

## COMPARISON OF PROCESSES IN THE MANUFACTURING AND THE SERVICE ORIENTATED ENTERPRISES

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### Abstract

This paper presents a comparison of fundamental management processes of selected manufacturing and service companies. The selected object for the service enterprise was a spa resort, which depends on the geothermal potential of the surrounding area and provides medically preventative and curative procedures. Object management in the form of manufacturing companies and tourist resorts are understood as a system. The paper concentrates on the comparison of model cores: the logistics of procurement, ordering and selling, the management of the flow of materials, energy and people, and also the post-sales service.

**Keywords:** Services, manufacturing enterprise, micro-logistic model, processes

### 1. INTRODUCTION

The processes are generally divided into manufacturing and non-manufacturing. Depending on the area of realisation of the process we can classify the process as following: the processes of marketing, logistics, research and development processes, control processes. Manufacturing processes generally use specific technologies and procedures to create a tangible product. The management and control of production practices is the most important task of the enterprise. The result of non-manufacturing processes is an intangible product, which is called - service. The objective of the service is the meeting of both customer needs and expectations. Both of the processes (manufacturing and non-manufacturing) have inputs and suppliers of inputs, outputs and suppliers of outputs. These processes are seldom isolated, and if so the value is inadequate. The process must be planned - realized - controlled - improved [9]. Processes in manufacturing enterprises can be divided into three basic groups. Firstly there are managerial processes with elements of enterprise management (management responsibility, resources management, continuous improvement). The main processes of creating added value for the customer are the chief activities of the organization (demand processing, preparation of production, actual manufacturing, transport), and it represents the second group. The third group is the supporting processes without the creation of added value (shopping, taking care of instruments, maintenance management). Processes can be divided between horizontal passes across the organization (order processing, management of projects) and vertical processes belonging to the functional areas of organisation (purchase, production planning, etc.). Individual processes are implemented by individual operators (welding, turning, etc.). By comparison it is important to respect the territorial point of view and background to distinguish micro and macro levels of the enterprise. From that the categorization depends extent and character of specific logistics chains. The article is focused on the comparison of processes in micro-logistics level. By arbitrating processes in the manufacturing and in the services enterprises it is an applied systems approach. Manufacturing enterprises and service orientated enterprises (tourism resort) are understood as a system consisting of processes and objects that we manage, and takes into account all elements, i.e., the main process and the relations between them. Thereafter to determine the relationships with other processes and to define the aim of management, i.e. flow management in manufacturing enterprise and tourism resort.

Many authors have described the flow management in manufacturing enterprises from varying perspectives. The object of production logistics is defined by [4] as financial, information, material and energy flows, flows of

people and support material. The hierarchy of such flows is as follows: cash flows are transformed into information on which then defecting flows of material, and retrospectively, after the realisation of material flow are influenced by information and financial movements too.

Management of drifts in the companies providing services (tourism resort) was described by [1], according to him the logistics of tourist destinations represent optimization of the tides of materials, peoples, information, energy, knowledge, capital and waste in the area of interest for the purpose of providing the quality tourism products. The optimization of such tourism products is described in detail in the publication, [3]. Destination logistics (locality, resorts, etc.) include a series of interconnected activities that are characterized by their own individual processes. For defining the term of logistics services it is based on the theory of logistics [5]. The area of logistics services start at the customer (his/her interest), the marketing operating of the enterprise to the actual realization of customer requirements in the form of service creation and consumption to the post-curative service. The areas of logistics services are: customer - resort of services - the customer.

## 2. THE BASE FOR COMPARISON

The base for the analysis of processes in service based enterprises is a cross micro-logistic model of the enterprise, which is described in detail in numerous publications [5]. Included in the micro-logistic model of a spa tourism resort some specifics of processes defecting in the resort and particulars of its management compared with those processes and management systems often found in manufacturing enterprises. The objective of micro-logistic model services enterprise (see Fig. 1) is to assure the managing of logistics of purposes within individual nodes, which include mainly assurance of accommodation, consumption, transport and other special requirements of tourists (medical-preventive, therapeutic, administrative, information and so on) and the expected requirements for the duration of the stay.

*The logistics chain of accommodation* includes a series of procedures from initial customer check-in, acceptance, presentation of the accommodation space, the provision of services (both basic and extra services) to the conclusion of the stay. Processes within the accommodation in service orientated enterprises (tourism resort) can be classified as main, controlling and supporting. The main process are strategic planning, determination of responsibility, internal audits, the managing and maintaining of documents and human resources management. Control processes are booking, accommodating, checking-out, logistical preparation, food and beverage preparation and additional services. The support processes are represented by the maintenance, cleaning, measuring of customer satisfaction, and further promotion. The consuming logistics chain consists of six basic processes: material purchase, transportation, storage, production of food and beverages, shipping and distribution. The base is the preparation and planning. The basic business plan is a menu, recipe and valuation. As part of the chain it is necessary to provide the material inputs in the required quantities as well as quality and timing for the optimization of the purchasing expenditure. A large part of the running of the functioning chain is the choice of suitable suppliers, which can be achieved through observing quality, price and reliability of supply. Another important factor is contracting with the supplier and the continuous monitoring of the supplier. A suitable logistics method is JIT.

*In the logistics chain food and beverage services* and accommodation are very important as is the storage of perishable and non-perishable goods. For the temporary storage of food, cleaning products, packaging, clean and dirty linen and waste. The size and quantity of storage units depend on the requirements of the operation and of the type of services provided. Recommendations from the manufacturer of each good must be observed with respect to storage. The FIFO system of 'first in - first out,' is advisable for the using of stored goods. Just in-time stocking is based on the demand for goods. It is necessary to monitor the average amount of inventory, speed of sales, safety of stocking and re-ordering points. Material flow includes actual purchase, transport, storage, discharge, production and shipping.

*Logistic of transport in destination.* Transport is a necessary component of destination logistics. It includes the transport of people (tourist - visitors, service staff) and the transport of materials (goods, consumables and waste). The transport system in this area includes logistically oriented tourist companies and other tourist companies. These companies can provide professional services for reasonable prices, because they have reduced their own overheads by optimizing transport costs. Logistical transportation systems cannot be universal but have to be adapted to the needs of the people and material transport in the vicinity. Its design and transport technologies significantly affects the hierarchical structures of the transport network in any given area and the subsequent links. By [6], the principle is that the system must be an integrated entity with a compact management.

### 3. IDENTIFICATION OF SPECIFIC OF SERVICES ENTERPRISE IN COMPARE WITH MANUFACTURING ENTERPRISE

Micro-logistic models of service enterprises are shown in Fig. 1. The identification of certain specifics within service enterprises in comparison with manufacturing enterprises is focused only on the selected processes.

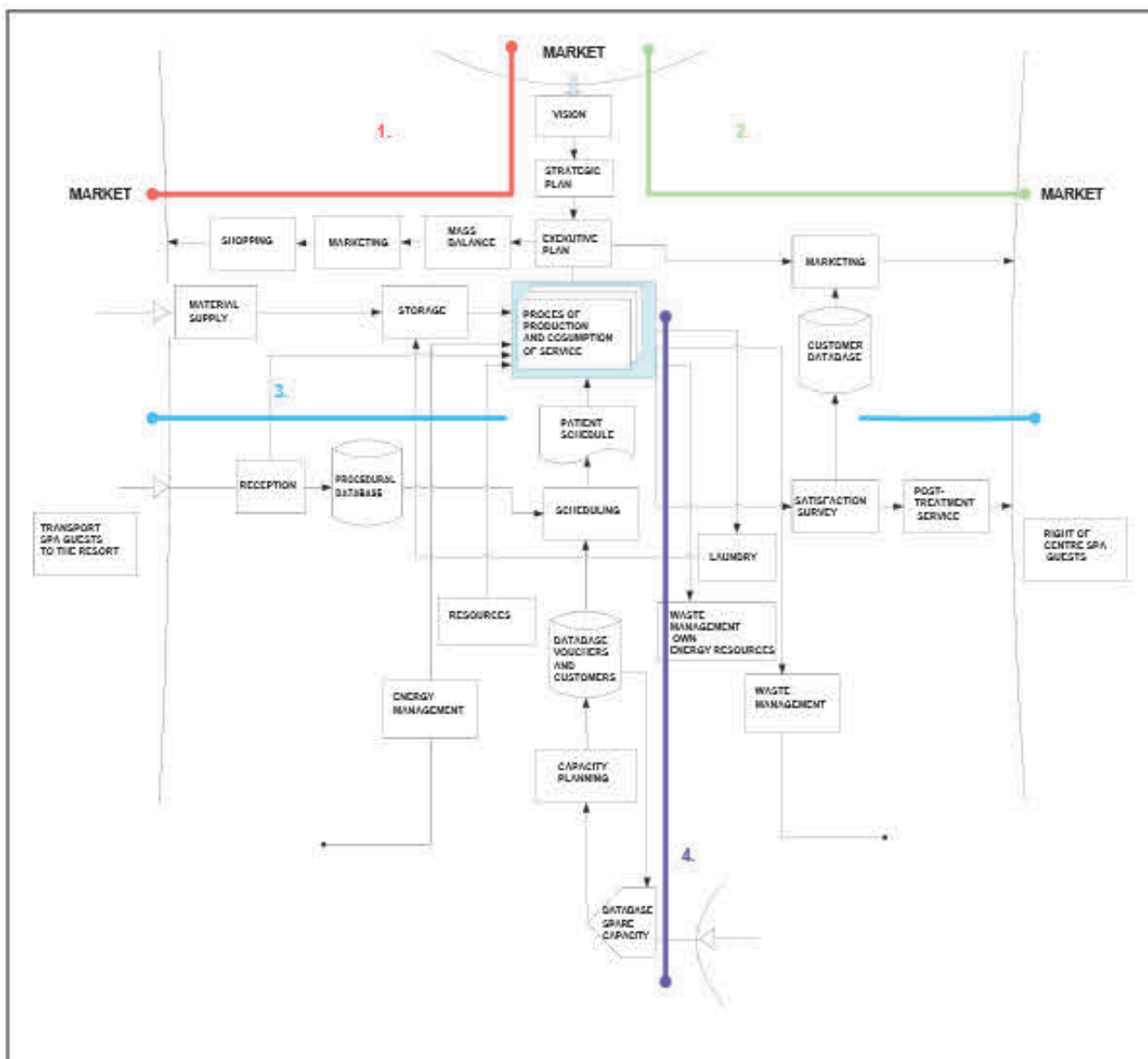


Fig. 1 Areas of comparison in services resort (spa resort)

## 1. The base of the model

The base of the model of a spa tourist resort consists of the production and consumption of services and the output is an intangible product, while at the manufacturing enterprises it is the production of palpable products (specific products). Another difference results from the individuality of the services in tourism - production of services and consumption are in progress together and are spatially associated in comparison with manufacturing enterprises, where production precluding consumption and production, distribution and consumption by spatially aspects are in progress in different areas. As a result, the main body of the model, in contrast to the model of the manufacturing enterprise, are two distinct processes, the production and consumption of services. It is necessarily noted that the provided product must consist of a package of services interconnected and mutually influencing, but one which the customer takes as a whole. The most blatant difference between the service enterprises compared to the manufacturing enterprise is the fact that the spa resort relies on customers coming directly to the "production of services" while in the manufacturing enterprise only indirect contact with the clients is possible.

## 2. Procurement Logistics

Logistics procurement is based on executive plan, where there can be a plan of capacities, material and energy needs about a year in advance. Under this procurement market research is conducted and the publicizing in order to obtain the most suitable suppliers. It should be noted that in tourism spa resort there will be a shorter-term contractual relationship with suppliers, because the subject of these relationships are mainly goods with a short shelf-life.

## 3. Material Flow

In the sphere of supply, the model is specific for the spa resort that the resort produces services, not products, so material inputs will be only assistant materials (food, necessary equipment, medical widgets, washing materials, office supplies, and so on.) that the resort will utilize in the creation of its main functions, i.e. to provide complex services for its guests. Materials entering to the spa resort have a limited lifespan (drugs, food, medical widgets, etc.), which are usually a significantly shorter time than stock in conventional manufacturing companies, so have to be ordered in smaller amounts but more frequently. For this the item also shows the absence of internal transport and material handling within the storage input, as the individual operating units pick material themselves and store in their own area. Internal transport between the arrival, storage and usage of supplies is also minimal because the spa resort does not manufacture products but produces these services and the services are consumed in the place of their production. The major exception being the pipeline that transports the geothermal water from the source to the various operating units utilizing this geothermal water. Usually the solution is in two main categories, namely primary and secondary.

## 4. The flow of people

Unlike the manufacturing enterprise, in the spa resort there are two significant elements of the human factor present, the people as employees and people as customers. Therefore will be in the micro-logistic model of spa resort on the input side figure another one important branch of the "customers". Their inclusion in the process of the system is one of the important aspects that varies the processes of the spa resort from the processes of the manufacturing enterprise. Another specificity in the service resort is that the staff is a key factor to the success of resort, where as well as their actual performance it is also important how they display their empathy, kindness, decency, etc. The process of recruiting, training, guiding and supporting of such employees requires a greater amount of attention to detail than those in the manufacturing industry.

## 5. Custom-made logistics

The spa resort varies from the manufacturing enterprise within customer logistics too. Customers of the spa can be spa guests who are sent by insurance companies, further spa guests are sent to a spa treatment in accordance to the law for reconditioning stays from different companies and ultimately self-financing. There may be domestic or foreign spa guests. Some of the patients are guests who are sent by insurance companies

and to maximise the remaining possibilities with regards to customer capacity the spa resort must exercise due care to obtain the desired clientele.

After the provision of capacity covered by health insurance companies are quantified information about its availability of the spa resort placed in the information system of the resort. Through connecting this system to the reservation systems at various sources are the information about availability displaying on the websites of numerous online retailers too, and also in various databases and reservation systems where directly through the internet or through various sales points (travel agencies and reservation systems, tour operators, etc.) clients can purchase their spa vacation. The products of the spa resort cannot be kept in reserve, because the services have intangible character, which is one of the very important differences in processes in spa and manufacturing enterprises. Unused services offered by service companies in contrast to a product, cannot be stored and sold at a later date and so they represent a loss for the spa resort. In contrast to the manufacturing enterprise capacity planning will be in progress at the base of the micro-logistic model that is, the detection of information of the number of sold spa vouchers for treatment, the registered data of booked vouchers in the database. The background will map out capacity within the spa resort (spa guests, spa facilities, procedures, accommodation, food, etc.), and after finding vacancies from the internal database will be transmitted information about vacancies back to external reservation systems. In this section, compared to manufacturing companies absent operative and dispatching management processes.

## **6. Scheduling**

As part of scheduling takes into account the capacity of the spa resort, information about the quantity and type of services that will be provided to the patient from his fee to the input (the procedural database) and data based on databases of capacity planning and the process is also specific for the services resort spa.

## **7. Service**

Service in the spa resort is in contrast to the manufacturing enterprise and is understood as a survey of customer satisfaction in the output and post-treatment service within the meaning of information obtained by customers about the advisability of further spa treatments, and additional information about news and events.

## **8. Logistics Sales**

Within the sales logistics it is in contrast to the manufacturing enterprise, the part "sales logistics" modified form as a post-treatment service. As the services are consumed at their place of the production, products do not leave the spa resort, there is no need to develop activities in the management of packaging, product design, sales methods, etc. There is also no need to create storage units for any created products.

## **9. Marketing**

Marketing of the strategic planning in the companies of services is very important because if the product does not sell, there is an evident and real loss for the spa resort. Unlike the marketing strategies commonly used by manufacturing companies "4P" tools of marketing mix are extended for Tourism on "7P" (price, product, promotion, partnership, package and program, people, place) [7].

## **10. The energy flow - self energy economy**

One of the conditions for the functioning of the spa tourism resort is the existence of natural healing source (geothermal well), so unlike the manufacturing enterprise, the spa resort is bound to the occurrence of natural healing source. Imported geothermal water through pipelines would be too expensive and would also entail heat loss. The proposal of the model of an integrated geothermal spa system is described in detail in [8], where the integrated geothermal spa system consisted of two subsystems, the primary and secondary circuits. The primary circuit (PC) consists of mining the well, where the geothermal water from the source to the water modification machinery is directed before entering the heat exchanger and then on to the primary heat exchanger. The secondary circuit (SA) starts from the primary heat exchanger, from where the distribution of the geothermal water is spread to the secondary heat exchange stations. They then supply the geothermal

water to the individual objects using geothermal energy (hotel, bathhouse, swimming pool, sports field, indoor swimming pool, sports centre, objects for greenhouses, fishpond management, golf course, riding school and stables), and then also use a cascade system for utilization of all remaining energy. From these, used geothermal water is directed through the secondary heat exchange stations back to the primary heat exchanger in the primary circuit. Before entering the reinjection well it is treated in geothermal water treatment machinery.

#### 4. CONCLUSION

Each process of the tourism resort is perceived as a set of activities that uses resources and is managed to enable the transformation of inputs into expected outputs. Without convenient information systems at the resort and also on external resort orientated markets which are interrelated (see Fig. 2) it isn't possible to achieve the desired outcomes.

If the tourist resorts have a well-functioning information system that will exploit all the processes of the service business and the necessary information is on time and the system is able to quickly and flexibly react to changes in customer preferences. The long-term building of information strategies is a necessary way to establish itself within the trade.

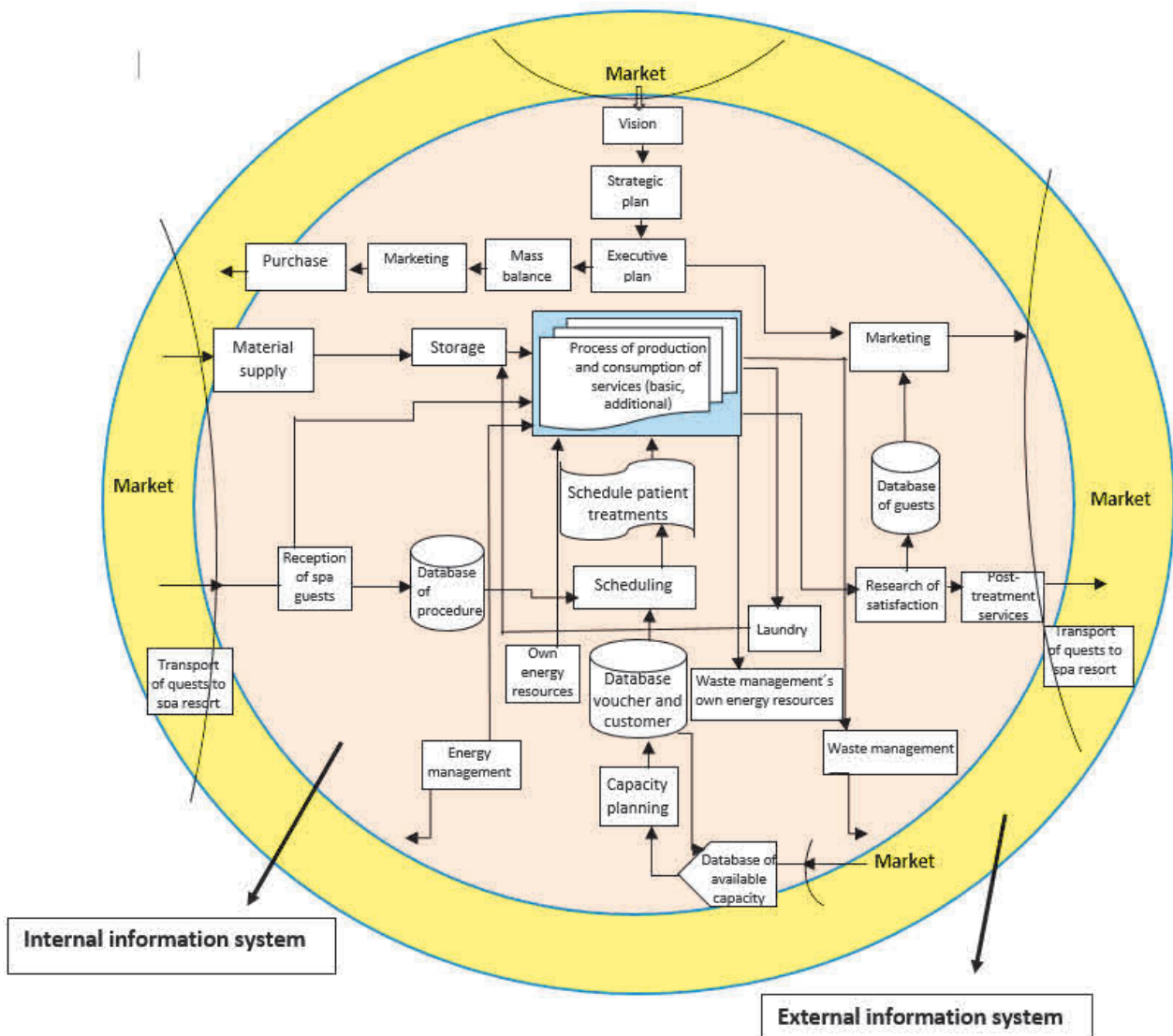


Fig. 2 Connection of information systems of spa resort

In this article the attention is focused on the comparison of manufacturing and non-manufacturing processes and identification of differences between them by using a systems approach. The process approach is another useful tool for comparison of processes in the manufacturing business and services business. The process approach is based on the model SMK and is based on the principles of management and interaction of all business processes in order to fulfil their objectives. For the implementation of the process approach it will be necessary to identify all the necessary processes in the enterprise, determine their sequence and how they intermingle, to define criteria and methods for their effective management, monitoring of processes.

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