IMPROVEMENT OF BUSINESS PROCESS "DELIVERY"

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Abstract: The tasks of modern companies, involved in trade and service, require mobile solutions in order to automate operations. The development of mobile platform is the priority direction of the modern information systems, because it makes a tangible contribution to the automation of business processes. An employee, working on the road and having a mobile solution, will cope with the task more quickly. He does not need to get to his workplace, in order to enter data into the information base, and view the necessary information, for example, rests in folds and drawing up documents. The following methods for the research of enterprise's activity were defined: the method of comparative analysis, technological approach to business process reengineering. Such methodologies as IDEF0, IDEF3, and WFD were implemented for business processes description. The purpose of the projected information system is the automation of activities, aimed at delivering employees, serving the company, to the client. The defining of subsystems in the information system, using the process-task approach, should be based on business processes. This solution will increase the economic efficiency of information system.
At the moment, there are a large number of companies in the market, which develop mobile solutions, based on 1C: Enterprise. They are the following: Agent Plus, FirstBIT, Agent 5 and others. Despite this, the firms often need special functionality.

Keywords: business process, information system, business process "Delivery", 1C: Enterprise, corporate information system.

1 Introduction

The mobile solution can not completely replace the functionality of the desktop version, but there are many employees on the firms, who do not have full access to all the functionality of the information system, and who spend most of the time on the road, such as couriers, support staff, drivers, etc. These employees can spend a large amount of time and money to get to their workplace, at the beginning and at end of each working day. It can also be noted, that the timely input of data via a mobile device can increase the information content of the company, because the information base will consistently receive data on shipped goods, generated transactions and delivered employees. Thus, the rest of the firm's employees will have more accurate information about stock balances, work done, etc. And this is not the full capabilities of the mobile platform (Eremina, 2015).

2 Methodology

The main task of the CIS is the effective management of all the company's resources (material, technical, financial, technological and intellectual) in order to maximize profits, meet the material and professional needs of all employees of the enterprise.

The Corporate Information System in its composition is a set of different software and hardware platforms, universal and specialized applications of various developers, integrated into a single information-homogeneous system, which solves the unique task of each particular enterprise in the best possible way. That is, the corporate information system is a human-machine system, and a tool for supporting the intellectual activity of a person, who should be able to:

- Accumulate certain experience and formal knowledge;
- Continually improve and develop;
- Quickly adapt to the changing conditions of the external environment and the new needs of the enterprise.

Complex automation of the enterprise implies the transfer to the plane of computer technologies of all the main business processes of the organization. And the use of special software, which provides information support for business processes, as the basis of the Corporate Information System, is most justified and effective. Modern business management systems allow to integrate various software, forming a single information system. This solves the problems of coordination the activities of employees and units, providing them with the necessary information, and controlling the performance discipline. At the same time, management gets timely access to reliable data on the progress of the production process, and has the means to promptly adopt and implement their decisions. And, most importantly, the obtained automated complex is a flexible open structure, which can be reconstructed on the fly, and supplemented with new modules or external software (Eremina, 2014).

If we are talking about a company, where employees often have to work on the road, even with a full-time driver, very often there may be a problem in which the driver can be overworked or vice versa. To facilitate the work, it is possible to add functionality to the operational configuration for entering information by employees about the time and place, where they must arrive, to perform their work duties, as well as output information to the report of the driver, for easy viewing of applications. But here is a problem, which consists in the need for the driver to regularly review information about new applications for the delivery of employees. Every day the driver has to get to his workplace, to view the report on the necessary deliveries, and at the end of the day, he must to enter the information about the work done. If information is available at the beginning of the day via a mobile device, the driver could immediately obtain the necessary information and start working without unnecessary time and resources (Eremina, et al, 2014; Metlenkov, 2018).

The industry of development of automated information management systems was created in the 50's - 60's of the last century on the computers of the first and second generations, and by the end of the century it had acquired completely finished forms. The materials of this manual are the generalization of a series of lectures on Automated Banking Systems (ABS) and Automated Process Control System (APCS) from the Bauman Moscow State Technical University (Eremina & Faizullina, 2016; Villalobos Antúnez, 2016).

Today, two main entities can be identified in the market of automated systems for large corporations and financial-industrial groups: the market of automated banking systems (ABS) and the information systems market of industrial enterprises. Despite the strong interconnection of these two markets of automation systems, the solutions, proposed for them, are not yet sufficiently integrated among themselves. It should be expected in the near future (Eremina, 2016).

3 Results and Discussion

The mobile application, installed on the device, is a collection of mobile platform and information base. The information base on the mobile device contains an analogue of the file database (for storing the data, with which the user works) and a mobile application (program code, running on the mobile device) (Egorshin, 2003).

For automation of BP "Delivery" it would be correct to take a decision on the completion of the functional 1C. With the help of the application for a car, employees will be able to leave an order for a specific date and time. The application specifies the client, the beginning and the end of the event. The description, participants and territory are added. Further, all these orders are formed in the report for the driver, where he can see the list of tasks in chronological order, indicating the territory, participants, etc. Also, in order that the driver does not have to go to his workplace every time and find out the list of requests for delivery, a special configuration will be written on the mobile platform 1C: Enterprise 8. It will exchange data with the central database.

Fig 1 shows the algorithm for solving the task "Application for a car":
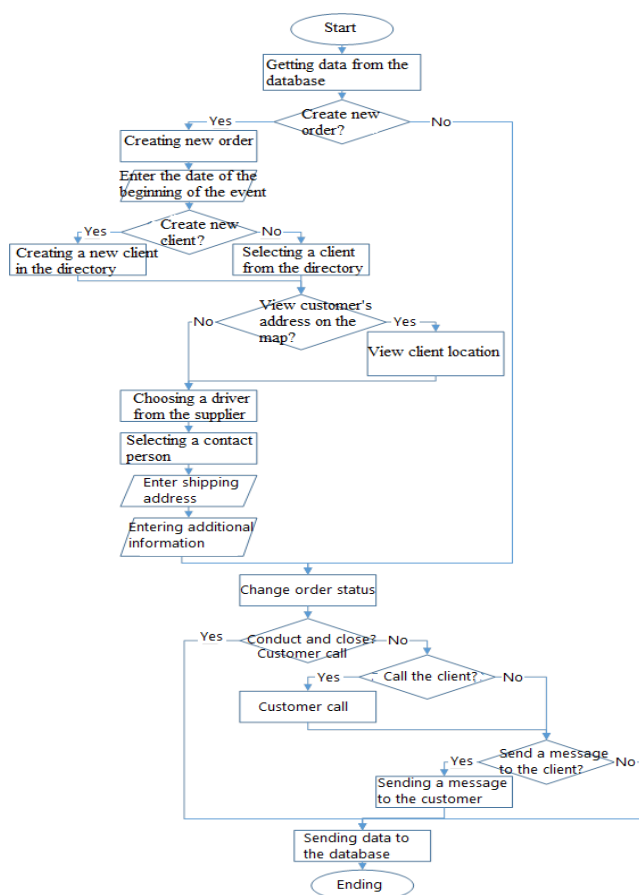
Fig 1. Algorithm for solving the problem

To begin with, you justify the choice of the development environment. According to the experts, now the market for development tools is shifting from specific programs, providing development (compilers, IDE, profilers, etc.), to the systems, which support the entire development life cycle. Put it bluntly, the suppliers tend to invest in their complexes all the tools, necessary for the team of developers, or to ensure convenient connection of other available means. Of course, this is a difficult task, and in its entirety it is almost impossible to solve.

1C: Enterprise, as a subject-oriented development environment, has certain advantages. Since the range of tasks is more precisely delineated, then a set of tools and technologies can be selected with greater certainty. The task of the platform is to provide the developer with an integrated set of tools, necessary for the rapid development, distribution and support of an application solution for business automation. At the same time, individual "details" may be inferior in functionality to universal development tools, and specialized life cycle management tools, used by developers. However, the effect is achieved through the common set of tools and their close integration.

1C: Enterprise platform contains the tools for performing the tasks, such as visual description of data structures, writing program code, visual description of queries, visual description of interface, description of reports, debugging of program code, profiling. It consists of: advanced help system, role-based rights setting mechanism, distribution tools, remote application updates, application comparison and integration, logging and application diagnostics, Web applications and applications for PDAs, support for team development, versioning, etc. Of course, the list of tools, necessary for supporting the life cycle, is not exhaustive, and we have much to develop. For example, in the near future we plan to supply testing management tools (functional and load). By the way, they are created on the platform 1C: Enterprise (Romashova, 2011).

The development in 1C: Enterprise is built on the basis of the general application model, offered by the platform "without fail", i.e. the main and most complex architectural and technological solutions (such as the mechanism of the three-level architecture, the interaction of components, user authentication, etc.) are offered to developers in the finished form.

Also, it should be said about the mobile platform 1C. The mobile platform 1C: Enterprises is a set of tools and technologies for rapid development of applications for mobile operating system iOS, Android, Windows Phone/8.1/10, using the same development environment (configurator) and the same development techniques, which are applied for "ordinary" applications 1C. As a result, offline applications are obtained, but with the ability to exchange information with the outside world, using a wide range of integration tools, provided by the platform: Web and HTTP-services, e-mail, etc. Since the exchange protocols are platform-independent, 1C mobile platform, among other things, is a means of quickly creating a mobile front-end for almost any server solution.

A ready-made solution is a rework for the configuration of 1C and a mobile application. Figure 2 shows the main menu of the mobile application.
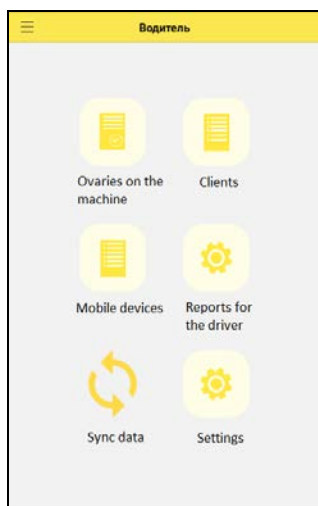
Fig 2. Main Menu

To synchronize the data with the database, you must click the "Synchronize data" button. If the synchronization succeeds, the window will appear, shown in Figure 3.
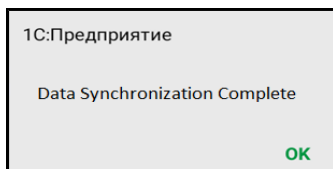

Fig 3. Synchronization

In the "Clients" tab you can see a list of all clients and detailed information about them. You can call them, send sms, and see their location on the map (Figures 4-5).
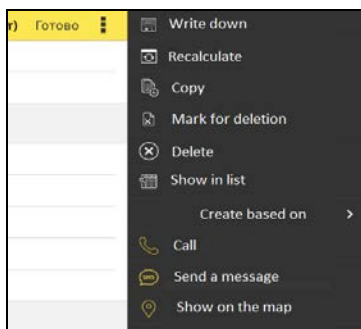
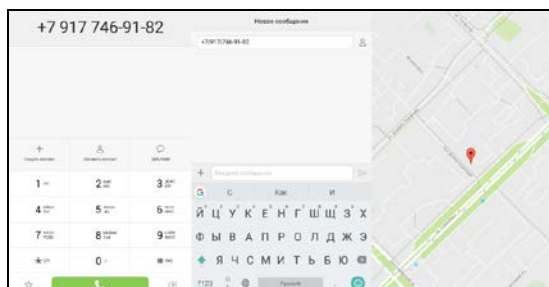

Fig 4. Additional functions

Fig 5. Additional functions

The finished report is located on the tab "Report for the driver" and looks like this (Figure 6).
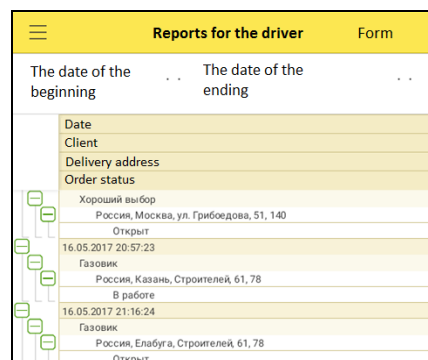

Fig 6. Report for the driver

4 Summary

The organization of business in the modern world increasingly requires the presence of remote users' access to data, and functionality of systems, in order to manage the economic activities of the enterprise.

It can be managers and various executives, who need, without being in the office, to review some important reports and documents quickly, for example, using the smartphone on the way to the meeting (Pletnev & Nikolaeva, 2015).

On the other hand, more and more ordinary employees work on the road with customers - couriers of online stores, sales agents, etc. They should be able to add to the main base the results of their activities quickly (for example, new orders), so that the office does not waited for their return. From the office they can also get some data (documents, reports), which they need in their work.

At the same time, such employees do not need access to a fully functional version of 1C: Enterprise. They only need to have a mobile device (smartphone or tablet), with which they will have a limited range of tasks.

5 Conclusions

The developed application can essentially facilitate the work of employees. By eliminating unnecessary elements in the work, it saves time and money for the company.

Mobile platform – is a special technology, which allows to create applications, running on Android or iOS mobile devices (smartphones or tablet PCs).

The mobile application, installed on the device, contains the mobile platform and information base. In turn, the information base includes an analogue of the file information database, intended for storing user data, and mobile application, i.e. the program code, running on the mobile device.

Acknowledgements

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