

*Proceedings of the 10th International Conference “Reliability and Statistics in Transportation and Communication” (RelStat’10), 20–23 October 2010, Riga, Latvia, p. 317-326. ISBN 978-9984-818-34-4  
Transport and Telecommunication Institute, Lomonosova 1, LV-1019, Riga, Latvia*

## **ORGANIZATIONAL STRUCTURE EVALUATION MECHANISMS BASED ON CLASSIFICATION FEATURES**

***Roman Zaharov***

*Transport and Telecommunication Institute  
Lomonosova str. 1, Riga, LV-1019, Latvia  
Ph.: +371 26003245. E-mail: romanzaharovs@yahoo.com*

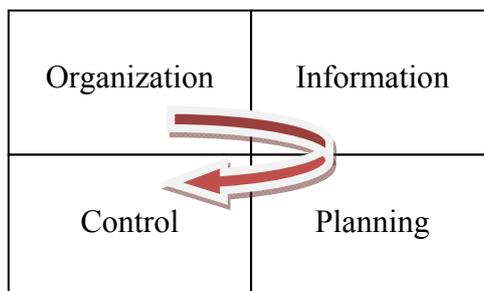
In variety of works that deals with organizational structures research the authors result different classifications of organizational types. Often these classifications contradict with each other, but in general it is possible to allocate some common features of different authors’ approach. The majority of researchers show a kind of consecutive transformation from strict hierarchical structures → to flexible organic types. The purpose of this article is to investigate the various management schools’ approach difference when considering the effective organizational structure designing problem, as well as to give the own interpretation of organizational structures types classification, taking into account the revealed distinctions. The main aim is to look at this problem from the point of view of the mentioned perception of various management schools. Such perception is focused on new thinking formation, allowing not only to develop viable Organizational structures, but also to raise the enterprise intellectual capital.

**Keywords:** *acknowledgement, environment, principles, responsibility, losses, controllability, criteria, conditions*

### **1. Management Function Perception Transformation**

If from organization development theory point of view the consecutive organizational structures transformation from strict hierarchical → to more flexible organic types looks logical, from practical application point of view it is possible to note the following. During the Egyptian pyramids epoch, the organization brigade type in building was used, where for the motivation increase of employees the competition between brigades of builders took place. This type of management is impossible to define as strict hierarchical submission to the higher authorities.

For better understanding why the development of theoretical thought has gone in this direction, it is necessary to investigate such concept, as management functions.



*Figure 1. Management Functions*

On Figure 1 the scheme of management functions sequence in managerial process is presented. The given management functions representation was developed in the 70-ties of the last century, and means that managerial process always consists of all four functions realization, their mutual combination and coordination.

Management theory development was based on consecutive revealing and embedding of management functions in certain type of organizational structure. For example, the linearly-hierarchical type of organizational structure, with which usually starts the description in classification of Organizational Structures, assumes control function domination, some superposition of control. The occurrence (description) of other organizational structure’ types are usually connected with development, description and practical implementation of other management functions, allowing accomplishing the given functions more effectively.

But in the given interpretation of management functions there are some contradictions. First, the contradiction occurs in understanding of the organization’s function. When analysing all other functions,

it is possible to notice, that all of them: the information, planning and control, – need the organization of planning system, the monitoring system and system of informational support of decision-making mechanism.

Secondly, as it was mentioned above, with development, the description and practical management functions implementation, the changes in organizational structure are taking place. All it proves the superposition of organization function, instead of control as was considered earlier.

Now there is role and management functions themselves reconsideration in the process of organizational designing.

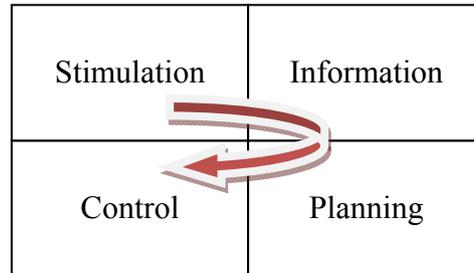


Figure 2. Up-to-date Management Function Perception

Organizational function is considered as superposition, it can be replaced by stimulation function, because without stimulus, the initial push, no action can start.

The stimulation system, as well as the monitoring system, information and planning, need the expression in organizational structure. The problem is that the ideal monitoring system can't be ideal system for stimulation. And here it is necessary to search for compromises.

Taking as the basement given management functions perception, the position of various schools of management becomes clear. So, for example, Anri Fayol and his followers, “Management Principles” school representatives, assumed controls function as superposition. Frederick Taylor, “Scientific management” school founder, and Max Weber, the developer of “Rational bureaucracy” concept, can be considered as supporters of planning function, as main one.

Entering stimulation function instead of organizational function allows finding the place for “Human relations” school in this row. School representatives, taking the results of empirical researches as the basement, aspired to prove that use of direct control mechanisms and standardization is an error.

Information technology development has forced many people to believe that by means of these technologies it is possible to solve all problems. However together with the decision of old problems, there were many new occurring. So, for example, the share of information "garbage" is estimated by experts today as 98% of 100.

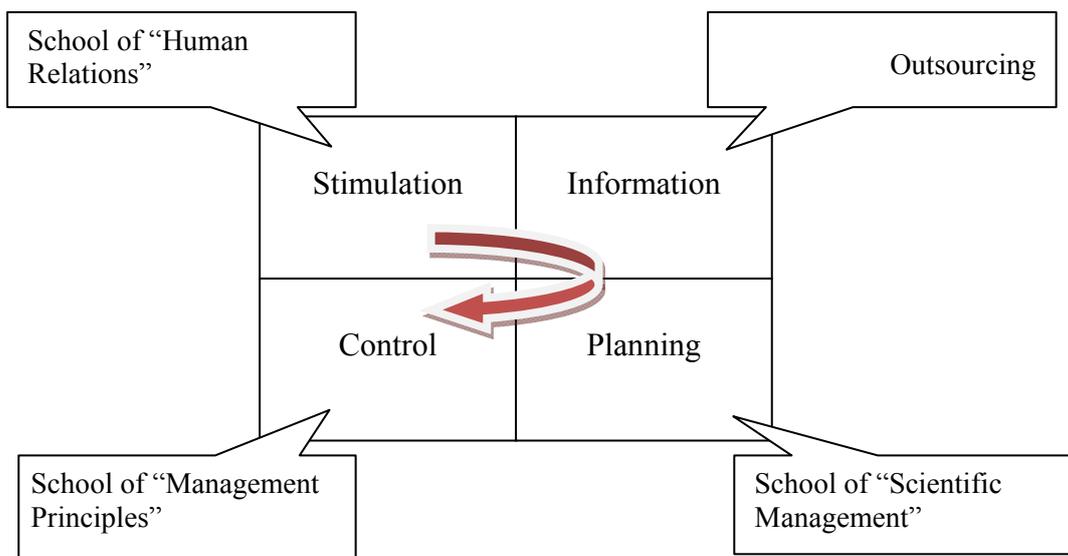


Figure 3. Different Schools' Superposition of Organizational Design

The occurrence of various management schools has been predetermined by disadvantages of organizational structure, caused by superposition of one of management functions to the detriment of the rest. The aspiration to ideal structure, quite the opposite, should be expressed as compromise between all four functions, besides external environment changes define the importance of these functions for organizational structure.

### 1.1. Organic – bureaucratic type of organizational structure

The traditional and prevailing today point of view asserts, that than more the external environment is certain and predictable, then more standardized the duty regulations are. Or, the opposite, uncertainty of external environment encourages the transformation of bureaucratic organizational structure into organic type of relations.

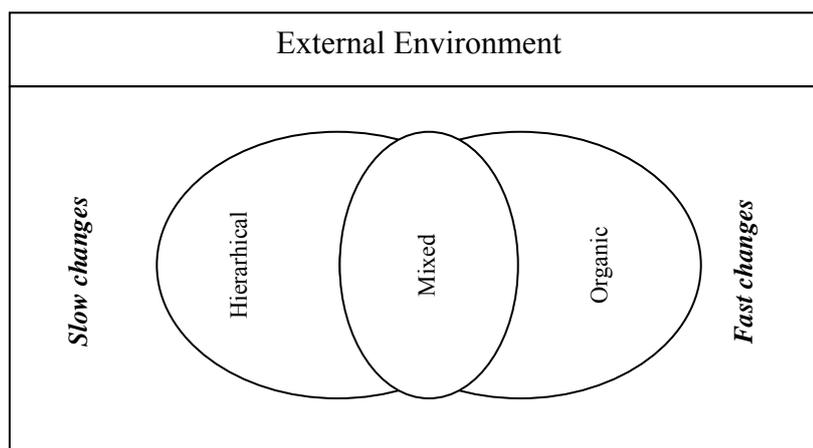


Figure 4. External Environment Influence to the Organizational Structure Type

In the drawing, resulted above, T.Burns and G.M.Stoker illustrate this dependence. It is worth to notice, that the term “bureaucratic”, used by such researchers as G.Mintsberg, in their interpretation changes to “hierarchical”. In interpretation by Mintsberg we can find the following: “Taking into account these results (results of organizational structures researches of 50 American companies) we can characterize the structure as bureaucratic, depending on the degree of its behaviour being predetermined or predicted, and as a result standardized. That is the main thread of all M.Weber’s description. We define the organic structure as the absence of standardization in the organization. As a result bureaucratic and organic structures appear on two ends of standardization continuum”.

As it is possible to notice, in this case there is some mess or confusion in concepts. Certainly, “hierarchical” and “bureaucratic” is not the same. Taking into account the considered above changes in beliefs, concerning management functions, it was been shown, that the superposition of one of them, to the detriment of the rests led to a disbalance in organizational designing. The conclusion of organizational function as superposition and entering the stimulation function allows explaining the nature of the basic management schools occurrence. And the hierarchy is nothing else, than the tool of control embodiment. The bureaucracy, in turn, is a tool of planning function.

Thus, the prohibitively simplified nature of traditional point of view to organizational structure type formation is revealed, depending only from external environment certainty degree. It is possible to offer at least more dependence between hierarchical control and the control, which is performed by defining the degree of access to the internal information, based on modern information technologies usage.

This dependence occurred not long time ago. Information technologies’ development became forced the dependence, allowing basically making this choice. The second necessary component of such choice possibility is the subsequent development of external environment or an action field infrastructure.

One of the main tasks of constructed by a hierarchical principle control is the possibility of stable and qualitative business maintenance by various business processes. Quality is reached by presence of outsourcing company’s variety at the developed infrastructure. The management stability is established by new information technologies. Thus, hierarchical and information types of structures appear on two ends of the hierarchy continuum.

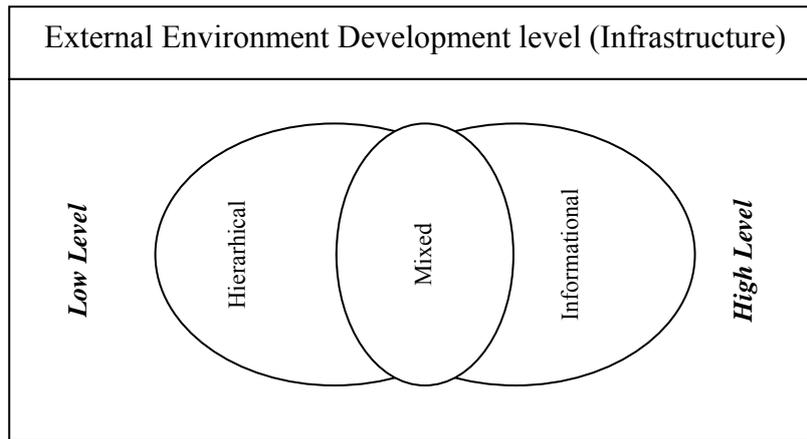


Figure 5. External Environment Influence to the Control Type

It is necessary to notice, that as well as in hierarchical (correctly bureaucratic) → an organic continuum, in hierarchical → information, the term hierarchical isn't absolutely correct. At information management systems there is a same hierarchy, as in social, as they are meant to serve social systems.

### 1.2. Organizational structure Type Formation

The optimal type of Organizational structure is formed on the basis of two standardization and control continuums combination. The external environment has the defining role here. The standardization continuum is influenced by environment certainty. The control continuum is influenced by the level of development, then higher is the production relationship development level, then more informational becomes the control, and more independent become business processes.

However the Organizational structure type is influenced not only by the external environment characteristic, but also by the employees' ability of the concrete organization to accept and embody those management mechanisms, which are offered for use in frames of new organic or information types of Organizational structures. And if informational methods of dialogue gradually enter into the everyday life, not all employees are able and agree to work within the limits of the organic management system.

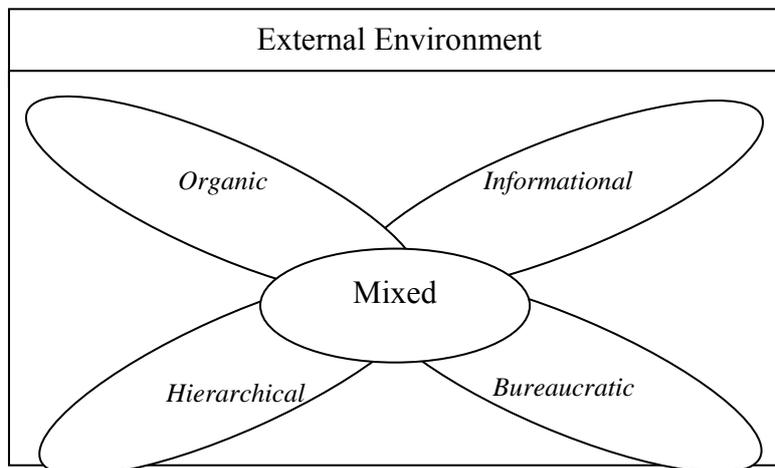


Figure 6. Optimal Organizational Structure Type Formation

The figure results the organizational structure type formation's dependence from:

- 1) External environment characteristics from the point of certainty degree view (in the left top corner environment is less certain, in the right bottom – is more certain);
- 2) External environment characteristics (business infrastructure) from the development point of view (the left lower corner – the infrastructure is developed badly, the majority of business processes should be built independently and strictly supervised within the limits of hierarchical structure; the right top corner – the business infrastructure is well developed, the majority of business processes can be delegated to external environment);

The internal environment, as it was shown above, also leaves the mark, depending on personnel readiness degree, displacing the organizational structure type upwards or downwards in the green field.

## 2. Organizational Structure Classification

As it was already mentioned at the beginning, investigating the Organizational structures types' classification of various researchers, it is often possible to meet the contradiction in various concepts. But the majority of sources agree on some consecutive transformation from strict hierarchical structures → to flexible organic types. The concept of consecutive evolution from strict hierarchical structures to more flexible organic types according to social and economic progress looks beautifully. But analysing social and economic processes from the management practice point of view, serious counterarguments occur, making the given concept doubtful.

The case is not only in the management practice history. As it was mentioned in the beginning, according to new researches when building the Egyptian pyramids the brigade type of the organization was used, what doesn't agree with the transition concept from hierarchical → to organic types. In modern management practice the strict hierarchical or linear organizational type is applied till now, i.e. hasn't lost the efficiency, despite the competition to more perfect and modern types of the organizational design.

Certainly, the pure linear type of organizational structure is possible only at the small enterprises. The difficult modern world demands specialization not only from separate employees, but also from the whole collectives that involves some specificity of such collective's management. And the linearly-functional structure at the large enterprises is a consequence of our world complication.

But together with complication of management structure and solving of existing problems, there are new coming. The way out can be both new structural changes, and other decisions. The structural answer to the organizational structure's functional blocks disintegration problem can be linearly-staff, or the linearly-functional-staff structure is more correct. The problem of personal recruitment experts here is defined in development of the enterprise's coordinated actions strategy as the complete system.

Occurrence of the large transnational companies has dictated the new structural changes need. Management of some important parameters has been delegated on a step lower. At first it occurred by a territorial principle. Then the other divisions appeared: by a grocery principle, etc. It is the so-called linearly-divisional structure, which allowed coordinating management activity in the large companies.

All mentioned organizational structures in classical classification belong to the hierarchical type of organizational structures. The second class of structures is formed by organic or adaptive ones. Organizational structures began to develop approximately from the end of 70ies, when the competition among the enterprises has sharply become aggravated and life has demanded high efficiency and fast reaction to market changes from the enterprises. On the other hand, strict actions programming and standardization inside hierarchical type structures, obviously, didn't promote it. The main plus of organic type management structures is their ability to change the form, adapting to changing conditions.

One of the most typical examples of Organizational structures of organic type is the project structure. As it was mentioned above, the main distinctive feature of these structures is the ability to change the form, adapting to the changed external conditions. That is expressed by the critical overview of all business processes, occurring at the enterprise, as on projects of a temporary character. When having a wide practice of creation and closing the projects, the creation of requested by market structure does not take a lot of efforts. Besides, temporariness of such structures allows to get rid of inefficient and unnecessary structures easily, what is a scourge of linear structures (a principle of bureaucracy growth). Certainly, the efficiency of an ideal design always differs from application practice, where the set of restrictions on personnel qualification, quantity of projects, which is possible to effectively coordinate, etc., take place. But in specialized activity spheres this Organizational structure is used quite successfully.

The other representative of organic type structures is the matrix structure. In some point, the matrix structure is a compromise between a temporality of projects, expressing business processes in organizational structure, existence and the importance and constancy of many business processes in the organization. In matrix structure there are temporary projects, solving certain problems of the organization, and constant "projects", pushing the organization to the decision of the functional purposes. This compromise allowed using successfully the matrix organizational structure at the average and large enterprises.

Cross- functional (brigade) Organizational structure, in turn, offers the compromise between strict linearly-functional management structure and independent separate design (brigade) structures. Within

the limits of the empowerment, these structures (brigades) are performing the clearly defined aims, using potential and resources not of the separate functional block, but of the organization as a whole. The constancy of such brigades is the main different feature from design and matrix ones.

Besides the described Organizational structures there are also others, more or less mixed, with allocation of the main functional blocks and minor, with allocation of parallel hierarchy at the responsibility centres, etc. At the advanced enterprises it is a common practice to optimise own organizational structure combining various approaches and decisions. This approach is effective, when there is a constant monitoring of such changes results, at timely elimination of new decisions malfunctions, implemented in Organizational structure.

### **2.1. Classification's Disadvantages**

The main task of the previous section was to show the logic of the settled nowadays organizational structures' classification. The basic idea of the given classification consists in Organizational structure transformation from strict hierarchical to more flexible organic structure. The given message looks logical enough, but at deeper analysis there are essential contradictions coming into light.

First, it is impossible to insist that there are organizations existing, or, at least, can exist more or less in long-terms, without possessing hierarchy. The hierarchy is the control mechanism. I.e. by means of the given mechanism one of the management four basic functions– the control function is fulfilled. Thus, the opposition of hierarchical organizational types with others looks, at least, incorrectly, and actually it is methodologically incorrect.

Secondly, the constant mess and mixture of the hierarchical and bureaucratic design concepts prevents to find correctly an antipode to an organic principle of management. Hierarchical – corresponds to control function, whereas the bureaucratic corresponds to standardization process, conformity to some plan or planning function. These are absolutely different functions, though meant to serve the common cause, which is business management. In many classifications between the given terms the equal-sign exists. Hierarchical is not necessarily standardized organization. The bureaucratic organization also (theoretically, when the condition of an environment invariance is fulfilled) in turn can refuse the hierarchy. The ordinary policeman can fine the president, and the president should pay the penalty. And in the given process the policeman is guided by a set of specialized standards, and is supervised by a civil society. I.e. theoretically the hierarchy here is absent.

As it was shown in section “Organizational Structure Type Formation”, the choice of Organizational structure type is influenced by two continuums: a continuum of control and a standardization continuum. Both bureaucratic and organic types of the organization are on the different ends of the standardization continuum. The main aim of the first is to ensure the planning and achievement of the set result. The main aim of the second is to ensure flexibility and adaptability of the system.

Concerning hierarchy, here too a kind of the continuum is present, on different ends of which there is a strict hierarchical control and the soft informational. The aim of the first is to ensure the strategic targets achievement of the company. The aim of the second is to provide uninterrupted performance of all business processes, occurring at the enterprise.

### **2.2. Proposals for Organizational Structures' Classification**

Each Organizational structure besides positive characteristics possesses the whole set of the malfunctions caused by unnecessary oppositions, which are brought in the given Organizational structure artificially. As it has been shown above, organic and bureaucratic types of management are not the decisions, mutually excluding each other. For example, cross-functional structure is the attempt to connect these two management principles to the integrated system for achievements in planning and flexibility problems. It concerns also the hierarchy. It is impossible to refuse one because of the other, and it is not possible also. But even artificial declaration of such principle bears hidden deep inside problems, because is forcing to refuse the necessary certain functions analysis. The system should be balanced in frames of certain external environmental conditions.

Therefore the Organizational structures classification should contain a kind of integrated estimation of this structure from at least four main characteristics, corresponding to four management functions – control function, information, planning and stimulation, point of view. Classification should be based on four axes estimation, corresponding to given functions.

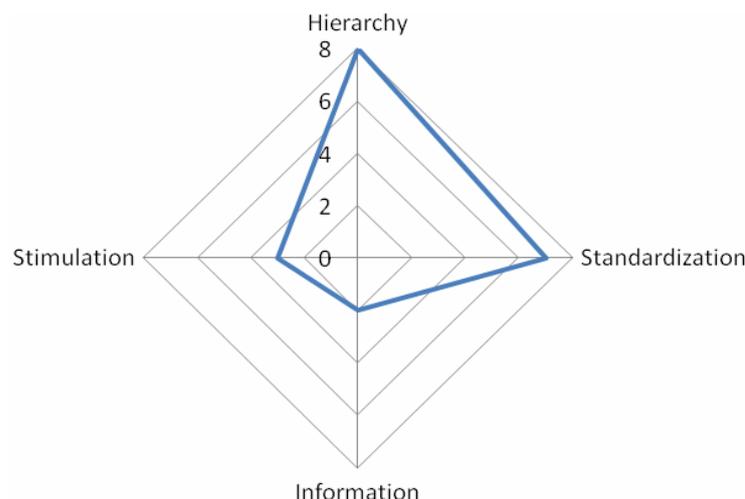


Figure 7. Linearly-Functional Structure Classification

Figure 7 shows the example of linearly-functional structure classification according to two continuums – control and standardization. It is possible to see that in the described structure the strict hierarchical control is slowing down the process of management decisions’ making, and many standardized actions (the registered regulation) interrupting the adaptation to the changing market.

### 2.3. Latvian Enterprises’ Organizational Structures Classification Example

Organizational structures, describing management structure of twelve large, mid-size and small Latvian enterprises from various activity fields according to the offered model have been analysed. Results of the classification are listed in the table below.

Table 1. Latvian Enterprises’ Organizational Structures Classification

Name	Industry	Hierarchy	Standardization	Information	Stimulation
Large Enterprises					
L1	energetic	7	9	3	1
L2	sales	6	8	4	2
L3	gas supply	8	9	2	1
L4	air service	6	9	4	1
Mid-size Enterprises					
M1	manufacturing	8	7	2	3
M2	sales	9	8	1	2
M3	sales	9	7	1	3
M4	automotive	9	7	1	3
Small Enterprises					
S1	automotive	10	7	0	3
S2	sales	10	9	0	1
S3	manufacturing	10	10	0	0
S4	services	10	7	0	3

Analysing the Organizational structure of the large companies, it is possible to note the following. Basically, large companies are characterized by linearly-divisional structure. It is revealing in tactical decisions powers delegation, basically, by an industrial principle (in trade upon the territorial principle) to directors of the allocated structures. This influences the role of soft information control being increased. As to organic principles of management, creation of permanent or constant design structures, here it is easy to notice, that if the considered organizations are using such type of management, then doing that very careful. Practically, in all considered companies the used management type is strict bureaucratic.

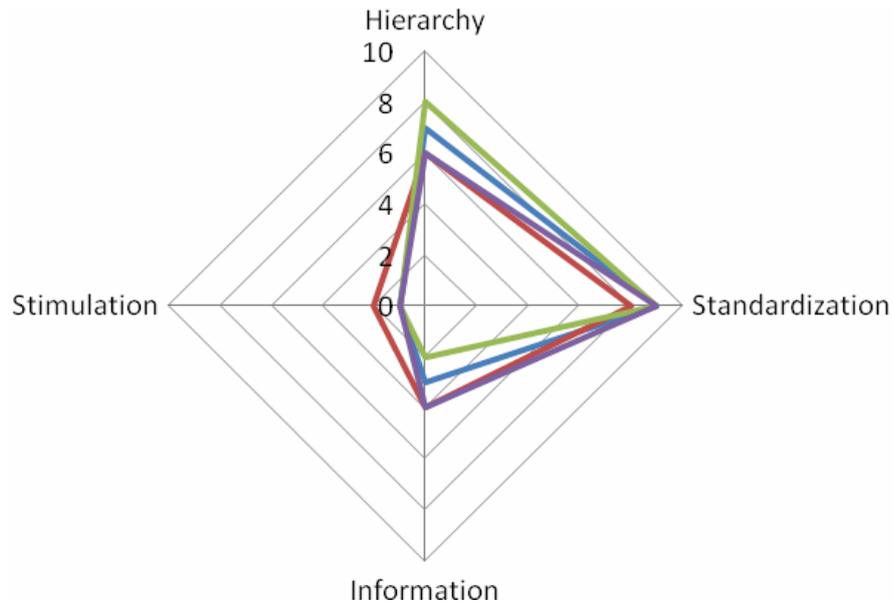


Figure 8. Large Latvian Enterprises Classification

Unlike the large one, the mid-size enterprises have more strict hierarchical structure. This is caused by the fact, that to operate the large company without delegating tactical decisions empowerment is almost impossible. It is necessary to build more complicated control schemes. In general, for the mid-size Latvian enterprise's owners, who are also frequently founders of these companies, it is difficult to refuse the direct control practice. On the other hand, these owners understand well the effect of employees' stimulation. Therefore, all Organizational structures here are presented by organic types. In each structure are presented either project, or matrix, or cross- functional types.

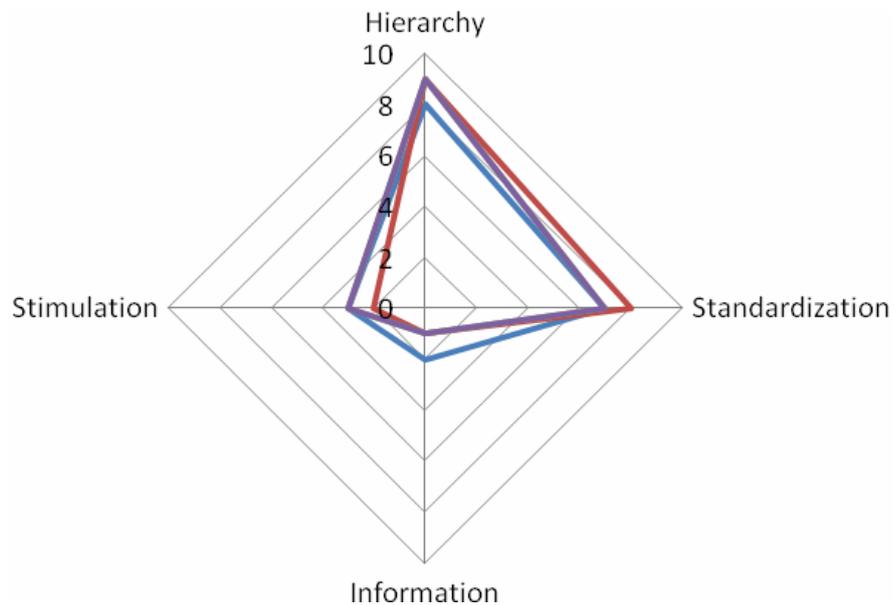


Figure 9. Mid-size Latvian Enterprises Classification

The small enterprises, presented in the analysis, have strict hierarchical structure. And, according to the industry, application or absence of organic types differs. Automotive and other services are less standardized rather than manufacture and trade. It is possible to say, that the structure here is more primitive, but is more effective at small scales of activity.

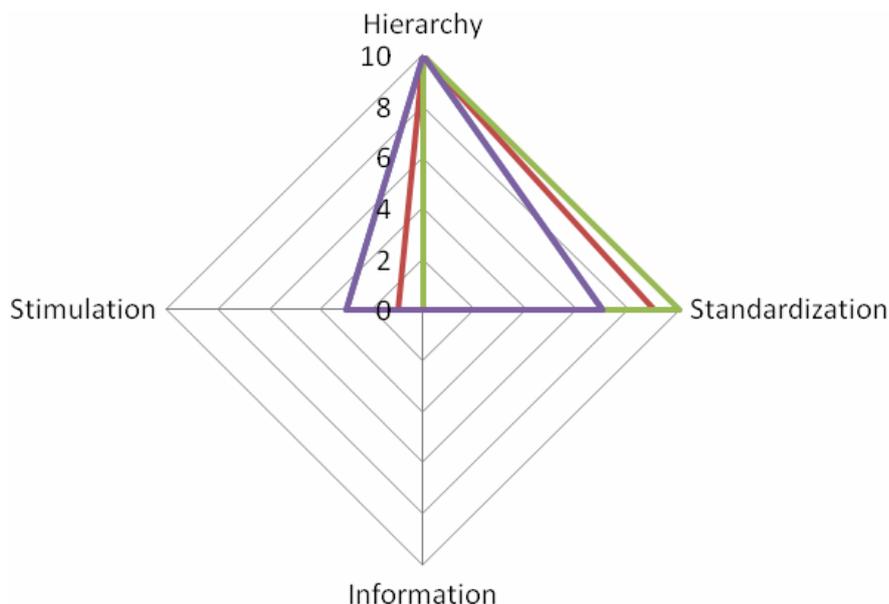


Figure 10. Small Latvian Enterprises Classification

Analysing the large Latvian enterprises, it is necessary to point out, that except one (trade), all the others are owned by state, or with the majority of shares belonging to the state. Besides two are monopolists in the industry. It, of course, can influence results. But, in general, the presented situation is characteristic for large enterprises, which weren't created “in Greenfield”.

In general, it is possible to mention, that the large and mid-size companies (from considered) have good competitive advantages. First – in the ability to decentralize the management functions, the second – using organic types of Organizational structures for long time.

Analysing the enterprise's Organizational structure by means of the given methodology, it becomes clear, what structural changes are necessary for the company at a certain stage. Thus, the offered classification is based on aspects, allowing approaching the cyclic research of Organizational structures, without considering the settled trend of organizational constructions.

#### 2.4. Transport Component of Organizational Structures Analysis

As it is possible to see from the analysis, transport companies follow the general trend of structural decisions with the others. But there are also differences. Specificity of activity dictates some organic structural decisions already at the small enterprise stage, unlike manufacture and trade. At company's transformation to average size, organic structural decisions don't lose the importance. And there is also a requirement for some tactical decisions delegation to subordinate level of management. Here it is necessary to notice, that without the structural reorganization, expressed as empowerment redistribution between higher and average level of management, average transport agency, most likely, will not become the large enterprise.

As to the considered large transport company, it drops out of the allocated row, as it didn't went from small to the average and large enterprise. As it is the privatised state company. But it is possible to point out, that the considered large trading company has passed this way, and has more signs of organic structures, rather than other large companies.

### 3. Conclusions

The trend on the use of such terms as restructurisation, etc., shouldn't lead to unconsidered and unreasonable actions in this field. First of all, it is necessary to understand clearly, what decisions exist in the field of organizational designing, to which consequences (positive and negative) these decisions can lead.

Even this is not enough. Then conducting the organizational designing, it is necessary to be guided by philosophy, special organizational thinking. Until now, the Organizational structure was considered to be formed mechanically for business processes. It is an error. The principles lie in basement.

The special (own) understanding of principles by the organization is a kind of organization philosophy. Proceeding from these principles understanding, the specific rules and standards base of the organization is formed, which should be embodied in all business – processes, proceeding in the company. The most effective embodiment of principles, rules and standards in business – processes is reached by optimal organizational structure.

### **References**

1. Mintzberg, Henry. *Structure in the fist: to create an effective organization*. St.Petersburg: Piter, 2004. (In Russian)
2. Burns, T., Stalker, G.M. *The management of innovation*. London: Tavistock, 1961.
3. Weber, Max. *Basic sociological concepts*. Moscow: Progress, 1990. (In Russian)
4. Fayolle, A., Emerson, G., Taylor, F., Ford, G. *Management – is an art*. M.: UNITY, 2002. (In Russian)
5. Meskon, M., et al. *Principles of Management*. M.: DELO, 2000. (In Russian)