

THE DEVELOPMENT OF MANAGEMENT/INFORMATION SYSTEM IN SMALL WOOD PROCESSING COMPANIES

T. GRLADINOVIĆ¹, M. PLENKOVIĆ² and V. GRBAVAC³

¹ Faculty of Forestry, University of Zagreb
Šumarski fakultet Sveučilišta u Zagrebu

² Faculty of Political Sciences, University of Zagreb
Fakultet političkih znanosti, Sveučilište u Zagreb

³ Faculty of Agriculture, University of Zagreb
Agronomski fakultet Sveučilišta u Zagrebu

SUMMARY

In the contemporary economy, both the world market and new production methods impose fast development to small wood-processing firms. The modern world market demands products of wide and adaptable assortments, small and changeable quantities (frequently unique examples), and high quality, all facing severe competition. The concept of modern production philosophy may be realized by establishing smaller companies with more flexible, wide production programs. The market and new production methods impose fast development of the management information system in small wood-processing companies. Accordingly, the management system must create a more unified, faster and simpler work supported by information technology. The field of production management and business is exceptionally significant for all wood-processing companies. It can survive and progress only if it is being managed, provided that future behaviour is predicted and accordingly directed. Proper choice of the suitable planning and production management system will lead the company toward higher efficiency. The paper illustrates a rational management/information system for small wood-processing companies, consisting of basic documents by which it is possible to control the production and business in such companies in more rational and efficient ways. Supported by information technology and software packages, this proposal can rationally control the whole logistic system of small wood-processing companies.

Key words: wood processing, company size, company, management system, information system

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1. INTRODUCTION

The current process of changing the production systems and market impacts on manufacturers can also be seen in our wood-processing companies. Today's market and fast changes, wide production programmes and flexible technologies require smaller wood-processing companies. Established in the structural movements of developed countries, this practice shows that small and medium-sized companies are exceptionally significant factors in economic growth and development. (3)

The size of a company is of utmost importance in the economic structure. The choice of the organizational form and many solutions within it depend on it. However, in order to operate with the size factor, it is necessary to emphasize, how many ways there are for measuring a company's size, and what is the common meaning of "big", "medium" and "small" when speaking of company capacity.

A small company is easily defined. Any company may be considered either small or big, depending on the measuring scale and chosen breakpoint.

The size of a company is usually measured by several parameters, e.g. the number of the employed people; total revenue; total profit; value of fixed capital; the company's share on the market of particular products or services, etc. Each of the criteria has some priorities, though the number of the employed has more than others. Considering the various size-establishing parameters, the size itself is a relative term, especially when comparing what we consider big companies, with the big companies of the developed world. (3)

Wood-processing companies must adjust to the huge dynamic changes. The end buyer increasingly expresses the most different needs and desires. The need to determine the ever-changing markets requires flexibility, adjustability and understanding the changes happening in production, organization and particularly management, all through developed market research and market-orientation. What is needed are small series with variations in the production programme, entailing small capacity units and smaller than before wood-processing companies with independent and flexible staff. The relation toward the company and its role in the whole economy and society is also being changed. (3)

Based on such development, small companies are characterized by two basically initial aspects. The first emerges from the idea that, without adequate efficiency, it is impossible to survive on the market. The second indicates that the developing transformations aimed at higher efficiency are a complex and ever-lasting process requiring accessibility to the relevant information on which business transactions are based.

The management of a small wood-processing company needs information in order to realize its activities. The correct choice of the planning and managing system will result in higher efficiency of the company.

For more efficient management of the production and business processes, the introduction of information technology into small wood-processing companies are fundamental.

2. RESEARCH ISSUES AND AIMS

The process of restructuring and privatization has turned big and complex wood-processing companies into many small firms. In other words, centralized production management is being transformed into decentralized and independent profit units, which makes the research of management/information systems extremely interesting. Big and inert management systems ask for rationalization with higher efficiency and simplified documentation, fewer employed and computerized technologies.

With mass production for unknown consumers being replaced by the work for the known buyer according to his orders, another concept of planning and management for wood-processing production is required.

The research aim was to examine the management/information systems in small (and medium-sized) wood-processing firms, and to give suggestion for establishing a more rational system that would be based on fewer documents/employed and information technology.

3. WORK METHOD

The work method consisted of surveying the existing management/information system in small and medium-sized wood-processing companies, with the analysis of their documentation structure and flow, ending with a suggestion for developing a more efficient management system.

Of the surveyed fifteen small and medium-sized wood-processing companies, seven came from big industries, while eight had existed for only several years. With known buyers, the companies work by received orders, mostly giving service of outfitting buildings of varying size with furniture and wall panelling made by themselves. A smaller part of the production programme is bought by other wood companies.

4. RESEARCH RESULTS

Table 1 shows the survey of the information/management documents in the work order of small and medium-sized companies.

The surveyed companies have different contents of information/management documentation in their work orders.

All companies have technological documentation (1-5), though the operative ones (6,9,11,12) to a lesser degree.

A notable fact is that entire documentation has been retained by the companies that had been big wood-processors before their restructuring (F, H, I, N, O).

With their information/management system based on technological records (1-5 and 10), small wood-processors (A, D, E, G, J) have little documentation in their work orders.

With all companies a component part of their work orders is the cutting draft, followed by the design and composition of the product.

Companies A, N, and O have an entire content of the information/management documentation in their work orders.

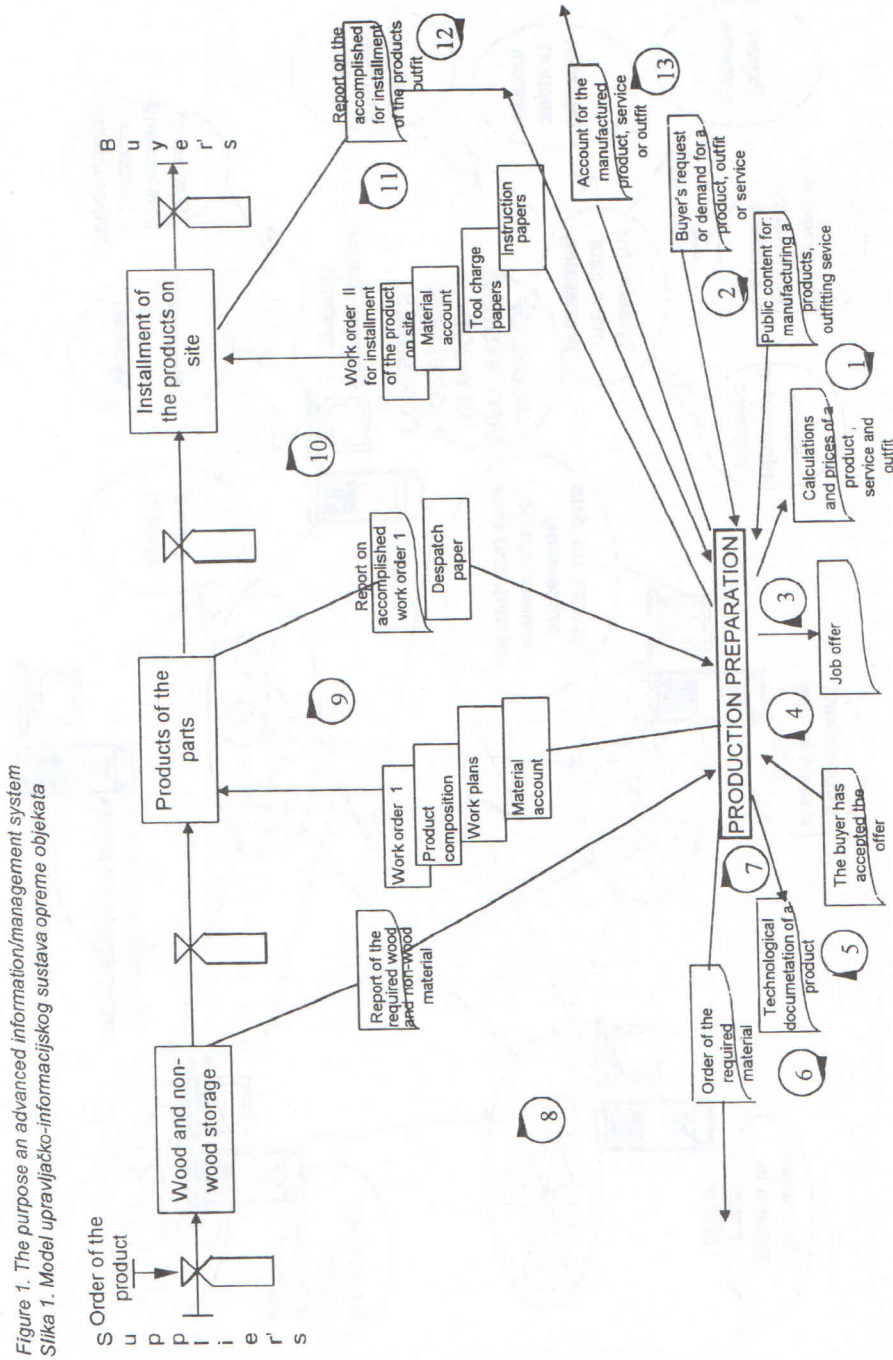
The production preparation staff counts between 1 and 11, ranging between 1 and 3, 5 and 8, and more than 8, all according to the size of the company. In small companies they work on technological preparation: drawing and designing the products; establishing the product contents; and making cutting and material drafts. They also execute the jobs on operative preparation, production management and installing the product on the site. Medium and big companies divide this "classically" into technological and operative jobs, employing more than five people.

Originating from big wood-processing firms, three companies (F, N and K) have their management system supported by information technology.

Table 1. Work order documents of small wood-processing companies

Tablica 1. Sadržaj dokumenata u radnom nalogu promatranih malih drvnoprerađivačkih tvrtki

Work-order contents Sadržaj radnog naloga	Companies														
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1. Product design	+	+	+		+	+	+	+	+	+	+		+	+	+
2. Technical description	+			+		+	+	+	+	+	+		+	+	+
3. Product composition	+	+	+			+	+	+	+					+	+
4. Cutting draft	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
5. Material draft	+	+	+	+			+		+	+	+	+	+	+	+
6. Dispatch order	+		+	+	+	+		+	+	+		+	+	+	+
7. Material receipt	+					+				+				+	+
8. Covering letter (work plan)				+		+		+	+			+	+	+	+
9. Work report	+			+			+	+	+	+				+	+
10. Work calculation	+	+	+	+		+					+		+	+	+
11. Plan of launching work orders														+	+
12. Information on beginning and end of a work order				+										+	+



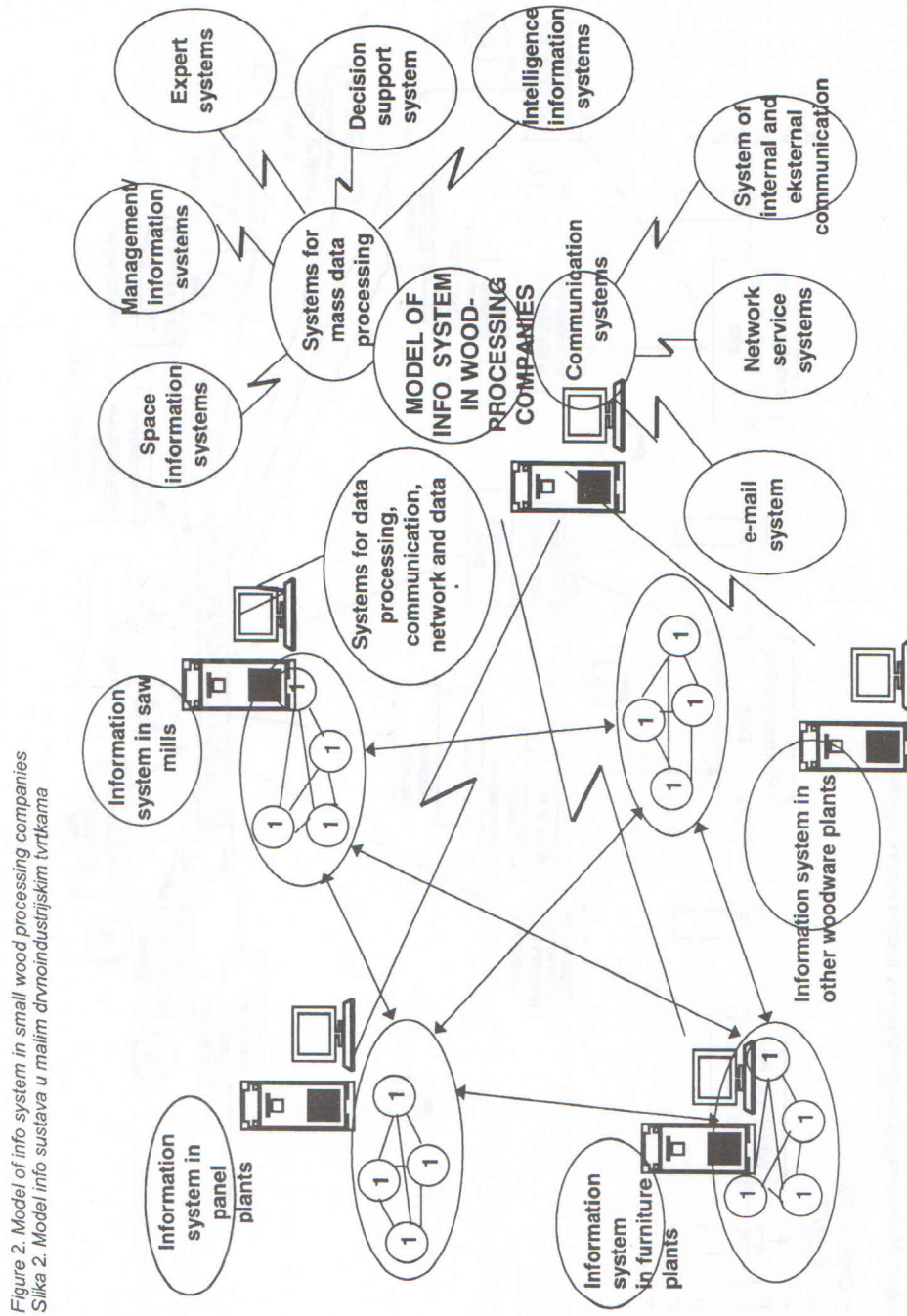


Figure 2. Model of info system in small wood processing companies
 Slika 2. Model info sustava u malim drvnoprerađivačkim tvrtkama

5. A SUGGESTION FOR ADVANCEMENT OF INFORMATION/MANAGEMENT SYSTEM IN SMALL WOOD-PROCESSING COMPANIES

Governed by the research done in several wood-processing companies, we propose an advanced information/management system (Fig. 1) with following regulation circles:

Public contest for: manufacturing a product; outfitting services; or buyer's request or demand for a product, outfit or service, whereby the buyer expresses his wishes as to appearance, quality, quantity and price of a particular product.

Calculations and prices of a product, service and outfit.

Job offer: encompasses the possibilities of a small wood-processing company in terms of the quantity, production capability; production quality; price, and aesthetic effect.

The buyer has accepted the offer.

Technological documentation of a product.

Order of the required wood and non-wood materials.

Report on the arrival of wood and non-wood materials in the storage.

Issue of work order for parts (RN 1) containing the product composition, material account, voucher (work plans).

Report on accomplished work order (RN 1) and despatch paper close this information regulation circle.

Issue of work order for installment of the product on site (RN 2). It contains material accounts and tool charge papers needed for installing the product.

Report on the accomplished work order for installment of the product on site (RN 2). Take-over.

Collecting of accounts for the manufactured product, services or outfit.

6. CONCLUSIONS

The research contains survey, analysis and suggestion for an advanced management/information system of small wood-processing companies. Fifteen wood-processing companies were surveyed in terms of the management/information contents, work order documentation, number of production preparation staff, and the level of information facility outfit.

Small and medium-sized wood-processing companies had extensive technological and operational documentation. Two companies had thorough management/information documentation. By restructuring they emerged from big wood-processors. The technological documentation of the product is complete with all companies. Small firms have between one and three employed, while bigger ones employ over five people in production preparation. Only three companies had information technology and software support for the management/information systems of production and business.

The efficiency of the management/information documentation in small companies requires rationalization and improvements. The presented

suggestion for advancement of the management/information system in small wood-processing companies has two work orders. The first is for the manufacture of parts in the production. It contains components parts of the product, material accounts and despatch cards (work plan). The second is the work order for the installment of the product and outfit containing material accounts, instruction charge lists of tools and outfit needed for the installment of products and outfits.

A small company must work very efficiently and flexibly. Therefore has its management perceived the great, almost strategic, importance of the management/information systems and use of information technology, as well as the software support in prompt issues of: offers to the buyers of their products and services; price calculation; product design and preparation in different media. Instead of a great number of employed, such an approach requires a small staff, high qualification structure, use of information and wood processing technologies, which vary depending on the product in question.

Highly promising are the information technologies that could be used in reforming the production (CIM, CAD/CAM) and business, in order to considerably advance the efficiency of wood-processing companies. Though the potentials for such improvements are available, their realization is a long-term process requiring profound research into the new forms of production and business organization.

The effects of introducing the information systems in wood-processing companies are improvements in efficiency; better business control; improved information needed for making decisions; creation of new products and services; promotion and sale of new products and services; promptness of preparation and observance in production; integration into global information systems; achievement of competitive advantage, etc.

Accordingly, the chief objective of this study is to present both the to date and estimated possibilities in finding the suitable management/information systems and the use of information technologies in wood-processing companies (Fig. 2).

RAZVOJ UPRAVLJAČKO INFORMACIJSKOG SUSTAVA U MALIM DRVNOPRERAĐIVAČKIM TVRTKAMA

SAŽETAK

U suvremenim svjetskim uvjetima gospodarske podjele i privređivanja tržište i novi način proizvodnje nameće brz razvoj malim drvnoprerađivačkim tvrtkama. Suvremeno svjetsko tržište zahtijeva proizvode širokog i prilagodljivog asortimana, u malim i promjenljivim količinama (često i unikatne) te visoku kakvoću proizvoda, a uz to prisutna je i velika konkurencija. Konceptija suvremene proizvodne

filozofije može biti ostvarena uspostavljanjem manjih tvrki i fleksibilnije proizvodnje širokog proizvodnog programa. Tržište i novi način proizvodnje nameće brz razvoj suvremenog upravljačko informacijskog sustava u malim drvnoprerađivačkim tvrtkama. Od upravljačkog sustava zahtijeva se cjelovitiji, brži i jednostavniji rad podržan informacijska tehnologijom. Područje upravljanja proizvodnjom i poslovanjem je iznimno značajno za sve drvnoprerađivačke tvrtke. Ona može opstati i razvijati se samo ako se njome upravlja, što znači predvidjeti buduće ponašanje, usmjeriši je prema predviđenom. Pravilnim odabirom odgovarajućeg sustava za planiranje i upravljanje proizvodnjom dovodi se tvrtka do veće učinkovitosti. U radu je prikazan racionaliziran upravljačko informacijski sustav za male drvnoprerađivačke tvrtke. Upravljačko informacijski sustav sastoji se od osnovnih dokumenata na osnovi kojih je moguće racionalnije i učinkovitije upravljati proizvodnjom i poslovanjem malim drvnoprerađivačkim tvrtkama. Ovim prijedlogom uz podršku informacijske tehnologije i softwareskih paketa moguće je racionalno upravljati cijelim logističkim sustavom male drvnoprerađivačke tvrtke.

Key words: obradba drva, veličina tvrtke, tvrtka, upravljački sustav, informacijski sustav

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Adrese autora - Authors' addresses:

dr. sc. Tomislav Grladinović
Šumarski fakultet, Sveučilišta u Zagrebu
Svetošimunska 25
HR - 10000 Zagreb
prof. dr. sc. Mario Plenković
Fakultet političkih znanosti, Sveučilište u Zagreb
Lepušićeva 6
HR - 10000 Zagreb
Vitimir Grbavac
Agronomski fakultet, Sveučilište u Zagreb
Svetošimunska 25
HR - 10000 Zagreb

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