

Tomislav Grladinović¹, Leon Oblak², Miloš Hitka³

Production management information system in wood processing and furniture manufacture

Informacijski sustav upravljanja proizvodnjom u preradi drva i proizvodnji namještaja

Review paper • Pregledni rad

Received – prispjelo: 16. 2. 2007.

Accepted – prihvaćeno: 11. 10. 2007.

UDK: 684.4:[65.012.43:007]

ABSTRACT • Introduction of a production management information system is one of the ways that could help the management to increase its efficiency. It should enable the monitoring of the whole business of a firm through co-ordination in the process of collecting and using information.

Key words: wood processing, furniture manufacture, information system, management, planning, controlling

SAŽETAK • Jedan od načina koji bi menadžmentu trebao pomoći da uspješno realizira proizvodni proces jest informacijski sustav kontrolinga. Spomenuti bi sustav trebao omogućiti praćenje cjelokupnog poslovanja tvrtke uz pomoć koordinacija u procesu prikupljanja i korištenja informacijama.

Ključne riječi: prerada drva, proizvodnja namještaja, informacijski sustav, upravljanje, planiranje, kontroling

1. UVOD

1 INTRODUCTION

The market and a new way of production require fast development of modern management information system in wood processing and furniture manufacture. The role of information and information system in view of firm management is indisputable today. With fast development of information and computer technology, management can reach good and timely information.

The information system can be defined as a group of elements (data, staff, equipment, methods and information) and activities that offer the transformation of data into information and its presentation to the user.

Modern management cannot carry out its basic task without good and timely information on the basis of which business decisions are made.

The superior management of a firm needs chosen information in the process of making strategic decisions. The process of preparing and implementing business decisions requires detailed information on actions, measures and reactions, as well as on results of the measures taken in the shortest possible time. Particularly important is the following: the information on the level of planned and achieved targets of the measures taken within the business policy; planned and achieved economic effects; business results, and the efficiency of individual functions and/or the subsystems of the firm.

¹ The author is associate professor at Department for Production Organization, Faculty of Forestry, University in Zagreb, Croatia.

² The author is assistant professor at Department of Wood Science and Technology, Biotechnical Faculty, University of Ljubljana, Slovenia.

³ The author is assistant at Department of Business Management, Faculty of Wood Science and Technology, Technical University in Zvolen, Slovak Republic.

¹ Autor je izvanredni profesor u Zavodu za organizaciju proizvodnje, Šumarski fakultet Sveučilišta u Zagreb, Hrvatska.

² Autor je docent u Zavodu za znanost o drvu i tehnologiju, Biotehnički fakultet Sveučilišta u Ljubljani, Slovenija.

³ Autor je asistent na Zavodu za poslovni menadžment, Fakultet znanosti o drvu i tehnologiju, Tehničko sveučilište u Zvolenu, Slovačka.

2 INFORMATION SYSTEM IN WOOD PROCESSING FIRMS AND FURNITURE MANUFACTURES

2. INFORMACIJSKI SUSTAV U TVRTKAMA ZA PRERADU DRVA I PROIZVODNJU NAMJEŠTAJA

The business of wood processing firms and furniture manufactures can hardly function without good information systems. This refers to all business affairs and also to individual ones such as bookkeeping and finances, sales, supply, etc. The information system of a firm should be explained in terms of its division into the transaction and corporative parts, both of which form the integral information system of a wood-processing and furniture-manufacturing firm.

2.1 Transaction information system

2.1.1. Transakcijski informacijski sustav

This system has its own institutional frames in terms of positive legal provisions. Therefore it should functionally satisfy all legal standards.

Like any other information system, the transaction system should constitute of the following parts (subsystems, modules):

- Financial bookkeeping;
- Material bookkeeping;
- Production plant bookkeeping;
- Bookkeeping of long-term fixed assets;
- Calculation of salaries and staff files;
- VAT-calculation;
- Commerce (including invoicing).

Any information system that contains the above listed components can be used for making the basic prescribed financial reports by using the available information.

The transaction information system can also function entirely independently in any wood processing and furniture-manufacturing firm without the corporative information system.

2.2 Corporative information system

2.2.1. Korporativni informacijski sustav

Unlike the transaction information system, the corporative one has no previously set institutional frames in terms of positive legal provisions. The corporative information system is created according to the desire and need of the management for different types of information, taking into consideration all specific business features. This means that it differs from one firm to another.

An information system is of outstanding significance for controlling function. An information-oriented concept is of great importance in the development of controlling. It is aimed at coordinating the process of collecting and using information. In practice, controlling is often made by creating an information system that is determined by the needs of the management.

Its basic purpose is to enable the management of a wood processing and furniture-manufacturing firm to carry out faster, better, and more accurately the following business processes:

- Planning of business results;
- Planning of business success indices;
- Monitoring of planned business results;
- Monitoring of planned indices of business successfulness;
- Assessment of planned business results deviations;
- Assessment of deviations in planned business results indices;
- Analysis of causes and consequences of business results deviations;
- Analysis of causes and consequences of deviations in business successfulness indices;

Another task of the information system would be to offer timely and reliable information required by the firm for the process of decision-making.

The information system is incapable of independent work. Its activity is combined with the transaction information system, which constitutes the basic database.

The market supply of the corporative systems (information systems) in terms of computer programmes is entirely different than the one of the transaction information systems. Most information firms offer only various reports on the basis of the transaction information system, while today fewer information firms offer the whole integration information systems. The reason lies in high costs of such systems, and the fact that they are not applicable to all different firms.

The users of such systems are expected to actively participate in designing the system by precisely defining the tasks required from the production management system. The user should have appropriate staff for the project task, and is also expected to personally take part in it, which today is a major issue for most firms.

3 EXPECTATIONS FROM THE PRODUCTION MANAGEMENT INFORMATION SYSTEM

3. OČEKIVANJA OD INFORMACIJSKOG SUSTAVA UPRAVLJANJA PROIZVODNJOM

During the establishment of the production management information system, it is necessary to determine its tasks. This is particularly important for production firms, since every production is specific in its own way. The following three requirements should be met:

- Monitoring of all business plans (the most significant task);
- Monitoring of production through work orders;
- Comparison of planned and consequent calculation.

The listed three requirements are not the only ones imposed upon the information system in wood processing and furniture firms, but are the basic ones that are applicable to all production firms. Every firm can add new requirements to the basic ones, depending on the respective industrial branch and management needs.

3.1 Monitoring of business plans

3.1.1. Praćenje planova poslovanja

Modern management is difficult to imagine without all five manager's functions that constitute the ma-

nagement system. Supplementing one another, its subsystems plan, organise, employ the necessary staff, manage and end up with controlling.

The process of management begins with planning, which is the most important of its functions. At the beginning of each activity there is a plan as the result of the process. The planning process encompasses all decisions that determine future activities and results, as well as corresponding measures for the realisation of these activities and results. A plan is composed of the following: aim, resources, actions, and realisation.

Regardless of the firm's size, industrial branch and type of production, each firm should plan its business. Firms usually make short-term (operative) plans, which encompass a time period of one year (annual business plans). Accordingly, the first task of the production management information system of wood-processing and furniture firms is the monitoring of annual business plans. Annual business plans refer to the following:

- Marketing
- Sales
- Production
- Investments
- Staff
- Material and other business costs
- Profits and losses
- Balance sheet as at December 31
- Liquidity
- Business success indices.

Annual business plans should be controlled. This task consists of comparing the planned values with the realised ones. If undesired deviations from the planned values are established, corrective actions are taken in order to realise the planned values. The production management information system should enable the monitoring of all listed annual business plans by comparing the planned values with the realised ones. The monitoring of annual business plans is carried out through reports obtained through the information system.

Another requirement to be met by the production management information system is the monitoring of production via work orders. Since a work order contains data on all resources spent by the production process, it can be used to establish the production costs for each product. The management should be capable of production monitoring through work orders, in order to have all the information on production plant costs necessary for their management. Cost monitoring is the first step in the process of reducing production

costs. In order to decrease a value, we need a system of measuring and comparing costs. Production firms usually have a work order that is calculated within the plant bookkeeping.

3.2 Monitoring of planned and consequent calculations

3.2. Praćenje planske i naknadne kalkulacije

By calculating the work orders, a detailed analysis is obtained of all direct and indirect costs, which enables another step, comparison of planned and consequent calculation. It should show the deviation of the realised from the planned. Accordingly, the third task of the production management information system is the monitoring of planned and consequent calculation.

The monitoring of planned and consequent calculations should enable the management to accurately establish the deviations of the realised costs from the planned ones per type and place. The management will thus obtain precise information on any deviations from the plan, which will help the management to take the corresponding corrective measures in case of increased production costs.

The comparison of planned and consequent calculation is usually made so that the calculated work order is compared with the planned calculation. Possible deviations are calculated manually and added to the planned calculation or work order. Such method is not reliable, and can produce certain errors in the procedure of comparing planned and consequent calculations.

Unlike the above comparison, the information system should enable the monitoring of planned and consequent calculations, so that both the monitoring and comparison are carried out fully automatically. This means that users need not write down any additional data or calculate possible deviations. Instead, it is entirely done by the computer programme.

While working on this report, the following specific features should be taken into consideration:

- The planned calculation is always made for the quantity of one product, regardless of the unit of measure. Accordingly, the comparison of planned and conse-

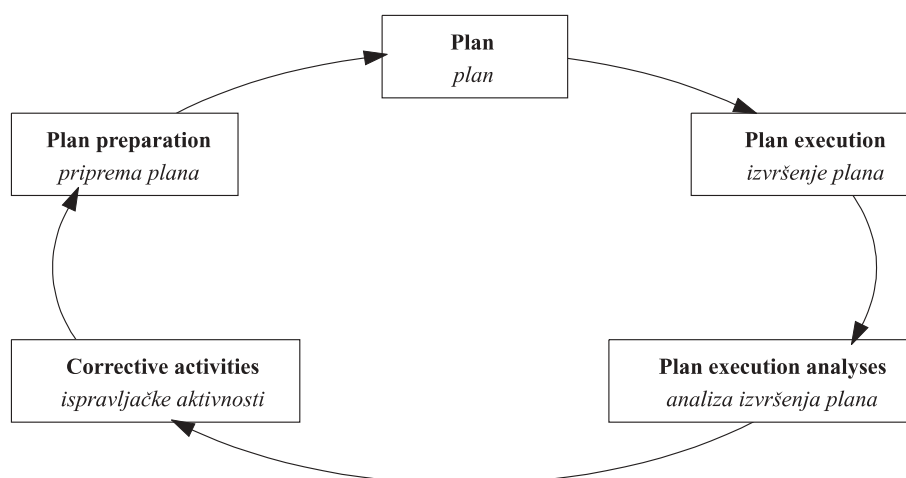


Figure 1 Connection between planning and controlling
Slika 1. Povezanost planiranja i kontrolinga

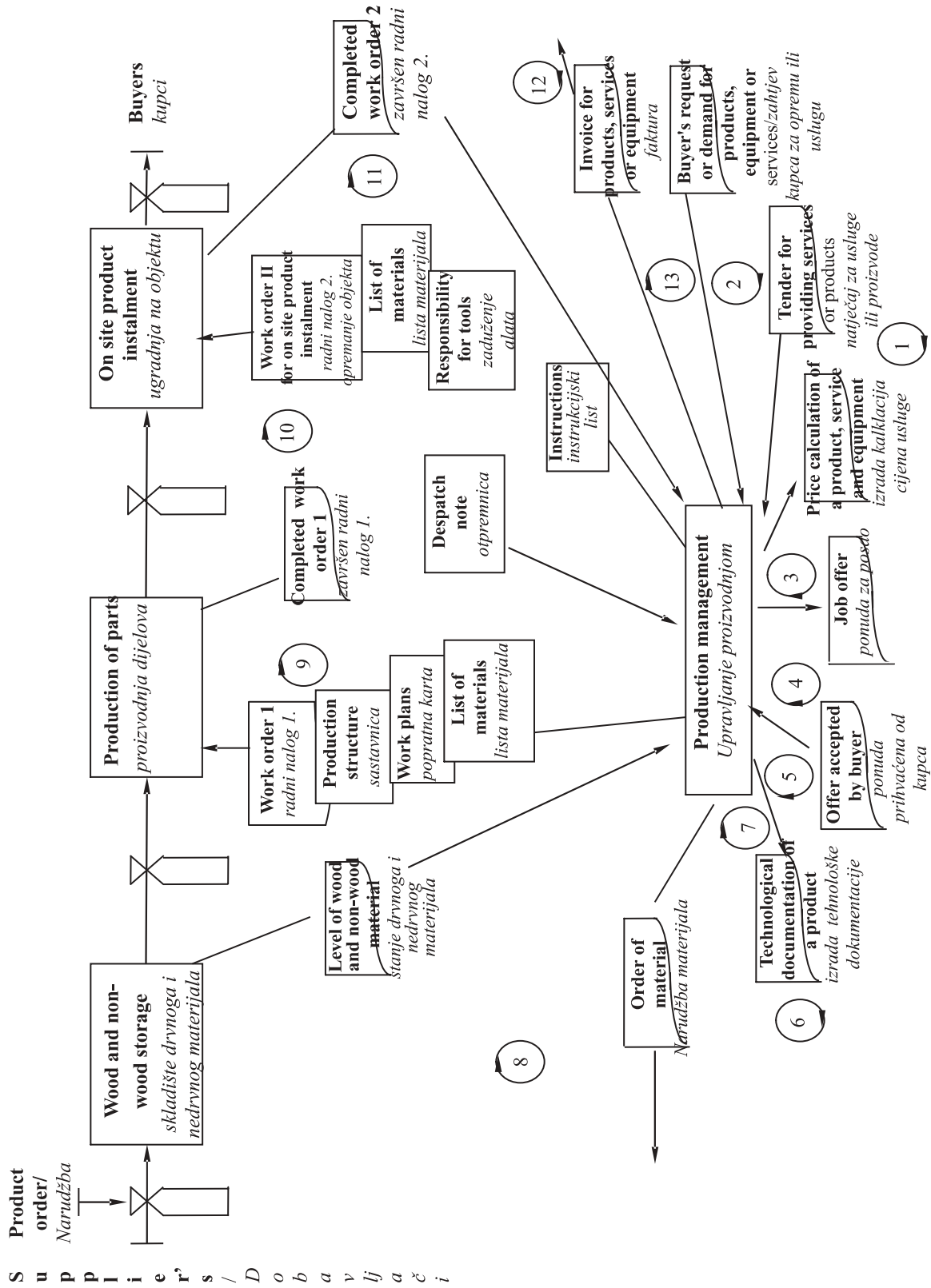


Figure 2 Information systems in wood processing firms and furniture manufactures
Slika 2. Informacijski sustav poduzeća za prerađu drva i proizvodnju namještaja

5 CONCLUSION

5. ZAKLJUČAK

Successful management of a firm requires different types of information. The part of information that refers to business monitoring should be checked, accurate, and timely, in order to serve the management in making good business decisions.

The information on monitoring business activities in a firm to be used by the management can be obtained by the production management information system. The exhausting manual work on copying, correspondence, calculations and data inputting can be transferred to the computer, minimizing the possible errors of data processing.

Based on the information contained in different reports obtained by using the production management information system, the management will have the following possibilities:

- Manage business results instead of expecting them without having any influence on them;
- Take timely corrective measures for achieving the planned business policy objectives;
- Make good business decisions based on timely and reliable information.

The final result of the information system in wood processing and furniture manufacturing firms is the information presented through reports to the users at all management levels. The reporting system is the final result, the last link of the information system. Its quality will depend on the quality of preceding transaction information system.

REFERENCES LITERATURA

1. Aláč, P.; Hitka, M.; Rašner, J. 1997: Logistic information system – a part of successful firm's strategy. Interkathedra 2003 Economic Forum 2003, International Scientific Conference, Builten of Plant, Economic Departments of the European Wood Technology, University Studies, IATM, Poznan, 23 – 29.
2. Avelin - Holjevac, I. 2004: Planiranje i kontroling, RRIF, 8(10): 66 – 69.
3. Bolfek, B. 2004: Zahtjevi informacijskom sustavu kontrolinga, RRIF, 8(3): 56 – 62.
4. Demoč, V.; Aláč, P.; Nič, M. 2004: Proposal of the methods of supplier selection for the information system application. Science book "The growth and development in forestry and wood industry", Forestry Faculty of Zagreb University, 27 – 32.
5. Demoč, V.; Aláč, P.; Hitka, M. 1999: Significance of information and information system. Science book "Development trends in production management for forestry and wood processing", Forestry Faculty of Zagreb University, 149 – 154.
6. Demoč, V.; Petruš, P. 2004: Development trends of information systems for the elaboration of investment project.

- Interkathedra 2004 Economic Forum 2004, International Scientific Conference, Builten of Plant, Economic Departments of the European Wood Technology, University Studies, IATM, Poznan, 43 – 49.
7. Drábek, J.; Sedliačková, M. 2003: Miesto a úloha finančného controllingu v štruktúre podnikového controllingu. Medzinárodnej vedeckej konferencie Ekonomika a manažment podnikov, Technická Univerzita vo Zvolene, Drevarská fakulta, Katedra podnikového hospodárstva, IATM, Zvolen, 17 – 22.
8. Hitka, M.; Rajnoha, R. 2004: Zvyšovanie produktivity práce správnou metódou výberu zamestnancov controllingu priemyselných podnikov. Produktivita, Slovenského centra produktivity, SLCP 4/.
9. Majdandžić, N. 1994: Komputerizacija poduzeća, Strojarski fakultet u Slavonskom brodu, Slavonski brod.
10. Osmanagić-Bedenik, N. 1998: Kontroling: abeceda poslovnog uspjeha, Školska knjiga, Zagreb.
11. Osmanagić-Bedenik, N. 2002: Operativno planiranje, Školska knjiga, Zagreb.
12. Rajnoha, R. 2002: Nákladové účtovníctvo a controlling a ich špecifiká v transformujúcich sa ekonomikách. Medzinárodnej vedeckej konferencie Ekonomika a riadenie podnikov drevospracujúceho priemylu v tret'om tisícročí, Technická univerzita vo Zvolene, Drevarská fakulteta, Zvolen.
13. Rajnoha, R. 2001: Instruments of the strategic controlling and possibilities of its application under conditions of wood industry. Interkathedra 2001 Economic Forum 2001, International Scientific Conference, Builten of Plant, Economic Departments of the European Wood Technology, University Studies, IATM, Poznan.
14. Rajnoha, R.; Sujová, A. 2004: Condition of transfer to project management using process approach – on the example of chosen wooden firm SR. Interkathedra 2004 Economic Forum 2004, International Scientific Conference, Builten of Plant, Economic Departments of the European Wood Technology; University Studies, IATM, Poznan.
15. Rašner, J.; Rajnoha, R.; Sujová, A. 1999: Management, costing and budgeting on the process basis. Science book "The growth and development in forestry and wood industry", Forestry Faculty of Zagreb University, 73 – 78.
16. Reichmann, T. 1997: Controlling, concepts of management control, controllership and ratios, Springer - Vrlag, Berlin.
17. Sujová, A. 2004: SWOT analysis – information support for building development strategy of the Slovakian wood industry, Drvna industrija 56(4): 199 – 207.

Corresponding address:

Assoc. prof. TOMISLAV GRLADINOVIĆ, PhD

Department for Production Organization
Faculty of Forestry
University of Zagreb
Svetošimunska 25
HR 10 000 Zagreb, Croatia
e-mail: grladin@sumfak.hr