies in Serbia – as one of the characteristics of competency for modern business).

This paper also considered chosen attributes of the companies in Serbia in relation to knowledge and application of e-banking. For further research, in

addition to further work on ranking and improving e-banking, other attributes of companies should be explored. The following themes need to be included:

- Management quality and metamanagement tools application (Omerbegovic-Bijelovic, 1998).
- Defining/application of Key Performance Indicators (KPI).
- Application of other potentials of the Internet.
- Application of tools for management quality improvement and problem solving.
- Corporate entrepreneurship.
- Employee innovativeness.
- Standards application.
- Stakeholder contentment.
- Success in overcoming stress at work etc.

If such and similar research were conducted and the obtained results published for other areas of significance for business, and if it were done on a world-wide basis – there would be a great deal less fear of investing in other types of business networking and, in turn, there would be more business opportunities and hope for better life. This would be a path into becoming a society of knowledge (Omerbegovic-Bijelovic, 2006) – which will have strong, planned, leading ‘links between the actors in the knowledge flow: producers, distributors and users’.

Conclusion

Bearing in mind the current economic situation, including the world crisis with reduced economic activities, unemployment, etc. and the necessity of rapid and reliable establishment of business connections, this paper presents one of the possibilities where science can help the economy overcome the crisis and establish new business connections by determining the suitability of companies for doing business, on the example of companies in Serbia; more precisely, this paper indicates the possibility/ability of companies from Serbia for business linkage with international companies, by application of e-banking, as a modern channel for the exchange of information and money flow.

Hence, in the Introduction of this paper it has been shown that Internet technologies are present everywhere in the world, including Serbia. Companies in Serbia are interested in e-business in general and in e-banking in particular, in order to improve the quality of their own management and to ease communication with national and international partners; data and

money availability, as well as the use of commercial advantages that can be achieved in the international market, have been always important in business, especially in times of crisis.

In the section on E-banking it has been pointed out that e-banking is a recent phenomenon that has developed in the conditions of increasing use of information and communication technologies and the Internet. It brings a number of advantages against so-called traditional banking business. Benefits are generally reflected in time and spatial unlimitedness, the speed of transactions, low price and a wide range of banking services and products. E-banking has enabled more effective communication of companies through banks as well as communications between the companies and the banks; i.e. banks communication with their clients from anywhere in the world. It represents the cheapest, quickest, easiest form of performing banking transactions, without physical limitations. We have pointed out the belief that companies in Serbia are in a position to do business with the world using e-banking (Basic hypothesis), so the question on (a) *E-banking services*, as well as (b) *Software support in the provision of e-banking in Serbia* was posed. In the section on Research methodology, the basic hypothesis was decomposed into 6 individual hypotheses to be tested on the sample of 104 companies in Serbia (in 2013). The results of the snapshot of the current e-banking state in Serbia and the checks of individual hypotheses, as well as conclusions on the veracity of the basic hypothesis were shown in the survey results.

Based on the results of the research presented in this paper, with the aim to examine the volume of implementation of e-banking in companies in Serbia, it is concluded that e-banking is very common in Serbian companies’ daily operations, and that 94 percent (98 companies) use e-banking. In the majority of surveyed companies (92 percent) more than 50 percent of everyday payment transactions are done electronically. Companies that do less than 50 percent of payment transactions by e-banking are mostly small companies who are on the market for not more than 5 years.

In addition, companies in Serbia perceive both advantages and disadvantages in the implementation of electronic banking services.

The results of this study were compared with the results of similar research done in other countries in the Discussion, and subsequently, in our suggestions for further research, we have stated the intentions of

the authors regarding future relevant research and our hopes that others may wish to join us.

If these and similar studies and their results were provided in other areas of importance to business, and if they were applied to all countries and regions worldwide there would be less fear of investments and other forms of business connections, and more entrepreneurship and more grounds for hope that the crisis would soon be overcome, and more humane living conditions would be established.

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