

Identification and Management Needs of Customers Interested Parties in Business Process Reengineering through QFD

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Abstract: One of the postulates of the reengineering concept is related to the satisfaction of the customer needs. Qualitative analysis of their profile is necessary for this purpose. Before initiating the reengineering activities, the potential users of the organization are determined as well as their requirements and due expectations. This approach towards the approbation of the reengineering is necessary, as the latter defines the company priorities regarding its rational implementation.

The purpose of the present report is related to the definition of the interrelation between the reengineering of the business processes and the integration of QFD (Quality Function Deployment). The major accent is directed to the identification of the factors, which determine the behavior and the reactions of the customers and the interested parties.

Key words: business processes, reengineering, QFD

I. INTRODUCTION

Historically, QFD is a concept, which arises for a first time in 1966 in Japan. Yoji Akao [3] is considered to be its founder. In fact it finds practical application at a later stage of the development of the social and business processes, when in 1972 MHI (Mitsubishi Heavy Industries) started to build tankers in the shipyard in Kobe.

Namely due to this reason QFD becomes widely popular as it supports the process of planning and conduction of the project. Through QFD and a preliminary survey of customer needs, Mitsubishi Heavy Industries succeeded to determine the stages and the sequence of the reengineering activities and to achieve effectively the set goals [3].

Of course, in the modern economic conditions, the market and business processes and regularities additionally get complicated by the global tendencies in the business. Their amplitude of development places new challenges in front of the business entities. It is necessary for the progressing organizations to develop their contacts not only with the users but also with the rest of the participants (parties) in the business process – business partners (suppliers, affiliates, etc.). Actually this is one of the basic and at the same time new tendencies, which finds complex application in the QFD concept.

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Besides the traditional assessment of customer needs, the interrelations with the parties have to be identified. Practically, this means that it is necessary to consider the influence of other factors as well (human, structural, corporate etc.), which also influence the functioning of the organization. Furthermore, they are basic part of the reengineering concept as they are directly participating in the process of its implementation [1].

With this regard the correspondent company must be study the influence of these factors on the production and business activities and define the strategies for its development.

II. PRESENTATION

The categorization of the needs of the customers and the interested parties is brought to the grouping of their requirements [5]. This might be done depending on the necessity and the usefulness of a particular good. With this respect the highly developed companies are providing their clients and partners with specific forms and questionnaires, where they can express their requirements, expectations and impressions.

It is recommendable to group their opinions and recommendations in tables, which have to cover and synthesize the information in strictly defined sequence, ranged ascending (table 1).

TABLE I

SCALE	RANGING OF THE PRIORITIES BY EXPECTATIONS GRADE
First	Lack of interest towards particular type of goods and services
Second	Minimal interest towards particular type of goods and services
Third	Satisfactory interest towards particular type of goods and services
Forth	Presence of interest towards particular type of goods and services
Fifth	Obvious interest towards particular type of goods and services
Sixth	Highly expressed interest towards particular type of goods and services

As it can be seen from the table, the needs of the customers and the interested parties could be ranged depending on the interest towards a particular type of goods and services. In this case, an important condition is to determine the actual benefits from the product or the service and based on this – to

undertake actions for the implementation of the reengineering in the organization.

Moreover, at this stage of QFD, it is possible to determine the importance of another two components of the notions of the customers and the partners for the value of the product – quality and prices. In the first variant, a real possibility to identify the user requirement is created and based on this, to analyzing the obtained results. The question here is brought not only to the determination of the priorities in the choice of goods and services, but also to the elimination of the negative tendencies in the appearance of disagreements between the users and the interested parties.

Concerning the second variant, i.e. the prices, it is obvious that they are defined in a manner, which will ensure competitiveness of the offered goods and services. The formation of the prices should be dependant on the demand of the product or the service. The prices are a regulator, which determines the work of the manufacturers, the quality and the type of the produced goods.

The influence of the prices is of essential importance to ensure the company competitiveness, as it defines the directions of its development, i.e. if it is going to survive in the competitive struggle or will go bankrupt. Finally, the continuously intensifying competitiveness brings a number of organizations to a test. And this leads to a strong competitive pressure as well, which affects negatively the non profitable companies and forces the manufacturers to reduce the prices to an extend to be able to ensure their own existence. This is why at this stage the implementation of QFD in business processes reengineering aims to define the expectations of the customers and the partners towards the demand of the products (services), their quality and the process of the pricing.

The comparative analysis of customers and interested parties needs aims to show the company what its market positions, compared to these of its competitors [3].

The customer and the interested parties also complete forms and questionnaires for identification of their requirements and expectations. They have the real opportunity to evaluate the level, where the company stays and on this ground, to compare their results with the impressions from the work of the other organizations of the same business line. Below is also a table for ranging the information in ascending order (table 2):

TABLE II

SCALE	RANGING OF THE PRIORITIES BY LEVEL OF IMPORTANCE
First	Worst level of importance
Second	Poor level of importance
Third	Relatively poor level of importance
Forth	Good level of importance
Fifth	Very good level of importance
Sixth	Best level of importance

As it is obvious from table 2, the purpose of this analysis is to establish the strong and the weak sides of the manufacturing organization and respectively, to disclose its competitiveness compared to the rest of the companies in the business line or the market segment. In the reengineering concept the

application of this approach is of superb importance for the rational identification of the business processes and determination of the organization level compared to its competitors [2,3,5].

The same thesis is applicable for its customers as well. Therefore at this stage of QFD integration in reengineering, it is necessary to analyze the strong and the weak sides of the organization and on this ground - to judge its abilities to start a project for business processes reengineering.

The basic requirement is bought to the identification of the prerequisites for the elimination of the negative tendencies related to the needs of the customers and the business partners and to justify the necessity for processes reengineering [1,4]. The identification of the needs of the customers and the interested parties when designing the technical and technological characteristics of the products is also an important stage of QFD application.

In business processes reengineering the information, gained by the preceding three stages should be put into the same footing as the so called “engineering” requirements. In practice, this could be processes related with the determination of the needs of the customers and the partners with regard to the design of new products (through reengineering) or the renovation (through redesign and improvement) of available products (services) in the organization. For this purpose the requirements of the customers and the interested parties should be reflected (reported in special documents, which have to cover different directions) (table 3).

TABLE III

NUMBER	DOCUMENTATION
First	Drawings
Second	Specifications
Third	Methods
Forth	Standards
Fifth	Normals

Of course, the table reflects only some of the documents for the identification of the requirements and the expectations of the users and the partners. Here they have mainly demonstrative character. However, in more complex development of the separate stages of the production activities (technical and economical order, technical documentation, etc.), the latter provide inestimable help to the engineers in the organization.

The proper documenting of the requirements of the uses and the interested parties is a guarantee for the rational implementation of the reengineering concept. It finds an expression in the production of products and services that satisfy the users and the partners with high quality and low prime cost. The measurement of the technical and technological characteristics when identifying the needs of the customers and the interested parties is a stage similar to the third one with the difference that here it is about identifying the level of the engineering work.

The technical and technological achievements of the company are compared with the rest in the business line or the correspondent market segment. The aim is the organization to

concentrate its efforts to achieve optimal business results from the re-design of the separate operations. A balance between the requirements of customer and the third parties on one hand and the ability of the company to implement these intentions on second, should be ensured [7].

The synthesizing of the individual preferences is a main certificate for adequate corporate competitiveness. At the documenting of this process, the table should have the same view as the one mentioned in stage 3 (see table 3).

On other hand the measurement of the correspondent indices have to be done on the basis of certain methodology. With this respect, the application of QFD in business processes reengineering allows this activity to be done in the frames of different stages. For instance, a part of them has to be grouped by separate directions of the production process. Considering the technological preparation of the production at test (first production) series stage, a subject of comparison might be the following processes (table 4):

TABLE IV

STAGE NUMBER	STAGE NAME
First	Routine, operational and control technology for the basic production departments, including orders with justification of the necessary resources, implementation of new processes (reengineering), licenses, patents, etc.
Second	Specification of the technical equipment for test series and instrumental technological equipment for regular production, including the one for technical control, measurement and testing.
Third	Design documentation of the technological equipment and the one used to mark the non standard equipment for test series.
Forth	Manufacturing and experimenting of the new technological equipment and the non standard equipment for test series.
Fifth	Informational, technological and metrological provision of the working places.

As it seen, this stage of QFD application in reengineering differs from the others because of the necessity to perform comparative analysis of the technical and the technological characteristics, when identifying the needs of the customers and the interested parties.

The creation of a matrix of the interdependencies [3,6] in the analysis of the needs of the customers and the interested parties is done after the determination and the summarizing the results from the preceding two stages. In this case it is possible to use another approach, i.e. the results obtained between the first, forth and fifth stage are compared. In this case the received results are separated in individual groups, as the correspondent percentage is added for each one of them.

Formed on the grounds of preliminary identified scale, they reflect the opinion of the users and the interested parties for the effect from the survey of their requirements and expectations. Such an example for interdependencies matrix

might be presented by determination of the results, received for section "Technical Requirements" from the stage, related to the development of the technical and economical order (table 5).

TABLE V

PROCESS NUMBER	PROCESS NAME	PERCENTAGE	WEIGHT
First	General technical requirements	5%	C
Second	Requirement for reliability	95%	A
Third	Technological requirements and requirements for metrological insurance	47%	B
Forth	Requirements for unification and standardization	69%	A
Fifth	Requirements for safety and environment influence	87%	A
Sixth	Requirement for the nature of the compound parts of the production	25%	B
Seventh	Operational requirements	93%	A
Eighth	Requirements for technical maintenance and repair	77%	A
Ninth	Requirements for transportation and storage	54%	B
Tenth	Additional technical requirements	17%	C

Where:

A – high weight of the processes, respectively of the requirements and the expectations of the users and the interested parties;

B – moderate weight of the processes, respectively of the requirements and the expectations of the users and the interested parties;

C- low weight of the processes, respectively of the requirements and the expectations of the users and the interested parties.

From the table above we may establish that the QFD application in business processes reengineering aims to

identify the preventive reactions of the users and the interested parties towards the company goods and services.

The proper diagnosing of their requirements and expectations is a solid guarantee for the effective implementation of the reengineering concept. By using the interdependencies matrix, the managers of the correspondent company would be able to acquire a real notion for the prerequisites, which determine the successful realization of business processes reengineering project.

The creation of a correlation matrix in analyzing the needs of the customers and the interested parties is also one of the factors for the evaluation of the current status of the organization and from there – the possibility for processes reengineering.

To a great extent this is due to the circumstance that all technical and technological characteristics should be considered as interdependent quantities. This is because the reengineering is a concept, which affects the radical change of the processes. In this sense the redesigning of a part of these processes exercises constant influence on the others. Due to this it is necessary to use the so called correlation matrix through which it is possible to determine the influence of the factors (the level of impact) between these processes.

With this respect it may cover different marks for diagnosing the business (in this case the technical and technological) processes. In this direction the following example might be presented (table 6):

TABLE VI

SCALE	PROCESSES CORRELATION (DEPENDENCE)
First	Slightly expressed correlation (dependence) between the processes
Second	Relatively slightly expressed correlation (dependence) between the processes
Third	Relatively strongly expressed correlation (dependence) between the processes
Forth	Strongly expressed correlation (dependence) between the processes

At this stage of the application of QFD in reengineering, the correlation matrix is a good decision for the determination of their interdependence. Thus it is possible to establish the priorities in choosing an option for reengineering of the processes and to identify their impact on the requirements and the expectations of the customers and the third parties on one hand, and their importance for the organization on second. In this case, the specialized literature recommends as a successful tool the application of a regressive statistical analysis [3,6,7].

The analysis of the usefulness of the needs of the customers and the interested parties serves to develop an overall profile of their requirements and expectations. The striving from performing this work is to hold and extend the market positions against those of the competitors.

III. CONCLUSION

Basic requirements for the reengineering and QFD application is to accumulate, synthesize and analyze the information, necessary to satisfy the requirements of the customers and the partners. These parameters should be the main indicators in the organization activities before the implementation of the reengineering concept and should help for the effective redesign of the processes.

With this respect the goals that are set towards the users and the interested parties require to perform systematic analysis of the corporate processes. Finally, the basic idea is brought to the achievement of the necessary balance between the different parts of the system in a way that ensures the manufacturing of a high quality production at a reasonable price. Based on the performed studies, analysis and the established facts, by the present publication it is possible to distinguish the achieved results:

- the relation between business processes reengineering and QFD is defined;
- comparative analysis of some stages for business processes design and reengineering by using QFD is performed;
- conditions for business processes reengineering by using QFD are set up.

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