

## CONTROLLING AND REENGINEERING OF PRODUCING-ASSEMBLING COMPANIES

Tamás Molnár, Ágota Bányai

*University of Miskolc*

**Abstract:** In the recent decades increasing diversification of customers' demands is noticeable. Because of this trend producing-assembling companies can only stay competitive, if they update and enlarge the product line made by them. This updating, enlarging activity can result that these companies have to reengineer their producing-assembling system time-by-time. The aim of this paper is to reveal the connections between reengineering activities, the identification system and the controlling system.

**Keywords:** reengineering, controlling, identification system

### 1. Introduction

In the recent decades increasing diversification of customers' demands is noticeable, namely, the customers want to see more and more types and variations of products on the shelves of the shops. Because of this trend the producing-assembling companies can only stay competitive, if they update and enlarge their product line. In connection with this, let us note that even the most modern, up-to-date producing-assembling system is not able to follow the continuous changing of product line, that causes continuous demand to reengineer the producing-assembling system time-by-time. Reengineering means replanning, rearranging the ongoing processes. Meaning producing-assembling lines, it covers engineering. Reengineering is always in connection with a present system, which has to be updated and enlarged. Naturally, the aim of every company is to operate the system with the highest possible efficiency and the lowest possible costs, namely, to work out an optimal system.

The aim of this paper is to show how can the need for reengineering appear, how can we achieve the realization of reengineering and what kind of sources are we to use for supporting the process in the interest of reaching the optimal form of the system at the actual time as a result of reengineering.

### 2. Redeemer factors of reengineering

In this part of the paper we shortly review the factors which can inspire the leadership of a company to decide on the reengineering of the company's producing-assembling system. These internal and external factors are shown on figure 1.

As it can be seen on the figure above the different factors can be divided into two main groups: internal and external factors. External factors as we mentioned in the introduction are based on the continuously changing customer demands. This continuous change results diversification of the product structure, which can modify the producing system. The other

main group is the bottlenecks revealed by company's controlling, correction of which also mean reengineering tasks for the company.

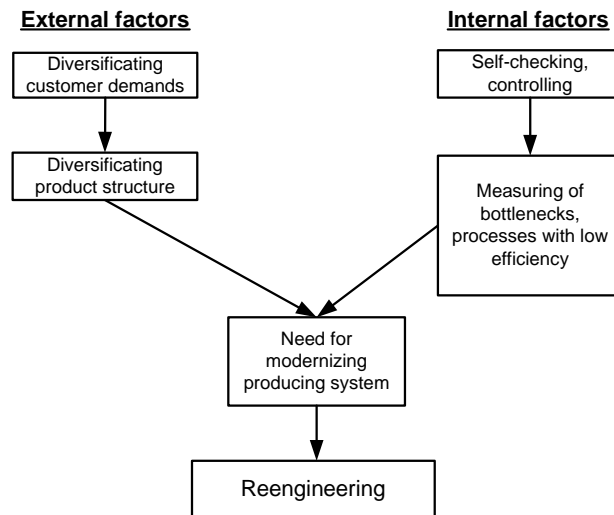


Figure 1. Redeemer factors of reengineering

### 3. Connection between logistics controlling and reengineering

The process of logistics controlling, such as other controlling processes, is built up in four steps.

The first of these steps is the planning of the controlling process itself. This planning activity is going to determine, what elements of logistics will be included in the process of analysis, which are the most important indicators to be measured. The planning is going to also determine what are the optimal values of these indicators. These optimal values are called „plan values” necessary to give at the beginning of the controlling process.

At the second step we have to determine present value of the already defined indicators – i.e. we are to measure so as to get the data typical of them. In this task a great help can be an information system properly working, including the identification system as an important part, which can be also a really important help in determining the present values of the indicators (for example: lead time, velocity of circulation, time spent on transportation, storing, loading, serving workplaces etc.)

After measuring, the third step is coming. In this step we compare the measured data, with the earlier defined plan values. The comparison can lead to a positive and a negative result. In positive case the measured data are the same as the plan values, or the difference between them is a little. In such a case we don't have to encroach in a large scale, because the system is working as it is planned to work. It can be also a positive case if the difference between the two types of values (planned and measured) is large, but the measured values are more favourable for the company than the planned values. In such a case it can be useful to examine where the difference is coming from, because it can mean failure in the planning or failure in the measuring process. In a negative case, namely if the difference is large and it is unfavourable, we have to encroach in a large scale, because in that case from some reason the company doesn't work in the proper, planned way.

As the fourth step the above mentioned encroachment appears. This can be done in several ways, what has to be chosen by the characteristic of the problem. One of these is to reengineer the producing-assembling system of the company.

The steps of logistics controlling and the connection between the steps and reengineering are shown below on figure 2.

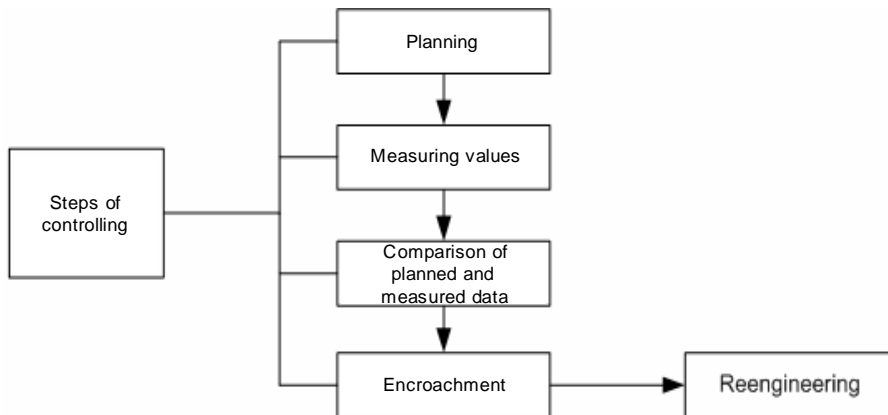


Figure 2. Connection between the steps of logistics controlling and reengineering

#### 4. The place of identification systems within the controlling process

As it is written in chapter 3., identification systems have a really important function in controlling tasks as one of the sub-systems of informatical system of the company. The exact fields of consumption and it's grade within the controlling process are shown below on figure 3.

As it can be seen on the figure above, identification systems have close connection to the internal checking tasks. In the course of planning, defined as the first step of controlling process, we work out planned data. These planned data are generated to evaluate our producing-assembling system after comparing them with the already measured data. The measured data are always determined by some kind of measuring activity. In order to get a proper evaluation we have to determine the indicators to be measured, which are comperable with the planned data. After determining these indicators we can begin the measuring process. One of the tools of the measuring process can be the identification system. We can use the identification system to assign lead time, velocity of circulation, etc. as we mentioned before. We can get these exact data only if we have an identification functioning properly and have the ability to record the time of the different movements of our products even up-to-minute. These recorded data can be divided into two main groups, which can be:

- data describing momentary state – up-to-minute data – and
- historical data.

The up-to-minute data can be primarily used in the completion of operative controlling tasks, and in case of storing them we can analyze the processes dinamically with the help of them. The historical data ensure the comparison of planned data and measured values.

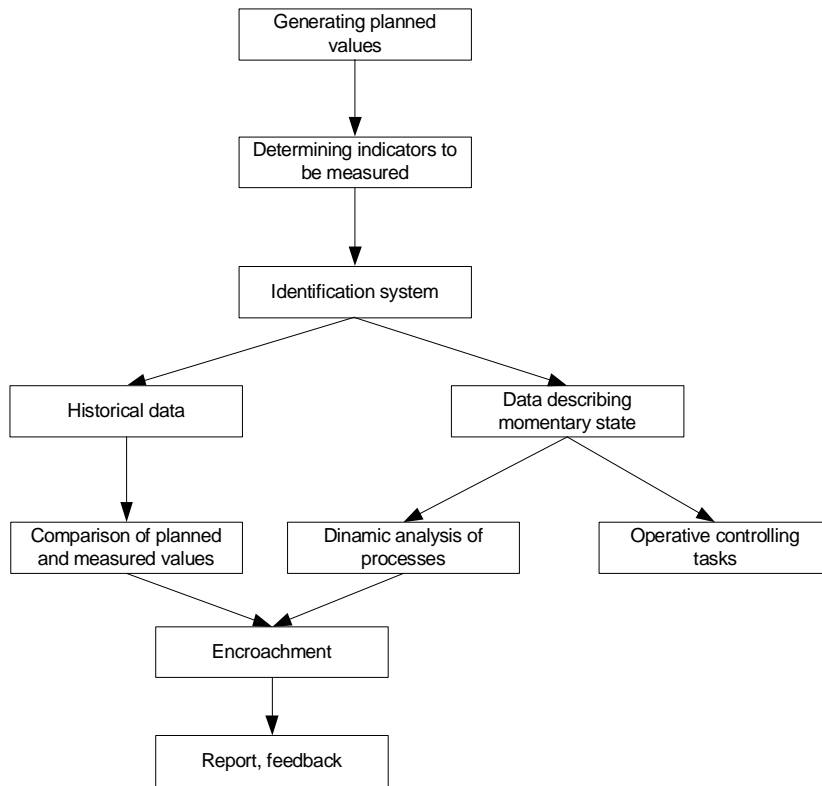


Figure 3. The place of identification systems in the controlling process

## 5. Usable identification systems

Identification systems have a lot of forms, these forms are shown below on figure 4. grouped by the different sensory systems on which the different identification based.

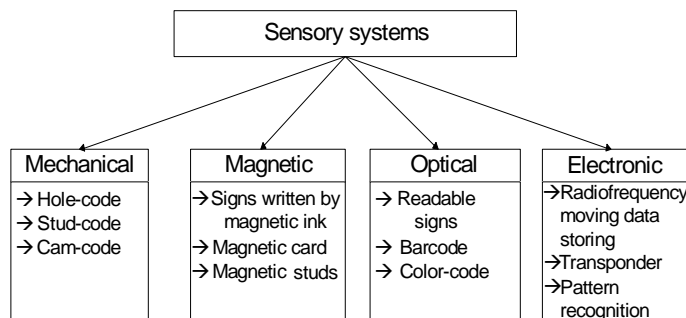


Figure 4. Identification systems

In the identification systems introduced on figure 4. are two types which are the most current and modern. These are the barcode systems using optical sensors and the RFID – radiofrequency identification – systems using electronic sensors. So it's highly recommended

for a modern producing-assembling company to have one of these systems as an identification system for itself.

If we can choose and install the proper identification system regarding to the specialities of our company, with the proper use of it we can gain a lot of advantages for our company. These advantages can be:

- fast and safe product identification,
- increase of productivity,
- elimination of manual data entry,
- producing system can be tracked even up-to-minute,
- blending of different products is avoidable.

## 6. Connection between identification system and reengineering

It can be established from the written up to this point, that there is an indirect connection between reengineering and identification system through the controlling process. We also have to establish that there is not only an indirect connection, but a direct connection exists also between them. This connection is shown on figure 5.

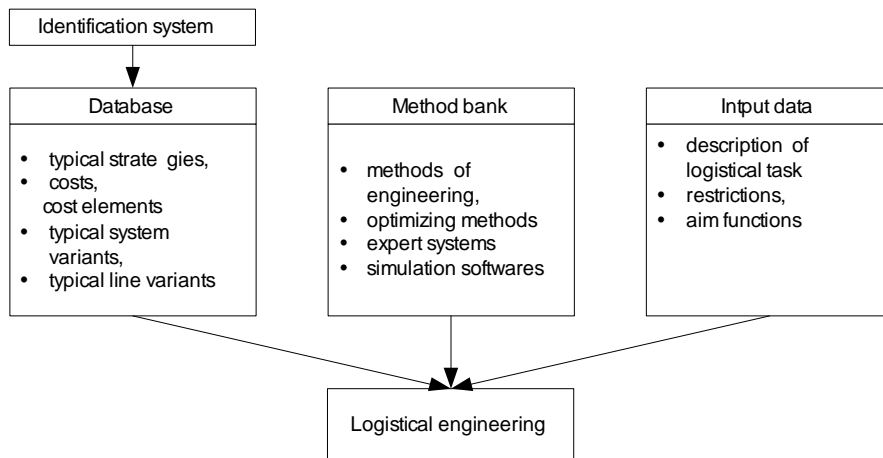


Figure 5. Connection between reengineering and identification system

The engineering, reengineering tasks in every case need a lot of data. These data can be divided into different categories, which are:

- databank,
- method bank,
- input data.

The method bank ensures the methods and the treatments which can be used for planning in a way that helps to gain an optimal system. The input data mean the information given by company management regarding the planning. These are actually different aims, conditions and limitations. The database contains the data about an existing system. These are informations about the products, the machinery and the producing-assembling system determined and recorded by the identification system. So it can be clearly seen that we are in a sore need for an identification system so as to execute engineering and reengineering tasks.

## 7. Summary

By the score of this paper we can establish that identification systems are in close connection with logistics controlling system and logistical reengineering also. The reengineering and controlling also needs a huge amount of data, which data can only be produced in proper quantity and quality with the help of a suitably working identification system.

Beyond that, logistics controlling and reengineering are in connection with each other too. This connection is coming from the controlling process and can lead to the encroachment called in our case as reengineering.

As a final summary we can declare that the reengineering tasks can only be fulfilled correctly if we have a suitably working identification and controlling system.

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