

# Effectiveness of the Computer Information Systems in Insurance

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**Summary:** The material presents the problems in evaluating the efficiency of the computer information systems. It's based on the so called IMU model for this efficiency evaluation. The classical grade of efficiency of this specific software is based on:

- using methodology for evaluating;
- information technologies for realization of the evaluation system;
- the user aspect of the efficiency.

**Key words:** effectiveness, information technologies.

**JEL:** G14, G22.

## Introduction

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## I. Insurance information

The insurance information differs from the other types of information and it has its own specific peculiarity, which set some requirements in the development of the computer informational systems of the insurance company. One of these specifics is it's continuous arise during the insurance activity and the necessity of continuous fixing and transferring or giving in the order of arise, or periodically, in the dependence of the regime of the insurance operations in the insurance activity.

This continuity in the creation of the information is determined by the continuity of the insurance activity.

One of the characteristics of the insurance information is its original way of movement. It appears in the creation of the insurance relationships and events and for the most part of it (accountant, statistical and operative) is moving in ascending direction (from the ruled to the ruling system). Another part of it (standard-rate) is characterized with descending movement, the third part (plan-tax) – is characterized with ascending and descending movement.

Another specific of the insurance information is that it is put to regular and strict processing. The processing is accomplished under several typical procedures, which in different combinations can be seen in vast part of the insurance processes and operations.

Thereby, the arithmetical processing, which is reduced to three typical procedures: addition, multiplication of the amount of data and subtraction of absolute and relative indexes.

The most often typical procedures in logical processing of the insurance information are: grouping, unification, arrangement, merger and searching.

The insurance area is characterized with large amounts of out coming information and with repeatedly, but relatively simple and short term processes. The large bulk of out coming information puts a number of requirements for its successful revision: the organization of the information flow, revealing of the contents of the many documents and technical bearer of information, development of a system that accept, control, edit and register of the information. The repeatedly, but relatively simple and short term processes related with the processing of the information require better technical support with bigger memory and network processing of the data.

## II. Characteristics of the computer information systems in the insurance

The management of the insurance companies uses, mainly transformed in a specific way information. That's why the management can be achieved and improved only on the basis of the information, received from the organized informational activity, on the basis of a determined informational system.

The computer information system is an important structural component of the system of the management of the insurance company and it is a direct and basic subsystem. It serves, connects, integrates and unifies

the ruling and the ruled systems as it takes intermediate place between them.

Thanks to that system the other two generate the management system of the insurance company. The computer information system has a functional nature. Its basic function is to "produce" suitable in characteristics and bulk information for the best notification of the different levels of the management system, with the purpose of making and taking ruling decisions, that provide optimal management. Therefore, the information system should be capable of giving in time to the specialists the necessary information for carrying out their duties. Thanks to that the system coordinate the operations and the behavior of ruling and the ruled systems with a view of achieving the optimal in the insurance activity. The information system shouldn't only recognize not only which information will present interest to whom, but also it should be capable of transform the information in good time and to give it to the potential customer. More precisely the informational system is the part of the management system that, which takes care for the collection, transfer, transform, storage and using of the necessary for the management of the insurance company information.

The information system should not only give the necessary information which the managing body of the insurance company frequently use to take their decisions, but also to make it compact, condensed and limited to basic condition give it in time to its purpose. This means that the information should concentrate the big amount of information in usable parameter in the management of the insurance company, to allow currently originated big amounts of data to be transformed into something

transparent in such a way that the basic and valuable information to be stored and used for taking the right decision. From the available information we must extract the one that can help to determine the main dependencies, regularities, tendencies, structures when taking decisions for a particular problem. The information system must find the optimal solution – to determine the best arrangement and gradation of the information, which will allow the management to take the best insurance-technical decisions. To achieve that the goal the informatics specialists must be well grounded in not only the casual connections and hierarchical relationships, but to have a solid knowledge, strategic skills and abilities to compare them to particular categories (values, staff, level of management, strategies, concepts, prognosis and so on). The more independent they operate in compressing of the present information to a level necessary to take decisions, the more support they give to the managers and increase their level of security when making decisions.

In the most general plan the computer information system in an insurance company should execute the following functions:

- Collecting and registering of the necessary initial information;
- Preparation of the outgoing information with all of the necessary data;
- Introduction of that information in the system for processing;
- Revision of the data in suitable for use by the ruling system;
- Extraction of the resulting information molded in references;
- Suggesting managing decisions for the insurance activity;
- Transferring of the decisions to the ruled system;

- Monitoring of the implementation of the decisions and tracking of the obtained results;
- Keeping of the information which is necessary for repeated use, for following processing's or for archive.

Such succession in the transforming of insurance information, imitates the traditional process of its processing. But these basic procedures of CIS are carried out with in principle new methods. The new means and methods put new requirements to CIS as regards organization, safe-keeping and using the information for different purposes.

CIS must serve all functions of management [1], it should satisfy the information related needs of all organizational-structural sections and to provide accurate and in time control, evaluation, collection, transferring and processing of the insurance information in certain ways with the aim to support certain parameters according to beforehand developed purposes, conditions and set-ups. This information system should also provide information, which cannot be received during the process of immediate observation and evaluation.

We are talking about the formation of the information through performing of calculations, economical evaluations and analysis, comparisons and extrapolation of the data. Simultaneously with that is necessary to be provided the obtaining of the information, necessary for the management of the risk and modeling of the economical processes. And at the end, CIS should considerably improve using of the insurance information at all levels of the management system.

### III. Modules

Each computer information system consist of related modules. It is important the planning of the connection between them, with the aim to uncover the logic in their construction and in the system as a whole. In CIS as whole are two main types components: modules (subsystems) and elements.

The module is a part of the computer information system, rallying uniform activities and tasks, which are included in it, through information they are connected with the other parts and each can be viewed as a separate system. This aggregation of activities and tasks refers to the different functions of management and is characterized with unity in the aims and the directions of use of the results from the functioning of the modules in the process of the management. From the view of functional evidence, there can be defined the following subsystems of the computer information systems in the insurance companies:

1. *"Methodology, planning and analysis"*. The main functions and tasks, which the subsystem execute are related to processing of the information connected with the development of unifying methodology and the creation of internal standard rules of the company, improving and reorganization of the organization structure, of the functional and territorial organization of the activity, with development the problems of the tax policy, the model of the financial relationships between the organizational-structural parts, the standards of the support.

2. *"Actuary and innovative politics"*. In the reach of this subsystems is included the processing of the information for the creation of the endurance terms, taxes, and coverage of the different insurance branches and types

of assurances, of insurance-technical plans on separate types of assurances, insurance calculations, evaluation of insurance reserves according to standard rules and insurance-mathematical and actuary basics, observation and learning of the changes in their in their values, collecting of statistical and other information for the insurance, support of the information base, preparing of analysis of the condition of the insurance wallet, of the necessary tables of mortality, invalidization and illness, outlook planning and forecasts of the lines of development if the insurance business and other.

3. *"Marketing, advertising and PR"*. The information is processed in the subsystem is connected with organizing, realizing leading of the activities related to insurance marketing and advertising of the insurance products, with the aim to reach as fast as possible to the potential and real customers.

4. *"Insurance"*. In the compass of this module is the processing of information about organizing, keeping contacts and realization of direct sells of the separate types of insurances of physical and juridical countenance, for research and analysis the search of insurance products, for uncovering the need for creation of new insurance products, combinations and coverage of separate types insurances.

5. *"Administration and payments"*. This module is processing information related to organization and realization of the whole executive and management activity, connected with administration of insurances and payments in the frame of the insurance company.

6. *"Finances and book-keeping"*. In this module of computer information system is realized the automated processing of the

information related to organizing, realizing and administrating of the whole financial, control, investing and survey activity of the company. In this module can be recognized three subsystems:

- Survey activity of the company;
- Internal financial control;
- Investment of the assets.

7. *"Juridical"*. In the juridical module is processed mainly juridical information, related to organizing, management, juridical support to other units in the company for the right, expedience and lawful execution of the activities and tasks, with development of projects for the valuable internal rules and other documents, with the presentation of the company to the juridical system, with taking the necessary measures for collecting of the takings of the company, giving opinion related to requests and litigations of the assured, with creating of contracts, signed from the insurance company and the monitoring of the execution.

8. *"Risk management"*. The insurance as an activity is related with a lot of risks and they must be in the focus, so they can be efficiently managed. With the help of the risk management can be achieved useful results in the insurance activity, but not the impossible because a list of risks cannot be researched, controlled, limited and avoided.

#### IV. Examples

From fundamental matter for the activity of each insurance company is the information system and applicable products for the functioning of the continuous exchange of data, between the headquarters and its branches. As an example we can

take a look at the information system of ZK "OREL" PLC.

In the company have been created internal network, which is special purpose, because it covers the exchange of data of special company.

These are undivided local networks, each office has a central computer, with installed Windows NT, as an operational system and modules, which are installed when the system has a network adapter installed. The network is defined as middle speed network. The data is transferred directly – it is send in raw format, on additional workplaces, accountants, technical staff, analysis's and so on., whom are related to processing of the received policies, rudimentary account papers, requests, size of damages and so on.

The activity of the company requires critical information to be accessible for the internal users, but also for the remote offices, management and separate units. The biggest importance has the politics of the company about the security, determining the defense and distribution of the information. The resources, which should protect the holding are: processes, files, data transferred through the network. The processes, files and data transferred through the network are independent categories. While the processes can be separated by its purpose, the files and data transferred through the network can be accessed through processes only. On the other hand, be one process can be activated it should be saved in a file. Here the exception is the physical attack, during which the files and the data, which are transferred through the network can be accessed without an access to a process. Evaluating the breakthroughs in the network security of the company, leading

to extremely negative results, like loss of data and the costs related to their recovery, the loss of clients and more particularly destroying the image of the company the following measures should be taken:

- Protection of the internal network from unauthorized access.
- Secure Internet connection and remote access.
- Providing an opportunities for receiving data from remote offices through Internet.

The current network security system compass the following elements:

*Protection from penetration.* Regular testing and monitoring of the condition of the security systems, which provided with monitoring of the vulnerability. The can proactively identify the weak spots in the network, while the penetration defense systems monitor and can react adequate to the security related events. So the specialists in the holding receive visual information, for the flow of network data, but also for the condition of the network security.

*Confidentiality.* Protection of the information from tapping and forgery, which is provided from two mutually complement architectures. MPLS based virtual private networks, providing confidentiality through separating of the traffic. IPSec VPNs, which uses series of flexible mechanisms for encryption and tunneling of IP network level. These architectures allow effective management, scalability, and provide reliable business transactions over the Internet.

*Security of the perimeter.* This element compass the means for monitoring the access to encrypted network applications, data and services. It is executed from routers

and commuturs with monitoring access lists and firewalls for condition checks. Identification. This element compass means for recognition/identification of network users, hosts, applications, services and resources. Standard technologies. Including authentication protocols like RADIUS, TACACS+ and Kerberos, also and devices for integration of one time passwords, IEEE 802.1x access control, digital certificates and smart cards.

*Management of the security.* The means for centralized management of devices, configurations and security are particularly necessary during growth of the size and complexity of the network. It is realized through improved means, which use browser based user interfaces .can determine, apply odit the condition of the security policy .For the network security the company uses the services of Cisco Systems.

The successful development of the modern company requires active presence in the Internet .This is extremely important for the analyzed company, because it produces and popularizes the services for the customers. The effective presence in The Internet is secured from the fact, that the company wisely uses all elements of the communication field – aggregate of instruments for information influence over the target group, directly or indirectly creates the image of the holding and influences all elements of the business.

The big insurance companies know the benefits of using flexible, newly introduced software system. All companies, which are looking for modern solutions and packages, which fully support their business, but also has the flexibility to encourage satisfaction of the future requirements, will find in INSYS one really unique solution for

management of the insurance business. While the other insurance systems cover one or two functional needs – like for example insurance, claiming or over insurance – INSYS covers all aspects of the insurance business, vertically and horizontally. INSYS is a result from 14 year process of development and continuous improvement, executed from highly skilled specialists in the computer technologies area, insurance, accounting and all practical areas of application. The sixteen successful introductions in use in Bulgaria, Romania, Greece, Slovakia, Hungary, Dubai and Italy led to functionality, power and security of the system. It include all necessary actuary calculations and surveys. INSYS is extremely flexible and has very good possibilities for configuration, which allow to be achieved the specific product and administrative rules of the insurance company.

## Literature

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