REDUCING BUSINESS OPERATING COSTS IN THE FIELD OF HEALTHCARE BY INTRODUCING CUSTOMERS WITH WEB SALE SYSTEMS

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ABSTRACT

Abstract – Contemporary business systems operate with high demands for efficiency and reduction of operating costs and this also applies to the field of healthcare. One of the means of reducing these costs is to introduce customers with various web sale systems, such as web shops, that can help them in purchasing the desired products or services. In this way customers are able to plan their purchase at their own pace, which is more convenient compared to the standard way of buying products/services. The introduction of a web sale system can reduce personnel expenses and in many cases existing personal becomes able to attend to their other duties in a more detailed manner since web sale system reduces part of their communication activities. In this paper, an integration of web systems support for purchasing of products or services into business systems in the field of healthcare is presented and its effects on reducing business operating costs are analyzed and elaborated.

Keywords – healthcare, business systems, operating costs, customers, web sale systems

INTRODUCTION

In order to be competitive and to provide their customers with fast and reliable services a maximum availability of information and sale channels is required from all business systems. While many business systems use web media for information purposes, there is a large number of companies that still do not incorporate web systems that would give their customers 24/7 availability of sale channels in the form of a web shop or some similar system. There are many authors who promote this kind of communication paradigm and availability [5; 11; 6] and the implications for electronic marketplaces have been researched and argued [2].

In order to maximize their availability to customers, various business systems employ call service agents who increase their business operating costs or in some cases they employ only a minimum of such agents leaving their customers with rather low availability time, which results in many customers buying the product/service elsewhere. In many cases employees that are primarily involved in other business activities perform the role of call agents. In order to conclude about the effects and the extent of reducing business costs when introducing web systems, a number of such systems have been introduced into a number of business systems in the field of healthcare and their effects have been analyzed to conclude about the costs reduction. Healthcare systems have been chosen because of rather large number of customers per day and large number of different inquires.

The introduction of e-business in the form of web system has been recognized as an important in [15], order-to-payment cycle has been researched in [12], evaluation of such systems in terms of business values was discussed in [3] and real effects can be seen in transactional costs, like proposed in [4]. Although specific in some segments, healthcare business systems have many similarities with other systems so conclusions made here can also be applied to other business systems. In this paper, results of analysis of operating costs reduction by introducing web sale systems are given and elaborated along with discussion about other effects of web systems on analyzed healthcare business systems' overall financial and business results.

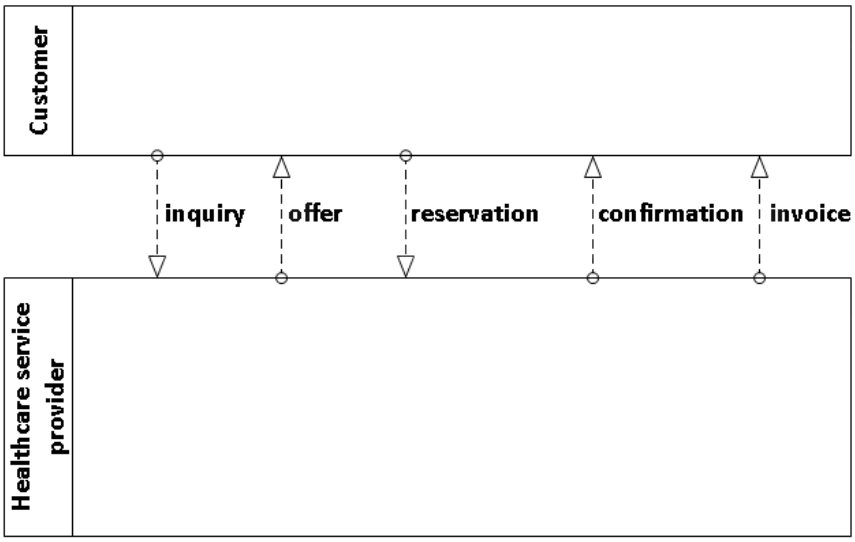
HEALTHCARE SERVICE SALES PROCESS AS IS

According to business process modeling methodology [10; 13] collaborative process model has been developed for healthcare service sales process in current AS IS state without web system support and new TO BE process was developed to present new process supported by the web system. E-business and its effects have also been researched in [16] and in this research collaboration was dealing with pure sales process in electronic equipment retail and wholesale industry. Standard process in healthcare service industry involves collaborative process that includes five steps communication between customer (patient) and healthcare service provider (hospital, private clinic or doctor's office). Whole process, with five business items or messages was developed as BPMN 2.0 collaborative diagram [17] and is shown in Figure 1.

Process starts 1) with customer's (patient's) inquiry (mainly through the phone or in person at the business physical location); 2) after which healthcare service provider (hospital, private clinic or doctor's office) sends an offer; 3) customer agree to possible terms and time schedule of appointment/treatment as the response in the form of reservation of service; 4) after reservation healthcare service provider responds with the reservation confirmation; 5) at the end there is a service provided in scheduled time and at the end invoice and payment. Last part of process was simplified since it does not affect communication between customer and the service provider. Among mentioned parties there are different interactions, but just the results of each process are presented on collaboration diagram with connection between two process pools (customer's and healthcare service provider's). Darts shows the direction of the communication.

This kind of view on services is called choreography, opposed to orchestration [7], which describes the interactions that appears between a designated service (the orchestrator) and a plurality of subordinated services [9].

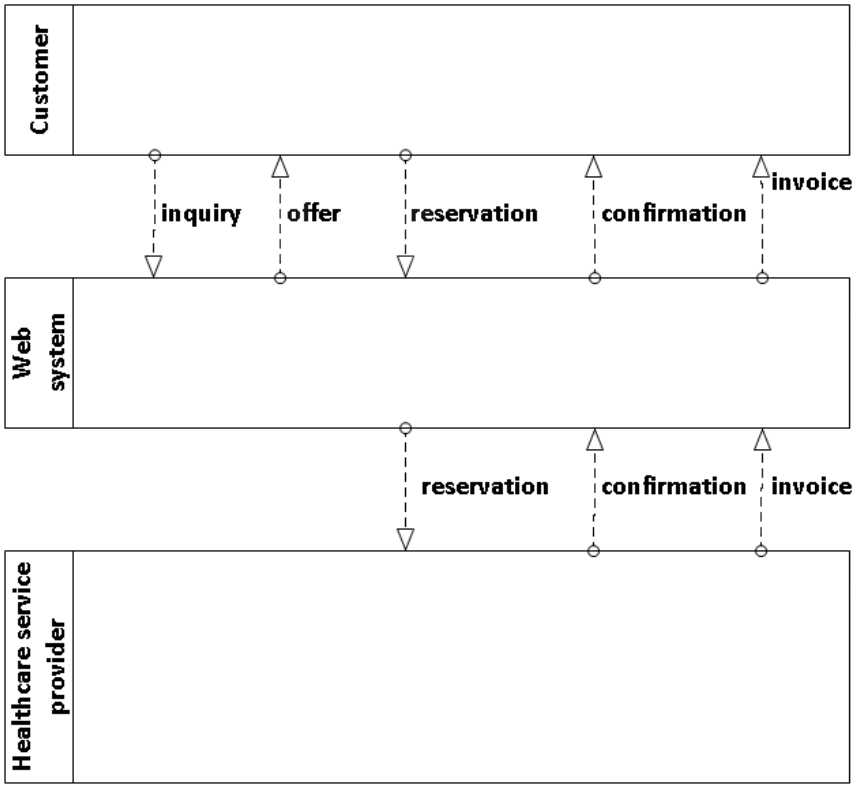
Figure 1: The model of selling/buying healthcare service AS IS



To research the new way of conducting process, so called TO BE process state, new collaborative diagram was developed (see Figure 2). At the new process diagram introduction of web system is presented as independent actor in the collaboration process that helps employees in healthcare service provider facility to automate some manual activities and to make customers interact with web system instead of calling and speaking directly to the healthcare service provider personnel. Intervention is needed only if reservation time requires confirmation or

customers have a special needs or questions. New process model with introduction of web system is shown in Figure 2.

Figure 2: The model of selling/buying healthcare service TO BE



Of course, in order to show a web sale model, some other elements have to be incorporated. The main role of a web sale system is to provide adequate 24/7 selling service to the customers by using modern technology. This kind of system has to be able to provide customers with a detailed list of offered products or services, but it also has to be able to provide customers with filtering options as well as with various information that customers could request. This kind of system also has to be able to handle customers' payment requests and to provide adequate invoice feedback.

Research has shown that the overall aspects of web site design as well as reliability, responsiveness and trust influence the quality of the provided service and also the customer's satisfaction, which is closely related to customer's intentions to buy the product or service [8]. Another aspect that has been established by the research shows that the customer's perception that the web system is in more or less capacity a single integrated point of communication with the seller also influences customer's willingness to buy online and customer's confidence into products or services that are being sold [8]. This basically means that the customer has to think that the overall process of sale is conducted in one place and that it is centralized, rather than dislocated in both logical and physical sense.

Service orchestrations are present in an ecosystem that is highly unstable and in which various changes occur continuously and are hard to predict [14]. This unpredictability is especially true in the case of external services which can fail without warning or can become incompatible with the service at hand. Another aspect that can be stated is that orchestration elements can be changed to pair up with new business needs and because of that orchestration systems should provide means of dynamic improvements and alterations to allow modifications that are needed to cope with new situations that were not planned and to cope with new requirements [14]. Another

important aspect of any web system is that it should always be updated and that it should reflect the real state of the business systems and their offered products or services.

THE CASE STUDIES OF WEB SYSTEM INCORPORATION

In order to assess the healthcare business operating costs reduction and other effects that can be accomplished by incorporating web system into business system's sale process a sample of 12 healthcare business systems has been selected and analyzed through 12 case studies [1]. The selected 12 healthcare business systems were mid-sized polyclinics with 10-20 employees and at least 5 years of business experience on the market. The factors that have been taken into consideration during the research are: the quality of the web system and whether the information are up-to-date, the number of phone or direct inquires before incorporation of the web system and the number of phone or direct inquires after incorporation of the web system, the assessment of operating cost reduction and other effects on the customers after the web system has become available. The period that has been taken into consideration is 3 months prior and 3 months after the incorporation of the web system. The research results that show reduction of operating costs per one employee per day are shown in Table 1.

Table 1: Research results (per one employee per day)

Business system no.	Quality of web system	Up-to-date information	No. of phone and direct inquires before (avg. per day)	No. of phone and direct inquires after (avg. per day)	Operating cost reduction (avg. per day in domestic currency)
1	3	4	43	17	25,14
2	5	4	59	30	26,24
3	5	4	51	15	31,02
4	5	5	77	35	36,42
5	4	5	53	22	27,61
6	4	3	41	14	23,35
7	3	4	55	20	32,54
8	4	4	48	23	22,51
9	4	5	45	12	27,01
10	5	4	68	43	19,84
11	3	4	49	21	25,84
12	4	5	34	18	14,20

As can be seen from the research results, introduction of web system for the support of business system's sales activities can result in significant operating cost reduction per each employee who is involved in the sale process and who deals directly with the customers. Along with this financial effect, there are also other effects of this kind of systems and they include greater satisfaction of customers because they are able to plan their buying process 24/7 on their own and because they are able to find almost all necessary information in the web sale system itself, as well as greater availability and confidence of customers in the business system.

However, a number of direct inquiries has still occurred and this can be argued with the fact that certain number of customers is still not so keen to use new technologies and that they feel more comfortable when talking to a person about their medical problems.

CONCLUSION

Modern business systems and trends require greater flexibility, reduction of costs and maximized availability of products and services to customers. This trend has been recognized and stated by many authors. In this paper, a research has been conducted to find out about the effects of introducing customers with web sale system on reduction of operating costs in the field of healthcare and on other factors on the customers' side. The research results have shown that introduction of this kind of system can result in significant costs reduction and also in increased satisfaction of customers, as well as in their increased confidence towards the business system and the buying process.

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