РАЗДЕЛ XXX. ЭКОНОМИЧЕСКИЕ НАУКИ

Larin S.N.¹, Lazareva L.Y.², Stebenyayeva T.V.²**Use of assessment center and cluster group tools for the modeling and visualization of temporal dynamics of competences of production managers for the interaction with counteragents**¹Central Economic & Mathematical Institute at RAS²ANO APE Institute of Standards International Recording and Management
(Russia, Moscow)

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Abstract

The article identifies current trends in the composition of indicators and the number of professional competencies of production managers for interaction with contractors. It is proposed to use the assessment center's tools to assess the current level and form a promising set of competencies. The experience of using the assessment center tools for these purposes at industrial enterprises of a large industrial center of our country is summarized. The expediency of using the developed methodological procedure of qualitative cluster grouping to obtain a visual representation of the dynamics of changes for each competence model is justified. This made it possible to visualize the dynamics of changes in the clusters of two professional competencies of production managers for interaction with contractors. The conclusion is formulated that in the work of specialists in assessing the professional competencies of middle-level managers using the assessment center tools, the emphasis should shift to the development of such models of professional competencies for interaction with counterparties that allow taking into account the dynamics of the market, its development prospects and the requirements of potential customers.

Keywords: mid-ranking managers, competences of the interaction with counteragents, modeling, instruments, assessment center, cluster grouping.

Аннотация

В статье определены современные тенденции изменения состава индикаторов и числа профессиональных компетенций руководителей производства по взаимодействию с контрагентами. Предложено использовать для оценки текущего уровня и формирования перспективного набора компетенций инструментария ассессмент-центра. Обобщен опыт использования инструментария ассессмент-центра для этих целей на промышленных предприятиях крупного промышленного центра нашей страны. Обоснована целесообразность использования разработанной методической процедуры качественной кластерной группировки для получения наглядного представления динамики изменений по каждой модели компетенций. Это позволило наглядно представить динамику изменения кластеров двух профессиональных компетенций руководителей производства по взаимодействию с контрагентами. Сформулирован вывод о том, что в работе специалистов по оценке профессиональных компетенций руководителей среднего звена управления с использованием инструментария ассессмент-центра, акцент должен смещаться на разработку таких моделей профессиональных компетенций по взаимодействию с контрагентами, которые позволяют учитывать динамику рынка, перспективы его развития и требования потенциальных заказчиков.

Ключевые слова: руководители среднего звена управления, компетенции взаимодействия с контрагентами, моделирование, инструментарий, ассессмент-центр, кластерная группировка.

Foreword.

The trend of dynamic changes in the competencies of production managers for interaction with contractors was noted in the economies of the leading Western countries back in the late 80s of the last century. The further development of this trend, simultaneously with the accelerated development of the knowledge economy and widespread digitalization, had the greatest impact on middle management managers [1]. Exactly this category of production managers that found itself in the most difficult situation. After all, on the one hand, senior managers are interested in working with competent specialists here and now. However, on the other hand, the professional competencies that middle management managers were trained in business schools began to rapidly lose their effectiveness [2]. The situation in the management structures of many companies has undergone significant changes in a short time under the influence of external and internal environmental factors, as a result of which the demand for some competencies has sharply increased, while others, on the contrary, have fallen.

The change in demand for the competencies of middle-level managers of the department for interaction with counterparties is due to an increase in situational dynamics in various areas of production and service provision. At the same time, rapid transformations were observed in the labor market and vacancies under the influence of changing requirements of potential Customers to the qualitative characteristics of new competencies for interaction with contractors. After a fairly short period (from a year to a year and a half) these competencies of middle management managers no longer meet the requirements of the Customer, who is focused on taking into account current and future changes in the market. Consequently, he is interested in specialists whose competencies fully correspond to the objective realities of economic development. The above data indicate that in modern conditions, the development of professional competencies of middle-level managers of enterprises in interaction with counterparties is gaining a key role in the formation of their intellectual capital.

Basic part.

In recent years, similar trends in the development of the studied area of managerial competencies with the same consequences have been observed in Russia. Many managers of enterprises in various fields of production or service provision have already faced a situation when the contingent of middle-level managers at their disposal can no longer cope with the dynamics of changes taking place in the external and internal environment of the enterprise according to the level of their professional competencies in interacting with contractors.

The situation hereunder can be solved with two basic trends.

1. Training of highly qualified specialists with a given set of professional competencies for interaction with contractors in institutions of higher and secondary vocational education.
2. The same is true directly at enterprises through continuous retraining and advanced training systems.

However, both of these directions have certain disadvantages. According to the first of them, the main drawback should be noted the frequent lack of work experience among future candidates, not to mention the leadership skills at the level of the middle management level. In the second direction: the training of competent specialists often requires on-the-job training for training and additional costs for its payment. This causes its rejection by a sufficiently large number of managers of enterprises meeting restrictions with the availability of free funds. In addition, the practical experience of training shows that the competencies obtained by specialists become outdated after some time. As a result, the need for repeated training becomes inevitable, and therefore, additional investment of funds. These circumstances entail an unjustified increase in the costs of training and maintaining a high level of professional competencies of middle-level managers of the department for interaction with counterparties.

The way out of this situation is seen in the organization of closer interaction of the management of enterprises with external specialists to improve the professional competencies of personnel. Such specialists can be consultants of assessment centers who have good theoretical

training and practical skills to correct the composition of relevant professional competencies for middle management managers. Having the most up-to-date information, the specialists of the assessment centers assess the current level of professional competencies, and, if necessary, train middle-level managers in a fairly short time and using modern training models. The main advantage of using the assessment center's tools is a comprehensive diagnosis of existing and the formation of potentially new competencies of professional activity of specialists of any level [3]. It includes a set of different methods, based on the use of which the level of competence of specialists is assessed by a group of expert observers through modeling tasks [4]. The assessment center's tools allow us to assess the current level of competence of specialists according to a system of certain criteria, which is formed for each individual model used within this method. Usually, each competence is characterized by a system of criteria peculiar only to it – a group of key indicators that directly affect the success of professional activities of specialists [5].

During the period from 2014 to 2019, the authors obtained practical experience in using the assessment center tools for evaluating and developing the professional competencies of middle-level managers of management for interaction with counterparties as one of the key factors in the formation of intellectual capital of enterprises (see Table). For its implementation at enterprises of a large industrial city in one of the Russian regions, nine models were used in relation to the assessment of professional competencies of middle-level managers of management for interaction with counterparties.

From the data presented in Table 1, it can be seen that the assessment was carried out for specialists of 11 enterprises, the total number of middle management managers involved was 245 people, and the number of competencies for interacting with contractors in the models used for this ranged from 6 to 16. All the models shown in the table are used to assess and develop the competencies of middle-level managers of the department for interaction with contractors at enterprises of a large industrial city in one of the Russian regions.

Table 1

Proportion between models, used at enterprises, numbers of competences and specialists by years

<i>Enterprises/ models</i>	<i>Number of competences in a model</i>	<i>Number of specialists</i>	<i>Year</i>
1	16	10	2014
2	16	15	2015
3	8	16	2015
4	6	27	2015
5	7	50	2016
6	6	28	2016
7	7	18	2018
8	7	13	2018
9	6	21	2019
10	6	25	2019
11	7	23	2019

During the analysis of the models of formation of competencies of middle-level managers of management for interaction with contractors used by the authors in 2014-2019, the dynamics of their changes was established both in the number of competencies required by the customer and in their behavioral indicators. Based on the data obtained, the authors conducted empirical studies to identify the patterns of the dynamics of competence models, as well as to verify the correctness of the formation of models.

The analysis of the time dynamics of the models used and the accounting of the patterns of changes in the external and internal environment in them was carried out according to a specially methodological procedure developed by the authors. The expediency of its creation is due to the presence of difficulties in direct comparison of the entire set of used models. Since each model was formed under definite inquiry specific customer, had a wide variety of professional competencies included in its composition and their content. To obtain a visual representation of the dynamics of

changes for each competence model, a methodological procedure of qualitative cluster grouping was used. The word "qualitative" was introduced in order to distinguish this procedure from the well-known method of combining competencies into clusters [6]. To do this, we used an understanding of cluster grouping close to that used in [7], when a cluster of competencies is represented as a composition of closely related competencies (usually from 3 to 5 in one bundle). All the management competencies used by us for all the developed models for interaction with counterparties were grouped into generalized groups/clusters. Next, the number of repetitions of these competencies related to a certain cluster in the analyzed models was calculated.

Figures 1 and 2 show some of the identified trends in the dynamics of changes in the competence models of middle-level managers of the department for interaction with counterparties. The vertical axis reflect the number of repetitions ("popularity") of competencies related to a specific cluster in the analyzed models. Horizontally, the years of advanced training of middle-level managers of the department for interaction with contractors using the assessment center tools have been postponed at enterprises.

The descending line of the graph in Figure 1 can be interpreted as follows: the cluster of competencies under consideration for interaction with contractors "Self-organization and planning" "falls out" of the "mandatory" composition of the employee competencies required by the customer. In other words, the behavioral indicators of the competence under consideration "dissolve" in the patterns of behavior embedded in other competencies. There may be several reasons for this. One of them is that the "falling out" managerial competencies go into the category of "needed by default", that is, without them, the work of middle-level managers of management is no longer possible. This is also indicated by the practical experience of working with middle-level managers of management.

Figure 1. Dynamics of the competences' cluster

«Self-organization and Planning».

Figure 2 shows a completely different picture. Initially, in 2014, the competencies for interaction with counterparties related to working with information were very relevant. In 2015, interest in them drops sharply, in order to reach a peak again in the period from 2016 to 2018. As you know, it was at this time that there were sharp transformations and changes in the field of informatization of the Russian economy - the volumes of information were rapidly increasing, along with them the need for their processing and storage facilities was growing.

In recent years, much attention has been paid to the active development of digitalization of all spheres of human activity and, above all, almost all sectors of the economy. Competencies for interaction with contractors related to information processing and decision-making activities are

becoming a priority-both in the requirements of the customer and in the evaluation models of middle management managers at enterprises using the assessment center tools.

Figure 2. Dynamics of the cluster of competences «Work with information and decision-making »

Opinion.

As conclusions based on the results obtained during the analysis of the dynamics of competence models for interaction with contractors of middle management managers, we can say the following.

Rapid changes in the market situation are becoming the main source for the formation of new requirements for the professional competencies of middle managers for interaction with counterparties. Such requirements include: the ability and experience of working in conditions of uncertainty; the ability to perform work in the presence of resource constraints; stimulating the development of an entrepreneurial approach; the ability to implement practical experience in the organization of real production processes; be confident in your decisions and broadcast confidence in the future to subordinate employees.

Today it becomes obvious that yesterday's systems of motivation of ordinary employees on the part of middle management managers are absolutely inapplicable to the modern generation of Z-specialists who carry out their activities in the conditions of the "digital" economy.

The management of an enterprise today can ensure its stable position in the market due to a better forecast of the dynamics of ongoing changes and anticipation of the development of new needs in society. In addition, the management of the enterprise must be able quickly restructure one or several production processes with the prospect of producing new types of products and entering new sales markets. Therefore, in the work of specialists who evaluate the professional competencies of middle-level managers using the assessment center tools, the emphasis should shift to the development of such models of professional competencies for interaction with counterparties that allow taking into account the dynamics of the market, its development prospects and the requirements of potential customers.

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