

THE CHOICE OF STRATEGY FOR INTRODUCING QUALITY MANAGEMENT INTO LOGISTICS

Prof. Branko Davidović, Ph.D.¹
Prof. Zoran Cekerevac, Ph.D.²

Summary: *Very complicated market conditions, as well as the need for adapting to the European norms in transitional countries, put managers of each firm in a very difficult situation. In the complexity of the problem which the mentioned package includes, introducing quality management into logistics also presents one of delicate tasks, due to the lack of adequate know-how and absence of educating and training associates. This paper deals with a topic of essential significance for introducing quality management, with an aim to present all the facts relevant to introducing this new concept as an important prerequisite for modernizing business operation, i.e. improving the position of a firm on the market.*

Strategy types for introducing quality management

The introduction of quality management into the field of logistics in a certain firm requires an unconditional reorganization of both the business operation and the structure. This transformation is carried out in several phases, which are usually categorized in the following way: analysis, application and control. The achievement of a desired situation in the field of quality management through reorganization from the aspect of speed of introducing a change can be, in principle, realized in the next three ways: by a radical change occurring once, i. e. in one “leap”, through a gradual improvement in small steps, and continuously (Figure 1).

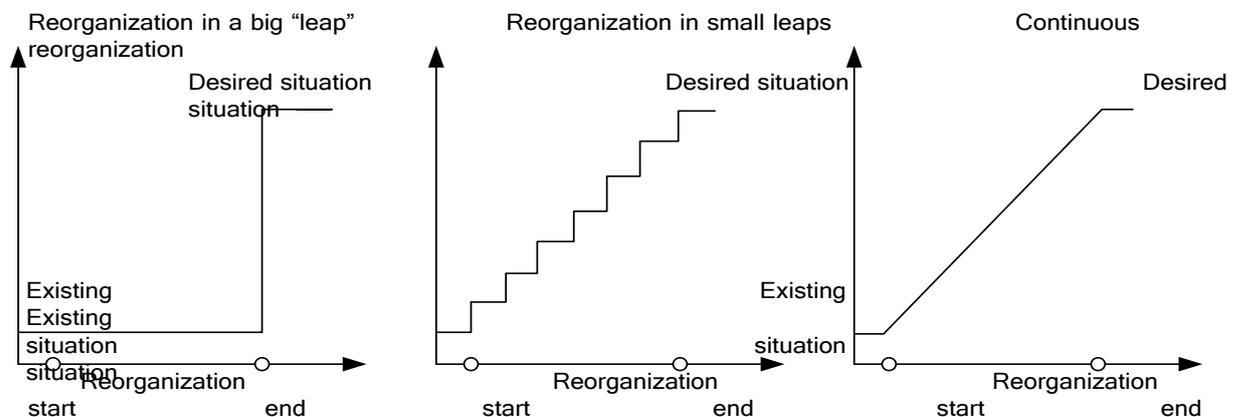


Figure 1 Basic strategy types for introducing quality management into logistics

The choice of one of these three types of change (reorganization) which is to be applied depends on the concrete situation, i. e. the specific characteristics in each firm. It should be emphasized that the decisive factors for selecting a method of implementing reorganization are the following: the size of a firm, available resources, knowledge level, associates' experience in the field of quality management in logistics, the management's readiness for changes, the flexibility of organizational structure, as well as available time.

The first form of reorganization which implies a radical leap occurring once in the process of introducing quality management inherently involves not only a radical change of administering quality but implies a total reorganization of the whole firm in all its

¹ Branko Davidović, Ph.D., Railway College, Belgrade, iwtbg@beotel.yu, vzs@verat.net

² Zoran Čekerevac, Ph.D., Railway College, Belgrade, zoran-cekerevac@hotmail.com, vzs@verat.net

segments as well. The advantage of an introduction of quality management into logistics, which occurs only once, simultaneously leads to a series of improvements in all parts of the firm in a relatively short time. Such a process of reorganization implies a big resource potential of a firm, a high level of know-how of all participants, as well as a flexible organization. In spite of certain advantages, and considering large structural changes and accompanying difficulties, such reorganization could not be adequately implemented in many firms due to the unpreparedness of their personnel.

A continuous introduction of quality management into logistics is, in practice, realized through a series of very small steps (improvements). The application of this strategy starts with a pilot project which is restricted to a relatively narrow segment, and after acquiring positive experience it is later transferred to the other parts of the firm in the form of diffusion. The initially acquired positive experience based on the pilot project in a selected segment considerably helps the right choice of dynamics, i. e. the planning of the tempo of reorganization at the level of the whole firm. Despite the advantages resulting from the idea of acquiring certain experience through a pilot project, it should be emphasized that this method also includes a certain risk because, if a suitable segment is not selected, inadequate conclusions can endanger the consistent application of a detailed plan and, consequently, the achievement of desired effects.

As for the concept of gradual introduction of quality management through small-scale interventions, the desired situation is achieved in individual, strictly defined, phases or "leaps", and in certain time intervals (time points). Unlike the continuous method, in which the pilot project leads to a global reorganization of the whole firm, this concept, from the initial phase, at each step aims at a planned reorganization of only a certain segment of the firm.

In the strategy of small leaps, the transformation of the whole firm into a desired situation implies a successive opening of new projects after each phase, i. e. step. A characteristic of the above mentioned strategy is the fact that it provides the possibility to perceive the interrelation between individual projects of reorganization. This is of particular significance due to the need to define tasks in an integrative way within each phase. In order that the experience from the previous phase could be successfully applied in the next phase, the plan of reorganization should be founded flexibly, so that the realization of new ideas could be possible.

The possibility of integral observation of all relevant criteria points to the fact that the application of reorganization strategy through small leaps is very appropriate, i. e. it is a suitable solution in many types of firms. The criteria shown in Figure 2 better describe the choice of method for carrying out reorganization.

Necessary parameters for introducing quality management

Formulating a target-oriented method in the form of a model for introducing quality management implies a previous definition of appropriate parameters. The following parameters necessary for introducing quality management can be singled out:

- reason (motive) for introduction
- diffusion direction in a firm when introducing quality management
- reference point
- autonomy level of project organization
- education of managerial personnel and associates, and
- management involvement.

Requirements \ Criteria	High	Medium	Low
Necessary resources	■	▲ ●	●
Flexibility of organization	■	▲ ●	●
Necessary know-how	■	▲ ●	●
Necessary time	●	▲	■
Necessary preparation	▲	▲	● ■
Necessary associates	■	▲	●

Legend: ■ strategy of reorganization occurring once
▲ strategy of reorganization through small leaps
● strategy of continuous reorganization

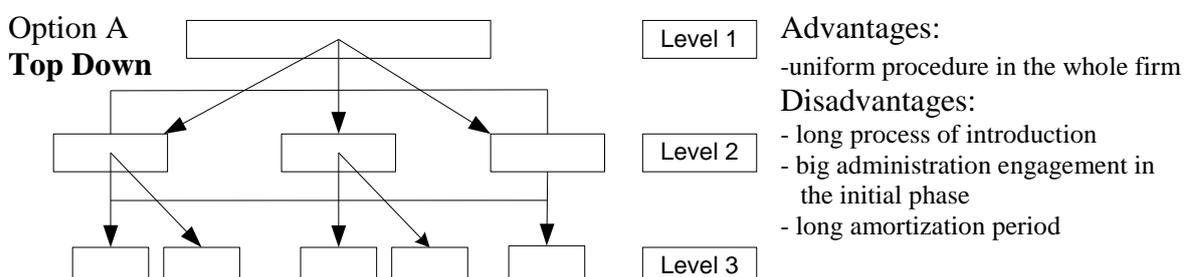
Figure 2 Criteria for selecting a strategy of reorganization

Reason (motive) for introduction

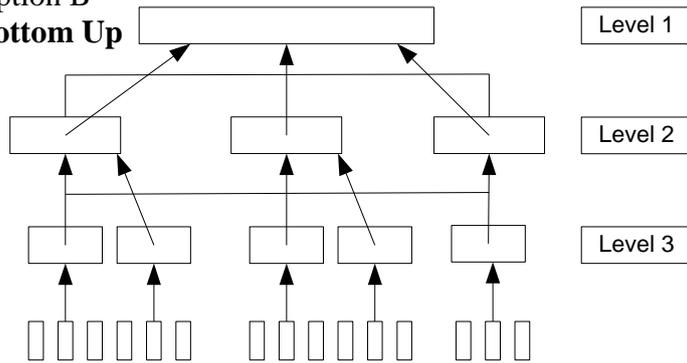
From a primary point of view, the logistic service with all its elements provides benefits for customers. The reference value which must be previously chosen for the logistic service largely determines the reason for introducing quality management. If in a concrete case the influence of logistic quality as a factor of success on the market is estimated to be minor, the introduction of quality management is obviously inappropriate. This leads to the following conclusion: the minor the influence of quality management on the market position, the smaller the need for introducing quality management. Contrary to this, if quality essentially influences the improvement of the position of a firm on the market, the introduction of quality management is more necessary. The optimization of logistic process improves and provides competitive possibilities on the market during a long-term period. The basic task of determining a motive for introducing quality management is to define its **influence on the business operation of a firm** as a factor of success, as well as the necessary **speed of introducing quality management** which leads to the choice of reorganization strategy. **The stronger the influence of the market in the sense of the need to increase the logistic quality, the more necessary the fast introduction of reorganization into the sector of logistics.** If the pressure of the market is so strong that the strategy of gradual reorganization, i. e. through small steps, cannot be applied, the radical strategy of reorganization occurring once is necessarily applied.

Diffusion direction in a firm when introducing quality management

Several factors influence the choice of diffusion direction: the size of a firm, the size of a segment of a firm involved in a pilot project, as well as the advantages and disadvantages of individual strategies of introducing quality management. Basically, it is possible to define three directions or ways of diffusion in the hierarchy of a firm when introducing quality management: top-down, bottom-up, and horizontal (Figure 3).



**Option B
Bottom Up**



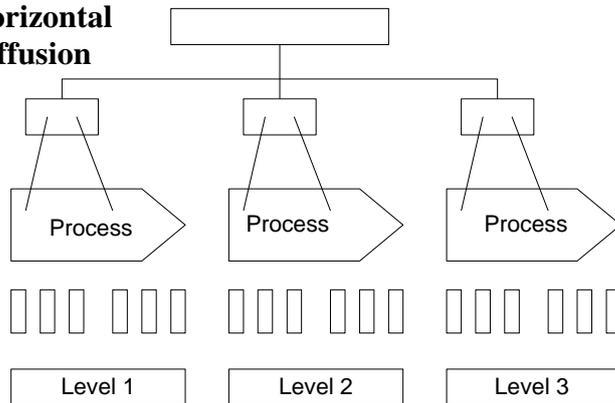
Advantages:

- fast realization
- good economy in the initial phase

Disadvantages:

- big engagement in dividing data
- big resistance and loss of synergy
- big engagement of personnel and investment in intensive education
- insufficient use of medium management
- insufficient know-how transfer

**Option C
Horizontal
Diffusion**



Advantages:

- fast realization
- good economy in the initial phase
- good possibility of generalization
- simple application
- making universal model structures
- good economy

Disadvantages:

- difficult definition of reference point
- big complexity due to interdisciplinary factor

Figure 3 Diffusion directions when introducing logistic quality management in a firm

When assessing all described factors, the most appropriate diffusion direction should be assessed and chosen in each concrete case. It can be generally stated that in large firms, in spite of considerable engagement of administration, the Top Down Diffusion concept with centralized coordination is more effective. The Horizontal Diffusion is characterized by a high speed of introduction, as well as low costs. It can be realized along the working process, or following the process chain of each concrete product. In spite of this fact, it should be emphasized that Horizontal Diffusion is characterized by a big complexity due to the interdisciplinary factor, which sets high requirements for the managerial personnel and associates.

Defining reference point

The decision criteria for choosing a reference point for introducing quality management of logistic service are determined for each individual client. After selecting a segment in which there is an intention of introducing quality management, the expected service level can be determined by a poll or internal audit. The conduct of a poll checks various criteria which characterize actual quality of the followed process. The mentioned criteria can refer to the following: innovative potential, technical or professional quality of service, available know-how, vocational level, i. e. personnel qualifications, as well as possibilities of application. When conducting a poll, it is important to perceive the expectations of internal clients and the level of satisfying existing aims. In order to analyze the poll results that reflect the level of satisfying clients, a matrix (Portfolio) is usually used, in which significance criteria (*clients' endangering losses, dissatisfied clients, partially satisfied, satisfied and completely satisfied clients*) are defined on the ordinate, and on the abscissa the level of satisfaction which is usually scaled from 1 to 5. Depending on how the clients' satisfaction level is positioned in the Portfolio matrix, the reference point for introducing

logistic quality management is determined. Within this procedure, it is appropriate firstly to perceive possible causes which directly contribute to losing clients, after which the causes must be eliminated, while respecting certain regularities:

- **identification of improvement which should be urgently implemented**, consistent analysis of all problems which endanger the realization of logistic service and urgent introduction of measures that eliminate the causes of losing clients,
- **improvements which depend on the behavior of the environment**, introduction of service improvements depending on the behavior of the competition, in order to differentiate, i. e. to create new chances in relation to the environment,
- **permanent activities**, continuous improvement and optimization of the existing service, both with the buyers and with the suppliers,
- **activities which are not urgent**, satisfaction of buyers' wishes through permanent maintenance of relations and expansion of service,
- **making use of rationalized potential**, applying suitable methods carrying out permanent rationalization in order to make the process more economical.

Autonomy level of project organization

The reorganization of a firm in order to introduce quality management into logistics is, as a rule, carried out in the form of a precisely defined project organization. In practice, there are various levels of project organization autonomy. The complexity of the process which is the object of reorganization generally determines whether the reorganization is to be carried out through the existing primary organization, or through a separated secondary organization in which all organizational activities are united. Depending on the type and level of the project manager's competence, three forms of project organization are applied: project organization with an outstanding influence of the management of a firm, matrix-typed project organization and the so-called "clean" project organization (Figure 4).

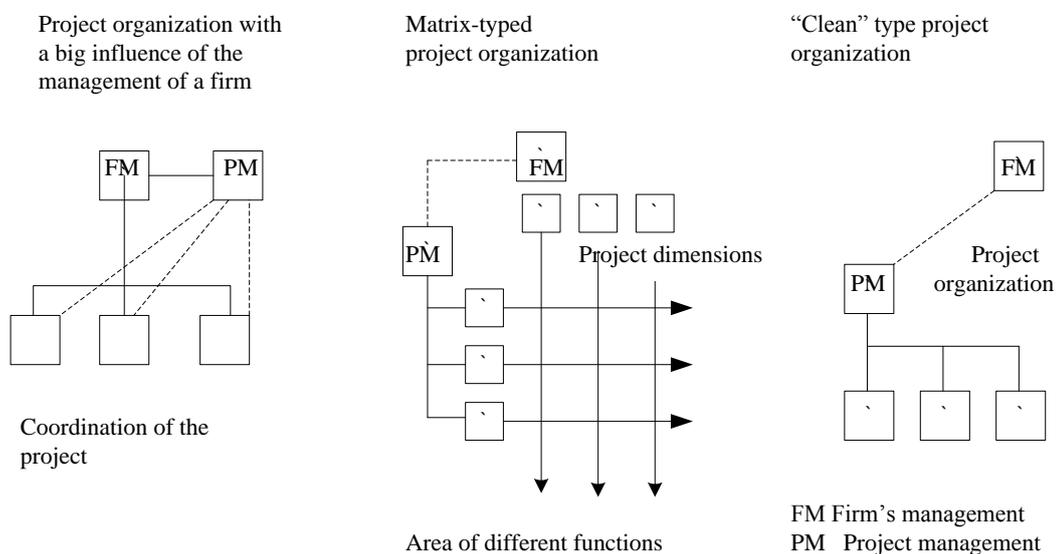


Figure 4 Forms of project organization

The highest level of autonomy belongs to the "clean" project organization, in which the project reorganization manager has a full responsibility for the project, with a so-called linear competence towards the associates who participate in it. Considering the above mentioned circumstances, this organization model, perceived in principle, helps the quick introduction of the quality management concept. It should be pointed out that a high level of autonomy can endanger the project results. The cause of endangering the project results lies in the fact that restructuring the whole firm in the sense of applying integrative

elements which provide logistic quality requires carrying out the mentioned transformation in a time period that often exceeds an acceptable limit. Exceeding the time in this process is a consequence of the fact that the managers who take part in introducing quality management attribute more importance to their tasks in their primary organization, which contributes to ignoring, i. e. slowing down the process of introducing quality management.

Education of managers and associates

Education of associates has an exceptional significance for the success of the strategy for introducing quality management into logistics. Educational measures involve two components of controlling logistic quality. The first component refers to familiarizing associates with the tools which provide quality. The second component of education includes familiarizing with the way of thinking on which the concept of controlling logistic quality is founded. Taking into consideration the fact that in the phase of introducing quality management there is no necessary know-how, it is necessary to engage an educated moderator from the outside.

Forming an adequate educational concept and its implementation can be completely carried out through the engagement of external advisers, or through the collaboration of external advisers and internal managers of a firm. It should be kept in mind that an educational system which is exclusively founded on engaging external associates, besides some advantages that are reflected in an improved organization, often possesses certain disadvantages which refer to insufficient consideration of local specific characteristics. For that reason, the cascade principle has proved to be very appropriate in practice. The basic characteristic of the cascade principle is that in the initial phase of education only managerial personnel is educated. In the further process of education, every educated manager takes over educating, i. e. training a certain number of associates with whom he collaborates directly. The advantage of this procedure is in the active involvement of managers and credible demonstration of their complete agreement with the new concept. In this way, conditions for quick introduction, i. e. spreading of the new concept are created. Certain problems may arise at some places, i. e. certain levels of cascade, where the manager or moderator is not adequately educated and trained.

It may be generally stated that this educational procedure has a number of advantages resulting from the so-called participation assumption, taking into consideration the fact that the largest part of educational activities is transferred to managers and associates.

Management involvement

One of other significant parameters in the strategy of introducing quality management is the form of collaboration, i. e. cooperation between the project team and the managerial circle, as a body which also makes decisions in the project work. In order to avoid wrong decisions and resistance when introducing quality management into logistics, a direct flow of information between the team which is engaged to introduce a new concept and the firm's management must be provided. Taking responsibility for the process of introducing quality management by the management of the firm has a decisive influence on the whole process, because by personal example the management of the firm exerts a strong influence on its environment, and it, as such, must present a model for the other parts of the structure.

The management's taking responsibility for the process of introducing in an indirect way, through a certain managing board, has in itself a risk of making the responsibility of the managing structure anonymous, and also a risk of insufficient synchronization of the contents and methods of introducing quality management. This form of involving the

management has not proved good, because it is connected with a large scope of administration, and the very process of decision making is rather long, which can have a negative influence on the motivation of the associates and decrease the speed of introducing a new quality management concept into logistics.

Another alternative is a direct and active participation of the managing team, without forming a board, in all sessions of the project team. This method of working increases maneuvering space, i. e. elasticity when making decisions, and has a positive influence on the speed of introducing a new concept. Practical experience also points out some negative aspects of this method, such as: continuous involvement leads to overburdening the managerial personnel, and continuous presiding and dominating at the project team's sessions by the people who occupy high positions in the firm's hierarchy often annuls the positive participating effect of the whole team.

An alternative solution which unites the good characteristics of both previously described methods is the "sponsor" model in which responsibility is divided among several members of the managing board. Through personal responsibility and periodical participation of sponsors in the team's sessions, a sponsor increases elasticity in the project team's decision making, without any domination. In this way, the process of decision making is shortened, and the direct participation of the firm's management in the reorganization process is provided, without a risk to overburden the members of the firm's managing team.

Institutionalization of logistic quality as a continuous improvement process

After completing the process of introducing quality management into a certain firm, it is only natural to start the process of continuous improvement of logistic quality. In order that this process could develop in an adequate way, it must be institutionalized as a permanent aim of the firm, which can be achieved through an adequate process of planning (Figure 5).

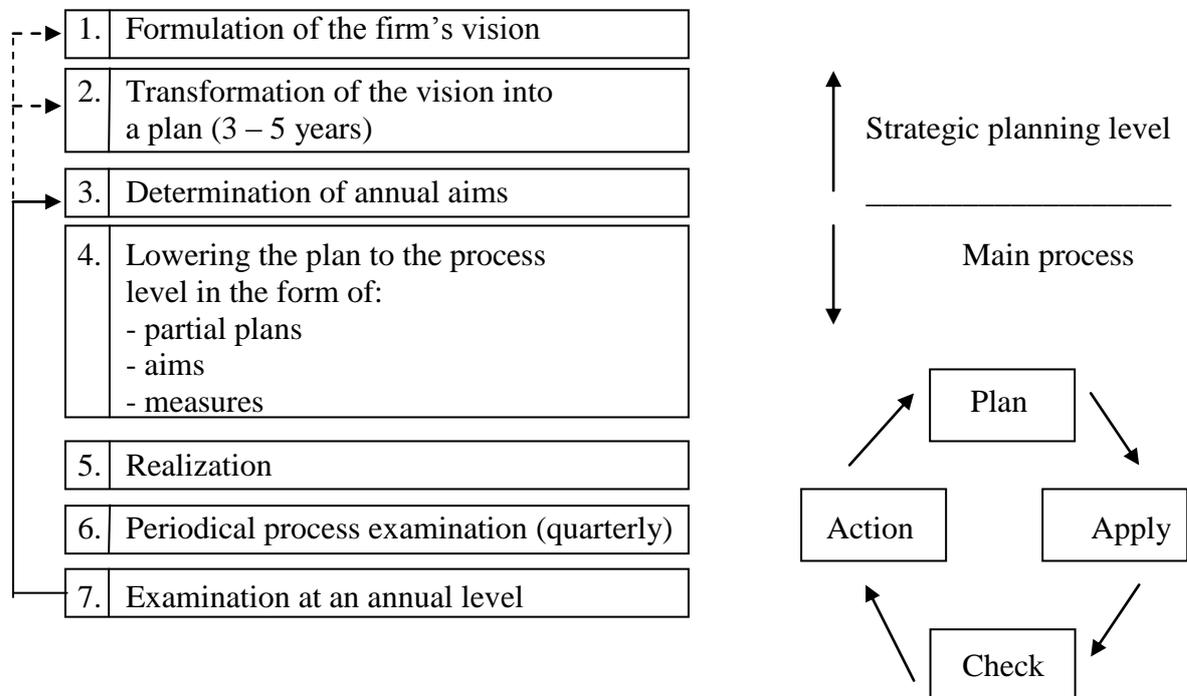


Figure 5 Structuring the process of logistic planning as an action of continuous improvement

As it can be seen in the algorithm, first the firm's vision is formed, and it must be made transparent to all associates. In the second step, the vision is transformed into a plan lasting

from 3 to 5 years, which includes all activities necessary to realize the vision. In the third step, this plan is divided into aims which should be achieved at an annual level as a participation process in which all parts of the organization, i. e. process, participate. When formulating annual aims, one should limit to or focus oneself on a relatively small number of aims, particularly those that have a dominant significance and can be achieved with available capacity.

In the described planning process, controlling the logistic quality has a decisive significance. In the seventh step, the total success is analyzed through controlling at the end of every year, comparing the planned and realized effects. The application of controlling - an instrument for improving logistic quality - insures the continuity of improvement process, and makes the management directly responsible for achieving the assigned aims, with the concentration of the whole management on a small number of important points in the process.

Literature:

1. Winendahl, H. P.: Erfolgsfaktor Logistikqualität, Springer Verlag, 2002
2. Bloech, J. and Ihde G.: Vahlens Grosses Logistic Lexikon, Verlag C. H. Beck Verlag Vahlen, 1997
3. Geiger, W.: Qualitäts Lehre, Verlag Veweg, 1998
4. Baumgarten, H., Winendahl, H. P. and Zentes, J.: Logistik-Management, Band 1 and 2, Springer Verlag, 2002