

## E-business Conditions and Perspectives in Lithuanian Enterprises

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*The article analyses e-business experience and perspectives in agricultural, trading, service and production enterprises in Lithuania. The analysis of literature sources discusses the e-business concept, e-business partners (business, consumer, administration and employees) and communication among them. It analyses the advantages (cost, customer, competition) and shortcomings of e-business (law, security and cost). The practical research of e-business applications and perspectives (hardware, software, internet and data structures) is based on studies of enterprises in Lithuania during 2002.*

*Keywords: E-Business, Internet use, Enterprise.*

### Introduction

In recent years computer usage has widely expanded in business sector. The biggest progress is made in processing of economical information.

Computer integration influences the use of Internet in the enterprises of Lithuania. The Internet is creating a shared, real time commercial space, which has not existed before. The degree by which corporations are leveraging the unique Internet market space is an interesting research issue.

The stable e-business and cooperation process can proceed with implementation of modern techniques and software. Thanks to imple-

mentation of it the future of business has a chance (Steimer, 2000).

The e-business conception, advantages, benefit and shortcomings have been a research subject for M. Deutsch (1998), K. Maier (2002), P. Schubert (2000, 2001) and others. R. Doluschitz (2000, 2002) and J. Spilke (2000) have published the first empirical research of IT and Internet usage in agriculture.

Unfortunately, in Lithuania e-business is a new research object. The infrastructure (hardware, software and Internet connectivity), perspectives and potentials of e-business have not been researched yet.

The research object is e-business in enterprises Lithuanian.

The research purpose is after study of e-business conditions in enterprises of Lithuania to establish the perspectives of e-business in Lithuanian enterprises.

The research methods applied are literature analysis, questioning, logical analyze and synthesis, estimator, graphic representation.

### **Research methodology**

The conception of e-business is studied during this work. The analysis of literature sources, which are most on German, discusses the e-business concept, e-business partners (business, consumer, administration and employees) and communication among them. It also analyzes the e-business advantages (cost, customer, competition) and shortcomings (law, security and cost).

The practical research of e-business applications and perspectives (hardware, software, internet and data structures) is based on studies of agricultural and other enterprises in Lithuania in 2002. The empirical research is performed in cooperation with the University of Hohenheim in Germany.

The questionnaire method is practiced in order to collect data about hardware, software and Internet.

First, questionnaires were sent to 30 agricultural enterprises of Lithuania in May 2002. Empirical analysis (questionnaires) was targeted to the agricultural enterprises, which use the accounting information system (AIS) "Debetas". According to the results from the earlier AIS studies (Jucevičienė, 2001) agricultural enterprises used only the AIS "Debetas". But in May 2002 only 30 agricultural enterprises used the AIS "Debetas". It limited the number of researched agricultural enterprises. The questionnaire responses were received from 13 enterprises. These first

results in agriculture have been published by Jucevičienė, Doluschitz (2002).

The data about hardware, software and Internet usage was very positive. Therefore, the research was repeated with the enterprises, which did not answer in the first research stage (September, 2002). The researchers received responses from 6 enterprises additionally. Overall the results in agriculture are based on data collected from 19 enterprises.

Second, the questioning was accomplished in other enterprises (production, service, trading). The results in production, service and trading enterprises are based on data collected from 49 enterprises. The enterprises were selected randomly.

The major results about hardware, software and Internet usage in enterprises of Lithuania (agricultural and other) are described in this article. The results in agricultural sector are compared with data from other enterprises. The article analyzes e-business experience and perspectives in agricultural enterprises and other enterprises in Lithuania.

### **Results**

According to the papers of European Commission (2002) e-business can be defined as "doing business electronically". The more accurate definition could sound like "e-business is every quality of business transactions, where partners communicate in electronic way".

"Transactions can be between providers and end customers, between shopper and salesman, between citizens and administration..." (Daum, 2000), and "... it speaks about new economy without a reason" (Teurl, 2000).

In e-business transactions proceed between different partners. The e-business partners are

consumer (C), business (B), administration (A) and employees (E).

For Praxis relevant combinations are colored bright, but very important ones are B2B, B2C and C2C. "2" shows product and service direction, "X" – provider of product and service, "Y" – consumer of product and service.

Different combinations of partner communications include procurement and transformation of information (business presentation, products description, service) in finance (elec-

tronic banking and tax return), coope and coordination (Doluschitz, 2002).

The Fig. 2 shows e-business compo and their dependencies. As you can e-business includes three compone e-commerce, e-procurement and e-org tion. In order to support e-commere system named Customer Relationship agement (CRM) is used.

The transactions "business to busi "business to consumer" and "consu consumer" are very important. E-procru includes processes of electronic data ac tion. Supply Chain Management ( system is responsible for their integrity is shown in Fig. 2, SCM is an imp "business to business" transaction. E-nization focuses on electronic inter- communications. E-organization can

X2Y	A	B	C	E
A	A2A		A2C	
B	B2A	B2B	B2C	B2E
C			C2C	
E				E2E

Fig. 1: X2Y Combination between e-Business partners (Deelmann T., 2001, p. 3).

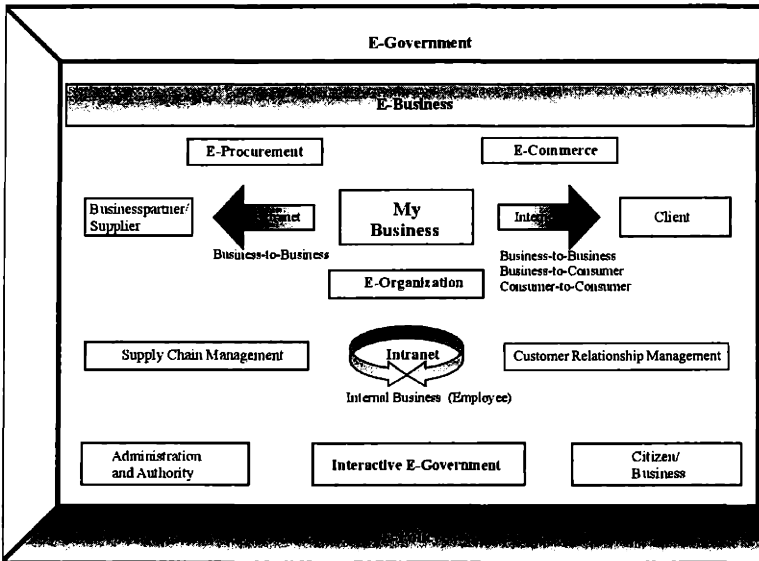


Fig. 2: E-Business general survey (Schubert P., 2000, p. 3).

tively work with the help of intranets, document management system, content management systems and groupware.

Government deals with e-business in two forms – e-Policy and interactive e-Government. The latter has two purposes – build e-business legitimacy and integrate e-business into public sector (Schubert, 2000).

The literature analysis shows that purpose of e-business project is to use new connection as new utility to develop and process forms, which in comparison with conventional methods are more effective, faster and cheaper. The first potential of this utility is cost reduction in different areas such as ordering, storing and distribution, administration and after sales service.

The second potential is timesaving of evolution, development and circulation expansion, and improvement in competition and customer orientation.

The risks appear in such fields as security, legitimacy, costs and social aspects.

K. Maier and K. Pützfeld (2002) mention that undefined legitimacy aspects, confidentiality, data security and information integrity, Internet service and implementations cost are important problems in e-business.

C. Brandstetter and M. Fries (2002) indicate risks and weaknesses of e-business to be of some importance for agricultural enterprises. Weaknesses appear in IT-System, which does not meet modern requirements for Internet and e-business systems.

E-commerce is only a constituent of e-business. E-commerce and e-business can function if solid technological basis exists. The complete world of electronic business features can be defined as e-economy.

The infrastructure – technological basis and conditions for e-business is purpose of author's empirical research. The practical research of e-business applications and perspectives is based on analysis of hardware, software, Internet connectivity, data structures of agricultural and other (production, service and trading) enterprises in Lithuania.

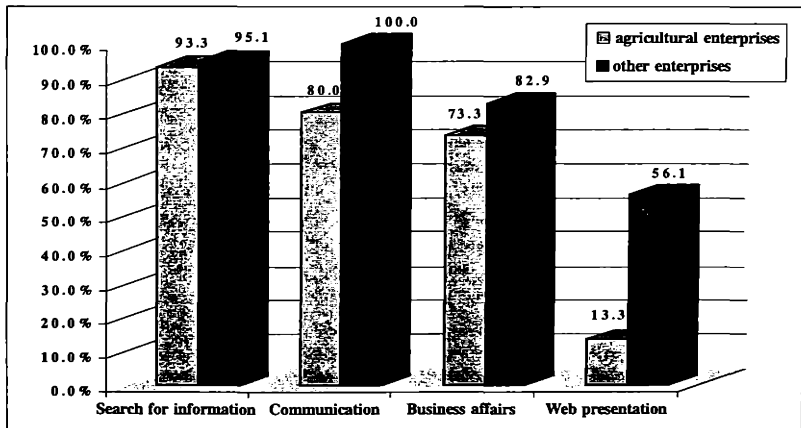


Fig. 3: Directions of Internet use in enterprises of Lithuania at 2002

The main results of this practical research can be summarized as very positive and perspective ones for e-business process and development.

The first AIS in agricultural and other enterprises were explored 10 years ago, but the agricultural enterprises started extensive integration only in 1999–2002. 63 % researched enterprises intergraded AIS during the last four years. The other enterprises began IT implementation earlier – 44 % other researched enterprises implemented hardware in 1995–1998.

Internet usage has taken the major role in AIS integration. 79 % of enterprises in agriculture do business via Internet, even when first ones were connected just in 1999. In other enterprises Internet is used much more – 84 % of trading, service and production enterprises have Internet access and connected in 1994; 68 % of these enterprises have accessed the Internet since 1999–2002.

Internet usage in enterprises of Lithuania is described in the fig. 3. The agricultural enterprises, which have accesses to Internet,

use Internet for information search (93.3 %), communications (80 %) and business affairs (73.3 %). The presentation on Internet is not very popular among such the enterprises. Only 13.3 % of enterprises present information about themselves on Internet.

Other enterprises (production, service, trade), differently from agricultural enterprises, use Internet more extensively. Important Internet use is communication (100 %) search for information (95.1 %) and business affairs (82.9 %). The web presentation in these enterprises is more important than in agricultural enterprises. They publish information about themselves on Internet 42.8 % more than agricultural enterprises. It says that production, service, trade enterprises take advantage of Internet more effectively and have better conditions for e-business development and perspectives.

The balance of purpose to search for information is displayed in Fig. 4. It presents summarized data only about the enterprises, which use Internet for information search. Internet is used mostly for decree bank,

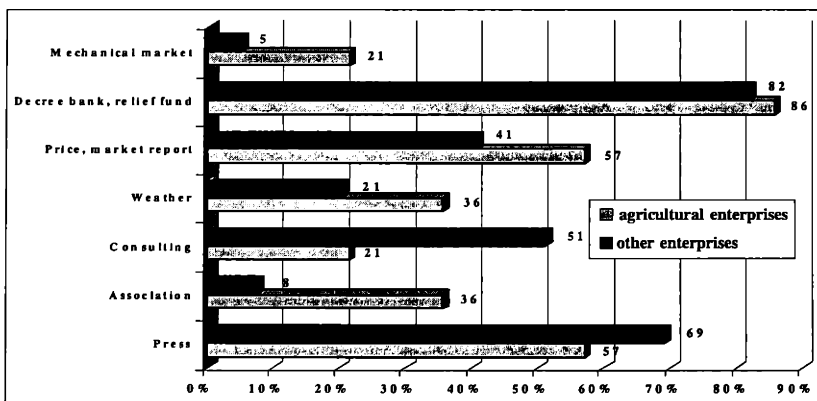


Fig. 4: Purpose to search of Information in Lithuania at 2002

relief funds (82 % other, 86 % agricultural enterprises), price, market report (41 % other, 57 % agricultural enterprises), and press (69 % other, 57 % agricultural enterprises).

It is interesting to notice that other enterprises use consulting services on Internet twice as much as agricultural enterprises. It indicates that in Lithuanian agriculture the weakness exists in the field of farmer consultations. In comparison, agricultural enterprises search more for time-sensitive information (weather, price, market report). The author of the paper thinks that such behavior of agricultural enterprises is caused by the influence of this information on production cycle.

Analysis of communication via Internet forms show, that undoubtedly, e-mail becomes increasingly important in the researched Lithuanian enterprises. The data indicates that 100 % of other researched enterprises with Internet access communicate via Internet. The communication via Internet is slightly less in agricultural enterprises (92 %) in comparison with that in other enterprises. The discussion in forums and chats are not very popular.

Analysis of forms of business affairs via Internet is supplied in Fig. 5. The online-banking currently is the most important form of business affairs via Internet. 82 % of other enterprises and 73 % of agricultural enterprises have electronic connection with banks. From the author point of view, this has affected the integration of data – bank connects enterprises and banks.

Next important form of business affairs is exchange of information with administration, but this is meaningful only for production, service, trade and other enterprises. It must be pointed out, that e-commerce does not exist in Lithuanian enterprises as a form of business affairs via Internet. Only 3 % of other enterprises use Internet for marketing purposes. Author of this paper expresses the opinion that currently it is new field for theoretical research and practical adaptability.

The study of problems of Internet is structured in Fig. 6. Important problems are high Internet use cost – 32 % in agricultural and 41 % in other enterprises, lack of data

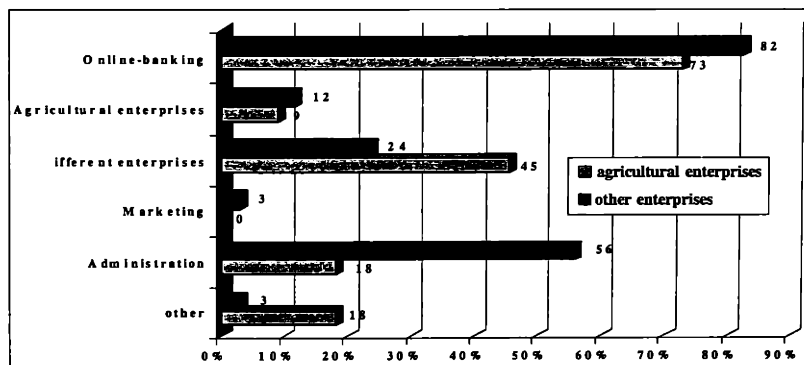


Fig. 5: Forms of business affairs via Internet in Lithuania in 2002

security – 5 % and 27 %, correspondingly, high time input – 21 % and 20 %, correspondingly, lack of data transfer security – 22 % only in other enterprises. It should be noted that data security and data transfer security related answers are relevant only to other enterprises. The implication is that agricultural enterprises do not use or use less data transfer to different interests.

As it has been mentioned above the risks and weaknesses appear in such fields as security, law, costs and social aspects. This fact is confirmed by the practical research in Lithuanian enterprises. Differently from theoretical expectations the practical research shows that Lithuanian enterprises highlight problems like slow Internet access. This fact is especially noticeable in agricultural enterprises. Data of weak Internet connectivity is defined in the other field (Fig.6).

The empirical research also analyzes perspectives of e-business in researched enterprises. The perspectives of e-business have been evaluated according to questionnaire

answer about Internet accessibility, Internet leverage among different business areas and hardware implementation.

The analysis of e-business perspectives shows that the enterprises, which do not access Internet yet, plan to do it in the next year or later and only 12.5 % of other enterprises do not contemplate Internet access. The agricultural enterprises and enterprises of production, trading and service have different objectives in Internet usage. The enterprises, which have or will have Internet and do not plan to use Internet for information search, communication and business affairs, number is negligible. It is worth to analyze separately web presentation because it was not a very important Internet aspect in the researched enterprises. The perspectives of web presentation have been summarized in figure 7. It shows data from enterprises, which do not publish information about themselves on Internet versus Internet accessibility. As you can see, the data is similar in agricultural and in other

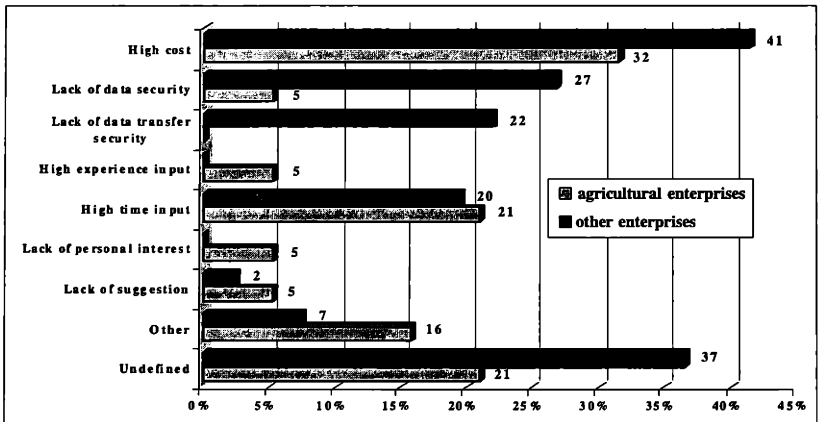


Fig. 6: Problems fields in Internet use in Lithuanian enterprises at 2002

enterprises. Almost all the enterprises consider web presentation as a low priority future task. The number of undefined answers is more important in other enterprises – 31%. The analysis shows that percentage of enterprises which don't plan to have web presentation in agricultural and other enterprises is insignificant, only 16% in agricultural and 15% in other researched enterprises.

The analytical and empirical research confirms the existence of good condition for e-business in agricultural and other enterprises in Lithuania. The enterprises introduced hardware, software and Internet access for business process a few years ago. It is set out in research that e-business process commences in Lithuanian enterprises. In agriculture the e-business perspectives must be estimated carefully because the research has been done on enterprises, which already use AIS.

## Conclusions

1. The potential of this e-business connection is cost reduction in different areas such as ordering, storage and distribution, administration and after sales service and analysis of timesaving of evolution, development and circulation expansion, and improvement in competition and customer orientation.

2. The risks and weaknesses appear in the following fields as security, law, costs and social aspects. Important problems are undefined legitimacy aspects, confidentiality, data security and information integrity, Internet and implementations costs.

3. The main results of this practical research can be summarized as follows:

- Internet usage takes major role in AIS integration. 79% of agricultural enterprises and 84% of enterprises in production, service, trade and other fields do business via Internet;

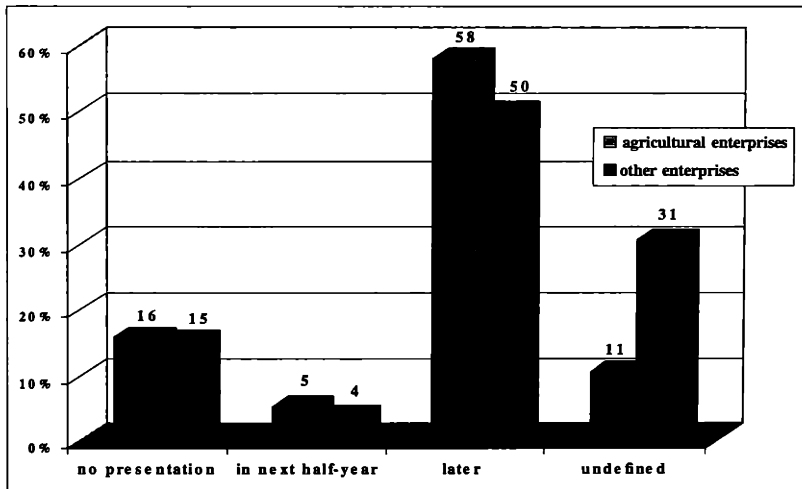


Fig. 7: Perspectives of Internet usage to web presentation in Lithuanian enterprises at 2002



- Internet exposure in these enterprises balances among market data exchange (decrease, relief funds and market price) (93 % and 95 %), communications (e-mail) (80 % and 100 %) and business affairs (73 % and 83 %);

- Most frequently mentioned problems are high cost, lack of data security and high time consumption for data input.

4. The presentation on Internet is not very popular among such enterprises. Only 13 % of agricultural enterprises present infor-

mation about themselves on Internet, the web presentation in other enterprises is more meaningful (56 %).

5. The analysis of e-business perspectives shows that the enterprises, which do not access Internet yet, plan to do it in the next year or later and all the enterprises consider web presentation as a low priority future task.

6. The analytical and empirical research confirms the existence of the good condition for e-business in the enterprises in Lithuania.

## LITERATURE

1. Brandstetter C. und M. Fries (2002). E-Business im Vertrieb. München, Wien: Carl Hanser.
2. Daum B., Scheller M. Electronic Business. München: Addison-Wesley, 2000. 446 S.
3. Deelmann T., Loos P. Überlegungen zu E-Business-Reifegrad- Modellen und insbesondere ihren Reifeindikatoren. 2001: <http://archiv.tu-chemnitz.de/pub/2001/0106/>
4. Deutsch M. Electronic Commerce. Braunschweig, Wiesbaden: Vieweg, 1998. 293 S.
5. Doluschitz R. und Pape J. Erfolgspotentiale für e-Commerce im Agrargewerbe, Teil 1: Thematische Einführung und Befragung von Landwirten aus Baden-Württemberg. Hohenheimer Beiträge zur Agrar-informatik und Unternehmensführung, Band 1, 2000. 34 S.
6. Doluschitz R., Pape J. E-Business in der Agrarwirtschaft zwischen Euphorie und Resignation // Zeitschrift für Agrar-informatik. 2002, Nr. 1, S. 13–20.
7. Jucevičienė V. und R. Doluschitz. Stand und Entwicklung des E-Business in litauischen landwirtschaftlichen Betrieben // Mokslo darbai "Vagos". 2002, Nr. 55(8), P. 79–83.
8. Jucevičienė V. Žemės ūkio įmonių apskaitos automatizavimo efektyvumo didinimas: daktaro disertacija; socialiniai mokslai, ekonomika; Kaunas: LŽŪU, 2001. 118 p.
9. Kommission der Europäischen Gemeinschaft. Bericht über die Umsetzung der europäischen Charta für Kleinunternehmen (KOM (2002) 68). 2002: [http://europa.eu.int/eur-lex/de/com/cnc/2002/com2002\\_0068de\\_01.pdf](http://europa.eu.int/eur-lex/de/com/cnc/2002/com2002_0068de_01.pdf)
10. Maier K., Pützfeld K. Der E-Business – Spazialist. München: Addison-Wesley, 2002. 357 S.
11. Schubert P. Digital erfolgreich. Berlin; Heidelberg: Springer, 2001. 254 S.
12. Schubert P., Wölfe R. E-Business erfolgreich planen und realisieren. München, Wien: Carl Hanser, 2000. 231 S.
13. Spilke J., Köstler W. Nutzung von Online-Datenbanken für die Informationsbereitstellung auf regionaler Ebene im Agrarbereich // Zeitschrift für Agrar-informatik. 2000, Nr. 1, S. 3–9.
14. Steimer F. Mit E-Commerce zum Markterfolg. München: Addison Wesley, 2000. 234 S.
15. Theurl T. Internet – Chancen für Genossenschaften: Beiträge des Oberseminars zum Genossenschaftswesen im Sommersemester 2000. Münster: Regensberg, 2000. 145 S.

## ELEKTRONINIO VERSLO BŪKLĖ IR PERSPEKTYVOS LIETUVOS ĮMONĖSE

Vilija Jucevičienė

Santrauka

Straipsnio objektas – elektroninis verslas (e. verslas) Lietuvos įmonėse. Šio darbo tikslas – ištyrus Lietuvos įmonių e. verslo būklę, numatyti šio verslo plėtros perspektyvas. Tikslui įgyvendinti buvo atlikta užsienio mokslininkų paskelbtų darbų analizė, kuria remiantis buvo pagrįsta e. verslo sąvoka, išaiškinti e. verslo partneriai (verslas, valstybinės įstaigos (administracija), prekių ar paslaugų vartotojai ir įmonės darbuotojai) bei jų ryšiai, nustatyti e. verslo pranašumai, analizuojama išlaidų sumažėjimas, apyvartos didėjimas, konkurencines situacijos ir klientų aptarnavimo gerėjimas ir trūkumai, pasireiškiantys teisės, saugumo, išlaidų ir socialinėje srityse.

Empirinis tyrimas (anketinė apklausa), siekiant išsiaiškinti e. verslo būklę ir perspektyvas, buvo atliktas 2002 m. Lietuvos žemės ūkio įmonėse ir kitose Lietuvos įmonėse (gamyba, prekyba, paslaugos ir kt.). Šiame straipsnyje aptariami empiriniai duomenys, gauti iš 19 žemės ūkio ir 49 kitų Lietuvos įmonių. Tyrimo metu buvo nustatytas kompiuterių techninės ir programinės įrangos naudojimas, interneto naudojimas ir tiriamųjų įmonių struktūriniai duomenys.

2002 m. atlikto tyrimo metu nustatyta, kad:

- 79 proc. žemės ūkio ir 84 proc. kitų įmonių naudojami internetu: išaiškinta, kad 93 proc. žemės ūkio ir 95 proc. kitų įmonių, turinčių internetą, pastarąjį naudoja gauti įvairią informaciją (dalykinė spauda, rinkos ataskaitos, įstatyminė bazė ir para-

mos fondai), atitinkamai 80 proc. ir 100 proc. komunikacijai (elektroninis paštas), 73 proc. ir 83 proc. verslo apyvartai (elektroninis ryšys su banku, su gretimų gamybos šakų įmonėmis);

- labai nedaug žemės ūkio įmonių (13 proc.) pateikia informaciją apie save internete, kitos įmonės gerokai daugiau (56 proc.);

- nustatyta, kad plačiau naudotis internetu dažniausiai nesiryžtama, nes didelės interneto naudojimo kainos, menkas duomenų saugumas bei nesaugus duomenų perdavimas; išskirtinis interneto efektyvaus naudojimo trūkumas yra lėtas interneto ryšys, šis veiksnyys ypač svarbus Lietuvos žemės ūkio įmonėse.

Autorė nustatė, kad pastaraisiais metais vis didėjančių susidomėjimą internetu lėmė bankuose ir įmonėse naudojamų taikomųjų programų integracija, leidžianti elektroninį duomenų perdavimą tarp minėtų verslo partnerių.

Nustatyta, kad įmonės, neturinčios interneto, planuoja prisijungti prie jo ateinančiais metais arba vėliau. Numatoma, kad vis daugiau įmonių pateiks informaciją apie save internete.

Atlikti Lietuvos ir užsienio mokslininkų paskelbtų darbų tyrimai ir empirinių duomenų analizė leidžia teigti, kad Lietuvos įmonėse yra gera informacinės ir komunikacinės technikos būklė, sudaranti palankias sąlygas e. verslo plėtrai.

*Įteikta 2003 m. sausio mėn.*