

Knowledge, Innovations and Technologies Integration Nurturing Electronic Insurance Business

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Abstract. This paper potentially focuses on the country's insurance business as economically and politically sustainable business development when knowledge, innovations and technological integration become a key resource in the formation and directly influence main development factors. The electronic insurance development is coherently discussed in this paper.

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Introduction

Nowadays, technologies are developing very fast and the companies, which are able to meet customers needs at the right time and with the lowest time resources have become most competitive. The modern customer is always busy, constantly rushing and requires high-quality, well-timed and appropriate service. The principles of traditional business are outdated and require new, more efficient methods of working, which leads to traditional business transformation into an electronic. The development potential of electronic business (further – E-business) is increased by the newly acquired knowledge, nurtured innovations and new technologies development. Recently, E-business penetrates into the insurance sector but not all customers are willing to use electronic insurance (further – E-insurance) services, considering it as obvious advantage.

Insurance companies expect greater number of customers, better service quality and short-time working which E-insurance services provides. However, here is the main problem, which should be taken into account: irrelevant principles in life insurance sector implementation prevents development of many insurance companies. This paper potentially focuses on the country's insurance business as economically and politically sustainable business development when knowledge, innovations and technological integration become a key resource in the formation and directly influence main development factors. The electronic insurance development is coherently discussed in this paper.

In order to achieve these objectives it will be necessary to choose an adequate methodology, to define the electronic

insurance businesses sustainable development model and to link the categories of information, innovations and technologies. The following phases are to be considered in order to achieve the main objectives:

- i) disclose and explain the purpose of knowledge, innovation and technology integration;
- ii) describe the key E-business models;
- iii) carry out the analysis of the E-insurance concepts, disclose the main E-insurance processes and their participants;
- iv) prepare the principal E-insurance business models.

The research is based on theoretical analyses and hands on experience.

1. Essential indispensable condition

Knowledge, innovations and technologies integration must be treated as an essential indispensable condition for the development of E-business. Rapidly expanding globalization enhances the demand and the importance of fast integration into innovations and technologies. Knowledge, innovations and technologies integration are the key factors that define the creation of sustainable business. Our knowledge, innovations and technologies complex treatment as integrated system should require taking into account the diversity of situations and would be directed for the implementation of the strategies [1].

The growth of knowledge demand and importance [2] promotes the creation of specialized multidimensional cluster. The core of such cluster is to create generally available/newly

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Table 1. Structure of the IT competitiveness.

Explicit IT knowledge	+	Tacit IT knowledge Vision of the IT Additional business	=	IT competitiveness The help of the IT IT business integration
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acquired knowledge, innovations and technologies system that can improve company's management the system that fosters company's sustainability and enhances competitiveness of a company or even a country.

Multidimensional cluster is based on knowledge – the essential resource for promoting the ability to compete in unusual environment. Knowledge is seen as the ability to perform the special tasks and as the way to transfer the information [3] so, it is necessary to accumulate new knowledge also improving skills and expanding the experience. Ineffective management of knowledge loses its value faster than material resources, so a multidimensional cluster management requires a new concept, new management techniques when the fundamental object is not profit generated by the business, but the sustainable development of business and customer satisfaction.

By reducing the demand of knowledge there are presumptions how to implement innovations into business processes and technologies. Technological innovation is considered to be a key factor for competitiveness which encourages new technological advances and becomes a condition to foster the possibility of a profit, developing experiences and knowledge [4]. In general terms, innovations promote the interactive process of knowledge generation and application because the potential innovation is possible only through the usage of the acquired knowledge.

The implementation of innovations in business processes results in: the improvement of the strategic activity, reduction in demand of investment, penetration into new markets. Focusing on actions that influence the significant changes in organizational structure, that implement better management techniques, that ensure new, completely changed strategic directions, new organizational methods and new business practice emerge. In terms of new organizational methods, one of them is E-business. E-business requires appropriate structure and implementation of new technologies. [5] The service-oriented structure enables more efficient methods to manage the challenges of IT implementation.

By widespread use of IT in business processes it becomes extremely important to foster the technologies success and to focus attention on such key factors as asset, knowledge, skills and organizational processes. No less important factors are the support of the staff in IT implementation, IT management experience, IT business strategy, the appropriate organizational structure, management processes, support of managers and knowledge about the characteristics of the industry. Information is invisible asset that can be used to value creation as an important resource. Therefore, proper management

of information helps to get information about competitors and to gain competitiveness.

Table 1 represents the structure of the IT competitiveness. Here are three factors influencing the development of IT competence [6]:

- i) IT competence of companies (IT skills, “know-how” tacit knowledge);
- ii) IT competence of managers (explicit and tacit manager knowledge);
- iii) competence of information management (practical activities).

The whole of these factors can be expressed by formula presented in Table 1.

The competitiveness of the business IT and success of the IT business integration depend on the available explicit knowledge (regulations, rules and other important documents entity) and the available (or acquired) tacit knowledge (staff experience, personal characteristics, their attitudes towards new technologies) and additional business knowledge (existing partner or suppliers knowledge).

2. E-business models

Defining what E-business is and when this concept began to be used, it turned out that there is no one general concept. Sometimes e.business concept is synonymous with e. commerce but here are two different concepts. E-business – is the whole of business processes that is carried out using digital technologies and e. commerce – it is a commercial transaction between the company and the client. It follows that E-business is a broader concept which includes the concept of e. commerce.

Some researchers claim that concept of E-business links to the World Wide Web (WWW), since people were able to take advantages of online resources. In 1996 IBM corporation described E-business as an improvement of business process using digital technologies. [7] As one of the E-business assumptions is the use of digital technologies and E-business is associated with the use of IT, so e. business is the use of IT data transfers (computer) networks during organization of business processes [8].

IT is defined as general conception that defines any technology that helps to produce, manipulate processes, sales and communication or exchange any information using appropriate equipment [9]. The base of E-business is Internet, which is the main tool for connection and improvement of business processes. E business can be defined as automation of traditional business through the computer networks.

Due to rapidly growing information and communication technologies development [10], companies are competing with each other in particular use of technology. As soon as company's business processes are transferred to the electronic environment, it becomes possible to provide the best quality products/services to meet customers' needs.

E-business has become constantly changing activity due to constantly evolving information technologies. It is necessary to mention the main E-business development phases [11].

- 1st- E-business phase which covers the years 1995-2000. During this period the companies began to purchase online and support business activities through usage of technological solutions.
- 2nd- E-business break phase which occurs in 2000. At this stage several unsuccessful business models revealed how to improve information and communication technologies (ICT) and to reduce business costs.
- 3rd- the current E-business phase. The main objective is to create and improve the information structure which is fully supported, important and necessity for E-business.

The rapidly changing era of computers and communication technologies has been gradually affecting the system of economy and changing business models. Business model is a method of business organization, which is used by company to make a profit [12]. Depending on the parted subjects, the following E-business models are usually distinguished [13].

1. *Business to business* (B2B) – it is one of the most widespread E-business models where the services are provided among two business subjects – companies or institutions.
2. *Business to client* (B2C) – it is often used model when business subjects provide services to client directly.
3. *Business to business to client* (B2B2C) – complex form of business when the business provides the service to client – business, which also has its own clients and provides services for them.
4. *Client to business* (C2B) – it is now rapidly expanding business organization model where individuals use the Internet in providing appropriate services to organizations/business.
5. *Client to client* (C2C) – it is a business model which requires a low cost where the on client sold available products (services) to another client directly.
6. *Mobile commerce* (m-commerce) – it is a business process which is carried out by use of the wireless technologies.
7. *Business to employee* (B2E) – it is e. commerce model where business delivers products/services to a particular employee.
8. *Business to government* (B2G) – business model promoted by the government when payments for routine activities and corporate taxes are carried out electronically.
9. *Government to client* (G2C) – it is currently used business model that provides electronic public services to clients directly.

Finally, it can be said that every company can stay competitive and adequately meet the customers' needs if it transfers traditional business processes into electronic environment. Moreover, it is necessary to choose the best E-business model which is acceptable to both, the owners and the customers. The operating principles of regulation helps to act purposefully and to meet customer needs faster and better.

3. Nurture of E-insurance business

Constant growth of importance of information and communication technologies and nurturing development of the Internet has accelerated changes in business processes. The most important outcome remains business processes transferring into the electronic environment. In the turn of changes occurs E-insurance business. E-insurance has emerged as a result of communication and information technologies evolution when all insurance operations are carried out through the Internet. At the same time it is improving the quality of life, the insurance companies require more information and more efficient use of necessary methods. From this point of view, E-insurance reduces the resources of time and managing costs [14].

Here it is also necessary to distinguish the three main E-business development opportunities: website, the automation of business operations and processes, cardinal change of organization from traditional to the virtual [15]. However, not all companies are able to improve existing business processes as fast as IT innovation. In the context of information sharing and exchange, insurance companies promote such IT solutions es presented below.

1. Website, where all the basic information about the insurance company is given, the proposed insurance products and contract conditions.
2. Web portal, indirectly related site to the customer, which contains links to various pieces of the most interesting information. Later, insurance companies agents will verify the information which sites are mostly visited by customers and what is the most interesting to visitors.
3. Portal of the point of sales, information about the concrete site in the other related to insurance site (for example: insurance services advertising in car sales websites).
4. Intermediate brokers, website of brokers who do not sell insurance products directly but these that offer to choose a certain companies' services.

Foreign insurance companies are developing E-insurance in two ways [13]:

- a) reverse auction is a situation when a potential insurer declares wish to insure himself/ his company and they are offered the best insurance option and conditions (insurance company, type of insurance, the terms and amount, price of insurance);

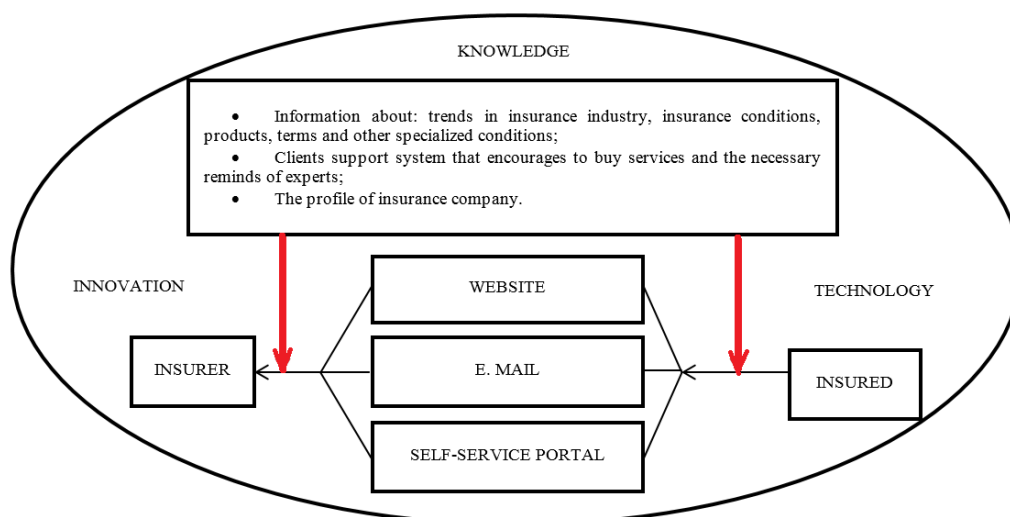


Fig. 1. E.insurance "business to client" (B2C) model. Adapted according to Ref. [18].

- b) aggregator is a websites where you can find all the information about proposed insurance services (E-Health Insurance).

The potential customer can be provided with spreadsheets and get the necessary information about the most favorable insurance conditions. Currently aggregators are widely used by most insurance companies.

Therefore, sometimes it is avoided to include life insurance (further – LI) policy online which is influenced by the complexity of LI as it requires thorough health check of life insurance policy holders. On the other hand, it is very difficult to evaluate cash value life insurance. Unfortunately, it still lacks a unified model how E-insurance should be carried out, how to check the reliability of data, how to ensure the security and how to provide the best LI option to the client. The following factors make it complicated to sell LI online [16].

- i) illegal electronic signature;
- ii) unacceptable credit card;
- iii) an insurance policy must be delivered to the customer physically;
- iv) wrong document format;
- v) agents and brokers must show their license physically;
- vi) prohibited from receiving payment for a policy if they do not have a license;
- vii) physical involvement of a third party.

It has become obvious that E-insurance business needs to develop an appropriate legal framework, which legally recognizes the legitimacy of online transactions (in compliance with the laws), the certainty of sent e. documents or to establish a unified legal framework (portal), where registered users could checks e. copies of approved documents.

4. E-insurance processes and the main participants

The insurance industry is one of the most important assets in financial services because of economic growth and fostering the public health. In the countries where risk prevails and individuals are trying to accumulate funds for future, insurance is necessary. Moreover, insurance is used to provide an investment into available funds. E-insurance reduces the costs of management and administration of business processes and improves the management of the data while reducing the payment of commissions to the intermediaries [14].

Both, the literature and practice distinguish the three main entities that occur in an insurance contract: the insurer, the insured and the insurance company. From this point of view, we can define the basic stages of the E-insurance contract procedure [17]:

- a) select the appropriate insurance companies providing insurance products and compare them;
- b) in accordance with the best offer, calculate insurance rate, insurance amount and overview the additional products/services;
- c) prepare the order and complete the necessary forms;
- d) pay for an insurance contract through electronic banking or by other available tools;
- e) meet with an insurance agent and get an insurance policy, use courier services to get a policy or get it through the Internet.

It is also necessary to consider two things: the needs of a market and how to attract new customers. The most appropriate way to implement all of these processes is the adoption of "business to client" (B2C) model - see Fig. 1. Displaying E-insurance "business to client" (B2C) model adaptation, it is necessary to visualize the flows of information between po-

licyholders and insurers [18].

Fig. 1 illustrates the information flows among the insurer (insurance company) and an insured (insurance company's client) implementing the "business to client" (B2C) model that is specified to the insurance sector when insurance services are provided directly to the customers. This e. business model is explained through the main flows of information and it is used in many countries.

The basic part is the integration of knowledge, innovation and technology that provides information flows among insurer and insured. Depending on the level of IT use in the insurance company's here are different method, amount and efficiency of policyholder available knowledge transfer. Information can be expressed in three ways: on the website, by the email or by the self-service portal.

Website presents the basic information about insurance company: mission, vision, the objectives and values. Here you can find the description (insurance regulations, terms and conditions) of the main insurance products provided. Some insurance companies provide the possibility to access the spreadsheets and determine the costs of possible insurance policy in order to get the desired amount of possible payment by the contract term and conditions. If the information provided on the website runs out, clients are given the opportunities to communicate with insurer by the email. In order to prepare insurance contract and to give the insurance claim, customers are to send the necessary data by email and confirm the validity of the data in the insurance company later. However, each client needs quick and efficient service. To save customers time and to attract new policyholders every insurance company should set the objective to create the perfect self-service portal where customer, entering password could get the necessary information, communicate with insurer or contract with insurance company by one button click. In self-service portal the client can see the details of the insurance contract (expiry date) and report back about current event. It is also necessary to allow online payment of insurance premiums or receive compensation to their even person account directly. Such portals are the most beneficial for hard working, busy clients who can fill in insurance contract or an accident declaration without leaving home, just with one button press on computer.

Analyzing E-business principles in the insurance sector in Lithuania, it has been observed a link between the insured (client) and the insurance company, taking into account the needs of the client, the insurance company gets the benefit i.e. profit and, most likely, the customer's loyalty. E-insurance in Lithuania contains not only the advertising guidelines, recommendation of the insurance company but also insurance contracts, policies of insurance premium payment and reporting about accidents through self-service portal. Undoubtedly, these processes are not automated in all companies and some insurance companies communicate with the clients only by email. Thus, technological innovation market in insurance

industry in Lithuania is not sufficiently developed and liberalized, however it has its own advantages and disadvantages of traditional insurance business transformation into E-insurance.

5. E-insurance strengths, weaknesses and main barriers to growth

E-insurance business is constantly expanding and its value is growing. However, it is possible to distinguish some E-business principles using insurance industry strengths and weaknesses. This chapter describes strengths, weaknesses and barriers which cause the e. insurance business growth.

Insurance strengths can be found in the scientific literature and in practice [19] which are presented as follows.

1. The price reduction. A big number of intermediaries lead to increase in prices (especially in the monopoly market), in developing e. business technology the chain of intermediaries decreases due to the service provider, lower supplier prices and transaction costs which, subsequently, lowers the prices of service;
2. Flexibility of the service provider results in capability to communicate with customers online easier and more efficient. The product (insurance contract) is to have an appropriate price and is suitable to the client (condition created especially for him);
3. The changes in service quality, flexibility to customers needs requires improved service level with customers making insurance services of higher quality;
4. Increase in the amount of contacts and communication with customers, E-business opportunities make it easier to communicate with clients, it becomes easier to segment customers by the appropriate criteria: geographic area, interests, age, etc.

However, strengths do not exist without weaknesses, so E-insurance has also its weaknesses. In general, all weaknesses can be grouped into few groups:

- a) more complex structure of the Internet – development of business and online processes leads to more complex Internet architecture: an increase in number of communication channels, the processes are specified to meet the clients needs, so it is hard to standardize all processes;
- b) Information security issue – due to the increasing amount of information the security and quality play the major role, so here it becomes very important to develop better safeguard to ensure data (storage and transfer) security.

It is necessary to mention that alongside E-insurance weaknesses E-business barriers to growth emerge. The key barriers are according to Ref. [20]:

- i) lack of resources (time and financial, because of large establishment and operating costs);

- ii) lack of the necessary skills (inadequate staff, mistrust in personnel, lack of knowledge, difficulties in IT systems integration);
- iii) non-compliance with business (lack of appropriate technology, lack of interest, defects in changes of processes);
- iv) security gaps and disturbances.

To summarize, it can be stated that E-insurance is useful and has a lot of advantages that reduce the negative impact of defects. Reducing E-business barriers of growth (constraints) in insurance business industry will decrease the resources of time and finance and increases the benefit.

Conclusion

Nowadays, each operating company is provided to use the key E-business principles or fully transfer the whole processes to the electronic environment. The intensive integration of knowledge, innovations and technologies leads to the spread of key E-business assumptions and due to its application, the company will be able to stay competitive and efficiently operating as a result of rapid business activity, more efficient innovative IT and better quality of customer service.

The most appropriate for E-insurance is business to client (B2C) E-business model, which includes all required information and qualitative service to a client directly. The simp-

lest business transactions must to be taken to reduce the amount of intermediate links and its impact on the final result. At the same time the company should be able to get feedback from customer complaints or queries.

Through E-insurance model it is reasonable for the insurance companies to have their own web site to communicate with customers through email and that is better to create a self-service portal. Even if insurance company is unique it should be taken into account during the E-business model selection. The choice appropriation is led by the current share of the market, the satisfaction of existing customers or as a response to customers' complaints about service quality and necessary time or financial resources.

Fostering E-insurance is beneficial to both insurance companies (operating costs are reduced, new markets are captured, competitiveness is increased) and policyholders/the public (lower fees, greater choice of insurance products, rapid meeting of needs), but there are disadvantages because business processes become more complex and create an additional need for new knowledge acquisition.

The transformation of traditional business processes to the electronic is also influenced by the following key limitation (barriers). The best solution is to take the appropriate actions and remove the gap of necessary knowledge, reduce the need for the addition funds. It is also necessary to ensure the security of data, appropriate its transfer and understanding.

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