Effective team building as an activator of cluster community progress

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Abstract
In recent years, the cluster motion has become more active in Ukraine. The setting of research tasks, their relevance and pragmatism are due, first of all, to the perception of the cluster community as an environment for making optimal decisions in uncertainty conditions and producing innovations necessary for the vital activity of society and the economy. Secondly, the vision of cluster formations as specific organizational forms, the development of which is possible only if a coordinated and highly motivated team with common values is formed. The activity of the Ukrainian Cluster Alliance, which is currently the largest and most authoritative cluster community, was studied. It is substantiated that the formed management structure of the cluster community, the defined its mission and goals, the distribution of powers and the adopted ethical rules are able to ensure a trust between participants. At the same time, the formation of a project management system in cluster activities should be supported by appropriate team building measures.

The reasons for the decrease of team building effectiveness and the factors that should be the basis of this process are summarized. The main stages of team building in project teams are structured, which will allow successful implementation of project management within the cluster community. The further direction of scientific and practical work is defined as the development of personnel and management potential of cluster formations, in particular through the development of a model for training cluster leaders which will be able to be an effective team leaders.

Keywords: cluster, team building, team roles, management, human potential.

Introduction
The full-scale invasion of Russian troops on the territory of Ukraine on February 24, 2022 and the imposition of martial law in the country formed a new reality, when the human potential (personnel and theirs skills) became one of the key in the formation and success at all levels. A significant role in ensuring a favourable social and economic situation in Ukraine belongs to the process of consolidating the efforts of the human community, business and more. In the system of business activity today the system of new directions formation of cooperation which is shown through cluster organizations is very important. In the cluster community that it is possible to combine the high competence of SME owners, their management and established teams, which in conditions of high levels of uncertainty are able to find optimal solutions as quickly as possible. Therefore, the study of the formation of cluster organizations and teams,
that are ready for productive interaction to restore chains of creation of added value, is becoming relevant.

Modern management focuses on the formation of clusters as a specific form of effective business process management, development of industries and territories. In recent years, the cluster movement has been actively developing in Ukraine, which is based on many years of foreign experience and intensive processes of economic globalization.

At the same time Samborskyi and Hlasov (2021) note that cluster policy is in Ukraine infancy, its development is weak, despite the growing attention of the state. In their opinion, the development of cluster policy in Ukraine requires from the state policy a system of measures aimed at developing the concept of cluster development.

In 2020, a draft of the National program of cluster development until 2027 was developed, which argues for the need to accelerate cluster development, outlines the main principles and guidelines for development until 2025, and contains a number of recommendations for executive authorities at the national and regional levels, as well as for heads of cluster structures (Natsionalna, 2020). This document is a certain road map of cluster development in Ukraine, which must now receive appropriate adjustments in accordance with the conditions of the war economy and the goals of its post-war recovery. Yurchak O. (2022) emphasizes that after the war in Ukraine, those areas that will have investments in innovation will develop, and the recovery of the economy will be based on the growth of the infrastructure, energy and construction industries and the development of cluster organizations in these industries.

We believe that clusters and cluster community, as well as other forms of organizational associations, require high-quality personnel support and the introduction of progressive forms of joint activity organization for their development and effectiveness. One of these forms is, in our opinion a cluster (project) team. Teamwork skills and creating employee teams are the key manager’s competences (Wolanin, 2022).

The purpose of the article is to substantiate the role of teams in ensuring the productive activities of cluster organizations and to develop recommendations for effective team building.

Material and methods

The issues of creating and developing clusters, forming value chains and promoting the consolidation of local community efforts to develop territories, as well as combining expertise and cooperation in teams of enterprises and communities (different levels) were studied on the basis of monographs and scientific articles, conference materials, periodicals and own results of research and practice within the Zaporizhia Cluster “Engineering-Automation-Machinery” and the Ukrainian Cluster Alliance. Practical approaches to effective team building and the teams’ roles assignment were developed during the designing and implementation of training programs for managers of industrial enterprise, that is a potential promising participant of cluster. The abstract and logical, system and functional methods are used in the work, which allowed to substantiate the role of team building in the development of cluster associations and the principles of distribution of roles in project teams priorities of modern development.

Results and discussion

The issue of cluster development and team building in the cluster community by sectoral areas and projects is a promising area of consolidation of SME, education and science efforts in conditions of great uncertainty in terms of optimal combination of resources and solving current problems in Ukraine’s economy.

The development of clusters in Ukraine has a long history, but recent years have been a significant new impetus in stimulating the
resumption of this movement. The active position of individual market community members, including Association of Industrial Automation Enterprises of Ukraine (APPAU) and others, the consolidation of consistent information activities and the involvement of a wider range of business, academics and educators, and the support of the international donor community, including GIZ, UNDP, USAID, helped restore the cluster movement in Ukraine. Over the last few years, a community of like-minded people has been formed and gradually united into a number of initiatives. In particular, the National Program of Cluster Development until 2027 (Natsionalna, 2020) has been developed, statistics and cases of value chain formation have been collected, a number of results of project activities have been published, etc. (Vnukova, 2021; Yurchak, 2021).

**Progress of the cluster community in Ukraine: the case of the UCA**

In March 2022, the creation of the Ukrainian Cluster Alliance (UCA) was launched, which today includes more than 35 clusters with more than 1,800 enterprises from almost all industries in different regions of Ukraine. Such a community not only brings together a large number of business and educational structures, but also has a large group of experts and teams that can solve most current and strategic issues. At the same time, the community has certain limiting features that require clear management, a competent approach to team building in different areas of activity and regional distribution. That is, the issue of the effectiveness of the Ukrainian cluster alliance and individual clusters is a project activity, the results of which involve a detailed study and transfer of the findings to the practical level.

The formation of a large cluster community, along with the positive features, poses certain threats, which are associated with a number of bureaucratic constraints, especially in management decisions. Today, the cluster community, which has united different clusters of Ukraine, is trying to streamline all resource opportunities and ensure effective processes in many areas. Several key areas has been created in the community in which expertise is concentrated and attempts are made to conduct regular consolidation and training activities, attract and use resources efficiently, and expand development opportunities.

The cluster community began to develop dynamically and already within 6 months demonstrated a certain order. Initially, it was determined that the functioning of the Ukrainian Cluster Alliance is ensured by the **Coordination center** – Project Management Office, which currently includes a 2-level system: a group of 5 coordinators conducts daily operational activities to structure of the Ukrainian Cluster Alliance, formation of working groups, detail projects, fundraise and fund joint functions; large group – 20+ coordinators from clusters and partners provides operational activities of various projects. Among the main areas of work of the Ukrainian Cluster Alliance (Ukrainskyi, 2022):

1) **Analytical Center (AC)** has a mission to provide the Ukrainian Cluster Alliance with quality analysis by sectors and industries in which clusters operate, as well as common cross-sectoral areas such as supply chain, logistics, import-export, opportunities for integration into international value chains etc. In addition to operational analytics, the AC must build a strategic perspective – forecasts, strategic options, analysis of the external environment in the world, etc.;

2) **Production projects are major in the Ukrainian Cluster Alliance**, as they are directly related to clusters, as business associations of manufacturing companies: engineering, automation and mechanical engineering; light industry (textile production, etc.); furniture industry; pharmacy (medicine); automotive industry; rehabilitation and development of critical infrastructure; from the agro-food direction, etc. It is advisable to coordinate all these areas through the Emergency Support Centers for each of the critical industries, which are grouped into consortia;

3) **Relocation of business and personnel** – the
direction of the Ukrainian Cluster Alliance, which is aimed at relocating business and creating jobs, in particular, through the accounting of free human resources, matching (combination) of needs and proposals on the web platform;

4) Export – Internationalization – is about projects of international assistance and entry into international markets.

In August 2022, the cluster community on its own information resource (https://www.clusters.org.ua/about/structure/) presented an orderly structure. It consist of three levels: the Coordination Headquarters of the UCA for the current period (before the General meetings) (Chairman of the Ukrainian Academy of Sciences, director of the "Export - Internationalization" department, director of the Analytical Center of the Ukrainian Academy of Sciences, coordinator of fundraising programs of the Ukrainian Academy of Sciences); Heads of Rapid Response Centers (by directions: utilities and infrastructure, engineering - mechanical engineering, food and processing industry, light industry); clusters (more than 40 in the following directions: 1) EAM and Aerospace; 2) Textiles; 3) Agri-food; 4) Construction – Furniture; 5) Traditional Industries; 6) IT, Innovations and Creatives clusters; 7) Others.

That is, the community, which unites about 2,000 Ukrainian enterprises, has all the opportunities to increase the efficiency not only of their own activities, but also a significant impetus to the recovery and development of the economy as a whole. At the same time, the situation shows a slow pace of cooperation, as such a significant diversification of issues and the lack of an orderly information network does not contribute to the efficient use of all available resources. In addition, the distribution of roles in the community is carried out on a voluntary basis and without taking into account the personal characteristics of professionals.

There is a well-known awareness that clusters are organizations that unite their members on a voluntary basis, and the level of their effective cooperation is based on trust. However, at the same time, it has been proven that a well-formed management structure, defined mission and goals of the structure, division of powers and adopted ethical rules can form an appropriate level of trust. That is, building an effective project management system that can be applied to clusters and the cluster community will help increase the efficiency of their operations.

Cluster management is a rather complex system of management practices, which is significantly different from company management. Its features, first of all, consist in the specifics of forming such an association, where the role of leadership in the development of mediation and simplification of connections between various members of the community is important. Each business builds its own development policy on the market, and the role of cluster management is to ensure the spread of understanding of the benefits of collaboration. The main efforts should be focused on the coordination of common goals and collective actions to increase the added value from the participation of each participant in cluster activities. This is especially relevant in terms of constant review of development goals and real practical steps, which should be based on a systematic assessment of the state of activity and cooperation of cluster participants. Since current changes have a multidirectional impact on cluster participants, they should be analyzed in detail and agreed upon by the community. Accordingly, the cluster manager must constantly communicate with various representatives (region, state) of stakeholders (businesses, educational institutions, representatives of the authorities, various organizations, key personalities) and help to understand the most attractive joint opportunities of cluster participants.

The industry specificity and structure of the cluster, and in some cases different stages of its development, require the cluster manager to use mainly new approaches to managing the association.

Since the success of a cluster organization
significantly depends on the level of definition and characteristics of the demonstration of the main advantages of its participants and the quality of the implementation of intermediary relations between them, openness and trust in the community, a willingness to cooperate effectively are important.

At the same time, the role of cluster management is reduced to a deep understanding of its participants (their resources, potential, goals, etc.) and the formation of a set of services for them, which will ensure an increase in the formation of added value. Cluster management should organize and coordinate the activities of the cluster in accordance with the developed strategy in order to achieve the defined goals. Such conditions place additional demands on cluster participants, who must coordinate (compose) their own development strategies. Operational management of the cluster consists in carrying out the daily activities of the cluster according to the plan, optimal placement of human and financial resources, monitoring the progress of the cluster, etc.

Cluster management is a complex, interactive, non-linear process (individual activities will be carried out simultaneously). The main stages of the cluster management cycle are presented in Fig. 1.

![Figure 1. The main stages of the cluster management cycle](source: Uncovering, 2011)

The duration of the implementation of these stages and the role of the cluster coordinator in their implementation will depend on the current level of development of the cluster, the projects implemented in it and the level of maturity of the cluster team.

Project management is increasingly becoming a standard way of doing business today. The realization of certain goals is ensured by a leader and a team that is capable of effective intra-team interaction. It is no coincidence that in modern research on management, project management and other sections of applied theory of organizational systems management, more and more attention is paid to teamwork and stages of project team formation.

**Team&Cluster community progress**

Team and teamwork are now becoming the highest priority in the management system, as they determine the high quality and efficiency in solving many organizational issues. In addition, belonging to a team mobilizes a person in general and increases his satisfaction with living
conditions (Moskalenko, 2014). Accordingly, productivity increases and the level of staff involvement in the goals of the organization.

The relevance of team building in the context of the development of cluster organizations is determined in addition to the features of this type of interaction of SMEs, and the presence of coordinated teams in the cluster organization provides the following advantages:

- joint solution of common tasks is more effective;
- the creativity of the made decisions grows;
- reduces the risk of critical errors;
- the allocation of human resources is more rational due to the prevalence of mutual assistance in the team;
- the lack of certain resources and competencies of some team members is compensated by synergistic interaction.

At the same time, it should be noted that the effectiveness of team building may decrease for the following reasons: lack of competencies of teamwork in cluster members; unwillingness to take on certain roles on the principles of situationality (sometimes against the background of the desire to secure only one set of role functions); lack of strategic vision and inability (unwillingness) to generate new ideas; excessive and unjustified ambitions of individual members of the cluster organization; priority of individual goals and values over team ones; the presence of two or more participants competing for the role of leader; unwillingness of cluster members to take responsibility and the desire to transfer it to the leader (project manager, cluster director); lack of a leader capable of transforming cluster members (project executors) into an effective team; lack of “common” language – due to the lack of all potential members of the team a common “picture”, common skills and methods of work, as well as the desire to cooperate and so on.

Typically, a team is a group of people with high qualifications in a particular field, most committed to the overall goal of the organization, to achieve which they work together, coordinating their actions. An important determining basis for the effectiveness of the project team is the process of its formation, which is associated with planning, implementation, control, responsibility, communication, motivation, conflict, power, leadership, etc. (Olenich, 2012). It provides for the accumulation and coordination of the following main features: a common goal, recognition of each other, complementary composition, collective responsibility, a clear leader.

Also in the context of cluster activities, the team should be considered as a group of creative people united around one leader, engaged in a common cause with pleasure, combine their personal goal with the common one, and consciously interact with each other to achieve it, and the result of their work is a qualitatively new product (Mukha, 2015).

The basis of an effective team-building process in a cluster should be such factors as:

- clearly stated goal of joint activities of cluster members and awareness (acceptance) of it by all team members;
- the motivation of the participants for cluster and team activities is clearly expressed and understood by the community – established system of effective communication between team members / cluster members;
- role structure of the team.

Key substantive aspects of team building in cluster activities are visualized in Fig. 2, which clearly shows the role of the leader (head/coordinator of the cluster organization) in this process.

![Figure 2. The trajectory of team building in cluster activities](image-url)

The leader is an integral part of the team. In practice, two scenarios are possible:

1) the leader forms a team (people unite...
around the leader);

2) the team forms a leader (a leader emerges among team members under the influence of certain factors and in a certain situation).

A common practice is situational leadership - leadership as a product of a situation when a certain team member possesses unique competencies and ideas necessary in a specific situation.

Note that the path of team formation, which is represented by a wavy line in Fig. 2, can cover several evolutionary transformations in the interaction of project/cluster participants. In the scientific literature on management and team building (Shevchenko, 2020), they are described as follows:

– working group - individuals who work mainly independently, but exchange information and experience. The formation of unified goals and objectives is not occurs, and the interaction of group members is random and is not supported by joint responsibility for results;

– pseudo-team - consists of employees (team’s members) who have the opportunity to improve the efficiency of joint work, but do not show interest in the development of a common goal, or in the development of the necessary skills and abilities;

– potential team - individuals who already realize that they could work more efficiently and try to do so;

– a real team - individuals who have complementary skills and abilities, have common goals, tasks and work methods;

– a highly effective team that meets all the team's characteristics and criteria contributes to the individual development of its members.

In practice, the path from a working group to a highly effective team can take several months, and sometimes even years. However, it should be taken into account that in modern conditions, as a rule, solving certain business tasks does not involve such long time lags. At the same time, the presence and level of development of team work skills among project participants becomes important:

– harmonization of a common goal with personal goals;

– acceptance of responsibility for the team's result;

– situational leadership (leadership for the task) and flexible change of style according to the specifics of the task;

– constructive interaction and self-governance;

– making a single team decision and coordinating it with team members;

– interpersonal skills (soft skills): listening, "interrupting", ability to resolve conflict situations, giving and receiving feedback, expressing gratitude, etc.

In addition, there should be a clear sequence of actions (stages), which is known to all project participants. Let's consider the stages of team formation.

The main stages of a project team forming in a cluster organization

The formation of the project team includes a number of stages:

– determination of factors of project uniqueness (project product, project implementation environment);

– analysis of compliance of corporate values of the organization with its strategic goals;

– determining the impact of product characteristics and project implementation environment on the professional requirements of team members;

– forming a list of project team functions and prioritizing each of these functions for project success;

– determination of the requirements for knowledge, skills and abilities of team members necessary for the performance of each function;

– development of the professional structure of the project team;

– identification of the most important and priority roles in the project team;

– formation of a list of professionally important qualities for each role in the project team;

– planning the procedure for assessing individual blocks of knowledge, skills and abilities of candidates;
– compliance analysis and determination of the most balanced role structure of the project team;
– analysis of compliance of each candidate with the requirements for work in individual positions and determination of the most balanced professional structure of the project team (taking into account the priority of functions);
– graphic representation of the role and professional structure of the selected team of the project (Bushuieva, 2015). These components of the process of forming a project team are to provide optimal conditions for the combination of different values and norms of people who must work efficiently and synchronously. That is, the formation of the best project team is associated with maintaining a proportional ratio of different roles of professionals and avoid the predominance of any of them.

The roles assignment in project teams

Practice shows that one of the most important stages in cluster team building is positioning (distribution of roles). Depending on the functional features, all possible roles in the teams are divided into:
– targets who direct their energy to solving the problems facing the team;
– supportive, helping to maintain and intensify the activities of team members.

Depending on the direction of the role in teams of different types are divided into:
– extroverts – aimed at communicating with the team’s environment;
– introverts – aimed at solving team tasks within the team.

In the context of cluster organizations and their activities, it should be noted that clusters should be dominated by target and extroverted teams, although of course the ideal option is when the same team is capable of different types depending on the situation and specific tasks.

One of the most famous studies on team roles is by Raymond Meredith Belbin. The scientist identified nine team roles, that is, similar types of behavior of team members (Belbin, 2010). The best indicators are achieved by teams that have: a successful "coordinator"; a powerful "generator" as a source of creative ideas; "analyst" that stimulates the generator of ideas; "analyst" is an employee who is able to "calculate" the shortcomings of the discussed proposals in a timely manner. A team formed by performers of all nine roles, ready to perform any task, is a sufficiently flexible type of work organization.

Typology of team roles according to the approaches of different researchers is summarized in Table 1.

These approaches to determining the roles of team members within the cluster formation should be taken into account not only at the positioning stage, but also when attracting new members to an already formed team, or when forming a new project team. At the same time, at different stages (stages) of team development, different approaches to the distribution of roles can be recommended, and the process of division of roles should be based on the following theses:

1. The main thing in effective team building is the balance of roles in a particular situation.
2. The role structure of the team will depend on what it is created for.
3. Each team member can take on more than one role.
4. Lack of a certain role in the team can significantly reduce its effectiveness as well as duplication of a role element.
5. Team members must complement each other.

In addition, it should be borne in mind that the lack of a certain role in the team can significantly reduce its effectiveness as well as duplication of a role element. Experts note that the performance of each of the roles is a necessary condition for the team to succeed, and the lack or excess of a certain role – on the contrary, will adversely affect its achievement. Team members should complement each other by having different behavioural strategies and being tolerant of each other.

When organizing teamwork and assigning (choosing) roles to team members (cluster participants), it is important to consider two such team phenomena as social compensation

Table 1

The typology of team roles is based on different research approaches and their use should be considered not only at the positioning stage, but also at the stages of attracting new members to an already formed team or forming a new project team. At different stages (stages) of team development, different approaches to the distribution of roles can be recommended, and the process of division of roles should be based on the following theses:

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and social laziness. Social compensation is manifested in the fact that team members with high performance indicators complement the insufficient abilities and/or low performance of other team members. That is, the executor of one role can additionally take over the performance of the functions of an executor of another role who cannot cope with it. Conversely, social laziness in a team manifests itself due to the fact that individual team members exert less effort during joint activities than during independent activities. That is, a team member who naturally has all the abilities to effectively perform a certain role in the team, may not fully realize his potential during collective interaction and expect the performance of his role duties from other team members (as an option - from the leader).

Table 1 – Generalized typology of roles in the team *

| Author of typology | Belbin R. | Gellert M. and Novak K. | Adizes Ic. |
|--------------------|-----------|-------------------------|-----------|
| “Implementer”      | turns team ideas and thoughts into real action | “Administrator”-moderator | “Producer” monitors the effectiveness of the task in the short term |
| “Controller”       | should protect the team from possible mistakes and help achieve the best possible result | “Organizer”-coordinator | |
| “Co-ordinator”     | distributes tasks, delegates authority, is responsible for the work of the team | “Creative generator of ideas”-brain center | |
| “Teamworker”       | is the initiator of various activities, including those that can break the team from the routine and focus on a more productive pace | “Dispatcher”-providing communication | “Administrator” ensures compliance with the correct sequence, intensity of the task in the short term |
| “Analyst”          | evaluates competing proposals and predicts the further course of development of events | | |
| “Idea generator”   | initiates new projects, ways of development of the set tasks | “Workaholic”-the soul of the team | “Entrepreneur” determines the strategic direction of team development in the long run |
| “Resource Investigator” | seeks new ideas and resources, establishes the necessary contacts, conducts negotiations | | |
| “Completer Finisher” | attaches importance to details, is perceived as a perfectionist, strives to ensure that the team adheres to the deadlines | “Detailer”-controller | “Integrator” creates the necessary atmosphere and system of values necessary for productive, joint, consolidated work in the long run |

* developed by the authors on the basis of
Source: Adizes, 2004; Belbin, 2010; Gellert, 2006.
Returning to the main stages of the cluster management cycle (Fig. 1), it should be emphasized that the organization of team interaction in a cluster will not be effective if the leader (cluster coordinator) takes the dominant role at each of the six stages. Based on the typology of command roles presented in Table 1, it is advisable to ensure leading activity at each of the stages of managing a cluster of holders of the following roles:

Stages 1 Define cluster vision, management mission, strategy, objectives, key performance indicators, key uncertainties – “Idea generator” + “Co-ordinator”;

Stages 2 Design actions, communication platform, monitoring and evaluation systems, agreements with stakeholders – “Implementer” + “Co-ordinator”;

Stages 3 Implement actions as designed – “Resource Investigator” + “Completer Finisher” + “Teamworker”;

Stages 4 Monitor implementation – “Controller” + “Analyst”;

Stages 5 Evaluate the results – “Analyst” + “Idea generator”;

Stages 6 Revise objectives and uncertainties, report to stakeholders – “Analyst” + “Co-ordinator”.

Forming an effective project team involves not only the optimal combination of specialists in certain roles (coordinator, organizer, idea generator, analyst, specialist, collectivist, researcher, performer, etc.), but also their compliance in appropriate periods of time. It is important to give everyone the right motivation (not only tangible but also intangible), when there is a sense of belonging to the development of the organization, the perception of its victories as their personal and their own achievements – as the success of the organization.

Thus, the combination of the expert community, which includes representatives of both the real economy and education and science, will expand entrepreneurial knowledge for current achievements, ensure effective implementation not only of traditional processes, but also to form innovative solutions. Such synthesis, integration and development is focused on improving the efficiency of each member of the cluster community, provided the formation of effective teams. That is, effective team building will ensure the development of clusters and the progress of the cluster community.

Conclusions

Today, cluster activity is a progressive form of SME interaction, which has an important role to play in maintaining the viability of national and regional economies in the martial law in Ukraine, preserving innovation capacity and further economic recovery after the active phase of the war. The experience of cluster associations in Ukraine and other countries of the world proves that successful cases are created in those organizations, where effective and competitive teams are formed. Thus, the urgent need and promising direction for further development is not only the methodology of clusters, but also the training of cluster leaders who can be effective teams, development of mechanisms to motivate cluster members to teamwork, substantiation of types and models of teams that will be effective in cluster business organization, as well as the development of the “image” of the ideal team in the context of the concept of cluster activity.

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