Business Process Mapping and Analysis as a Base for Increasing Competitive Advantage through Improving System Efficiency and Customer Orientation: Case of Steel Production Industry

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Povzetek Processes are one of key elements of each organization, so their analysis and constant improvement is essential for developing and maintaining competitive advantage. Business process mapping represents the initial step in process optimization. Another important aspect of good market position and business success is customer satisfaction. Organizations that are customer-oriented have much higher chance for satisfying and retaining their customers. Steel production industry is specific for extremely large and expensive orders on one hand, and production limits in terms of dimensions and quality on the other hand. In this industry clients are expected to accept certain adoptions of their demands in cases of production to order, or to adapt to predefined portfolio in cases of production in advance. Production to order in steel industry is more difficult to organize and increases production costs, but this approach improves customer orientation and eliminates the risk of unsold goods. However, order optimization is the step that can endanger customer satisfaction within sales and negotiation process in such production. This paper will show how process mapping and analysis as a tool in organizational design can represent a base for process flow optimization that increases process efficiency but also improves customer orientation, leading to competitive advantage.

Ključne besede: process mapping & optimization, organizational design, efficiency, quality, change management, business analysis.

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1 Introduction

General sources of competitive advantage are cost reduction and differentiation (Porter, 1998). In steel industry, due to scope of business and its influence on national and even regional economies, companies often use political strategies, such as lobbying the government for trade protection (Schuler, 1996). Nevertheless, they still have to develop competitive advantage in order to be successful. Managers need to understand the sources of sustained competitive advantage in order to choose the right production strategy (Barney, 1991).

In every production process it is necessary to decide whether an item should be produced and stored as inventory before an explicit purchase order is received (production in advance), or whether it should be produced only after such an order is received (production to order) (Casaburi & Minerva, 2011). Steel companies on developed markets and large players worldwide tend to reduce production costs by standardizing their portfolios and gain benefit from production in advance (Poddar & Sasaki, 2002). They accept the risk of inventory (Wijngaard & Karaesmen, 2007) as they trust that market will eventually absorb the production and since they have enough resources to use such strategy. On the other hand, smaller plants and those on less developed markets may tend to use production to order to avoid potential risks. Advance demand information, when used effectively, can improve the performance of production and inventory systems (Karaesmen, Liberopoulos & Dallery, 2004). Some research even show that production to order may even result in lower prices than advance production (Tasnádi, 2004), although key reason for using this strategy remains significantly reduced risk of unsold goods. Its main disadvantage is definitely delivery time, especially in industries like steel production, where the manufacturing will not even start until enough quantity of same product have been pre-ordered. This side effect can definitely endanger customer satisfaction. In this paper we will show on case of steel industry how business process optimization can improve customer orientation and also increase efficiency of its execution.

2 Process optimization as a source of competitive advantage

Different authors agree that processes represent one of the main elements of each organization (Waterman, Peters and Phillips, 1980; Kates & Galbraith, 2007;

Osterwalder & Pigneur, 2010). Processes are usually defined as sets of activities that transform inputs to outputs. They are directly related to generating value and gaining competitive advantage. Hammer (2007) points that processes create value for customers through outputs, while Harrington (1991) explains that processes increase value of inputs. In order to better correlate business process with production to order that will be analyzed in this article, we can use the definition given by Davenport (2005) who sees process as a structured series of activities designed to produce a specific output for a particular customer in the market.

Business process needs to be well designed in order to function successfully (Hammer, 2007). Considering persistent and often rapid changes in business environment, organizations need to perform adequate organizational change in order to remain competitive (Eisner, 2003). Organizational change is every change in organizational system that increases its efficiency and/or effectiveness (Dulanović & Jaško, 2009). Process perspective of organizational change focuses changes in business processes, instead in structure or culture (Janićijević, 2004). Business processes are vital for providing competitive advantage and long-term sustainability of any organization (Carmeli & Tishler, 2004). Only through constant analysis and improvement of business processes organizations can build and maintain sustainable competitiveness (FitzGerald, 2014). Business Process Management is regarded as a best practice management principle to help companies sustain competitive advantage (Hung, 2006). Total quality management (TQM) philosophy points that quality is the key criterion of market differentiation and that continuous improvement of output quality lies in processes (Janićijević, 2004). TQM is regarded as a potential source of sustainable competitive advantage (Powell, 1995). Having that in mind, it is essential to constantly work on process optimization (Komazec, Todorović & Jaško, 2014), and furthermore on process reengineering and redesign (Magutu, Nyamwange & Kaptoge, 2010) in cases of necessity for radical changes in organization's process perspective (Dulanović & Jaško, 2009; Janićijević, 2004). Initial step in process change is business process mapping, where we tend to collect all data about processes in order to be able to analyze and eventually improve them (Vergidis & Tiwari, 2008; Jacka & Keller, 2009).

3 Achieving competitiveness through customer orientation

Another very important aspect of competitiveness are customer relations (Kotler & Keller, 2006). TQM has taught managers how to improve the quality of their organization's products and internal operations, bringing important performance improvements, but they often reinforced an internal orientation, as most quality tools help managers make internal process and product improvements, without focusing on customer satisfaction (Woodruff, 1997). Besides quality, various researchers recognize customer satisfaction as another source of competitive advantage (Tam, 2004) and the key to corporate success (Müller, 1991). Customer orientation improves performance and business results, especially in organizations that compete in business-to-business (B2B) markets (Deshpandé & Farley, 2004). Customer orientation and customer satisfaction orientation have a strong impact on performance in heavy industries (Singh & Ranchhod, 2004). Furthermore, customer orientation positively affects service innovativeness and product innovativeness in service firms and manufacturing firms (Wang, Zhao & Voss, 2016). It is very important to notice that customer orientation does not endanger internal process efficiency and that these two are complementary strategic assets which contribute to superior performance (Ziggers & Henseler, 2016).

Customer orientation considers focusing on buyers and how to provide them with superior value. To create superior value for buyers requires that a seller understands a buyer's entire value chain (Slater & Narver, 1994), as various factors can influence their satisfaction (Hennig-Thurau & Hansen, 2013). As a result, company can utilize customer product knowledge to gain competitive advantage (Menon & Varadarajan, 1992), and improve performance (Lin & Germain, 2003). To maintain the relationships that are critical for delivering superior customer value, companies should pay close attention to service, both before and after sale (Slater & Narver, 1994). This means that improvement of any part in sales proces can lead to increased customer satisfaction.

4 Case study and research questions

The steel companies are becoming increasingly aware about the sustainability challenges (Singh, Murty, Gupta & Dikshit, 2007). They are constantly looking for ways to improve product quality and product yield in a brief period of time (Kano

& Nakagawa, 2008), but also to increase customer satisfaction and implement customer orientation strategy. Second part can be rather difficult as structures of steel companies are usually very rigid and traditionally orientated internally, towards production process and efficiency.

In production to order organized steel company sales process consists of several major activities, with participation of different organizational units. After the inquiry has been received, it is analyzed in sales unit. In cases of ordering standard products from catalogue it is moved directly to negotiating commercial terms with client. However, if the inquiry refers to non-standard product in term of dimensions, materials, technology and quality, the approval from quality unit is demanded. If the production is possible the negotiations about commercial terms go on, and in opposite situations the process ends.

Since steel production is done in batches, the following activity is order optimization. It is simply not efficient to produce random products in this kind of industry, unless the order is large enough to fulfill the entire batch, which is rarely the case, especially in smaller plants. For this reason, steel companies tend to merge orders from different clients. In order to make that possible, ordered products have to be of same dimensions, materials and quality. Since clients mostly use standardized steel products, they are usually willing to accept changes in these parameters, or in quantity, to get in line for production immediately and avoid waiting for pairing with some other order. Only in cases of very specific demands the optimization will be declined by the client, but in such situations the clients are prepared to wait longer for their products since they are aware of production limits. Considering all mentioned, order optimization is mainly standard and accepted by the clients, after which the production can start.

There are three alternatives for organizational position of employees who perform order optimization:

- Within sales department;
- Within production department;
- In an independent organizational unit.

Complete sales process that was described is presented in swim lane diagram on Figure 1. We used that display as swim lane diagrams are regarded to be an important

tool when validating business rules and procedures with stakeholders because they are believed to convey information about business process models effectively and efficiently (Jeyaraj & Sauter, 2014).

What causes issues is the fact that sales unit has to renegotiate commercial terms with client after order optimization. Since at least one and often more parameters have changed, the price has to be redefined and confirmed with client. This means that even if we agree about the quantity and price, we later change it, although from the very beginning we knew that there will be changes. Furthermore, in the first days of months clients get worse terms as there are no other orders for that period and quantities to pair with. Such business model definitely cannot be perceived as customer oriented, despite offering them the possibility to define product parameters which is main characteristic of production to order. Additionally, the process flow is delayed due to double execution of same activity in most inquiries.

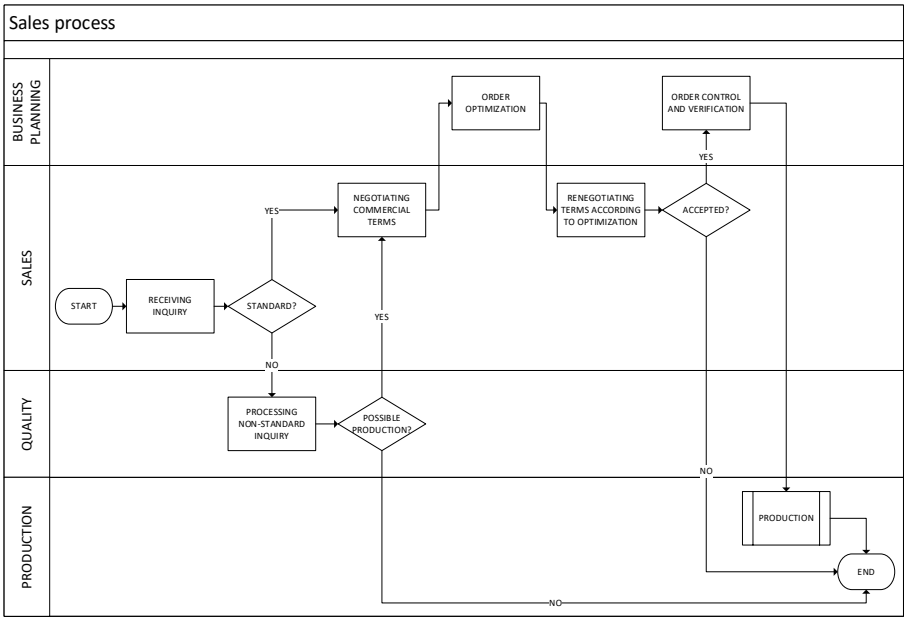

Figure 1: General sales process in steel industry
Source: own

Described issues could be resolved by sales process flow optimization, without changing existing work techniques, technology, prices, employees' skills nor

communication methods with clients. Business process reengineering has been adopted by many firms in an effort to improve their competitive position and enhance their ability to provide customer satisfaction (Lockamy & Smith, 1997). For that purpose, we set two research questions (RQ) that we tend to prove valid for steel industry:

- RQ1: Business process optimization can improve sales efficiency.
- RQ2: Business process optimization can improve customer orientation.

5 Results and discussion

Process analysis showed that order optimization is an inevitable activity that is performed in almost all process execution. Customers are familiar with that step and expect it to happen. What generates potential for improvement is its position in process flow. Order optimization is done after the commercial terms are negotiated and purchase is practically confirmed by client. It can be explained by flow efficiency logics. It is needless to discuss the optimization if the initial sales terms are not suitable for buyer.

The analysis also showed that order optimization lasts literally few minutes, at maximum, and in most cases less than a minute. It is rather standard scenario so the employees simply manually change in software those parameters that need to be adjusted according other orders, without huge modifications that might result in order cancelation by client. On the other hand, commercial terms negotiation is significantly longer process, and sometimes involves more employees. In cases of high sales values or most important, strategic clients, sales manager has to include sales department director or even executive in the negotiation activities. And after the order optimization, if new terms are not immediately accepted by the buyer, this whole resource demanding process occurs over again.

Simple cost-benefit analysis shows that it is much more efficient to have additional optimization activities than negotiation activities. For that reason it is rather justified to perform order optimization before negotiating commercial terms, as shown on Figure 2 in swim lane form.

New solution not only eliminates double negotiations, but it also reduces number of process flow crossings between organizational structure borders. Each transition of

its flow across different organizational units slows down the process execution (Komazec, Todorović & Jevtić, 2012). Side effect could be increased number of order optimization activities, since every inquiry would now initiate the optimization, and in the initial model it was done only if the commercial terms are agreed. However, we already explained that such activity is not time consuming, plus considering the industry and B2B business model, buyers are usually long-term partners who purchase specific steel products from known suppliers, most inquiries eventually become official orders, which means that total number of order optimizations will not increase significantly. Additionally, employees who perform order optimization often do only those activities, and most of the work time just monitor the system and wait for new purchases to appear, in order to process it momentarily, so the sales process is not delayed. The point is that no additional human resources are needed for optimized process flow. On the other hand, number of negotiation activities that are much longer and demand more resources will reduce considerably, we may even say halve. Considering everything that was described, we can unequivocally conclude that proposed solution for process optimization increases total efficiency of sales process, which answers RQ1.

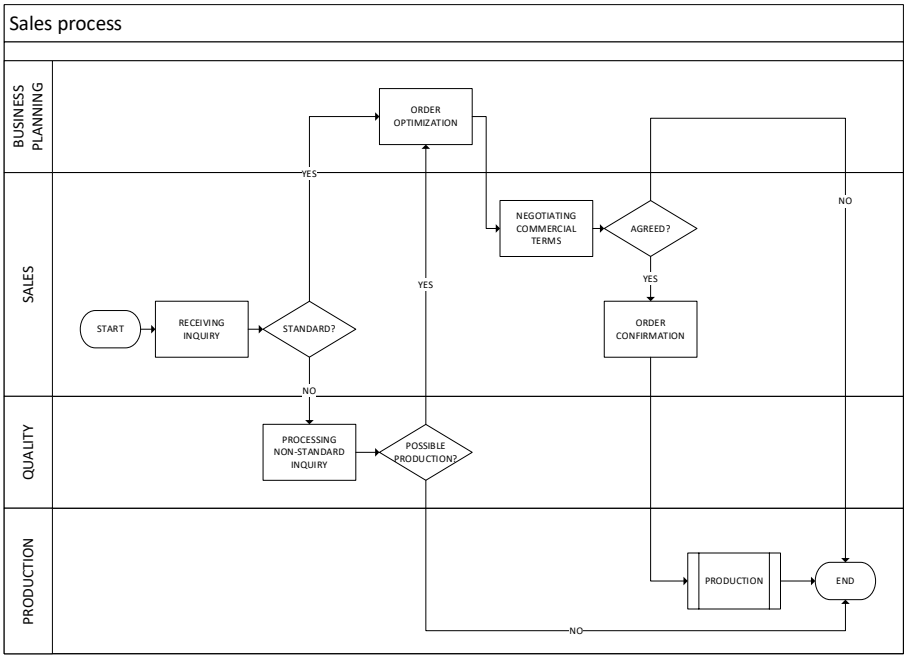

Figure 2: Optimized steel products sales process.

Source: own.

Since optimized process eliminates double negotiation about commercial terms, on initial inquiry and again after order optimization, it facilitates purchasing process for the customers. Time of their employees is saved and their pressure reduced, which is very important for quality decision-making and business performance (Kocher & Sutter, 2006). The message that company cares about its customers' resources is certainly sent. Maybe new process flow does not solve customers' most important issues, but it is definitely a step forward when it comes to their procurement efficiency. Having in mind that companies in steel industry assume order optimization and renegotiation of terms, the situation where producer proactively works on eliminating those problems although it is not obligatory nor expected as they are common, can only have positive effect on customer satisfaction, providing positive answer to our RQ2. Such behavior clearly reflects company's customer orientation.

6 Conclusion

Described case study shows how business process mapping and analysis, as initial steps in process optimization, can lead to the increased process efficiency and improved customer satisfaction at the same time. The results have practical implementation in steel industry as proposed organizational change does not require huge resources or large investments. This concept can also encourage companies from other industries to set customer orientation as one of the main goals when optimizing their processes.

Main limitation of this research is a lack of empirical data. We only provide theoretical context and show its practical usage, and in addition explain obvious and logical implications and positive effects, but we do not quantitatively verify our claims. For that reason, further research should be focused on measuring the savings in time consumption within sales process efficiency on one hand, and increase in level of customer satisfaction on the other hand, after the recommended process optimization has been implemented.

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