

Functional model of information system of facility's business activities

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This article contains the guidelines on how to automate the facility's business activities utilizing information technology and new solution methods.

Keywords – facility, business activities, manufacturing, automatization, product, date, information system.

Introduction

The deepening of Ukraine's political and economic ties with Europe, entering the European and global market by Ukrainian manufacturers lead to the formation of the modern manufacturing and to the product quality improvement and meeting global standards. Currently this is the main task of a company in any industry.

The data processing technologies use the widest and the most advanced range of technical means, especially computers and electronic means of communication. The new computing systems and networks are being created on the basis which enables to automate specialists' workplaces to the maximum extent.

The deepening of approach towards the enhancement of the facility's business activities requires the development of the present and design of the new organizational and economic solutions which should improve the facility's efficiency to the maximum extent, increase its competitiveness and lead to resources savings.

There is, therefore, a need for development of the efficient model of full comprehensive accounting of material assets, costs, end product sales of light manufacturing facility, as well as for creating of the efficient management model for facility's business activities utilizing information system and technologies in a stiff competition environment. Thus, the chosen article topic is actual.

As is known, at present many manufacturing facilities have no or have partial work automation. Hence, the workers have to do the everyday routine activities which could be completed by the computers. The new information technologies give the possibility to automate management operations, to obtain analytic information for decision making.

This article gives the answer on how to improve product sales, costs accounting, and how to automate the process of tasks distribution among the workers.

Aim of the research

The aim of this article is to develop the efficient model of full comprehensive accounting of material assets, costs, end product sales of light manufacturing facility. The aim of this article is to develop the efficient model of full comprehensive accounting of material assets, costs, end product sales of light manufacturing facility.

To achieve the above mentioned aim we have to complete the following tasks:

- study the system of indicators for facility's costs and sales accounting in order to introduce the automatic accounting;
- identify the issues and disadvantages of costs accounting system and of end product sales process;
- justify the usage of information technologies for analysis and for management decision making in the business activity;

- develop the database that would contain the information about leads (for further communication to them), facility's products (for production cost calculation);
- give the guidelines for usage of information system and technologies with an emphasis on customer's need and arranging of goods production.

The functional model of information system

We created the Data Flow Diagram (DFD) to graphically display the automated facility's operation. The DFD is one of the functional models, because it uses the operation as the main unit, while the data acts as the interfaces which connect the operations between themselves. The DFD is widely used to graphically display the data movement and processing.

This model was created using CASE-procedure ERWin (Fig.1).

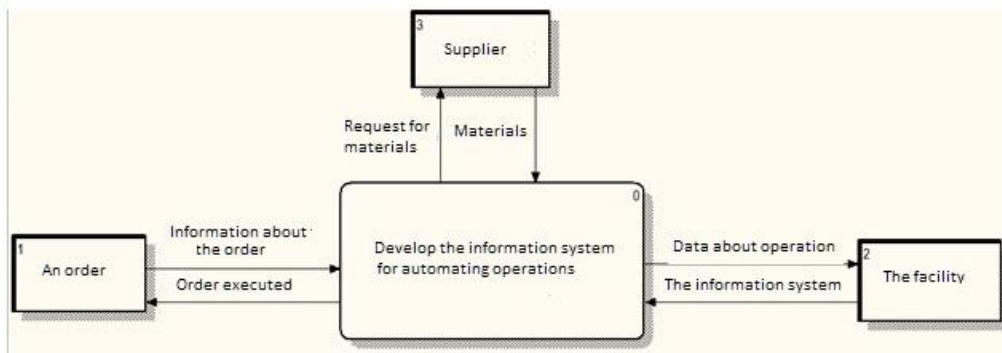


Fig.1. The context diagram of the facility's accounting information system (IS).

The operation «To develop the automated facility's accounting system» takes all the information about the orders which are received by the facility from external entity «Orders». After that the system calculates the number of materials necessary to fulfil the given order. In case of insufficient amount of some material the automated request to the external entity «Materials supplier».

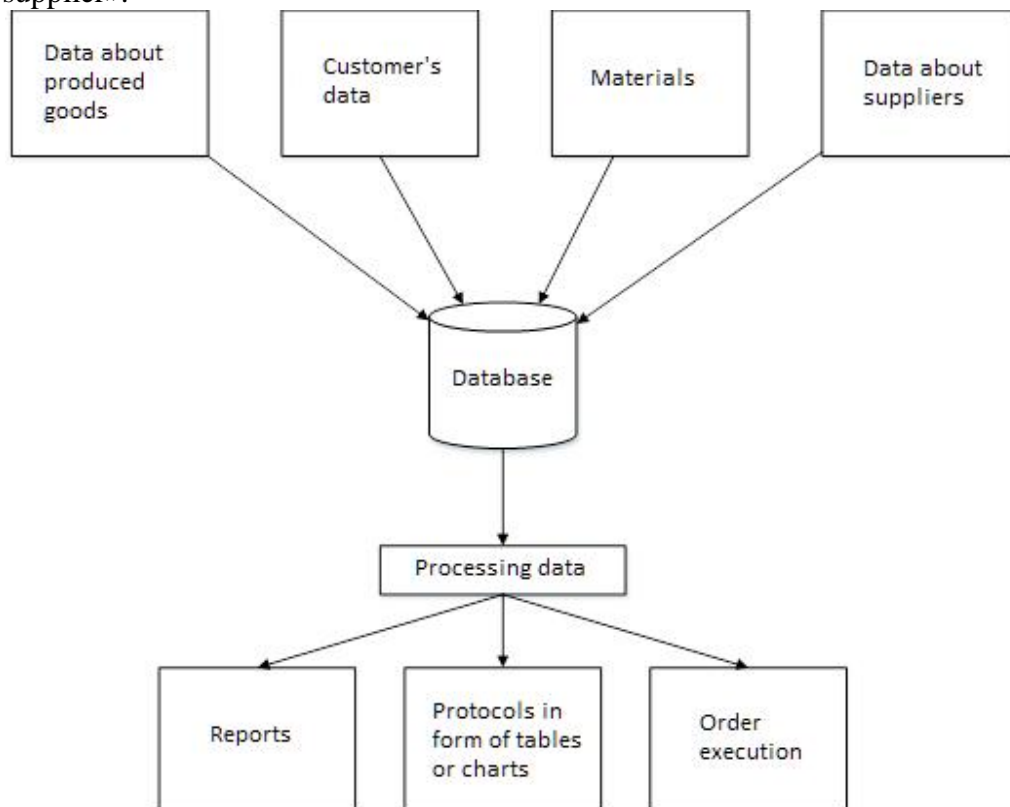


Fig. 2 The functional scheme facility's accounting system

The architecture of the information system of facility's business activities

The usage of information technologies allows to introduce such accounting system in which facility's workers take the minimum part in data processing, monitoring and report generation. The system is designed as a web resource in order to complete the operations in the fastest way.

Fig.2 displays the structural scheme based on the case of the clothing manufacture «Eva-Tekstyl-Ukraine». The information is stored in the database on the web server. The results of the process data are displayed on the web page. The delineation of access rights is implemented – there are several ranks of web system users with the personal cabinets for managers, administrators and the workers.

The web interface of information system analysis is based on CMS WordPress hosted at www.zzz.com.ua (table 1).

The analysis of the reference example

To test the work of the online resource lets take the reference example.

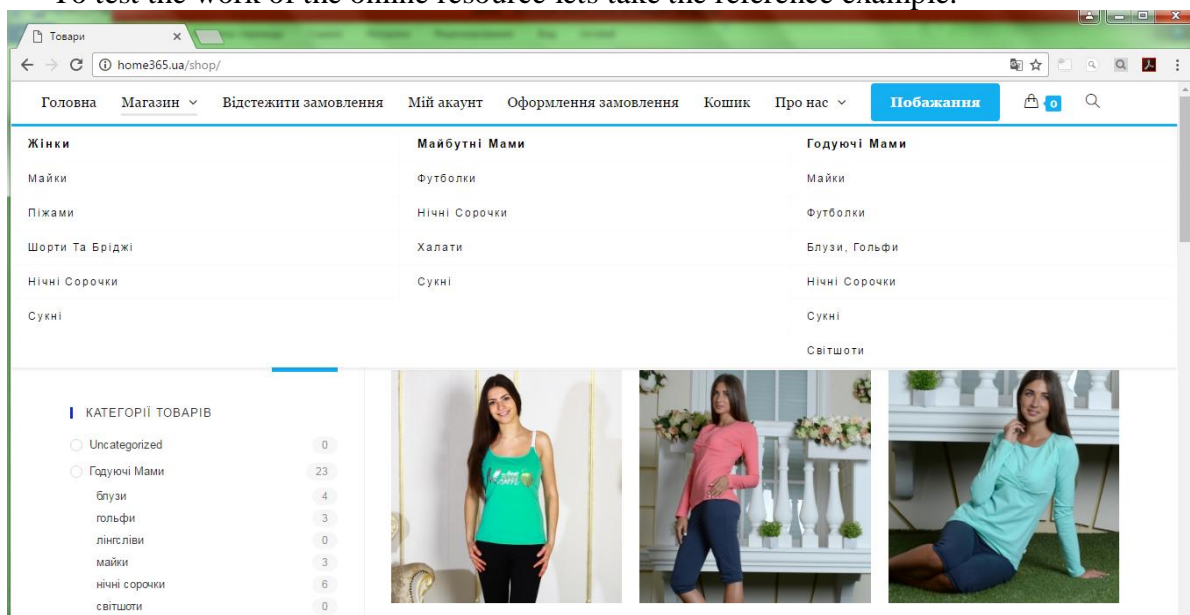


Fig. 3 Company's products

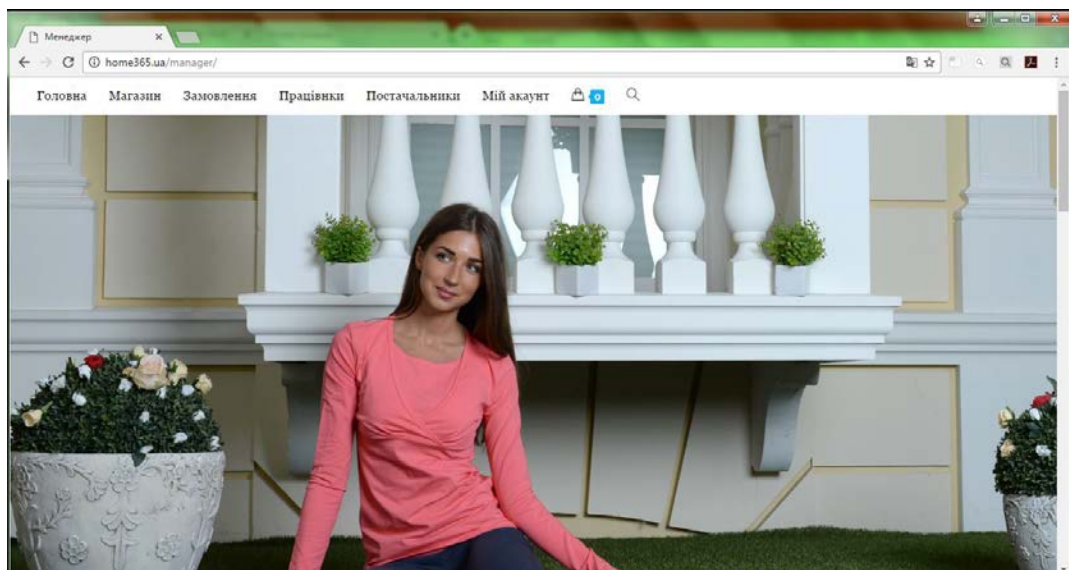


Fig. 4 Manager cabinet

System Software restrictions

Table 1

Web system hosting fetchers

CMS	Web server	Database	Language
WordPress	Apache PHP-7-x64	MySQL-8.0.12 x64	PHP, HTML

The web system consists of the units which are connected between themselves with the help of WordPress content management system. «Authorization» unit is responsible for the delineation of the access rights. «Data input and edit» unit contains templates for entering the information collection of which is not automated at the moment. It also has the feature to edit the data and to correct the mistakes.

All data about the facility's operation is stored online and is given to the workers according to the positions assigned to different types of personal cabinets.

The workers use login and password to enter the personal cabinet. To protect the access to the cabinet the workers are not permitted to disclose this personal information and should log out of the cabinets at the end work day.

To access the online resource the user needs a PC, tablet or a smartphone with the Internet connection and web browser installed.

This resource can be used 24/7.

The restrictions based on the type, length of the data which are customized when the database is created help to avoid mistakes during data input.

Conclusion

The analysis of facility's costs and sales accounting was taken with the aim to organize the automated accounting.

The context diagram was created to display the architecture of the information system on a general level.

WordPress content management system was used as a base's for the development of the information system. MySQL was used as a DBMS. The reference example was given to show how the program works (product web page, manager cabinet).

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