YU Info 2008

Zbornik radova

KOPAONIK 9-12.3.2008.

sponzor CD-a

SIMPOZIJUM O RAČUNARSKIM NAUKAMA I INFORMACIONIM TEHNOLOGIJAMA

YU Info 2008

ZBORNIK RADOVA

- Izdavač:
  INFORMACIONO DRUŠTVO SCG
- Za izdavača:
  Prof.dr Miodrag Ivković
- Odgovorni urednik:
  mr Dušan Korunović
- Redakcija:
  programski odbor

ISBN 978-86-85525-03-2

sponzor CD-a

Programski odbor

- Prof. dr Božidar Radenković, FON Beograd
- Prof. dr Borko Furht, Florida Atlantic University
- Prof. dr Branimir Đorđević, ELF Niš
- Doc. dr Branko Milosavljević, FTN Novi Sad
- Prof. dr Bratislav Milovanović, ELF Niš
- Prof. dr Dragan Domazet, FIT Beograd
- Mr Dušan Korunović, Informaciono društvo
- Prof. dr Dušan Surla, PMF Novi Sad
- Prof. dr Đorde Paunović, ETF Beograd
- Prof. dr Miodrag Ivković, Telekom Srbije
- Prof. dr Miroslav Trajanović, MF Niš
- Prof. dr Nataša Gospić, SF Beograd
- Mr Radovan Cvetković, Telekom Srbija
- Doc. dr Siniša Nešković, FON Beograd
- Prof. dr Slobodan Janković, TF Zrenjanin
- Prof. dr Slobodanka Đorđević-Kajan, ELF Niš
- Prof. dr Veljko Milutinović, ETF Beograd
- Prof. dr Zora Konjović, FTN Novi Sad
- Prof. dr Zoran Jovanović, ETF Beograd
- Doc. dr Zoran Stanković, ELF Niš
- Prof. dr Živko Tošić, ELF Niš

APPLICATION OF STANDARD ERP SOLUTION IN A PRODUCTIVE COMPANY

Ljerka Luić[1], Tomislav Cikač[2] Dejan Glumac[3]
[1] ***b4b d.o.o.***
[2] ***Termika d.o.o.***
[3] ***b4b d.o.o.***

Abstract - *Methodology of introduction of standard Enterprise Resource Planning system (ERP) solution through implementing Systems Applications and Products in Data Processing (SAP) application into production field of "Termika" d.o.o., Novi Marof is described in this paper. In the introductory part, information systems as well as methods of implementation of integrated program solutions, standards and factors of success of ERP system implementation, and a short history of development of SAP information system, are described. SAP system is described in its work on examples of productive business processes. This includes basic transactions used during operation and ways of using them when creating material master data, bills of material, operation plans and using of some auxiliary tools. The paper's main theme is set up in order to explain how and which main documents are circulated within the production department. The closing section of the report shortly analyzes connection of production and its business processes with other business processes of the company. The main objective and aim of any business process optimization is to reduce the time consumed and cost of activities with a final goal of efficient production process, and consequently an efficient company.*

1. INTRODUCTION

A sucessfull company is the one that is oriented toward customers, having optimal quality of goods and services and short delivery times. Intrinsic factors on which the efficiency of business doing depends, are profit realization and simultaneous reduction in production costs, marketing costs reduction and distribution costs reduction. To accomplish these goals, a company must optimize its business processes and implement a business information system which will have a pivotal role in attaining maximum effects from the restructuring of the processes. Therefore, the restructuring process should not be a radical process but the one oriented to advancement of existing business processes and implementation of business information system. The connection of all participants in the process affects company's response to requests and changes happening in the market. Doing business becomes real-time in true sense of the word. Use of information technology and e-business brings higher interactivity, connectivity, flexibility as well as cheaper and faster running of a business when compared with traditional business doing. This also means new business opportunities are open, but also a radical change in doing business, where suppliers, consumers, partners, and all other participants need to be included in business process. This way, efficient cooperation with other process participants are created in real-time. [1] The objective of this paper is to show the fashion in which the implementation of SAP business solution was run in "Termika" d.o.o. company, its advantages and deficiencies that came up in the beginning of the implementation. It is very interesting to notice the interplay of several business systems that were joined together in the last 2-3 years, at first to form a whole of 6 print-works under the name of "Heraklith" without having SAP business solution in the print-works, which were afterwards joined with two more print-works into a large group of companies under the name of "Knauf Insulation", where the first prerequisite for joining, required by the proprietor, was implementation of standard ERP program solution SAP in all print-works. Real information is obtained where it is needed, in real-time, with minimum costs, and in the company it needs to be collected, classified, processed, stored, formed, forwarded to all levels of object system, i.e. users. [2]

The construction of information system does not end with implementation and using of the new information system. Information system, as all others products, has its life cycle.

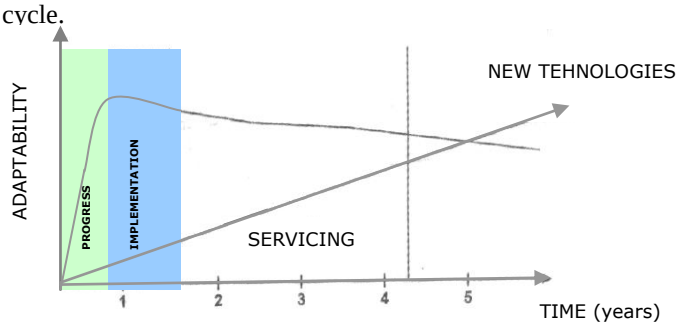

Figure 1. Life cycle of information system [3]

2. IMPLEMENTATION OF SAP SYSTEM IN "Termika" d.o.o.

Reasons for implementation:

- To enable complete integration of all data major to business doing of the group of companies
- To make all information of the group accessible to all employees of the group of companies
- To improve the system of timely, correct and unified reporting
- Implementation of SAP as adjustment of business processes of "Termika" d.o.o. to existing SAP system of "Heraklith" ("*SAP roll out*")
- The project team which constituted of Heraklith consultant and the key users of Termika, and Slovenian Termo (which was also transferring to SAP)

SAP functionalities to meet the needs of "Termika" d.o.o. were implemented in the following business areas:

- Finance and accounting department (FI)
- Sales and distribution department (SD)
- Materials management (MM)
- Logistics (LE)
- Production planning and leading (PP)
- Controlling (CO)
- Quality management (QM)
- Warehouse management (WM)

The methodology of implementation: skilled name for this kind of implementation is Hybrid Accelerated SAP methodology (ASAP). In this way, company optimizes time, quality and efficiency of using all the available resources. ASAP is not just implementation of the system, but it also underpins the activities within a complete life cycle of a system. ASAP methodology is based on the principle of a "*Roadmap*". The stages, the activities and the tasks are following along specific order which takes us to the final goal – a usable SAP system. [4]

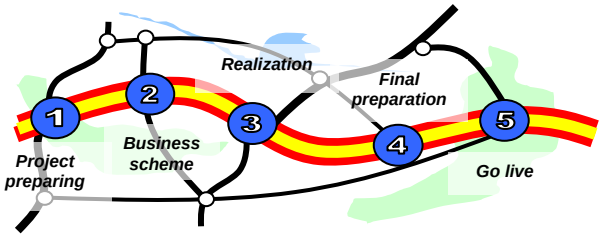

Figure 2. Review of ASAP methodology [4]

Tied to methodology on the level of corporation, SAP was introduced to the leading managers as an application whose task is to link the Heraklith, Termo and Termika companies into a whole. The training center was in Termo in Škofja Loka where common team gatherings were held. The SAP system was operating non-stop during the implementation in Termo and Termika because Heraklith was already using it before the implementation had started.

3. REVIEW OF SAP FUNCTIONS IN "PRODUCTION PLANNING" (PP) PROCESS EXAMPLE

In SAP module PP the following processes are supported:

- Opening and drawing up of plans for the new product
- Making production order
- Preparing the manufacturing plan (production plan)
- Planning of needs for finished and raw materials
- Encumbering finished products and taking off raw materials from stock

SAP regulates all production activities in company via its production module:

- Tracking of purchase orders received and generating of systematic production orders
- Bills of materials are designed in a way to enable synchronous evaluation of costs and precise analysis of material and raw material needs
- Monitoring of production
  - Real-time reports:
    - Manufactured quantities
    - Materials spent
    - Scrap
    - Stock balance of finished products and raw materials

Sales persons and sales specialists input purchase orders and all their accompanying data into SAP: the technological product sheet (name, density, size, method of packaging), quantities, delivery deadline, place of delivery, labels, remarks (define extra data which are not included in technological product sheet).
Such defined and generated document – purchase order, can then be seen in a list of products that is further processed by the production preparation department that forwards it to the MP department in the form of Manufacturing plan. After confirmation of delivery time, sales department receives a notification and the internal bill of lading is produced which is joined with accounts and original bills of lading before delivery. [5]

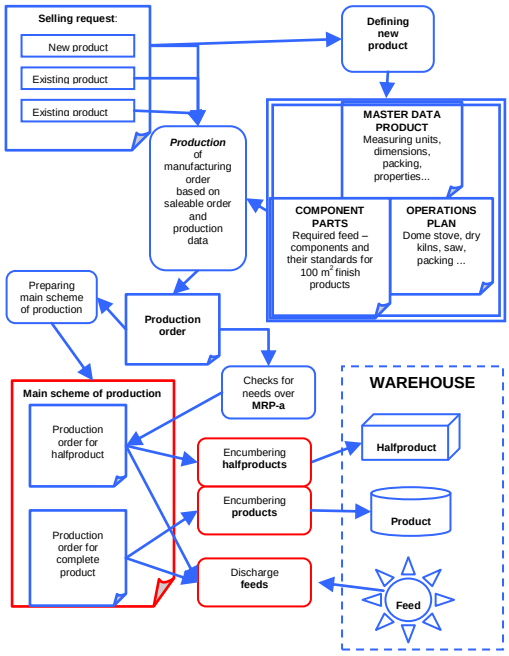

Figure 3. Circulation of documents [5]

4. "PRODUCTION PLANNING" – ANALYSES BEFORE AND AFTER APPLYING AN INFORMATION SYSTEM

The main production plan:
In the old application to print the production plan one needed to go out of the window and do 5 different operations to print the production plan, a lot of numbers needed to be written on paper and later rewritten.

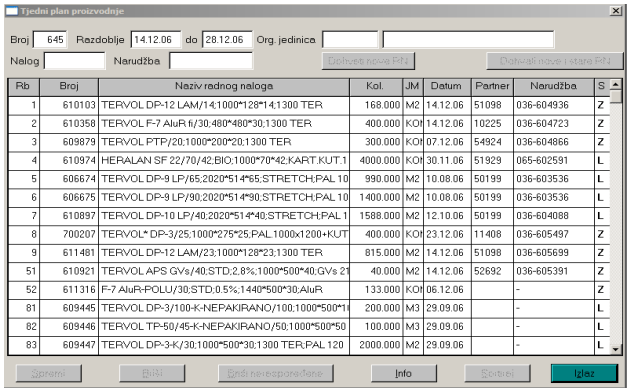

Figure 4. Production Plan in older business solution

In the main production plan, obvious improvements can be seen when compared with the older application. On the screen of the same size, all basic information necessary to production planner are visible, and all the data necessary to production managers also (quantities, factors of translation of units of packaging to other units of measure, labels, work orders in preparation and closed work orders). Every work order opens in just one click and in it data necessary for production, from bills of materials of finished products, immediate material quantities in stock, warehousing positions, and additional explanations, can be found.

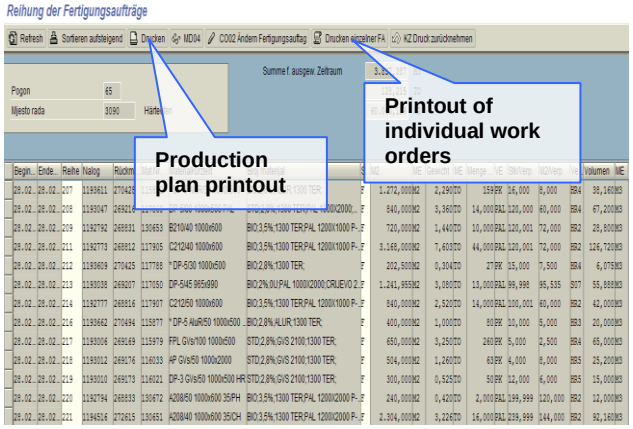

Figure 5. Review of production plan in SAP

5. RESULTS OF IMPLEMENTATION - CONNECTION BETWEEN "PRODUCTION PLANNING" AND OTHER DEPARTMENTS

Sales persons and sales specialists input purchase orders in SAP together with all their accompanying data:

- technological product sheet (name, densities, dimensions, classifying the foils, method of packaging)
- quantities
- requested delivery deadline
- delivery place
- label
- remarks

Such defined and generated document can be seen in the list of products (ZAVL) which is further processed by production planning department (newly established department with the purpose of coordinating demands of Sales and demands of Production departments). After confirming the period of production, sales department gets the confirmation of order for production, itself issues internal bill of lading based on which all is transferred to E-trans (transportation market), a program that serves for finding the transport of the confirmed goods by trucks.

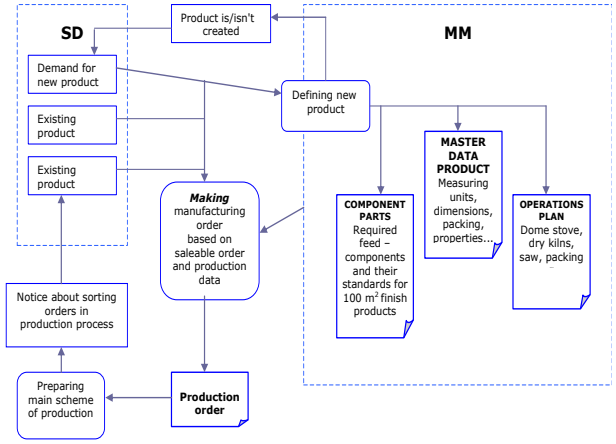

Figure 6. Connection of PP module with SD and MM

6. DISCUSSION

Information system collects, deposits, stores and delivers information important for organization and society in a way in which they can be accessed and used by anyone that needs to use them, including management, clients and personnel. Information system in an active societal system that can be but is not obliged to be computer supported. [6]

With global market competition companies can attain privileged competitive advantage only by offering low prices and quality goods and services as well. To attain these goals, efficient and innovative business processes are required that lower the costs of production, which are actually the main cost generators in the making of final product.

A contemporary view of organization planning strives to optimize company as a whole. This can be attained only by making a new organizational scheme which has efficient and effective internal processes but also the processes that cross the lines of the existing organization of the company. Reform brings to forward the modeling of the business process and requires the complete restructuring of business system with the purpose of improving the performance of company by using information system and all the support it can provide. [7]

7. CONCLUSION

The main objective of this paper was to show the gains a company can have from introducing a new ERP system into its business processes, the gains of implementing an integrated solution, show its advantages and disadvantages, and problems that can appear during these processes.

Before deciding on introducing an ERP solution in a company, it is necessary to reform the business processes because SAP itself won't solve the problems. Therefore, above mentioned activities need to be run before implementation of an ERP solution no matter if the solution to be implemented is a standard, world known solution or one's own development. The best proof of this is evidence we have on introduction of ERP solution SAP R/3 into "Termika" d.o.o., because if implementation of ERP gets out of control, software implementation can increase time needed to implement and implementation costs as well. With this ERP solution "Termika" d.o.o. has successfully expanded its business to the level on which the rest of the companies in its group operate.

After a few months of working with SAP business solution, we can conclude that the system really started to take effect. Many of the existing processes needed to be switched to another mode of operation, new connections between different departments of the company were accomplished, data must be reviewed on several levels, the system itself warns of mistakes and, therefore, the human factor has less and less influence on individual problem solving.

Each change is automatically generated to the next user and in this way each user must be introduced to all the process changes and process add-ons. We can finally conclude that after a few months of adjustment of SAP system to "Termika" d.o.o., the company experienced drastic changes to its business processes and the changes bring about the advantages that we usually name competitive advantages when compared to other companies. Therefore, we conclude that business processes renewal and introduction of integrated information solutions are closely tied one to another.

ACKNOWLEDGMENTS

Publication of this paper was supported by grant #036-0361983-3137 by the Croatian Ministry of Science, Education and Sports to which the authors of this article are grateful for the big support.

REFERENCES

[1] Srića V., Spremić M., *"Informacijskom tehnologijom do poslovnog uspjeha"*, Sinergija, Zagreb, 2000.
[2] Cikač T., *"Primjena standardnog ERP rješenja u proizvodnom poduzeću – temeljena na SAP sustavu u poduzeću Termika d.o.o."*, Veleučilište u Karlovcu, Diplomski rad, Karlovac, 2007
[3] Majdandžić N., *"Izgradnja informacijskog sustava proizvodnih poduzeća"*, Strojarski fakultet u Slavonskom Brodu, 2004.
[4] www.sap.com, 2007.
[5] www.termika.com, 2007.
[6] Luić Lj., *"Informacijski sustavi u strojarstvu"* sinopsis predavanja, Karlovac 2006.
[7] Balik, Ekin; Erler, Philipp; Hilger, Thomas; Mueller, Florian; Rasch, Wencke, *"Implementing an eSourcing System"*, Case study, WHU, pp. 1-24, 2006

YU INFO 2008

simpozijum o računarskim naukama i informacionim tehnologijama

ZBORNIK APSTRAKATA

Kopaonik, 9-12.03.2008. godine

U kompanijama koje su tokom godina razvile efikasan informacioni sistem i koje u svojim bazama podataka imaju uskladištenu veliku količinu informacija problem migracije je posebno kompleksan. Naime zbog brzog razvoja informatičke podrške moguća je pojava nekompatibilnosti između stare i nove baze podataka. Jedna od kompanija koja se suočila sa ovakvim izazovom je DDOR Novi Sad a.d.o.
Osnovni razlozi za prelazak na novi informacioni sistem su:
– Ostvarenje vizije informatičke podrške u DDOR-u po kojoj informacija treba da bude raspoloživa i prilagođena za korišćenje u svakom trenutku i na svakom mestu u kompaniji.
– Ušteda na licencama i troškovima održavanja stare baze podataka.
– Prelazak na moderni RDBMS
– Kreiranje jedinstvenog informacionog sistema.
– Prenosivost aplikativnih sistema na druge platforme.
– Povećanje broja ljudi koji mogu da održavaju i dalje razvijaju aplikacije.
– Veći izbor pratećih softverskih alata za razvoj, administriranje i slično.
– Ekspanzija alata za Poslovnu inteligenciju koje nude proizvođači modernih relacionih baza, a omogućuju veoma brzo izveštavanje.

Development of information technologies and growing number of users inevitably leads to change of existing information systems to newer and more efficient ones. Transition to new information system often leads to database transition as well. There are several steps involved in date migration process, such as: transformation of data format, relationships' identification, consolidation of different data, and identification of redundancy in order to achieve compliance. Besides functional and technical constraints, data migration is often restricted with the service up-time limits.
Data migration is a complex goal especially in large companies, with large "core" databases. This process is often followed with new user's demands. In the paper the brief description of data migration project in DDOR Novi Sad a.d.o. is given.
Main reasons to changing existing information system in this company are:
– Information should be available in every moment and every place in company
– Lowering expenses
– Transition to modern RDBMS
– Developing unique information system
– Portability of application systems
– Increasing number of people who are educated in field of modern technologies
– Growing number of development and administration software related to new technologies
– Expansion of business intelligence tools for modern RDBMS.

APPLICATION OF STANDARD ERP SOLUTION IN A PRODUCTIVE COMPANY

Ljerka Luić[1], Tomislav Cikač[2],Dejan Glumac[1]
[1]b4b d.o.o., [2]Termika d.o.o.

Methodology of introduction of standard Enterprise Resource Planning system (ERP) solution through implementing Systems Applications and Products in Data Processing (SAP) application into production field of "Termika" d.o.o., Novi Marof is described in this paper. In the introductory part, information systems as well as methods of implementation of integrated program solutions, standards and factors of success of ERP system implementation, and a short history of development of SAP information system, are described. SAP system is described in its work on examples of productive business processes. This includes basic transactions used during operation and ways of using them when creating material master data, bills of material, operation

plans and using of some auxiliary tools. The paper's main theme is set up in order to explain how and which main documents are circulated within the production department. The closing section of the report shortly analyzes connection of production and its business processes with other business processes of the company. The main objective and aim of any business process optimization is to reduce the time consumed and cost of activities with a final goal of efficient production process, and consequently an efficient company.

INFORMACIONI SISTEM U FUNKCIJI KVALITETNOG RAČUNOVODSTVENOG IZVEŠTAVANJA
INFORMATION SYSTEMS IN THE FUNCTION OF THE QUALITY ACCOUNTING REPORTS

Slađana J. Perović
Fakultet za menadžment u Zaječaru

U savremenim uslovima poslovanja za ostvarivanje kvalitetnog računovodstvenog izveštavanja, preduzeće je orijentisano ne samo na domaće već ina međunarodno tržište. Internacionalizacija poslovanja podrazumeva komunikaciju između kompanija, zasnovanu na računovodstvenim informacijama u preduzeću i upotrebom računovodstvenog softvera.

In contemporary condition of running business, for realization the quality accounting reporting, company is oriented not only on domestic market, but on international market as well. Internationalization of running business implies communication among companies, based on accounting information in a company and reliable accounting software.

INFORMACIONI SISTEM ZA UPRAVLJANJE TEHNOLOGIJOM
INFORMATION SYSTEM FOR TECHNOLOGY MANAGEMENT

Zoran Marjanović[1], Radomir Brzaković[2], Vladan Joksimović[3]
[1]Direkcija "Razvoj automobila" – Zastava automobili u Kragujevcu
[2]PJ Informacioni sistemi – Zastava automobili u Kragujevcu
[3]PC "Mehanička obrada"– Zastava automobili u Kragujevcu

Informacioni sistem za upravljanje tehnologijom građen je korišćenjem standarda IDEF0 i IDEF1X realizovanih kroz CASE alate BPwin-a i ERwin. Predloženi način rada korišćenjem CASE alata uključuje buduće korisnike koji će koristiti odgovarajući aplikativni softver i koji će dok se projektuje sistem ukazivati na nedostatke i svoje potrebe za informacijama. Ovaj informacioni sistem projektovan je u cilju automatizacije poslovnih procesa i poboljšanja kvaliteta poslovanja Profitnog centra "Mehanička obrada" – Zastava automobila, a samim tim i svih ostalih učesnika u poslovnim procesima koji su direktno ili indirektno oslonjenji na Profitni centar "Mehanička obrada".

Information system technology management is developed by standards IDEF0 and IDEF1X realized through CASE tools BPwin and ERwin. Suggested method use CASE tools include users of application software witch will point to some insipience and yours needs for information. This information system is developed in order to make progress in process of business automation and business quality system improvement for Profit center "Mechanical treatment" – Zastava automobile, and all other parcipiants in business processes which are directly or indirectly related with Profit center "Mechanical treatment".