

Modeling Business Processes of the Social Insurance Fund in Information System Runa WFE

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Abstract. Introduction – Business processes are gradually becoming a tool that allows you at a new level to put employees or to make more efficient document management system. In these directions the main work, and presents the largest possible number of publications. However, business processes are still poorly implemented in public institutions, where it is very difficult to formalize the main existing processes. Us attempts to build a system of business processes for such state agencies as the Russian social insurance Fund (SIF), where virtually all of the processes, when different inputs have the same output: public service. The parameters of the state services (as a rule, time limits) are set by state laws and regulations.

The article provides a brief overview of the FSS, the formulation of requirements to business processes, the justification of the choice of software for modeling business processes and create models of work in the system Runa WFE and optimization models one of the main business processes of the FSS. The result of the work of Runa WFE is an optimized model of the business process of FSS.

1. Introduction

Application of modern methods and information technologies required for the effective solution of problems arising in connection with the description, design, modeling, analysis of business processes (BP) for the effective development of the enterprise. For this you can use existing tools and technologies to save resources of the enterprise while solving the tasks.

One of the most common tools is the methodology of the SADT, which includes a number of IDEF models. Yet another way organizations manage business processes in organizations is the use of BPMS (Business Process Management System) is a system for managing business processes.

The objectives of the use of such systems are improving the quality of drafting of business processes, reduction of time costs, the possibility of monitoring the activities to improve quality management and continuous improvement of internal business processes with their quick changes.

Information technology implementation is RunaWFE – information system management business processes, allowing you to build effective interaction of employees of the organization and to monitor their activities with the aim of improving the quality of the whole organization with the resources of the local computer network of the organization.



The RunaWFE system implements the concept of BPM (Business Process Management) that allows you to build flexible adaptive information systems, able to quickly change with the change in BP organization.

The object of the research institution of the state social insurance Fund, and the research object, the model of work organization in the performance of one of the main business processes.

Building such models will allow you to:

- effectively manage current activities of the organization;
- to ensure fulfilment of services provided to policyholders within specified timeframes;
- to calculate the possible solutions to improve and optimize;
- to consider the necessary number of employees and the ability to reorganize parts of the organization.

2. General characteristics of the organization of the social insurance fund

The Fund is a specialized structure that ensures the functioning of the whole multi-level system of state social insurance. The Fund finances the payment of benefits for temporary disability, maternity, child birth and monthly allowances until the child reaches the age of eighteen months, as well as benefits for burial of the dead.

Also, the Fund is financing SANATORNO-resort service workers and members of their families, children's summer recreation campaign [1]. In 2000, the social insurance Fund began to pay for the damage to victims in the workplace in the framework of a new form of insurance, the Federal law of the Russian Federation [2]. Department of the Fund established in the territories of all subjects of the Russian Federation [1].

In Fund of social insurance of the Russian Federation consists of the management bodies, Executive bodies and controlling (figure 1).

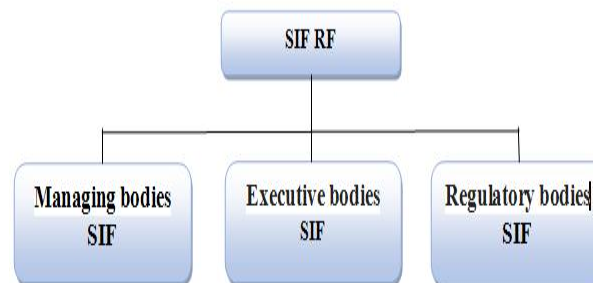


Figure 1. Organizational structure of the FSS

The social insurance Fund supervises the implementation of the budget of state social insurance adopted on a yearly basis the Federal law that controls the use of funds of social insurance. In necessary cases, the Foundation redistributes funds social insurance between regions and industries, supporting financial system stability. In addition, the Foundation develops and implements state program for improvements in social insurance, protection of workers ' health.

3. Business processes

At present, there are many definitions of a business process:

- a set of different activities, in which the input uses one or more types of resources, and as a result of this activity "output" is the product that represents value for the customer [3].
- a set of interrelated or interacting activities that transforms inputs into outputs [4].
- a set of interrelated activities or tasks aimed at the creation of a particular product or service to consumers. As a graphic description of the activities used in the flowcharts of business processes [5].

The analysis of the concepts and related situations, when describing business processes of the FSS, we stopped at a definition [5].

In modeling the business processes of the organization an important part of the information management and resources, the output we receive the necessary information. (Figure 2)

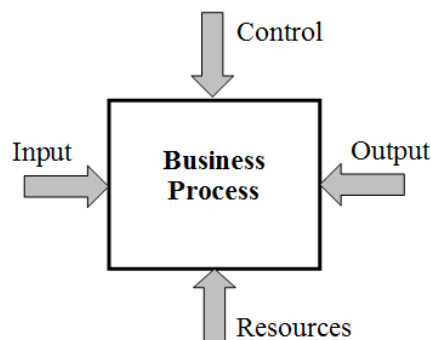


Figure 2. General structure of a business process

The input process receives control information. A resource is a material or informational object that is required to complete the process. Under control action refers to the service resource required for performing the process, but not converted in the course of a process.

The output is converted in the process, the resource. Work with the business processes can be divided into graphical models (schedules) and cost-benefit analysis, in which the modeling of business processes and reengineering [6].

4. Statement of the problem

Statement of the problem is the development model of the business process of FSS. The development is based on applying methods of process management. The manufacturing process consists of many stages and phases, which involved different employees and departments of businesses that require efficient organization, coordination and high speed transmission of information

During planning you need to assess the current condition of the organization through modeling the business processes of the FSS. Take into account the time required to execute the business process. To analyze the model, identify challenges, to improve and accelerate service time policyholders.

The model allows the FSS:

- to define the role of an employee;
- to determine the time required to perform the work;
- to identify problems in the work structure of the enterprise;
- to analyze the enterprise and identify issues;
- formulate objectives to address the identified problems.

When choosing a suitable environment for modeling, you need to compile a list of essential parameters to be met by the system:

- 1) graphical development environment to accelerate the creation of models;
- 2) intuitive graphical interface;
- 3) the possibility of exporting and importing data - communication with other programs;
- 4) the display of information in the Internet;
- 5) speed of work;
- 6) the presence of a constant support system developers.

Also important to the user are ease to understand, learn and use in practice.

5. Simulation of business processes

The main purpose of modelling and simulation tools BP — ensuring understanding at all levels of the organization, bridging the gap between the strategic vision of the organization and practical implementation.

To this end, in modern modeling tools use special languages, understandable and easy to learn and senior managers, including financial Directors, analysts, and managers of IT-departments, each with their vision of solving business problems.

With the help of these languages are constructed graphical models, diagrams, demonstrating, level by level, step by step, as built in the company's business processes, how the interaction between people and what needs to be changed to optimize the architecture of the organization as a whole [10]. RunaWFE-free, end user oriented management system, business processes of the enterprise [<http://sourceforge.net/projects/runawfe>].

The main objective of the system: distribute tasks to performers and control performance. The job sequence is determined by the graph of the business process that a programmer or business analyst can quickly modify using a "development Environment".

The system is open source, which reduces the cost of acquisition and ownership, enables the organization who installed the system, independently to develop and improve. Using variables in a business process is the transfer of information between the executors of the tasks. If variables in the business process to store documents, the system can be used for automating the workflow of the enterprise. [11]

One server runs RunaWFE – server. On client computers, run the customer-notification about incoming jobs, or the browser, which opens the web interface of the system. On client computers can be running the development environment, and simulation of business processes.

RunaWFE contains definitions loaded in it business processes and running instances of business processes. Using web interface system, the user can:

- Receive, filter, perform the tasks generated by the instances of business processes;
- To launch new instances of business processes;
- View the status of running instances of business processes;
- Load the archive files containing the definitions of the business processes in the system.

Using web interface system administrator can:

- Create-delete users and user groups;
- Include (exclude) users in the group;
- To give rights to system objects to users and groups of users;
- To forcibly stop copies of business processes;
- Forcibly stop instances of business processes.

Using a "development Environment" analysts will be able to develop business processes and export them to archive files in file system. With the help of the client-the siren of the job came user can receive alerts about incoming jobs. With the help of simulation of business processes allows to test the developed business processes for conditional configuration on the client computer analyst, not loading them into the industrial system.

The project RunaWFE placed on the website developers, open source software sourceforge at the address. On this site you can download system both in source code and in compiled form, view and send messages in the forum, get acquainted with the latest news on the project. [11]

Modeling business processes in the organization can be directed to the solution of a large number of different tasks:

– Accurately determine the outcome of the business process and evaluate its importance to the organization.

To determine the set of actions constituting a business process. Clear identification of a set of tasks and activities that must be performed, it is extremely important for a detailed understanding of the process.

- To determine the order of steps. Actions within a single business process can be executed either sequentially or in parallel. Obviously, parallel execution, if it is valid, reduces the overall run time of the process and therefore increase its effectiveness.
- Perform segregation of duties: to determine, and then monitor, any employee or division of the company is responsible for the execution of an action or process as a whole.
- Identify resources consumed by a business process. Knowing who uses which resources and for what operations, you can improve the efficiency of resource use through planning and optimization.
- To understand the interactions between participating in the process by employees and departments of the organization and evaluate and then enhance the effectiveness of communication between them.
- To see the movement of documents during the process. Business processes produce and consume various documents (in paper or electronic form). It is important to understand, whence the documents or information flows, and to determine optimally whether their movement and whether they are all necessary.
- Identify potential bottlenecks and opportunities for process improvement, which will be used later to optimize it.
- More effectively implement quality standards, such as ISO 9000 and successfully pass certification.
- Use models of business processes as a guide for new employees.
- Effectively manufacture automation of business processes in General or their individual steps, including the automation of interaction with external environment — customers, suppliers, partners.
- Understand complex business processes, to understand and describe the enterprise as a whole.

In turn, the main challenge when modeling business processes is to describe existing processes for the construction of their models "as is".

For this purpose it is necessary to collect all available information on the process necessary, as a rule, possess only employees directly involved in the implementation process. Thus, we come to the modeling business processes in the FSS environment RUNA WFE e need for detailed survey (interviews) of all involved in the business process employees.

It should be emphasized that only information about the process provided by the head of Department and managers. Usually only the conversation with the employee directly involved in actions in the framework described in the business process, gives a good idea of how the process in reality [10].

6. Modeling business processes in the fss environment runa wfe

In the social insurance Fund studies have been conducted of the business processes. The research was carried out directly observing the work of professionals in the workplace during the working day. In the observation were over-fixed the actions of employees, when taking the insurers, who appealed to the organization to produce public services. Fixed the execution time of each action.

The main objectives of the study:

- The definition of real time required to perform actions necessary to obtain the insurer of the state service;
- Obtaining of initial data for time for rest and personal need and standards of service;
- The study of personal experience of employees at work;
- Determination of the degree of interaction between units FSS

In the FSS organization there are many processes that are associated with only one output - the provision of public services or assistance in obtaining this service. The main business process associated with the admission of the report on form 4FSS and 4AFCC.

The first workflow (figure 3) shows the process of treatment of the insurant in the social insurance Fund for public service.

The insurant must send the report on form 4FSS and 4AFCC executed in accordance with the requirements established by the regulations and orders of the government. Transmission is possible in three ways:

- 1) Personally, at the reception of the specialist in the FSS. On average, delivery of the report will take 10-15 minutes;
- 2) By e-mail, transfer time is 1 minute;
- 3) By mail, transfer time 2 days.

Consider a situation in which the policyholder himself personally goes to the social insurance Fund. If the report finished on time, the technician checks the reports against the requirements, verification takes about 10 minutes. If reports are specialist reports for signature of supervisor, time-7-10 minutes.

After obtaining signatures, the specialist starts processing the report programmatically. Treatment lasts 8-10 minutes. When you put in time and correctly decorated report the time of receiving the state service is 35-45 minutes. If the report is framed is not true, the expert is the necessary requirements (5 minutes) to modify the report.

To change the report, the insurer takes 7-10 minutes. Thus the time the service is 47-60 minutes. In the situation if the policyholder was late or did not pass the penalty, he pays a fine.

Overall, we have 6 possible cases:

- 1) Transfer personally in hands right feature records of 35-45 minutes;
- 2) the Transfer by hand is not correctly drawn up the report 47-60 minutes;
- 3) Transmission by e-mail right a report 26-32 minutes;
- 4) Transmission by electronic mail is not correctly drawn up the report 41-47 minutes
- 5) Transfer by mail correctly drawn up a report from 4 days;
- 6) e-mail is not correctly drawn up the report from 1 week.

From the obtained models it is possible to identify the problems and challenges identified in the first business process:

- 1) Long wait when using email, the minimum time to report is 4 days.
- 2) it is possible to automate the inspection and to expedite the signing of the report. Thus, to reduce the waiting time.
- 3) the ability to change the report if not the correct design directly with the specialist electrician change request.

Options for solving problems and tasks. In the first case, the ability to send report via e-mail, regulated by government decree. Cancel the transmission by mail of the FSS is not entitled. However, due to the long wait by mail, to offer the FSS to inform the government of the Russian Federation on the abolition of reports by mail.

Automate report verification is possible by checking with a computer that will speed up checking in 10 times. To expedite the signing of the report may, if you sign the report directly by the specialist. The opportunity to sign the report due to a specialist can improve his skills. Will reduce the wait time to 10 times. We find that by automating the verification and signing of the report by the specialist waiting time is reduced to 18-19 minutes.

If the report is framed is not true. The policyholder in the presence of a specialist, immediately changes the report. You can use this method in online mode. For example, via Skype. The modification time will be 5 minutes. Imagine a modified model of the business process with all the decisions (figure 4).

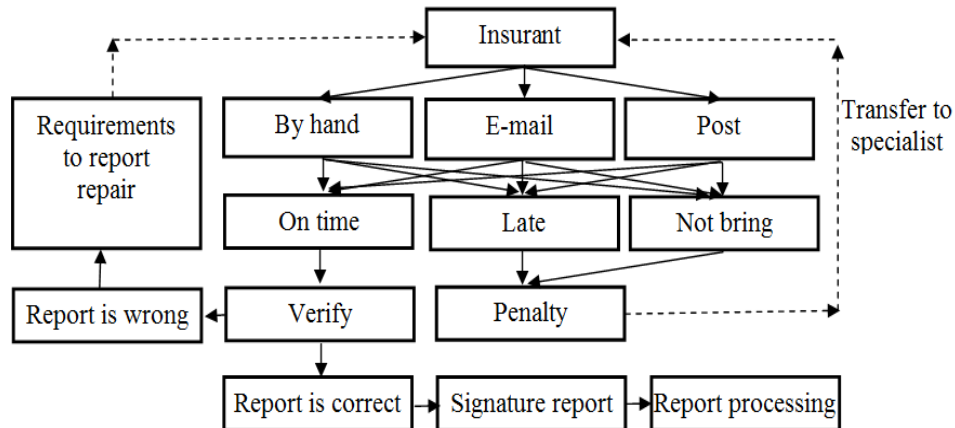


Figure 3. Receive report on form 4FSS and 4AFS

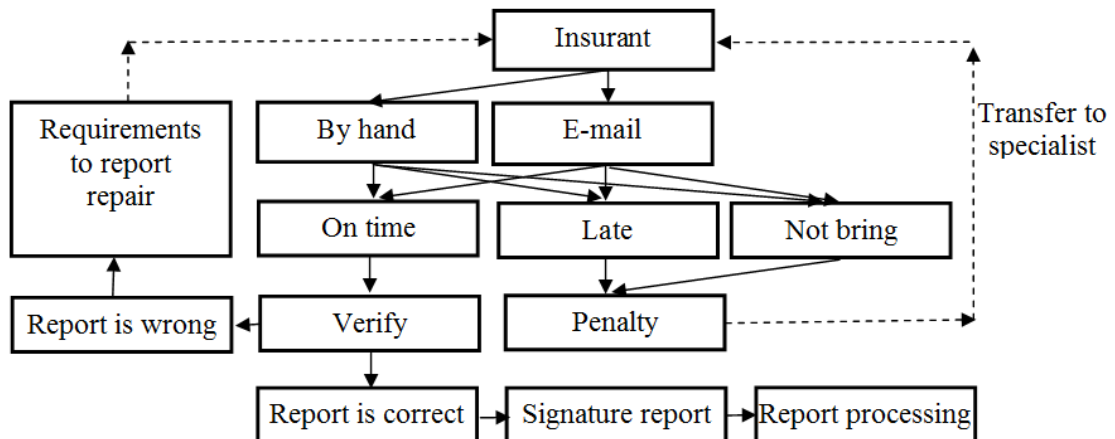


Figure 4. Optimized receipt of report on form 4FSS and 4AFSS

Based on the applied changes, the speed of obtaining service is 25-28 minutes when visiting the insurant FSS and true structured reports. In percentage terms the rate of service receipt increased by 28-37%.

The change in time is presented in figure 5.

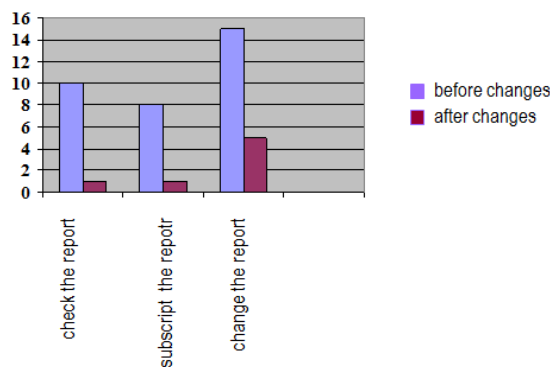


Figure 5. is Graph comparing changes time after optimization

Increase speed to adopt the report will increase the number of insureds; reduce the waiting time to the policyholders in the queue, in the case of a personal appeal in the FSS.

Conclusion

Modeling business processes — a method allowing to build the models describing processes how they are actually using real options, and would take place, using the optimization settings. The model is composed of the problem and objectives of the FSS in the speed of service for policyholders and their number.

In the result of the work the following results were obtained:

1. the analysis of existing business processes social insurance Fund;
2. modeled business processes on the basis of real parameters of the FSS;
3. produced the optimization of the built models.
4. the model proposed for the consideration of the decision of problems and challenges in the social insurance Fund;
5. speed of service increased by 28-37%.

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