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TÍTULO: Automatización de los procesos de actividad de la empresa, usando como ejemplo Llc "Parallax".

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RESUMEN: Se llevó a cabo un estudio de sistemas CRM conocidos para la posibilidad de integración con el sistema AMC para la implementación del proyecto de automatización de la actividad (por ejemplo, LLC "Parallax"). Se revelan las ventajas, desventajas y peculiaridades de estos sistemas. En este estudio hemos descrito las posibilidades del sistema analítico de CRM "Bitrix24" y sus análogos, lo que permite revelar la tendencia de mejora. El proyecto de implementación del sistema CRM "Bitrix24" en la LLC "Parallax" se ha desarrollado, teniendo en cuenta la integración con el sistema de seguridad integrado corporativo existente (sistema de observación de video y sistema AMC).

PALABRAS CLAVES: automatización de la actividad, control de acceso y sistema de control, solución CRM, Bitrix 24, Megaplan.

TITLE: Automation of Enterprise's activity processes (Using as an Example Llc "Parallax")

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ABSTRACT: There was conducted a study of well-known CRM-systems for the possibility of integration with the AMC-system for implementation of the project of activity automation (for example, LLC "Parallax"). The advantages, disadvantages and peculiarities of these systems are revealed. In this study we have described the possibilities of the analytical CRM-system "Bitrix24" and its analogs, allowing to reveal the improvement trend. The project of implementation of CRM-system "Bitrix24" into LLC "Parallax" has been developed, taking into consideration integration with the existing corporate integrated security system (video observation system and AMC-system).

KEY WORDS: activity automation, access monitoring and control system, CRM-solution, Bitrix 24, Megaplan.

INTRODUCTION.

LLC "*Parallax*", founded in 2000, is one of the leading system integrators. As a background it has a great experience in designing, implementing and servicing a wide variety of information and technical systems: complex security systems, information protection, communications, automation, uninterrupted power supply, etc.

LLC "*Parallax*" today has a fairly high reputation and is constantly expanding, developing. This entails an inevitable increase in the number of employees and, as a result, increased control over their performance. The number of customers, production and duties are increasing. In this regard, the company management, which is the leading system integrator, decides to automate the activity processes of the enterprise. For this purpose, problems that can be solved with the help of

automation are identified: slow document flow in the company; lack of a common communication environment between employees; lack of tracking means of the tasks in hand time; chaotic setting of tasks to employees.

The range of the main tasks has been defined that the automation system of activity processes of the enterprise should solve: ensuring of convenient interaction of employees in a single environment; ensuring of control over the fulfillment of assigned tasks; formation of reporting documents on the progress of tasks in a hand; graphical representation of the process of performing tasks in the form of diagrams and graphs; tasking each employee; time tracking of tasks; task ranking.

Processes and objects that should be automated and (or) taken into account in this project are defined: the specifics of each employee's work in the process; functions of interaction with the customer of projects; control over the employees' work performance by the company's management. Ten automated CRM-solutions were developed for the development and implementation of the automation project, such as "*Bitrix24*", "*Megaplan*", "*AmoCRM*", "*SapCRM*" и "*Bmp online sales*", and so on. The main function of the subject area is the organization of a single virtual environment for interaction between employees, the management of LLC "*Parallax*" and its customers in the planning, production and sale of products (services); Integration with the existing integrated security system of the enterprise.

DEVELOPMENT.

Method of research problems.

Aim of the research. Developing of the automation project of the enterprise activity (using LLC "*Parallax*" as an example), based on the results of a study of the application and implementation of access monitoring and control systems and time accounting at enterprises (CRM-solution) and analysis of the existing enterprise management system at LLC "*Parallax*".

Method of research.

Comparative analysis of the functional capability of the five CRM-solutions, developing criteria for selecting these solutions. In addition, a study of five Russian integration platforms was carried out, similar to that chosen for the automation of the “*Bitrix 24*” platform. This allowed to develop a project for the implementation of access control and time management based on the improvement of “*Bitrix 24*” and accounting for the specifics of the automated enterprise at the next stage of scientific work.

Research results.

For effective automation of the enterprise's activity, preliminary analysis of the sources for the application of access control systems at enterprises (Aleksandrovskaya, Afanas'ev and Lisov, 2001, Vorona and Tihonov, 2010; Bonetto, 2017; Kudinov, Sorokin, and Golysheva, 2008) was conducted with an aim of identifying their characteristics in relation to the management of the enterprise as a whole. It has been revealed that automation and technical safety issues are getting more and more attention every year (the market of access control systems grows by 25% annually), the number of Russian specialists working in the field of technical security is also growing (Shabalin, 2010; Dautov, Puryaev, and Sotnikov, 2017).

On the basis of the conducted research we came to the conclusion that it is necessary to introduce complex enterprise management systems, which are based on the integration of *CRM* and *AMC*-system. The paper presents the functional capabilities and characteristics of integrated systems based on the *CRM*-system of “*Megaplan*” (Baranovskaja, Loyko, Semenov, and Trubilin, 2003).

In this paper it is proposed to create a single information base (automated control system), which includes access control system, time recording system and information cluster in the form of a server group. This will ensure guaranteed fail-safe operation of the enterprise information system with specified levels of availability, reliability, security and manageability. The software “*Bitrix24*”

(CRM-system) was used as a basis for the developed information base for LLC "Parallax". During the market research there were previously reviewed five CRM-systems, such as "Bitrix24", "Megaplan", "AmoCRM", "SapCRM" и "Bmp online sales". The analysis consists in considering all the functional capabilities of each CRM and identifying their specialization. A comparative analysis of the functional capabilities of the CRM-systems studied is presented in Table 1.

TABLE I. Characteristics of CRM-systems

Characteristics	"Bitrix24"	"Megaplan"	"AmoCRM"	"SapCRM"	"Bmp online sales"
Customers	+	+	+	+	+
Contacts	+	+	+	-	+
Employees	+	+	-	+	+
Business partners	+	+	-	-	+
Transactions	+	+	+	+	+
Events	+	-	-	-	+
Reports	+	+	+	-	+
Calendar	+	+	+	+	+
Documentation	+	+	+	+	+
Photos	-	+	-	-	-
Messages	+	+	-	-	-
Processes	+	+	-	-	+
Synchronization of email accounts	+	-	-	-	+
Mobile version	+	+	-	+	-
Integration with the site	+	+	+	-	+
Tasks	+	+	+	-	+
Accounts	+	+	+	+	+
Reminders	-	+			+
Cloud storage	+	-	+	-	-
Leads	-	+	+	-	+
Orders	-	+	-	-	+
Products	-	+	-	-	+
Sales	-	+	+	+	+
Analysis	+	+	+	-	-

It was found that “AmoCRM” is effective for organizations of a small size. “Megaplan”, “Bitrix24”, “SapCRM” и “Bmp online sales” – these are solutions for big companies, but their functional capabilities are different. “Bmp online sales” is considered to be the most difficult in learning but the most functional one. For LLC “Parallax” the key elements are mobile version of system and cloud storage, and it was determined to use software application “Bitrix24” with high priority for automation of company activity.

In the course of the study, five more Russian analogues of the “Bitrix24” system were identified and a comparative analysis was carried out for a detailed list of the system selection criteria. The results of the analysis are presented in Table 2.

TABLE II. Comparative table of system “Bitrix24” analogues

Criterion	<i>Webasyst</i>	<i>IBN</i>	<i>Team- tools</i>	<i>Work- section</i>	<i>Planfix</i>	<i>Bitrix24</i>
Volume of the system functional	+	+	-	+	+	+
Speed of work	+	+	-	-	+	+
Design	+	-	-	+	+	+
Connecting clients to the system	+	+	-	+	+	+
Combining employees into groups	+	+	+	+	+	+
System of notifications by e-mail	+	+	+	+	+	+
Delineation of access to projects	+	+	+	+	+	+
Presence of essence "Task"	+	+	+	+	+	+

Nesting of tasks	-	+	-	+	+	+
Ability to point the exact execution time out	+	+	+	+	+	+
Task Status	+	+	+	+	+	+
Task Templates	-	-	-	-	-	+
Notification of assigned task	-	+	+	+	+	+
Accounting of working hours (Time Tracking)	-	+	-	+	+	+
Uploading files	+	+	+	+	+	+
Binding files to tasks	+	+	+	+	+	+
Staff Blogs	-	-	-	-	-	-
Availability of a fully free version	-	-	-	-	-	-
Cost per month (for my conditions)	\$50	\$30	\$20	\$66	\$19	\$77
Free trial period (for all versions)	is not limited	2 weeks	1 month	1 month	is not limited	is not limited for 12 working places

Instant Business Network – is a convenient web-portal for project management and teamwork of company employees over common tasks, processes, documents. *IBN Project Management* includes all the necessary tools for planning, project management and unique means of projects' data exchange with *MS Project*.

Webasyst – is a new generation system that combines a system for creating websites and online stores with corporate Internet, CRM and the ability of developing own applications. *Webasyst* provides ready-made tools for authorizing users, regulating access rights, routing, CSS-tools for creating convenient and pleasant for operating web interfaces fast (Boyko and Savinkov, 2012).

Teamtools – is a business management system that allows you to conduct business and tasks, plan and monitor projects, maintain a customer base, discuss any objects, organize workflow, set up an organizational structure and much more (Brusakova and Chertovskoy, 2007; Bugorskiy and Sokolov, 2007). The *Teamtools* solution allows to implement the following tasks: contact management, history of interaction with customers, contractors, maintenance of tasks and projects, automation of workflow, planning of joint activities.

Planfix – is a collective work management system. *Planfix* allows to set tasks for employees, communicate with customers, work on projects, distribute and track applications. It is suitable for both business and non-profit organizations, public associations.

Worksection – business management system, project management, personnel management, process control system. *Worksection* – is a service for teams that systematizes all information on the project: tasks, deadlines, files and correspondence. The company is divided into teams for which projects are grouped. Each project consists of tasks and subtasks, contains the dates, priority, statuses and notes, as well as files and a discussion tape.

“*Bitrix24*” – is a complete set of tools for organizing the company's work. “*Bitrix24*” helps managers to control the execution of tasks, to prevent violations of employees, to manage documents online for free, with all the advantages of *Google Docs* and *Microsoft Office Online*. The main advantage of “*Bitrix24*” is the availability of mobile version and the possibility of video conferencing. The version works with the using of the Internet and has a full list of functions as in the computer version.

It should be noted that within the framework of this study in order to improve business processes, autonomy, flexibility and limited dependence on direct management have been established, the company's corporate culture has been analyzed; a project for implementing the access and time recording system “*Bitrix24*” in LLC “*Parallax*” has been designed for automation and remote access on the basis of web-technologies. An organizational and economic mechanism for the introduction of the corporate information system was developed, and a timetable for the introduction of the “*Bitrix24*” system was built. The payback period of the project was 9 years. *Net present value (NPV)* of the project implementation amounted to 127 411 rubles, and the *Internal Rate of Return (IRR)* is equal to 15.3%.

CONCLUSIONS.

So, the conducted research of the existing automated control systems (ACS) allowed us to study methods and means of access control and management based on the application of time recording and their coordination in a single information base; use a method to improve the efficiency of enterprise access control and management systems based on methods of systems adaptive organization and access control facilities with high-performance; to form the basic requirements to the introduced corporate system; to identify the advantages and disadvantages of existing ACS; to develop a project for the implementation of the system “*Bitrix24*” in LLC “*Parallax*”, taking into account the peculiarities of the activity, the infrastructure of the company LLC “*Parallax*” and the specifics of its integrated security system. At the same time, the prospective list of equipment based on corporate ethics and the desired results is selected, as the estimated cost of the design solution. The principle of conducting commissioning works on the main installation completion and introduction of software was developed.

The organization of a single virtual environment for the interaction of employees, company management and customers in the planning, organization, production and sale of products, development or integration with the existing integrated security system of the enterprise is increasingly relevant in the context of the development of the global economy, the threat of extremism, radical Islamism and the military threats.

Remote access to the workflow and place in the age of information technology, the development of the digital economy is effective if it is based on the following provisions: autonomy, flexibility of business processes and independence from direct management; presence of a good description of business processes; system of decision-making in the company based on *KPI*; an established system of communication between processes (speed and quality of information transfer); presence of the company corporate culture (principles, rules of behavior) and reliable supporters of this approach. Automation of the processes of the company activity based on Web-technologies is already a necessary reality in the current conditions of activity, and such a project was implemented in LLC "*Parallax*" using the "*Bitrix24*" software application

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