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THE MODEL OF ASSESSING THE GENERAL INTENSITY OF RESISTANCE TO CHANGES IN AN ORGANIZATION

When analyzing the causes for the failure of previous programmes, the following issues are usually focused on: whether the results of the programmes were timely, whether the budget was not exceeded, and whether the results met certain quality parameters. In some cases, the analysis can testify that the programme was completed successfully, the team acted successfully, settlements with suppliers were completed, and stakeholders and users were satisfied. But much rarely the question arises, whether the organization is really ready for the changes that the programme implements. The **subject matter** of the study in this article is the process of introducing changes to the activities of an organization. The **goal** is to develop a tool for analyzing the possibility of introducing changes to the work of an organization. The **objectives** are to consider specific aspects affecting the results and the possibility of introducing changes to an organization; to consider and justify the main problems and sources of resistance to changes; to develop a model for assessing the intensity of resistance to changes. The following **methods** were used while studying the set problem - logical generalization, analysis and synthesis, structural analysis. The following **results** were obtained: the model was developed for calculating the total resistance to the programme of changes or transformations, taking into account the intensity of programme implementation and its successful completion. The possibility to assess the level of resistance to changes is suggested, this level can be both high and low since the personnel of an organization and especially its management body can be satisfied with the stability of the company. The features of change programmes were analyzed and the main problems related to the personnel were specified. The problems were divided into two components: a component which relates to the organization management body and a component that is directly linked to the team working on the programme. **Conclusions.** The start-up tool for analyzing the implementation of the change programme in an organization was developed, that is, if the resistance to changes is higher than the organizational potential of a company, there cannot be any benefits from implementing the programme of changes. Therefore, the general resistance to changes in the organization should be reduced and only after that any change programmes and projects can be considered.

Keywords: changes; resistance to changes; programme management; change management; programme board; programme team.

Problem statement

Outdated forecasting models under the changing economic situation and ambiguous steps of global regulators cannot give the precise picture of the world to economists, analysts and experts. Efficient social and economic policies cannot be built without this. Moreover, forecasts which are not backed up by a practical part are not needed today, so the forecasting segment itself has changed a lot over recent years, although traditional methods have remained the basis. The basic economic models appeared as obviously out-of-date after the 2008 crisis when it became clear that companies and governments were not ready for such challenges and problems because they had not been predicted by anyone or simply had not been taken seriously. The mutual integration of the branches of science, economics, industry, and the huge number of "dead zones" which all experts have not even tried to consider previously cause the need for a new approach.

This can be seen using the example of such a modern industry as project and programme management. When analyzing the causes of the failures of previous programmes, whether the results of the programmes were timely, whether the budget was not exceeded, and whether the results met certain quality parameters. In some cases, the analysis may indicate that the programme was successfully completed, the team acted smoothly, settlements with suppliers were complete, and the stakeholders and users are very satisfied. But much rarely the question arises, whether all the benefits that had been stated and forecast at the moment of obtaining the investment were achieved due to the programme.

The analysis of recent studies and publications

Among the main scientific approaches in the field of project and programme management, the following ones should be singled out: systemic and programme-oriented (V. Glushkov, B. Miller, R. Pospelov, A. Iirikov, D. Cleland and others), the theory of complex system management (Ye. Druzhinin, M. Mesarovich, I. Takahara, N. Moiseev, Yu. Germire, V. Volkovich, V. Mikhalovich), classical theory of project management on the basis of PMBOK standard (V. Voropaev, S. Bushuev, N. Bushueva, I. Belokon, V. Rach, R. Tian, V. Shapiro, I. Mazur, B. Demidov and others), the system of knowledge on managing the innovative projects and programmes of enterprises – P2M (S. Bushuev, N. Bushueva, Hiroshi Tanaka, Shigenobu Ohara).

The main principle of the programme-oriented approach is planning from goals to means [1, 2]. The approach involves a comprehensive system solving tasks taking into consideration all significant factors, connections and constraints, and also implies the responsibility of all performers for achieving the goal.

The complexity and diversity of problems and systemic situations that arise in the organizational system requires the development of formal procedures of organization and management. To do this, at the initial stage, in accordance with the programme-oriented approach, a project goal (goals) should be set. The achievement of the desired result is based on the hierarchy of goals, the main techniques of their building are described in papers [3,4,5].

The theory of managing innovative projects and programmes of enterprises was founded in 2009 [6]. S. Bushuev, N. Bushueva, Hiroshi Tanaka have

systematized the methods and models of managing innovative projects and programmes of an enterprise. They created a new "quality vision" that was adapted to the conditions of the development of Ukrainian technological clusters. Also, the positive component of this scientific approach undoubtedly lies in the fact that it is based on the mechanisms that help enterprises develop and widely use innovations in production activities.

The goal of the article

Traditional approaches to managing programmes and projects are still used by many organizations to manage and implement changes. But such methods are likely to lose their efficiency as the nature of changes and the problems that arise in connection with them are becoming more and more serious. There are three trends that determine the need to implement new approaches to introducing changes to an organization. First, changes in the organization are becoming more complex and interconnected. Second, the realization of real business benefits involves inter-functional and interdisciplinary coordination of changes. As a rule, this is the transformation of processes, systems, structures, and often co-operation with third parties who act as suppliers and partners. And third, the available organizational structures, processes and systems do not support this kind of activity. Therefore, there appears a need to develop new tools for managing programme changes in an organization that would cover all three trends. So, this article deals with the development of such a tool.

Basic material

It is becoming increasingly apparent that traditional methods of responding to changes and managing changes do not produce the expected results any longer and in some cases, unintentionally cause new problems. The authors believe that this happens due to two problems:

The first one is the distinction of independent changes from the dependent ones. In the past, the requirements for changes (as well as their impact) were often limited to solving the problems of a particular functional unit or business area. Today, the stable system relationships between the most important initiatives aimed at making changes in a specific organization are becoming more evident. There is not a single problem in isolation and "point solutions" are most often associated with possible costs and side effects that arise outside the direct impact of any particular problem. Increasingly, the changes do not only determine the boundaries between people, processes, technologies, departments and geographically distant branches of one organization but go beyond the boundaries, affect suppliers, customers, strategic partners and other third parties.

The other problem includes the basic the main concerns of the organization against initiatives aimed at implementing changes. In the past, the attention of managing teams was focused primarily on running an

enterprise. Any projects or initiatives were often considered secondary and, as a conclusion, the enterprise administration only paid attention to managing them only when there was time. In markets which are stable, managers direct their efforts mainly to meet the needs of production. But in today's dynamic markets and intensively competitive environment, the size, scale and characteristics of changes are becoming weightier. This means that the amount of efforts spent on the implementation of these initiatives is substantially increasing. Unfortunately, the existing organizational structures, for the most part, are aimed at "ordinary business management" rather than at the implementation of unique initiatives related to the transformation. Strategic initiatives aimed at making changes cannot be managed any longer by expanding available project management activities. This requires a new approach.

One of the versions of the new approach can be the model below, at least it can help handle the second problem.

To study the programme of changes and transformations in an organization, the model was modified; its basis is described in [7,8], which is as follows:

$$I = U / R; \quad (1)$$

$$R = f_r(R_b, V, F, E), \quad (2)$$

where I is the intensity (integrated flow of resources) of programme implementation; U is the organizational potential (which can be considered as driving forces) of an enterprise; R is the general level of resistance to changes which the programme implements (similar to electric resistance); R_b is the basic resistance to changes in an organization (it can correspond to the level of the enterprise technological maturity); V is general features of the desired future; F is the uncertainty of the programme implementation at the start; E is the general resistance to changes which are implemented by the programme from the stakeholders [9,10].

$$E = \langle E^b, E^0 \rangle, \quad (3)$$

where E^b is the general resistance to the changes of stakeholders that are inside the organization; E^0 is the general resistance to changes of external stakeholders.

And driving forces are calculated according to the formula:

$$U = \frac{\sum_{j=1}^J a_j u_j}{J}, \quad (4)$$

where a_j is the weight coefficients of driving forces; u_j is the rates of driving forces – (0, 1).

The general resistance is calculated as follows:

$$R = \frac{\sum_{l=1}^L b_l r_l}{L} + \frac{\sum_{k=1}^K b_k r_k}{K}, \quad (5)$$

where b_i is the weight coefficients of the internal resistance; r_i is the rates of internal resistance – (0,1); b_k is the weight coefficients of external resistance; r_k is the rates of external resistance – (0,1).

The dependence of the vision of the desired future characteristics is formed as follows:

$$V = g_1 / \log(tg_2), \quad (6)$$

where g_1 is the weight coefficient of the uncertainty of the desired future vision; g_2 is the coefficient of the rate of updating the characteristics of the desired future vision; t is the time for programme implementation.

The dependence of the uncertainty of the programme implementation at the start is as follows:

$$F = n_1 / \log(tn_2), \quad (7)$$

where n_1 is the weight coefficient of the general uncertainty of the programme start; n_2 is the rate of updating the characteristics of the programme start; t is the time for programme implementation.

Basing on the given model of the calculation of the total resistance of the programme of changes or transformations and taking into account the intensity of the programme implementation and its successful completion, the general level of resistance to changes can be determined as high or low. In this case, it is necessary to accept the limit value of the high level of resistance. Thus, it can be concluded whether the staff of an organization and especially its management body, are satisfied with the stability of the organization.

Thus, a start-up tool for analyzing the implementation of the programme of changes or transformations in an organization is obtained, that is, if the resistance to changes is higher than the organizational potential of the company, there cannot exist any benefits from implementing the programme changes. Therefore, the general resistance to changes in the organization should be reduced at first and only after that any programmes and projects can be considered.

Let us detail the factors that can contribute to increasing the internal resistance in the organization, in terms of the features of the change programmes.

But before describing the main features of the preparedness of the administration and the team for implementing the programme of changes, the main features of the programme of changes should be determined:

- the program can be permanent and do not end until the decision to complete it is made or when it loses its relevance;

- the programme spreads when new information is received. One should be prepared to the fact that the basic results will be determined and the plans will be improved regularly.

- programmes are always more complex than projects and can have several different results, each one having its own value. But the total value of the results of the change programme is always significantly higher than

the sum of the values of programme results taken separately.

Now, after the peculiarities of the programme of changes have been detailed, the main problems associated with the personnel of the organization can be considered. The problems we will divide into two components: the component that belongs to the management body of an organization and the component that relates to the team which directly works on the programme.

The problems of the management body are as follows:

1. Senior management in organizations is usually formed on the basis of functional roles and types of responsibilities aimed at managing current operations but not at implementing integrated unique initiatives.

2. The style and skills of management and administration that are relevant to managing current operations often do not seem to be suitable for managing complex initiatives related to changes;

3. Middle-rank managers (but not high-level ones) are usually responsible for the success or fiasco of initiatives in the organization. This results in a discrepancy between the reporting procedures and the powers that are required to accomplish the tasks.

4. Lack of reporting and accountability can result in dysfunction of initiatives where high-level stakeholders do not come to an agreement and try to affect the programme they are not responsible for.

The problems of the team that works on the programme are as follows:

Potential team members do not always want to leave the usual career structure and refuse the set growth opportunities within linear functions in order to try themselves as a project/program participant related to, according to popular belief, a more serious personal risk and limited career opportunities.

If team members are engaged in fulfilling their functional responsibilities within the current activities of an organization, the loyalty of individuals will primarily be directed to the usual work organization. Function leaders also reluctantly agree to release their most valuable resources for working on projects or programmes.

Team members with experience in performing operational functions often find that the terms of work on a programme or project are inconvenient and problematic for them and they are not constantly satisfied with them like they are satisfied with their usual daily activities. And in the end, even the most talented employees can get rid of the motivation.

The success of projects and programmes often depends on specific deficient skills. Failure to recognize this at the stage of planning and developing a schedule for implementing initiatives leads to the creation of projects and programmes whose resource requirements cannot be met.

To solve the above problems, the following tools and techniques are suggested for using (Table 1 "Programme management and control", Table 2 "Team building and developing").

Table 1. Programme management and control

Methods and tools	Explanations/advantages
<p>Assessment of management organization The structure of the organization management body is studied; the assessment is made to understand if this structure is suitable for managing successful programmes as well as for monitoring current activities. It is better to use the methods that are built on the basis of the model of the enterprise technological maturity that are described in [2, 11]</p>	It determines the balance between the work on the programme and current activities as compared to the balance between primary responsibility and the concentration of the attention of the management body. It can lead to restructuring the executive management to ensure strong leadership and purposeful management of important programmes.
<p>The matrix of management responsibility distribution It identifies specific types of role responsibilities and accountability in the sphere of programme management activities.</p>	A clear definition of roles and areas of responsibility will allow the programme team to identify and require managerial support to accelerate decision-making or problem-solving.
<p>Master-class with management body and programme support group Objectives, tasks and expectations form the programme implementation are developed and formulated. The master-class technique is described in [12]</p>	A clear definition of the requirements of the stakeholders allows the team members to understand what is necessary to be done for success and what it should be like.
<p>Training and developing management body If relevant, in order to support the programme implementation, managers can be appropriately trained, which will allow them to understand better the nature of the future programme, the risks associated with it, and to understand the problems and requirements that may arise in the programme team.</p>	It helps to achieve some level of common ground with management regarding the nature of uncertainty and manageable risks as well as the peculiarities of information and problems that will likely result from the implementation of the programme. It can also contribute to a deeper understanding of those areas of activity in which managerial methods that are different from the typical day-to-day management would be more effective.

Summing up the data in the table, the following conclusions can be made:

- The roles of senior executors involved in managing and supporting decision making need to be clearly determined.

- The appropriate authorities should be created: the organizing committee, the project commission, the board for monitoring the changes in the programmes. These structures may differ from existing organizational structures and their relationship should be clearly defined.

Let us detail these organizational structures.

The organizing committee

This is a committee that usually includes a person who supports the project or programme, as well as other executives who are interested in the success of the programme or project. The role of the organizing committee is to monitor the implementation of initiatives. If problems arise, it acts as the decision maker. The organizing committee strategically evaluates the management of risks associated with the programme and approves the risk response strategy. The organizing committee is also responsible for making changes to the budget of the programme or project and for using funds which are allocated for an emergency.

A successful organizing committee has the following features:

- it comprises people who are officially interested in the programme implementation and are authorized to make decisions and complete tasks;

- it is able to consider a programme in the context of more general strategic problems;

- it is responsible for decisions it makes.

The project commission

Within the programmes that are characterized by constant attention to the technical aspects of products, the project commission can act as a body responsible for the consistency and the possibility of applying product design. This group is responsible for ensuring that the draft decision fully meets the needs and objectives of the organization and serves as the main functional unit providing quality and control.

The board for monitoring changes in programmes

If a project is complex in nature, joint requests for changes can be insufficiently evident in terms of the programme management group. The board for monitoring changes in programmes comprises those who are good at technical issues of products that are realized by an organization, at technological processes and methods as well as at available risks. This board is responsible for assessing the impact of changes in terms of costs, schedule and, what is most important, of risks. To work efficiently, this board needs powers that allow it to say "yes" or "no" to specific changes.

Traditionally, the project commission and the programme for monitoring changes in programmes along with the programme manager are accountable to the organizing committee.

Based on the data presented in the table, it can be concluded that the building of highly efficient teams for working on programmes and projects requires support that is expressed in the relevant HR management policy: personnel selecting, training, managing the results of operation, schemes of paying rewards and bonuses and career growth for those who work on projects and programmes.

Table 2. Building and developing the team that implements the programme

Methods and tools	Explanations/advantages
<p>Opening meeting Master classes are designed to mobilize the team and to familiarize them with the task quickly. Key points include working models, goals and objectives, context and experience. The tools are described in [2, 13]</p>	It introduces the programme to team members, contributes to the general understanding of the context, methodology, vision and objectives of the programme.
<p>The Statute (Charter) of the team The document is created by the team working on the programme and defines the models of work, the principles of collective interaction as well as the policy of work with personnel and procedures. It is often created in the format of the master class during the opening meeting or the period that continues alongside it. It is an introductory package of documents for the team. More details are given in [12]</p>	The development of the statute allows the team to elaborate a set of constructive principles and behavioural patterns that together are a centrepiece of the collective culture that promotes mutual respect, support, teamwork and the achievement of results.
<p>The matrix of team skills It visualizes the team that work on the programme and the skills that this team should have [14]</p>	It allows the program management body to match the requirements for roles with the skills that are available in the team and to identify the need for training or alternative resource supply.
<p>Team summary meetings Permanent actions conducted in accordance with the schedule, where the team evaluates their activities, analyzes the experience gained and provides the latest information on the implementation of the programme [15].</p>	It promotes the team's common understanding of the programme and the roles of team members in the wider context of the programme implementation. In addition, it strengthens the combat spirit, moral condition and team culture.
<p>Assessment of team activity results This is an officially recognized process within which the team sets goals. The results of the programme implementation are assessed according to these set goals.</p>	It ensures the stable management of the career growth for team members who work on the programme. It also provides a mechanism for fair distribution of recognition and monetary awards.

Another characteristic that can lead to an increase in resistance to change is the change itself.

Sometimes, the following formula for assessing driving forces can be used instead of (4) for the sake of simplicity

$$U = \frac{Ch}{M} \rightarrow \max, \quad (8)$$

where Ch is the organization preparedness to changes; M is the scope of changes.

That is, the greater the preparedness of an organization to changes, the greater the driving forces and, accordingly, the greater the scale of the changes, the more efforts are needed to implement the program.

Let us detail the concept of the scale of changes and the preparedness of an organization to changes.

The scales of planned changes are characterized by the following indicators:

- a number of stakeholders involved in the implementation of changes;
- the influence on the main areas of competence;
- time limits for implementing changes;
- the number of people who are affected by changes;
- the stage of necessary behavioural transformations;
- a number of simultaneous transformations in processes, technologies and skills.

To assess the preparedness of an organization to changes, the following aspects should be analyzed:

- support from decision makers;
- the degree of agreement among management (managerial consensus);

- the awareness of the need for changes by those who are under their influence;

- history (successful/unsuccessful) of previous changes;

- the need to transform the culture of the company;
- resources allocated for the implementation of changes.

Conclusions

The article presents the model for assessing the overall intensity of resistance to changes in an organization. Basing on the given model for calculating the total resistance to the programme of changes or transformations and taking into account the intensity of the programme implementation and its successful completion, the total level of resistance to changes can be determined; this level can be both high and low since the personnel of an organization and especially its management body can be satisfied with the stability of the company.

One of the main causes for the high resistance to changes due to the lack of effective leadership and teamwork were also considered because quite often these areas of activity in organizations are not sufficiently developed and very little time and efforts are given to the effective program support. To solve these problems, the list of tools and measures was proposed (Table 1, Table 2).

Thus, a start-up tool for analyzing the implementation of the programme of changes or transformations in an organization is obtained, that is, if

the resistance to changes is higher than the organizational potential of the company, there cannot exist any benefits from implementing the programme changes. Therefore,

the general resistance to changes in the organization should be reduced at first and only after that any programmes and projects can be considered.

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Received 01.10.2018

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МОДЕЛЬ ОЦІНКИ ЗАГАЛЬНОЇ ІНТЕНСИВНОСТІ ОПОРУ ЗМІНАМ В ОРГАНІЗАЦІЇ

При проведенні аналізу причини невдачі минулих програм, ми за звичай концентруємо увагу на наступних питаннях: були результати програми своєчасними, витримано межі бюджету, чи відповідають визначеним параметрам якості результати. В інших випадках аналіз може показати, що програма виконана успішно, діяльність команди успішно завершена, розрахунки з постачальниками закінчено, а зацікавлені особи та користувачі вельми задоволені. Набагато рідше звучить питання, найбільш доцільне ніж усі інші, а саме чи дійсно організація була готова до змін, що впроваджує програма? **Предметом** дослідження в даній статті є процес впровадження змін у роботу організації. **Завдання:** розглянути конкретні аспекти, що впливають на результати та можливість впровадження змін в організації; розглянути та обґрунтувати основні проблеми та джерела опору змінам; розробити модель оцінки інтенсивності опору змінам. **Методи дослідження:** логічне узагальнення, аналіз та синтез, структурний аналіз. **Результати:** Розроблено модель розрахунку загального опору програмі змін або перетворень з урахуванням інтенсивності реалізації програми та її успішного завершення. Надано змогу визначити оцінку рівня опору змінам, яка може бути як високою так і малою, оскільки персонал організації, а особливо його керівництво може владштувати стабільність положення компанії. Проаналізовано особливості програм змін та виділено основні проблеми, пов'язані з персоналом організації. Проблеми поділено на дві складові: складова, що відноситься до керівництва організації, та складова безпосередньо команди, що працює над програмою. **Висновки:** отримано стартовий інструмент аналізу впровадження програми змін або перетворень у організації, тобто якщо опір змінам вищий за організаційний потенціал компанії, то не про які переваги від реалізації програми змін мови йти не буде. Тому потрібно спочатку знижувати загальний опір змінам у організації, а лише після того можна говорити про будь-які програми та проекти.

Ключові слова: зміни; опір змінам; управління програмами; управління змінами; керівництво програми; команда програми.

МОДЕЛЬ ОЦЕНКИ ОБЩЕЙ ИНТЕНСИВНОСТИ СОПРОТИВЛЕНИЯ ИЗМЕНЕНИЯМ В ОРГАНИЗАЦИИ

При проведении анализа причины неудач прошлых программ, мы обычно концентрируем внимание на следующих вопросах: были ли результаты программы своевременными, выдержаны ли рамки бюджета, соответствуют ли результаты определенным параметрам качества. В других случаях анализ может показать, что программа выполнена успешно, деятельность команды успешно завершена, расчеты с поставщиками закончены, а заинтересованные лица и пользователи весьма довольны. Гораздо реже звучит вопрос, наиболее целесообразный чем все остальные, а именно действительно ли организация была готова к изменениям, которые внедряет программа? **Предметом** исследования в данной статье является процесс внедрения изменений в деятельность организации. **Цель** – разработка инструмента анализа возможности внедрения изменений в работу организации. **Задачи:** рассмотреть конкретные аспекты, влияющие на результаты и возможность внедрения изменений в организации; рассмотреть и обосновать основные проблемы и источники сопротивления изменениям; разработать модель оценки интенсивности сопротивления изменениям. **Методы** исследования: логическое обобщение, анализ и синтез, структурный анализ. **Результаты:** Разработана модель расчета общего сопротивления программе изменений или преобразований с учетом интенсивности реализации программы и ее успешного завершения. Предоставлена возможность определить оценку уровня сопротивления изменениям, которая может быть как высокой, так и малой, поскольку персонал организации, а особенно его руководство может устраивать стабильность положения компании. Проанализированы особенности программ изменений и выделены основные проблемы, связанные с персоналом. Проблемы разделены на две составляющие: составляющая, которая относится к руководству организации, и составляющая непосредственно команды, работающей над программой. **Выводы:** получен стартовый инструмент анализа внедрения программы изменений или преобразований в организации, то есть если сопротивление изменениям выше организационного потенциала компании, то ни о каких преимуществах от реализации программы изменений речи идти не будет. Поэтому нужно сначала снижать общее сопротивление изменениям в организации, а только после этого можно говорить о каких-либо программах и проектах.

Ключевые слова: изменения; сопротивление изменениям; управление программами; управление изменениями; руководство программы; команда программы.