

BUSINESS PROCESS RESTRUCTURING IN CROATIAN AND SLOVENIAN COMPANIES: A COMPARISON

*Vesna Bosilj-Vukšić**, *Katarina Ćurko*** and *Andrej Kovačič****

Received: 10. 02. 1999.

Preliminary communication

Accepted: 25. 04. 2000.

UDC: 65.01 (497.5) (497.12)

In order to maintain competitiveness and growth, companies need to achieve continuous modernisation of business processes, increased productivity, and cost reduction. As many organisations are looking for new ways of doing business and changing business processes, Business Process Re-engineering (BPR) has become one of the most popular topics in organisational management. In recent years, numerous studies about BPR projects have been conducted. The main goal of this research is to analyse BPR projects in two countries involved in transition processes: Croatia and Slovenia. Different characteristics of BPR projects in large companies are examined, and the methods and tools used in BPR projects are evaluated. The results of the research in Croatia and Slovenia are compared; the similarities and differences between the two countries are pointed out. The objective of the research is to identify whether the managers of the countries in transition have recognised the importance of business processes reengineering and improvement for their companies.

1. INTRODUCTION

Business process reengineering (BPR) is an organizational method demanding a radical redesign of business processes in order to achieve more efficiency, better quality and much competitive production (Hammer and Champy 1993). This management concept relates to the fundamental rethinking and radical redesign of an entire business system in order to achieve significant

* Vesna-Bosilj Vukšić, PhD, University of Zagreb, Faculty of Economics, Department of Information Science and Business Computing, Trg J.F.Kennedya 6, 10000 Zagreb, Croatia

** Katarina Ćurko, PhD, University of Zagreb, Faculty of Economics, Department of Information Science and Business Computing, Trg J.F.Kennedya 6, 10000 Zagreb, Croatia

*** Andrej Kovačič, PhD, University of Ljubljana, Faculty of Economics, Department of Information Science, 1000 Ljubljana, Slovenia

improvements in performance of the company. It means analysing and altering the business processes of the organisation as a whole.

BPR was first introduced in a research program at MIT (Massachusetts Institute of Technology) in the early '90s. The term was used in the description of Davenport and Short's 1990-research project (Davenport and Short, 1990). The concept of BPR has evolved during a long period of time, incorporating elements from the other business improvement methods, such as industrial engineering, systems analysis and design, social-technical design and total quality management (Davenport and Stoddard, 1994).

Modern information system support is needed in implementing the BPR, while information technology (IT) capabilities can be leveraged to redesign business processes (Davenport and Short, 1990). Recent BPR research papers pointed out that information technology has the key role in business process restructuring (Davenport, 1995; Teng, Grover and Fiedler, 1994). It should be emphasised that there is also an impact in the opposite direction because a strong two-way correlation between BPR and IS project activities is discovered (Kovačić, 1998).

Many leading organizations have conducted BPR in order to improve productivity and gain competitive advantage. For example, a survey of 180 US and 100 European companies found that 75% of these companies had engaged in significant re-engineering efforts in the past three years (Jackson, 1996). A study by Dhaliwal (1999) showed that about 50% of firms surveyed in Singapore were engaged in BPR projects, with 37% of the firms indicating their intention to take up BPR projects in the next few years. However, regardless of the number of companies involved in re-engineering, it is estimated that the rate of failure in re-engineering projects is more than 50% (Hammer and Champy, 1993). Some of the frequently mentioned problems related to BPR include the inability to accurately predict the outcome of a radical change, difficulty in capturing existing processes in a structured way, shortage of creativity in process redesign, the level of costs incurred by implementing the new process, or inability to recognize the dynamic nature of the processes.

According to the recognized trends, the research about BPR projects in large Croatian and Slovenian companies was conducted in 1999. The objectives of the survey were to identify, analyze and compare the main characteristics, motives and problems of BPR projects in the countries involved in transition processes. A discussion related to business processes and their definitions is presented in Chapter 2, as well as a brief overview of business process

modelling and simulation methods (Chapter 3). The methodology of the research is explained in Chapter 4. The results of the research in Croatia are analyzed in Chapter 5. The comparison of the studies conducted in Croatia and Slovenia is explained in detail in Chapter 6. Conclusions (Chapter 7) outline the main findings of this research.

2. BUSINESS PROCESSES

Various definitions of the "business process" exist. Hammer and Champy (1993) define a process as "a set of activities that, taken together, produces a result of value to a customer", while Davenport and Short (1990) define a business process as "a set of logically related tasks performed to achieve a defined business outcome".

Ferrie (1995) defines processes as being "a definable set of activities which form a known starting-point". Pall (1987) defined a process as "the logical organisation of people, materials, energy, equipment, and procedures into work activities designed to produce a specified end result (work product). Earl (1994) defined a process as "a lateral or horizontal form, that encapsulates the interdependence of tasks, roles, people, departments and functions required to provide a customer with a product or service". On the other hand, Saxena's (1996) definition of a business process declares that a process is "a set of inter-related work activities characterised by specific inputs and value added tasks that produce specific outputs" and Talwar (1993) defines a process as "any sequence of pre-defined activities executed to achieve a pre-specified type or range of outcomes."

Some common elements can be identified in a majority of definitions. These elements relate to the process itself (usually described as transformation of input, work flow, or a set of activities), process input, and process output (usually related to creating value for a customer, or achieving a specific goal) (Paul et al, 1998).

3. BUSINESS PROCESS MODELLING METHODS AND TOOLS

Growing interest amongst academic and industrial communities in organisational change and business process re-engineering has resulted in a multitude of approaches, methodologies, and techniques to support these design efforts (Wastell et al, 1994), (Harrison and Pratt, 1993). Different methods are used for analysis and/or modelling of business processes such as: IDEF

diagrams, Activity Based Costing Method (ABC), Total Quality Management (TQM), benchmarking, simulation and Workflow analysis.

Kettinger et al (1997) conducted an empirical review of existing methodologies, tools, and techniques for business process change and developed a reference framework to assist the positioning of tools and techniques that help in re-engineering strategy, people, management, structure, and technology dimensions of business processes.

Business process modelling tools are continuously being released on the software market. Many of these tools represent business processes by graphical symbols, where individual activities within the process are shown as a series of rectangles and arrows. A majority of software tools for business process modelling originate from a variety of process mapping tools that provide the user with a static view of the processes being studied. Some of these tools provide basic calculations of process times. Other, more sophisticated tools allow some attributes to be assigned to activities and enable some sort of process analysis.

However, most of these tools are not able to conduct a “what-if” analysis. These tools cannot evaluate the effects of stochastic events and random behavior of resources, which is possible by using simulation models of business processes. Kettinger et al (1997) mentioned simulation as one of the modelling methods in their survey on business process modelling methods. Nevertheless, the authors identified a need for more user-friendly multimedia process capture and simulation software packages that could allow easy visualisation of business processes and enable team members to actively participate in modelling efforts.

4. THE METHODOLOGY

Data for the research was collected using a questionnaire-based survey. Various aspects of BPR are examined. These include: motives for undertaking or not undertaking BPR projects, key methods and tools used in BPR projects, problems connected with BPR projects (time, expenses), key enablers of BPR projects and successfulness of BPR projects. The majority of the respondents were information technology managers because the research included questions about information technology in the companies.

4.1. The methodology and the sample of the research in Croatia

This research was conducted on the sample of 100 Croatian large companies in the period from February 1 - March 15, 1999. Although those companies comprise the small number of Croatian firms, they play an important role in the Croatian economy. The firms have been chosen based on their revenue, and they hold a large proportion of the assets and capital. The main source of data on Croatian companies was the special issue of *Privredni Vjesnik* (1998), which includes all industries except banking.

The research was limited by two factors: time and resources. Due to large expenses, the research was conducted on the limited number of companies in a relatively short period of time. Only 35 companies rejected to cooperate because the period of the research was inadequate for them. In that case, additional companies were selected from the list of the "400 biggest" companies in Croatia.

The companies were selected according to their location and economic strength of region. The research was conducted in the four largest cities of Croatia. Most of the examined companies were from Zagreb (60 companies), 14 from Rijeka, 13 from Split and 13 from Osijek. The distribution of companies according to their revenue is shown in Figure 1. More than half of the companies had revenue between 11 – 50 million US\$. Only about 15% of the companies had revenue less than 11 million US\$.

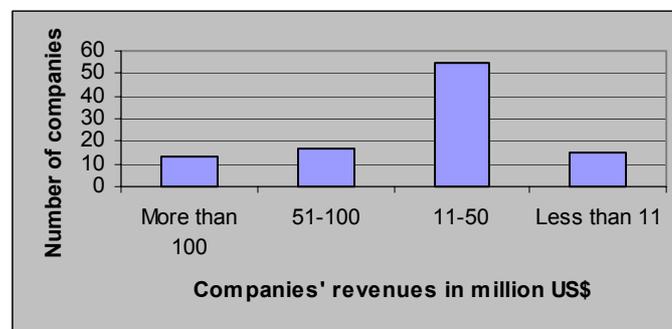


Figure 1. The distribution of Croatian companies according to their revenue (*Privredni Vjesnik*, 1998)

The percentage of examined companies within each industry is represented in Table 1. Business entities have been classified into different industry types according to the National Classification of Economic Activities that is based on the European Classification of Economic Activities NACE Rev 1. which is

obligatory for all EU member-states (Central Bureau of Statistics, 1997). The distribution of 100 selected companies according to the industry type represents the equivalent of the distribution of the "400 biggest" companies.

Table 1. The examined Croatian companies and the "400 biggest" according to the industry type

| INDUSTRY TYPE | Number of examined companies | "400 biggest" companies |
|--|------------------------------|-------------------------|
| A Agriculture, hunting and forestry | 2 | 12 |
| B Fishing | 0 | 2 |
| C Mining and quarrying | 1 | 4 |
| D Manufacturing | 29 | 138 |
| E Electricity, gas and water supply | 5 | 14 |
| F Construction | 6 | 24 |
| G Wholesale and retail trade | 33 | 124 |
| H Hotels and restaurants | 4 | 14 |
| I Transport, storage and communication | 12 | 36 |
| J Financial intermediation | 1 | 4 |
| K Real estate, renting and business activities | 7 | 26 |
| O Other community, social & personal services | 0 | 2 |
| Total | 100 | 400 |

The level of transition of the selected companies is shown in Table 2. After 10 years of the "privatization" process in Croatia, more than half of the examined companies have completely finished the transition. Only 16 companies are founded as private. As a result of that, the majority of companies are organized in the traditional, functional and departmental way of work.

Table 2. The level of the transition of the examined Croatian companies

| Level of the transition | Number of companies |
|--|---------------------|
| Founded as a private company | 16 |
| Transition finished completely | 54 |
| Process of the transition still not finished | 16 |
| Public company | 14 |
| Total | 100 |

The selected companies were analyzed according to the number of employees in order to be compared with the sample of Slovenian companies. Although the number of employees was not the criterion of Croatian companies' selection, about two-thirds (74%) of the selected companies were

large companies according to this criterion (more than 250 employees). Medium-sized companies (51-250 employees) were 18%, while only 8% of the selected companies were small ones (Table 3).

Table 3. Croatian companies according to the number of employees

| Number of employees | Number of companies |
|-----------------------|---------------------|
| 0 - 50 (small) | 8 |
| 51-250 (medium) | 18 |
| More than 250 (large) | 74 |
| Total | 100 |

4.2. The Comparison of Slovenian and Croatian Samples

Slovenian and Croatian methodologies are compared and analyzed according to the following four factors: the proportion of samples, the criteria of companies' selection (number of employees and companies' revenues), the distribution of companies according to the industry type and the level of transition.

The research in Slovenia was conducted on the sample of 81 large companies in March 1999. The number of examined companies in Slovenia was smaller than the Croatian sample in absolute terms, but it was larger according to the number of inhabitants. It should be pointed out that Croatia had about 4.4 million inhabitants in 1999, while this number in Slovenia was 2.5 million. "Large companies" in Slovenia were selected according to the number of employees and the revenues in 1998 (Zakon o gospodarskih združbah, 1993). About 60% (49) of the selected companies in Slovenia met both criteria: more than 250 employees and the revenue more than 4 million US\$. The other companies (40%) met one of the two selected criteria: number of employees or revenue. All Croatian companies met the second Slovenian criterion because there was no company with the revenue lower than 4 million US\$. Even 74% of the examined Croatian companies also met the first Slovenian criterion because they had more than 250 employees. The other Croatian companies (26%) met only the second criterion.

Croatian and Slovenian samples differ mostly in the third criterion: percentage of companies according to the industry type. The percentage of companies is almost the same for the first five industry types (Table 4). About one-third of the Croatian and Slovenian samples are incorporated in those

industry types. The other two-thirds of the Croatian and Slovenian samples differ according to the industry type.

Table 4. The examined Croatian and Slovenian companies according to the industry type

| INDUSTRY TYPE | Croatian companies | Slovenian companies |
|---|---------------------------|----------------------------|
| A Agriculture, hunting and forestry | 2% | 0% |
| B Fishing | 0% | 0% |
| C Mining and quarrying | 1% | 0% |
| D Manufacturing | 29% | 26% |
| E Electricity, gas and water supply | 5% | 4% |
| F Construction | 6% | 3% |
| G Wholesale and retail trade | 33% | 17% |
| H Hotels and restaurants | 4% | 1% |
| I Transport, storage and communication | 12% | 4% |
| J Financial intermediation | 1% | 11% |
| K Real estate, renting and business activities | 7% | 1% |
| O Other community, social and personal services | 0% | 33% |
| Total | 100% | 100% |

The analysis of the companies according to the level of transition showed that there were no significant differences between Croatian and Slovenian sample (Table 5).

Table 5. The level of transition of the examined Croatian and Slovenian companies

| Level of the transition | Croatian companies | Slovenian companies |
|--|---------------------------|----------------------------|
| Founded as a private company | 16% | 13% |
| Transition finished completely | 54% | 58% |
| Process of the transition still not finished | 16% | 20% |
| Public company | 14% | 9% |
| Total | 100% | 100% |

The results of the analysis showed that Croatian and Slovenian examined companies could be compared because they are very similar according to three criteria: the proportion of samples according to the population of the countries, the criteria of companies' selection (number of employees and companies' revenues) and the level of companies' transition. The differences are identified according to the companies' industry type, but this factor could not have an important influence on the further results of the research. The respondents in the Croatian and Slovenian companies were mostly information system managers

because the empirical study was focused on the application of information technology (information system, data warehouse and BPR). The questionnaires used in both countries were the same.

5. BPR IN LARGE CROATIAN COMPANIES

The results of the research show that only 49% of the respondents know what BPR means, while the others (51%) are not familiar with it. Among the respondents familiar with BPR and/or involved in BPR, about 69% (34 respondents) believe that it will help their companies to gain the competition. About 81% (39 respondents) think that the information technology is the essential enabler of BPR.

5.1. The evaluation of BPR tools in the Croatian companies

The 49 respondents' evaluation of BPR tools is analyzed in Table 6. BPR tools are evaluated with the grades from 1 (for not important tools) to 5 (for the most important tools). There are not significant differences in the average grades of BPR tools. The reason could be the lack of the respondents' knowledge about the tools.

However, CASE tools are evaluated with the highest average grade (3.9), while benchmark analysis tools got the lowest average grade (2.8). CASE tools are mostly evaluated as the most important (32%) or very important tools (39%), while benchmark analysis tools are qualified as less important (37%) or important (35%) tools.

BPR planning tools are evaluated mostly as important (38%) or very important (38%) tools. Even 29% of the respondents evaluated BP analysis tools as the most important, 34% think that they are very important, while 30% evaluated them as important.

Approximately 42% of the respondents pointed out BPM tools as very important, 24% evaluated them as the most important. More than one-third (34% – 39%) of the respondents evaluated simulation modelling tools and Workflow Management Tools (WFM) tools as important or very important.

Table 6. The evaluation of BPR tools in Croatian companies

| Tools | (1) | (2) | (3) | (4) | (5) | Average |
|-------|-----|-----|-----|-----|-----|---------|
|-------|-----|-----|-----|-----|-----|---------|

| | | | | | | Grade |
|----------------------------|----|-----|-----|-----|-----|-------|
| Benchmark analysis tools | 5% | 37% | 35% | 18% | 5% | 2.8 |
| BPR planning tools | 2% | 10% | 38% | 38% | 12% | 3.4 |
| BP analysis tools | 0% | 7% | 30% | 34% | 29% | 3.8 |
| BP modelling tools | 0% | 12% | 22% | 42% | 24% | 3.7 |
| Simulation modelling tools | 0% | 12% | 34% | 39% | 15% | 3.5 |
| WFM tools | 0% | 13% | 38% | 36% | 13% | 3.4 |
| CASE tools | 0% | 10% | 19% | 39% | 32% | 3.9 |

(1) Not important, (2) Less important, (3) Important, (4) Very important
 (5) The most important

5.2. The analysis of the companies engaged in BPR projects

Only 12 (12%) of the 100 examined companies are or were involved in a BPR project. Even 37 (76%) of the 49 companies familiar with BPR are not involved and have never conducted BPR. BPR projects are finished in three companies, while nine companies are still engaged in it (Figure 2).

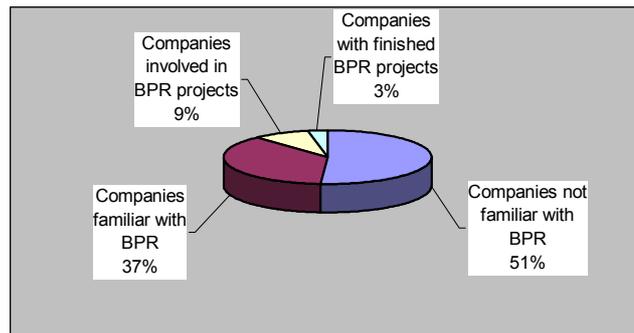


Figure 2: The percentage of Croatian companies familiar with BPR and/or involved in BPR projects

Information technology is an essential enabler of BPR projects in eight (66%) companies engaged in BPR projects, while it is not important for BPR projects in four companies. A BPR project may be undertaken for a variety of reasons, but the most common reason is the improvement of the essential business processes in the company. The main objective of a BPR project in five companies (41%) is the process of selling goods or services. The improvement of the process of manufacturing is the main objective in two (17%) companies (one is classified into the manufacturing industry type, the other belongs to the construction industry type). The process of accounting and finance is the most important for the BPR project in two companies (17%). In three (25%)

companies, BPR projects are concerned with all the business processes in order to improve the entire business (Figure 3).

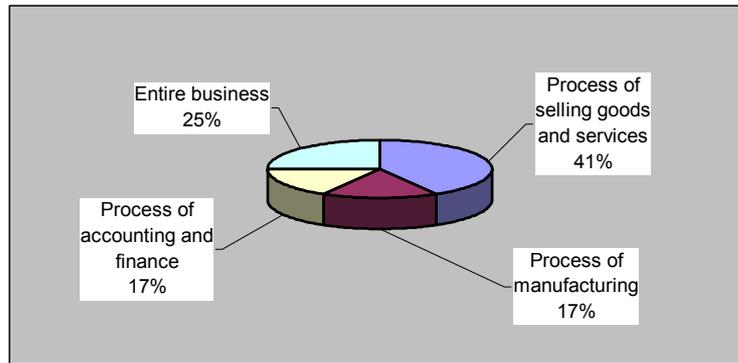


Figure 3: The objectives of BPR projects in Croatian companies

Respondents were asked to point out the main goals of the BPR project in their company. The results showed that the main goals of BPR projects were the reduction of costs (delivery time, goods on stock), entire business processes improvement, increase of sale, increase of productivity and increase of quality (Table 7).

Table 7: The main goals of BPR projects in Croatian companies

| The goals | Number of companies | % of companies |
|---|---------------------|----------------|
| Reduction of costs | 5 | 25 |
| Entire business improvement | 4 | 20 |
| Increase of productivity and efficiency | 5 | 25 |
| Increase of sales | 5 | 25 |
| Increase of quality | 1 | 5 |
| Total | 20 | 100 |

The respondents were asked about the costs of BPR projects and duration (planned or expected) of BPR project design and implementation. No answer about the costs was given. The duration of BPR project design differs from three to six months. The period of implementation lasts from four to 12 months. In two companies, the BPR project is considered as a continuous process.

The analysis of the BPR tools used in the projects (Figure 4) showed similar results to the analysis of the respondents' evaluation of BPR tools' importance. The tools most frequently used are business process modelling tools (31%) and CASE tools (23%).

About 15% of the companies used business process analysis and business process planning tools. Only 8% of the companies used WFM tools, while benchmark analysis tools and simulation modelling tools were not used (although simulation modelling tools were evaluated with a 3.5 average grade).

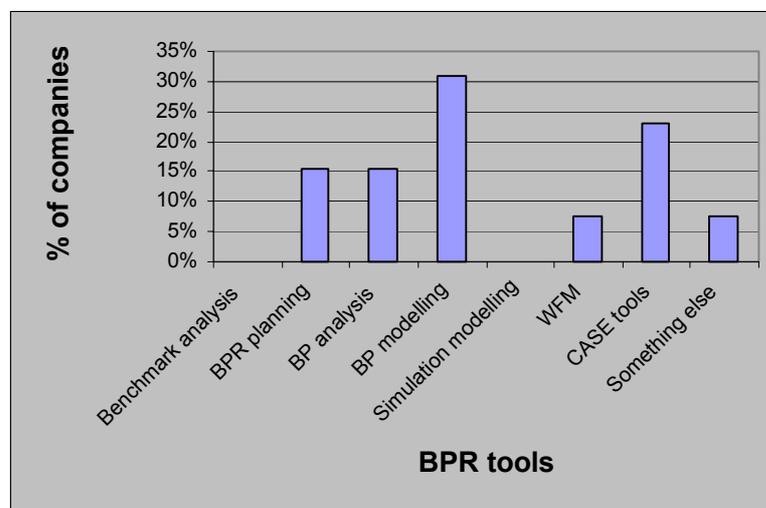


Figure 4: BPR tools used in Croatian companies

5.3. The analysis of the companies planning to conduct BPR

The analysis of the 37 respondents familiar with BPR, but not engaged in it, showed that about a half of them (46%) planned to conduct BPR (Table 8). Only one company will do it in the next six months, four companies (11%) will initiate BPR projects within the period of one year, 10 companies (27%) will initiate it in the next two years, while two companies (5%) have some plans about it in the next five years. Less than half of the companies (17 companies, or 46%) do not plan to initiate BPR projects, while three companies (8%) did not answer the question.

Table 8: Period for undertaking BPR in Croatian companies

| Period of time for undertaking BPR | Number of companies | % of companies |
|------------------------------------|---------------------|----------------|
| Next 6 months | 1 | 3 |
| 1 year | 4 | 11 |
| 2 years | 10 | 27 |
| 5 years | 2 | 5 |
| No plans about BPR | 17 | 46 |
| Not answered | 3 | 8 |
| Total | 37 | 100 |

The reasons for not undertaking BPR are analyzed in Figure 5. The main reasons are: the lack of top management support (32%), the high expenses (24%) and the long period of BPR projects' design and implementation (16%).

The frequent failure of BPR projects is a less important reason (4%), while the other reasons (24%) are: business uncertainty, period of transition in Croatia, and high level of business risk according to the current situation in the country.

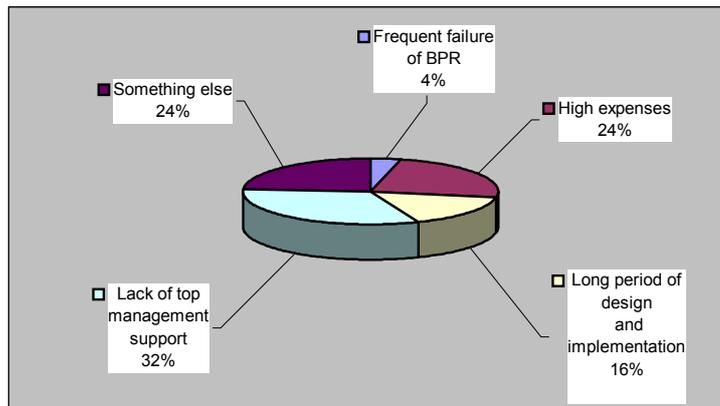


Figure 5: The reasons for not undertaking BPR in Croatian companies

6. THE COMPARISON OF THE RESEARCH IN CROATIA AND SLOVENIA

The analysis showed that even 93% of Slovenian respondents are informed about BPR (as opposed to 49% in Croatia). Almost the same percentage thinks

that the essential enabler of BPR is information technology (81% in Croatia, 78% in Slovenia).

The evaluation of BPR tools in Slovenia showed almost similar results as in Croatia. There were no significant differences in Slovenian average grades of BPR tools. Benchmark analysis tools are evaluated mostly as less important or important tools. More than a half of the respondents in Slovenia evaluated the other tools as very important or the most important tools.

6.1. The comparison of the companies engaged in BPR projects

Even 56% of the examined companies in Slovenia is or was engaged in a BPR project (12% in Croatia), 9% of the examined companies have finished their projects while 47% is still involved in it. More than one-third (37%) is only familiar with BPR but not involved in it. Only 7% of Slovenian companies are not familiar with BPR (51% in Croatia). The comparison of the results is shown in Figure 6.

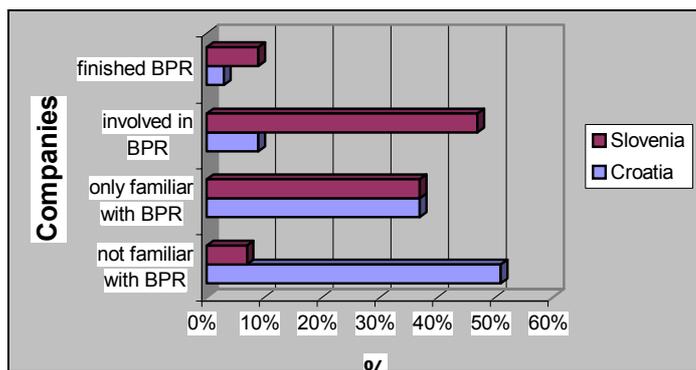


Figure 6. The percentage of companies familiar with BPR or engaged in BPR – a comparison

Information technology is an essential factor of BPR projects in 73% of Slovenian companies that have been involved or have finished BPR projects (66% in Croatia). The main objectives of BPR projects are very similar in both countries although the samples were different according to the companies' industry type (Figure 7).

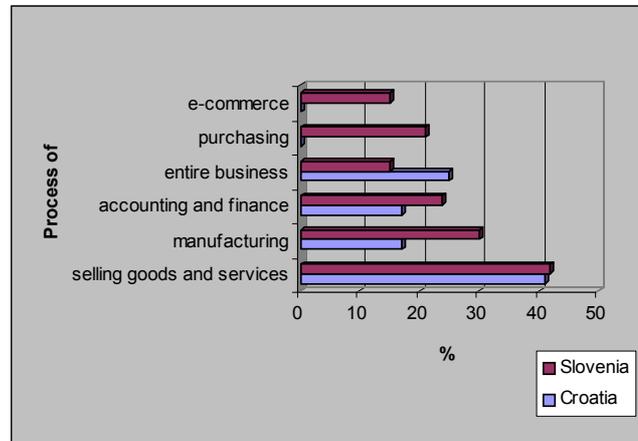


Figure 7. The main objectives of BPR projects in Croatia and Slovenia

BPR projects are mostly concerned with the process of selling, process of manufacturing and process of accounting and finance. The improvement of the entire business is also the objective of BPR projects in Croatia and Slovenia. The objectives of BPR projects in Slovenia are also the process of purchasing and electronic commerce.

The main goals of BPR projects were almost the same in both countries: improve entire business processes, reduce costs, increase productivity and increase sales. The respondents in Slovenian companies gave only a few answers about the costs of BPR projects that were not sufficient to be analyzed (the respondents in Croatia did not answer). The respondents in Slovenia estimated that the average duration of BPR projects design was nine months (4.5 in Croatia), while the average estimated duration of BPR implementation was 17 months (eight in Croatia). As there was a greater number of BPR projects in Slovenia than in Croatia, it could be assumed that Slovenian estimations are more realistic.

The comparison of BPR tools used in the projects showed that the most frequently used tools in Croatia and Slovenia were CASE tools and business processes modelling tools (Figure 8). Benchmark analysis and simulation modelling tools were not used in Croatia and the percentage of their use in Slovenia was quite small (benchmark analysis 6%, simulation modelling 24%).

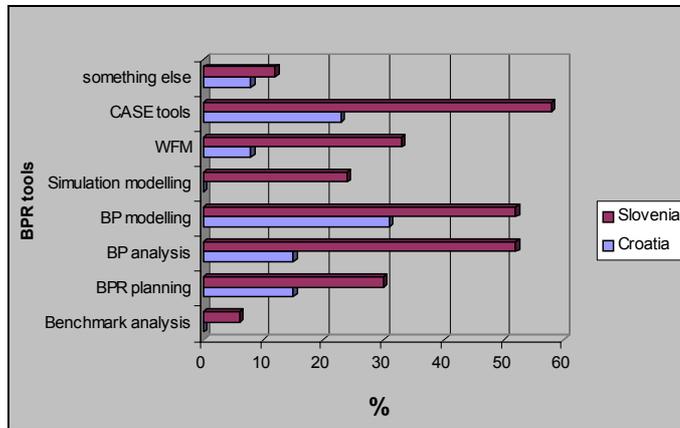


Figure 8. The comparison of BPR tools used in Croatian and Slovenian companies

6.2. The comparison of the companies planning BPR projects

The analysis of the 30 companies (37%) in Slovenia that were familiar with BPR, but not involved in it, showed that one-third planned to conduct BPR in the next two years (similar to 27% in Croatia), while one third did not plan it at all (almost one-half in Croatia). The comparison of the results is shown in Figure 9.

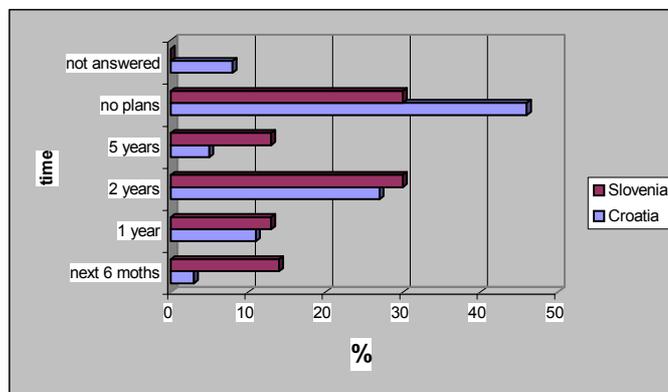


Figure 9. The comparison of plans for undertaking BPR in Croatian and Slovenian companies

In second place are two reasons (33% in Slovenia, 24% in Croatia): the long period of BPR projects and other reasons. The main other reasons for the respondents in Slovenia are the lack of knowledge about BPR and the lack of

educated and specialized persons. The main other reasons in Croatia are connected with business conditions because of the period of transition and the current crisis. The reasons are compared in Figure 10.

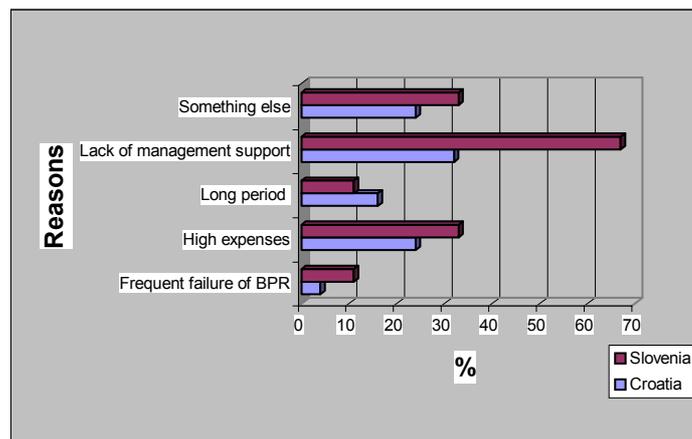


Figure 10. The reasons for not undertaking BPR in Croatian and Slovenian firms

7. CONCLUSIONS

The comparison of the research about BPR conducted in Croatia and Slovenia has shown a lot of similarities, but also differences among large companies in the two neighbor countries of Central Europe.

The results of the research in Slovenia pointed out that Slovenian companies did not reach the proportions of BPR projects in the developed countries of Europe and the USA, but are much closer than Croatian companies. Although the samples in both countries were uniform according to the companies' characteristics (level of transition, number of employees and revenue), almost all Slovenian respondents were informed about BPR, while almost half of Croatian respondents were not familiar with BPR. More than half (56%) of Slovenian companies were involved in BPR or have finished it, as opposed to only 12% in Croatia. Slovenian companies have obviously recognized the importance of BPR in the conditions of global competition, while the management of companies in Croatia have yet to consider how to conduct radical business process restructuring in order to survive in the global market.

The survey identified three groups of organisational problems. These problems are similar for both countries and could be divided as follows: (1) the scope of BPR projects, (2) BPR tools and (3) actual role of information technology.

7.1. The scope of BPR projects

Though Slovenian companies are much more engaged in BPR projects, the results about BPR methods and tools, BPR goals and objectives, as well as the reasons for not undertaking BPR projects were very similar in Croatia and Slovenia. The analysis indicated that improvement of business efficiency and other tangible benefits (reduction of costs, increase of sales) are the prime motives and reasons for undertaking BPR projects.

It is obvious that the corporate-wide business process reengineering projects cannot be seen only as a problem of automation and implementation of modern technology or efficiency improvement of existing processes because there is more to organisational changes than just the technological view. BPR projects should be focused on all related key business elements: **structures**, **people**, **business processes**, and finally the **technology**.

Organisational culture is the result of enterprises' structures and people. Organisational culture is a pattern of beliefs and expectations shared by the organisational members. These beliefs and expectations produce norms that powerfully shape the behavior of individuals and groups in the organisation (Roos and Bruss, 1995). The appropriate business culture is required to enable changes in the organisation and in the whole society. Without the recognition of culture as an important factor, it is impossible to predict the chances of success of the project, as it is hard to form the objectives and strategy of a BPR project. Reimann and Wiener view culture as the social or normative glue that holds the organisation together (Ravenaugh, 1995).

This survey indicates that the relatively slow process of privatisation of the Slovenian and the Croatian economy has caused a weak "voice of ownership". The impact of shareholders on changing the corporate culture toward business renovation has been limited. Most corporations have retained hierarchical and "self management" features in their corporate culture. The results in terms of renovation have been automation and information technology projects that have embedded ineffective or inefficient work processes. The number of successful corporate-wide BPR projects has been low (15% in Slovenia, 25% in Croatia) and the successful ones have been primarily in "private" corporations.

The change from a functional to a process type of organisation is considered to be of utmost importance in Croatia and Slovenia. The unsuccessful projects failed mostly in the moment of implementation because agreed upon organisational changes were not carried through. These types of problems could be overcome through working with people - not only arising their availability, flexibility, or productivity, but also improving their knowledge, managing their natural resistance to change, and helping to convert that resistance into commitment. It is also easier to deal with people that have better education and are prepared and skilled to use new information technology. Progressive organisations should be built on the potential of their employees. They should be skilled and well informed, they should use the right tools and technology, and they should be personally stimulated and motivated.

7.2. BPR tools

Business modelling could be divided into strategic and tactical/operational levels (Krallmann and Derszteler, 1996). Strategic modelling includes the analysis of corporate strengths, weaknesses, and culture, the assessment of information systems in the organisation, and organisation and management competencies. It is the basis of all further actions and is carried out by corporate management. Corporate goals, strategies, and critical success factors form the basis for selecting and modelling core business processes on the global level of description. Such a model, together with information on the organisation's current state, is fundamental for evaluating and benchmarking to other corporations. The benchmarking effort focuses on measuring other corporation processes to determine where excellence of performance exists, learning what those corporations did, and then producing excellence in those processes.

Detailed modelling of the processes or workflow structures takes place on the tactical/operational level. Workflows are refined and modelled at the level of particular interdependent business activities that are performed by actors (subjects) in an organisation in order to achieve common goals. On this level, the more exact and certain information about workflow is, the better the modelling results will be. The problem lies in the conflict of aims between the need for accurate information and the difficulties of obtaining it due to the often obsolete documents describing flow structure, varying or even contradictory statements from employees, and time constraints (Krallman and Derszteler, 1996). The benchmarks in the field of workflow modelling can be called reference process models. Reference process models are developed and evaluated on the basis of best practice for several selected types of businesses.

In this survey, several problems related to business process modelling and benchmarking were discovered. Many Slovenian and Croatian corporations are not willing to put their energy and time into business process modelling and to invest in benchmarks on the strategic level. They want quick and tangible results like many other companies from all over the world. Owing to a lack of national benchmarks, it is also found that some international benchmarks would be suitable for the problems of the corporations in Slovenia and Croatia.

Simulation methods and software tools are able to model the complexities of a system structure, its dynamics and stochastics. The ability of simulation methods to represent systems' complexities plays a crucial role for their usage in BPR projects because it can enhance analysing the creative ideas on how to redesign the existing business processes.

This survey showed that Croatian and Slovenian managers did not recognize the benefits of using simulation for business process modelling. It is apparent that a more widespread use of simulation for business process modelling can increase the rate of success of business process re-engineering projects, which should then result in savings in resources and better service provided to the customers.

7.3. Actual role of information technology

The respondents in both countries shared the same opinion about information technology as an essential factor of BPR projects. Information technology plays a crucial role in BPR, but the business process should first be analysed in order to find out if they are well defined, adequate, and ready for implementation of the new information technology.

Radical process innovation was encouraged by some quality experts (Davenport, 1993). There is a natural process improvement sequence that occurs as organisations apply TQM to their work. Watson (Watson, 1994) suggests the elimination sequence procedure. He stated that most problems could be attacked through the application of the basic quality tools of problem solving and quality improvement processes before there is a need to automate work processes or seek IT intensive solutions. The analysis of BPR projects showed that implementation of IT in business processes should cause several changes and enhancements. It must be stressed that the usage of IT has the strongest impact on standardisation or elimination of process variations. As a result of that, the advantages of using information technology cannot start before the work

process improvement has been successfully implemented. Only in that way, an improvement of quality, lower costs, and shorter performance times of renovated business procedures and activities could be expected.

The results of the survey and the problems established by the comparison of large Croatian and Slovenian companies could help to avoid mistakes and provide the success of further BPR projects.

REFERENCES

1. Central Bureau of Statistics (1997), *Statistical yearbook 1997*, Zagreb.
2. Davenport, T.H. (1993), *Process innovation: reengineering work through information technology*, Harvard Business School Press, Boston.
3. Davenport, T.H. (1995), *Business process reengineering: Where it's been, where it's going*, In *Business Process Change Concepts, Methods and Technologies*, eds. V.Grover and W.J. Kettinger, Idea Publishing, Harrisburg, PA
4. Davenport, T.H. and Short, J. (1990), *The new industrial engineering: Information technology and business process redesign*, *Sloan management Review*, Summer, 11-27.
5. Davenport, T.H. and Stoddard, D.B. (1994), *Reengineering: business change of mythic proportions?*, *MIS Quaterly*, 18(2), 121-127.
6. Dhaliwal, J. (1999), *An empirical review of the application of business process reengineering*, *Proceedings of the Fifth International Conference Integrating Technology & Human Decisions*, Athens, Greece, 1573-1575.
7. Earl, M.J. (1994), *The new and the old of business process redesign*, *Journal of Strategic Information Systems* 3(1), 5-22.
8. Ferrie, J. (1995), "Business processes- a natural approach", ESRC BPR Centre, University of Warwick, <http://bprc.warwick.ac.uk/forum1.html>
9. Hammer, M. and Champy, J. (1993), *Reengineering the corporation*, Harper Collins Books, New York.
10. Harrison, B.D. and Pratt, M.D. (1993), *A methodology for reengineering businesses*, *Planning Review*, 21(2), 6-11.
11. Jackson, B. (1996), *Reengineering the sense of self: the manager and the management guru*, *Journal of Management Studies*, 33, 571-590.
12. Kettinger, W.J., Teng, J.T.C. and Guha, S. (1997), *Business process change: a study of methodologies, techniques, and tools*, *MISQ Quarterly*, March, 55-80.
13. Kovačić, A. (1998), *Business Process Reengineering and Information Systems Renovation Projects: Problems and Assessment*, Working Papers Series, University of Ljubljana, Research Center of the Faculty of Economics, Ljubljana, No. 77.
14. Krallmann, H. and Derszteler, G. (1996), *Workflow Management Cycle*, eds. Scholz-Reiter, B., and Stickel, E., *Business Process Modelling*, Springer, Berlin.
15. Pall, G.A. (1987), *Quality Press Management*, Prentice-Hall, Eaglewood Cliffs, New Jersey.

16. Paul, R.J., Hlupic, V. and Giaglis, G. (1998), Simulation modelling of business processes, eds. Avison D. and Edgar-Neville D., eds., Proceedings of the 3rd UK Academy of Information Systems Conference, Lincoln, UK, June (McGraw-Hill), 311-320.
17. Privredni Vjesnik (1998), Special issue on 400 Croatian biggest companies, June 29, Zagreb.
18. Revenaugh, L.D. (1995), Crossing the Final Hurdle in Business Process Re-engineering, eds. Burke, G and Peppard, J, Examining Business Process Re-engineering, Kogan Page Limited, London.
19. Roos, H. and Bruss L. (1995), Human and Organizational Issues, eds. Fischer L., The Workflow Paradigm, Future Strategies Inc., Florida.
20. Saxena, K.B.C. (1996), Reengineering public administration in developing countries, Long Range Planning 29(5), 703-711.
21. Talwar, R. (1993), Business reengineering - a strategy – driven approach, Long Range Planning 26(6), 22-40.
22. Teng, J.T.C., Grover, V. and Fiedler, K.D. (1994), Business process reengineering: Charting a strategic path for the information age, California Management Review, 36(3), 9-31.
23. Wastell, G.W., White, P. and Kawalek, P. (1994), A methodology for business redesign: experience and issues, Journal of Strategic Information Systems 3(1), 5-22.
24. Watson, G.H. (1994), "Business Systems Engineering", John Wiley & Sons, NewYork.
25. Zakon o gospodarskih združbah (1993), Uradni list RS št.30/93, Ljubljana

USPOREDBA RESTRUKTURIRANJA POSLOVNIH PROCESA U HRVATSKIM I SLOVENSKIM PODUZEĆIMA

Sažetak

Da bi se zadržala konkurentnost i održao rast, poduzeća moraju kontinuirano unapređivati svoje poslovne procese, povećavati produktivnost i smanjivati troškove. Kako mnoge organizacije traže nove pristupe poslovanju i promjenama poslovnih procesa, Business Process Reengineering (BPR) je postao jednom od najpopularnijih tema u managementu, a posljednjih su godina provedeni brojni BPR projekti. Temeljni je cilj ovog istraživanja analiza BPR projekata u dvije tranzicijske zemlje: Hrvatskoj i Sloveniji. Razmatraju se različite karakteristike BPR projekata, kao i metode i sredstva korištena u njihovoj provedbi. Uspoređuju se rezultati dobiveni u Hrvatskoj i Sloveniji, te ističu sličnosti i razlike između dvije zemlje. Cilj je istraživanja identificirati da li su manageri u tranzicijskim zemljama prepoznali značaj BPR-a.