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REENGINEERING OF MANUFACTURING – IMPERATIVE OF ACHIEVEMENT COMPETITIVE CAPABILITY

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ABSTRACT
The reengineering radically changes a traditional solutions instead the slow implementing of a production-organization changes reengineering demands the fast and radical changes with the aim of achieving a competitive advantage. Reengineering of manufacturing systems is the procedure of the continuous and radical redesigning and / or redefining of manufacturing with the aim of achiving a competitive capability. The general trend of development a manufacturing in technologically developed countries are increasingly based on reengineering and modernozation which means the implementation of new technologies, a flexible automation and organisation and computer integrated manufacturing with basic aim in order to produce in terms of quality, cheaply and faster.
In the paper are spoken about reengineering and competitive capability-advantage, it presents application of information technologies and quality system at reengineering.
Keywords: reengineering, manufacturing, competitive capability-advantage, algorithm

1. INTRODUCTION
The producing reengineering is one of the most complex action of radical improving and modernizing of producing in the aim of competitive advantage at the global markt. The reengineering radically changes a traditional solutions instead the slow implementing of a organization changes which is the characteristic of conventional traditional processes. Reengineering demands the fast and radically changes in the aim of a competitive advantage achieving.
Reengineering means radically a new way of a business performing measured by the indicators of a business performances which are important for a user and customer respectively or in a large sense of deliberation where reengineering is defined as the organizing of production on a new basis which will radically redesign a manufacturing and business processes in order to improve the efficiency of business (quality, expanses, the speed of flow, the duration of cycles, the degree of a consumer service,..) [1-10].

2. PRODUCTION REENGINEERING
The procedure of production reengineering can has the following steps (Figure 1.):

- The identification of the process for performing the procedure of the reengineering means the identifying a existing processes and the choice of the process for innovating.
- The analysis of all chosen processes and modeling of existing processes.
- Creating the new model of process means a redesign i.e., defining the new model of process.
- Testing and evaluation of new model before a implementation.
- Education realization of the procedure of reengineering i.e., implementation of new model and

- Analysis of reengineering results.

Reengineering is the basic foundation for the successful production and the main element for acquiring a competitive advantage.

3. REENGINEERING OF PRODUCTION AND COMPETITIVE CAPABILITY

Reengineering of industrial manufacturing is defined as the organizing of production on a new basis which will be radically redesign a manufacturing processes in order to improve the efficacy of business (quality, expenses, the speed of materials flow, the duration of cycles, the degree of a consumer service,...). The reengineering of industrial manufacturing means the following steps:

- analysis and evaluation of existing manufacturing,
- research of market's needs and competitors,
- identification of bottlenecks in manufacturing process,
- definition of problems and target function of reengineering,
- alternative and solution for achieving of target function of reengineering,
- to choose optimal solution for accomplishment of reengineering aim,
- realization of the procedure of reengineering,
- maintenance of manufacturing system in reengineering,
- analysis of reengineering results,
- reengineering successfully accomplishment and
- manufacturing system improved by reengineering.

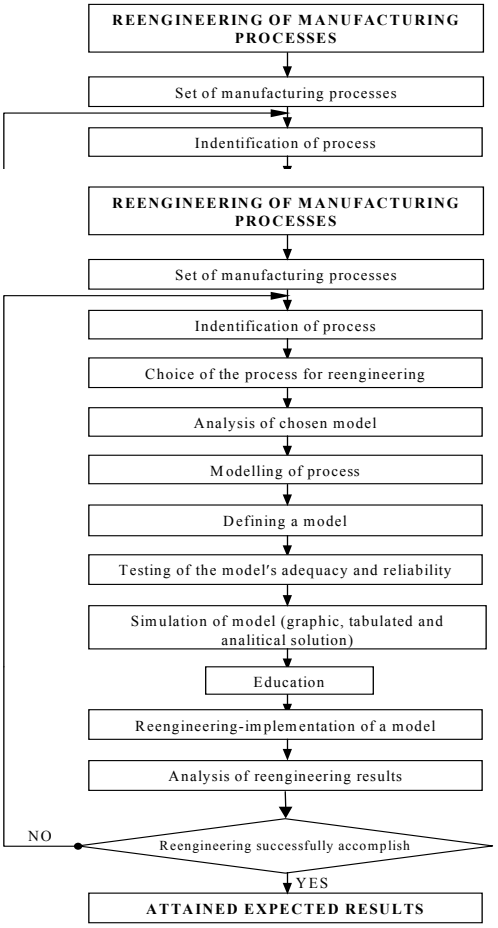

Figure 1. Algorithm of manufacturing processes reengineering

The basic feature of modern industrial manufacturing is great number of variables influential parameters, which have influence in the improvement of business results and to achieve a competitive advantage (Figure 2.).

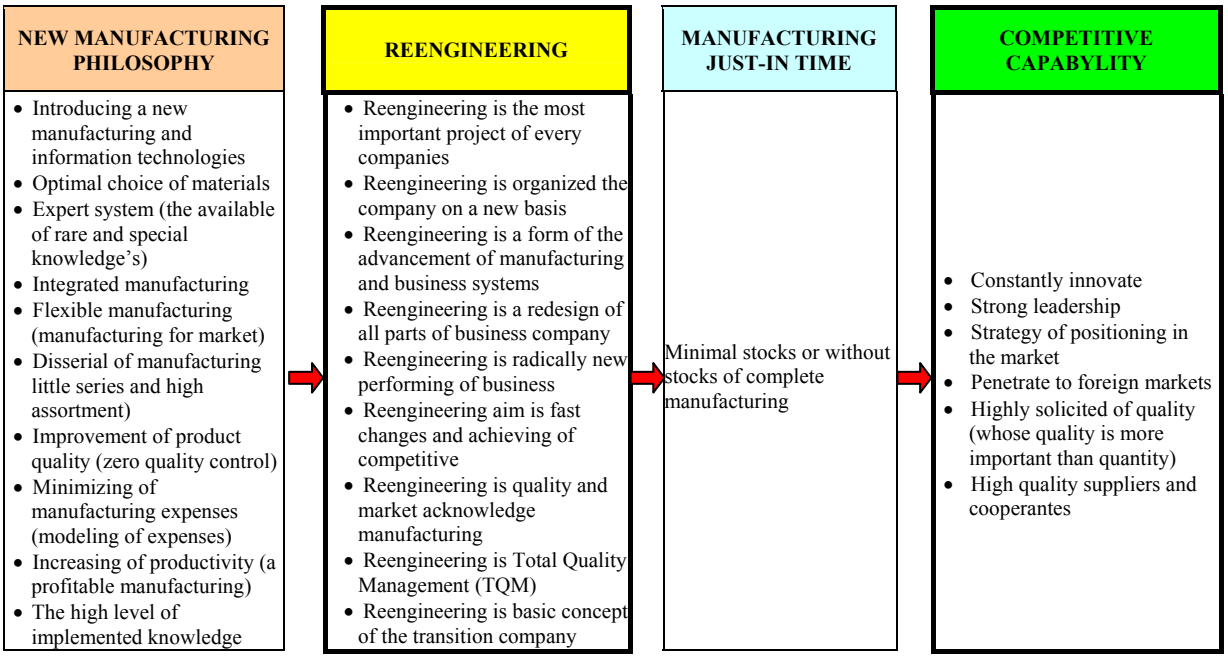

Figure 2. Reengineering of production and competitive capability

4. REENGINEERING AND INFORMATION TECHNOLOGIES - Computerizing of reengineering actions

Reengineering means the implementation of information technologies in the stream of a manufacturing and business processes as:
- the advancement of technological and manufacturing processes,
- the optimization of manufacturing processes and systems,
- the innovations of a manufacturing and non-manufacturing processes,
- the changing of manufacturing structure (redesign and/or redefining).

Computerizing technologies are in the center of the integrated manufacturing reengineering and business processes where they serve tools for making the competitive advantage of company. By computerizing technology applying are realized competitive advantages.

Characteristic		Computerizing technology
• The reducing of organizational complexity	⇒	improves and facilitates the communication of all organization entities
• The management of knowledge	⇒	facilitates the transfer of knowledge in real time
• The control	⇒	enables and improves monitoring and informing on the conditions of individual resources, products, materials, ...
• The time cycles of working processes	⇒	reduces a cycle and enables the application of the simultaneous stream of working processes instead of sequence one
• The computerizing abilities	⇒	improves and simplifies the application of complex analytical models and processing of the great numbers of information needed for a business decisions
• The automatization	⇒	increases product quality, the shortening of technological time, reducing of workers
• The dislocatedness of object	⇒	transfer a needed information fast and simply on to long distance
• The integration of a manufacturing and business processes	⇒	integrates CIM, CIB factors
• Innovative activity	⇒	facilitates, accelerates and improves the organization of working operation
• The technological preparation	⇒	shortens the time of a technological preparation and increases the number of a process variants needed for the choice of a optimal variant
• Modelling and the simulation of processes	⇒	enables the efficient application of modelling, particularly simulated modelling for the outline of process and the choice of optimal variant
• The analysis of process and system	⇒	shortens the time of analysis and enables the exact identification and analysis of process and system

5. REENGINEERING AND QUALITY SYSTEM

Quality system is the superstructure of reengineering process. At the beginning, it realizes slowly, however, by realizing the determined activity of reengineering the development of quality system is emerged (Figure 3.). Thus, by introduction of quality as the system of quality (SQ) or a total quality (TQ) the process of advancement obtained with reengineering keeps the the trend of growth. The system of quality enables the achieving of a optimal results of reengineering and the application of standard ISO 9000, ISO 14000 and others needs the application of further reengineering.

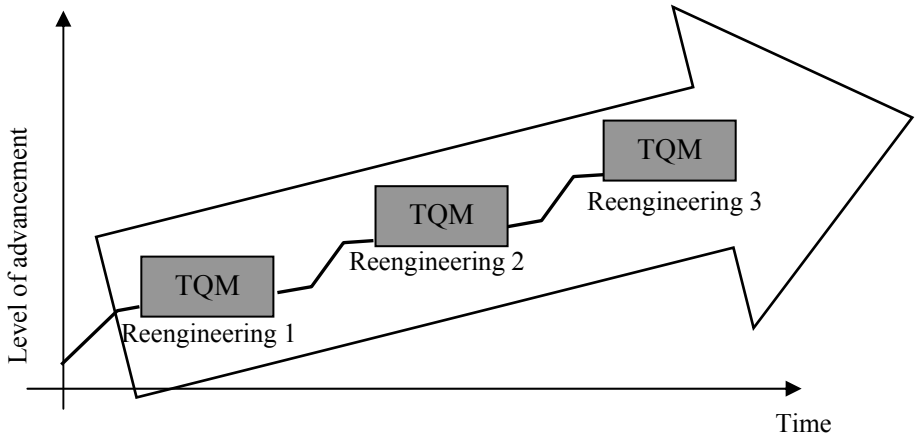

Figure 3. Reenginering and TQM

A total quality assurance and reengineering are not contradictory and complementary than two parts of the same approach and aim.

6. CONCLUSION

Reengineering is the most important project of all companies with that the manufacturing has been radically redesigned and/or redefined with the aim of eliminating or advancement of the underdeveloped technological and manufacturing processes with the reducing of manufacturing expenses and the shortening of delivery deadlines in order to obtain a competitive advantage.

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