

MODEL OF THE EMPLOYEES' RECRUITMENT FOR CREATIVE TEAMS IN MANUFACTURING COMPANY

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Received: 23 May 2019

Accepted: 2 December 2019

ABSTRACT

The article deals with the subject of recruitment of a candidate for a creative team in manufacturing company. For this purpose, a recruitment model has been developed. It consists of three main stages: preliminary selection of candidates, assessment of the predispositions of the selected candidates to work in a team and creative team building. The authors developed recruitment model of a candidate for a creative team includes a set of tools supporting the assessment at each stage. In the first stage concerning the preliminary selection, a competence Questionnaire for working in a creative team, was developed. The second stage includes the assessment of a candidate's predispositions with the use of original tools for assessing creativity, a tool supporting the monitoring of employees' activity in proposing innovative solutions and assessment center methodology. The principles of AC remained the same. The competences that a creative team should possess were adjusted to the tool. Tasks were proposed in order to assess these competences. The tool itself is ready for application. In the subsequent stage of research, the tool in question will be tested in selected companies and evaluated. The last stage concerns the team building. The tool used at this stage is the Questionnaire for assessing the role in the team. While creating a recruitment model of a candidate for a creative team, of the selected companies team leaders were consulted.

KEYWORDS

Creative team, recruitment of a candidate, assessment of predispositions, team building.

Introduction

Researchers have always shown interest in group processes and their dynamics. Teamwork is crucial wherever intellectual thought is necessary. Consequently, the establishment of specialized teams in a company is very important and should already begin at the stage of recruitment and selection. However, because it is difficult to notice predispositions for teamwork in a single person, special tasks, experiments, and work samples need to be proposed in order to observe these predispositions. Such a possibility is offered by the authors model. The purpose of creating your own model is to recruit talented candidates who will be able to create creative employee teams in a manufacturing company. A multidimensional measurement makes it easier to evaluate

the candidate objectively, and data sources should be varied to ensure reliable results.

The process of recruiting a candidate for work usually begins with preparatory activities, which include the diagnosis of personal needs, job description and the candidate's profile in the enterprise (Fig. 1). The next step is to decide on the type of recruitment. It can be both external, in case of looking for employees from outside the organisation, and internal - among already hired employees. Then the choice of the search methods is made. These may be, for example, data banks or advertisements on online portals. In the next step, the selection strategy is chosen. It can be carried out through the analysis of candidate's documents, application form, interview, competence tests and psychological tests [1]. The modern recruitment method includes the assessment center method.

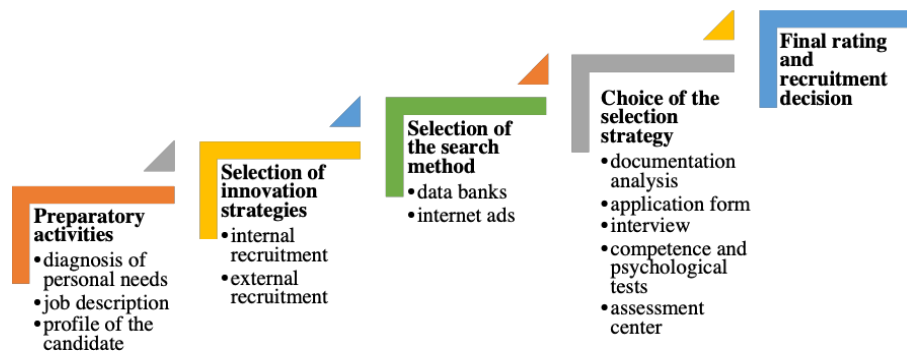


Fig. 1. Stages of recruitment activities in the enterprise

It consists in diagnosing the potential and verifying the competence of candidates for specialist positions. The particular competences are checked through such tools as “in basket”, simulation games, individual presentations, discussions or case studies. In this method, the assessment of candidates is carried out by assessors using appropriate forms and indicators [2].

The creative teams are usually known as Small Activity Groups, problem solving groups (“Problem – Solving Group”), synectic groups, creative teams or task forces. They are the basis of a creative enterprise. Their role is to carry out specific tasks or processes [3]. Many innovations are the result of the activity of creative teams.

Through a larger sum of competences, knowledge and energy, they can achieve more creative results than employees working alone [4]. A well-chosen team will make a huge contribution to the company and will help to increase its efficiency. Diversified composition of the team allows to look at a given problem from different perspectives and influences the increase of its creativity. However, because it is difficult to notice predispositions for teamwork in a single person, special tasks, experiments, and work samples need to be proposed in order to observe these predispositions. Such a possibility is offered by the popular AC method, the effectiveness of which has been verified by numerous studies [5, 6]. The method is designed to assess a person’s competences and managerial potential, primarily for middle and high managerial positions. The assessment involves individual and group tasks, during which a team of specially-trained assessors observes the candidate. Competences mean a cluster of related abilities, knowledge, and attitudes. A multidimensional AC measurement makes it easier to evaluate the candidate objectively, and data sources should be varied to ensure reliable results.

This study kept the principles of AC but expanded its application by adjusting it to the selection

of candidates for specialized creative teams, such as problem-oriented, authoritative, inter-functional, or virtual teams. For example a problem-focused team generally consists of 5–12 employees from the same department who meet for a few hours every week in order to discuss ways to increase the quality and efficiency of their work and improve their working conditions [7–9]. Problem-based teams are one of the five most common types of working teams in companies [10]. In problem-focused team all the members are asked to address a problem by sharing ideas and suggesting improvements [11]. The name depends on a company’s own requirements concerning the desired structure or scope. The company also decides which and how many positions will incorporate team work.

Recruitment for creative teams is part of the subject of innovation management, or more specifically innovation behavior and creativity. Before recruitment into creative teams can begin, a company needs to not only define each team’s competences, including team-specific competences, such as their members’ creativity or familiarity with and application of creative problem-solving methods. These competences should be related to each other, which has already been proven in many works [12–14]. However, it need to know educate employees of companies [15, 16].

It also needs to promote innovativeness by creating appropriate working conditions to ensure that such a team is effective. This is because creative teams are characterized by inventiveness, openness to new experiences, searching for innovative solutions, and use of unusual approaches to a problem. These considerations are the foundation for establishing the appropriate competences and tasks. Thus, this study focuses on the preparatory stages for the verification of competences in candidates. It is expected that within these competencies, the candidate should demonstrate an ability to easily create new ideas in order to solve practical problems. Thanks

to thought processes, perceptivity and ability to ask adequate questions, it allows to solve problems on many levels.

Creativity is a key competence of creative team members. The starting point for developing a recruitment model for a creative team was to develop creativity assessment tools. A methodology for assessing creativity was developed based on existing models and concepts. A Creative Attitude Questionnaire was constructed based on S. Popek's model of creative attitude in learning and activities and S. Popek's CANH questionnaire (Conformism, Algorithmic Behaviour, Nonconformism, Heuristic Behaviour). The Creative Attitude Questionnaire was complemented with a Work Sample Questionnaire, constructed based on J.P. Guilford's concept of divergent thinking. These tools have already been used in selected manufacturing companies. The research confirmed the reliability of their development [17, 18].

The article underlines the new perception of known methods (own contribution specified in the article among others own questionnaires). Therefore the article fills a literature gap. No recruitment model for the creative team so far was developed.

Preliminary selection of candidates for the creative teams

The recruitment model of a candidate for a creative team consists of three main stages (Fig. 2). At each stage, the appropriate tools supporting the assessment are used. The first stage of recruiting employees to the creative team is preliminary selection. This is a key stage aimed at selecting candidates with appropriate qualifications, meeting the requirements specified by the leader of a given creative team. The required competences depend, among others, on the type of problem solved in the team. The tool supporting the preliminary selection is the Questionnaire of competence to work in a team. It allows to obtain information on the candidate's previous experience in acting in a creative team. The Questionnaire consists of a personal information and four semi-open questions.

The first question included in the questionnaire provides information about the candidate's participation in task/problem/creative teams. If the respondent has already been a member of the team solving problems in the company, he or she fills in the appropriate table. It contains such information as:

- type of the team – name of the team (problem-solving, self-governing, interfunctional, virtual),
- an approximate date for participation in the team,
- the purpose of the team's activities,

- the role in the team (team leader, specialist from a given area, external person).

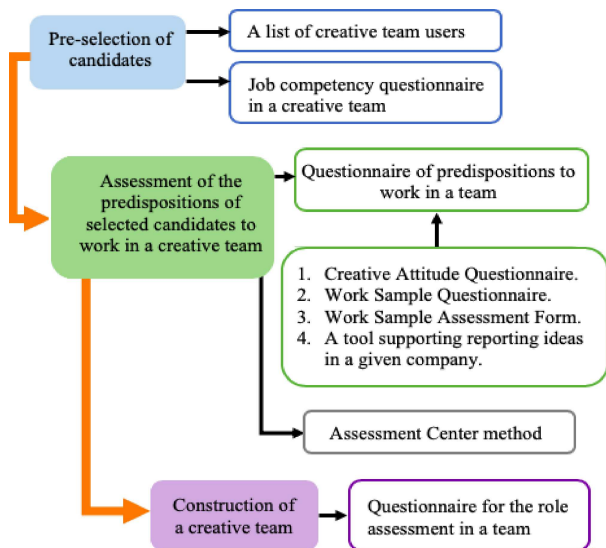


Fig. 2. The candidate's recruitment model for a creative team in manufacturing company.

The next question concerns obtaining information about the candidate's participation in trainings in the field of teamwork. The candidate shall give the name of the training and an approximate date of participation in it. The aim of the third question is to identify the factors which, in the opinion of the respondent, have the greatest impact on the effectiveness of the team. It was assumed that the effectiveness of the team is influenced by:

- type and complexity of the problematic task,
- proper selection of the team members,
- communication and cooperation of the team members,
- support from managers,
- an appropriate remuneration system.

The respondent has to choose three of the five factors mentioned above. In this question, the person answering the question may also give examples of other factors that affect the effectiveness of the team's work. The last question in the questionnaire concerns the acquisition of information on the knowledge of the creative problem-solving methods and techniques. In this question it is necessary to fill in a table containing information about the name of the method used so far and the source of knowledge about the method. The knowledge of the method may be the result of participation in a given training, course, study or it may be the effect of self-education in this field. The preliminary selection is carried out by the recruiter together with the team leader.

Assessment of the predispositions of selected candidates to work in a team

The next step is to assess the predispositions of selected candidates to work in a creative team. It is based on a semi-structured interview. It is conducted as part of an individual interview with the candidate [19]. At this stage, the Questionnaire of predispositions to work in a team is a supporting tool. The assessment criteria included in the questionnaire are presented in Table 1.

Assessing an employee's creativity consists of evaluating his or her creative attitude, along with a sample of his or her work [17]. The former can provide important information about the employee's self-assessment (self-knowledge) and his or her observations about their own creativity. A low creative attitude indicates that the employee does not believe in his or her creative potential. Creative attitude can be influenced by supporting the employee in creative thinking and developing his or her willingness to take creative action [20].

Assessing a work sample provides information about how the employee solves the problems that may arise in the company and involves determin-

ing the employee's ability to think divergently, i.e. the ability to look for multiple solutions to a given problem.

Points are awarded not only for correct solutions but also for solutions that are rare among a given group. The following tools were developed by the author of this study in order to assess creativity [18, 21]:

- **Creative Attitude Questionnaire:** developed to determine an innovator's creative attitude. It is a self-assessment questionnaire comprising 18 statements about improvement and actions taken within a company. The Creative Attitude Questionnaire asks the employee to assess how much he or she agrees with each statement on a five-point scale.
- **Work Sample Questionnaire:** developed in order to assess an innovator's work sample. The work sample evaluates the employee's ability to think creatively. Which comprises six tasks involving open-ended problems or situations (Table 2). The tasks in the WSQ were evaluated according to the following indicators: Fluency of thinking (number of solutions produced within a given time); Flexibility of thinking (number of categories into which the produced solutions could be divided); Originality (level of originality of the solutions) and Elaboration (level of detail of the solutions).

Table 1
Assessment criteria included in the team's predisposition questionnaire.

Criteria	Requirements	Source of obtaining information
Creativity	high level of creative attitude	Creative Attitude Questionnaire
	high evaluation of the work sample	Work Sample Questionnaire, Work Sample Assessment Form
Participation in reporting solutions to problems	activity in reporting solutions to problems	A tool supporting reporting ideas in a given company
	solutions to problems accepted for implementation	

Table 2
Tasks included in the "type A" Work Sample Questionnaire.

Task No.	Task name	Sample task content	Type of divergent thinking ability
1	What would happen if...?	What would happen if a plague of mice appeared in the production hall?	fluency and flexibility of thinking, originality
2.	What can be improved?	How can the machines in the production hall be changed or improved to make them more reliable?	flexibility of thinking and originality
3	Elaboration	In five subsequent steps, expand upon the first sentence to create an elaborate statement.	elaboration and originality
4.	You have just invented...	You have just invented a waterproof fabric that adjusts itself to the body shape of the person wearing it. However, the fabric loses this ability after three days. What practical uses for this fabric can you think of?	elaboration and originality
5	Twelve names	You are about to open a new store with car parts. Think of twelve names for the store.	fluency and flexibility of thinking, originality
6	What can you see...?	What does the shape in the picture resemble?	fluency and flexibility of thinking, originality

• **Work Sample Assessment Form:** a form that supports the assessment of tasks completed as part of the Work Sample Questionnaire. is a supplementary tool developed to help those who are conducting the Work Sample Assessment Form. The Work Sample Assessment Form facilitates the evaluation of each task in the Work Sample Assessment Form and includes a commentary on how to assign points according to each indicator. The Work Sample Assessment Form also includes an overview of the points that the employee may earn for each task, according to each indicator.

An employee's participation in submitting solutions to a given problem in the company can be monitored through the use of appropriate tools. These may be idea submission forms or programmes to manage employees' suggestions, whose task is to improve the idea boxes used so far. An example of a programme supporting the management of employees' suggestions was described in the work [22]. The candidate's activity in the submission of innovative solutions is assessed by the number of submitted solutions at a given time. The candidate also presents the problem solutions, he or she is the author or co-author of. It is important that the submitted ideas are implemented in the company.

On the basis of the information collected from the candidate, the person conducting the interview fills in the questionnaire of predispositions to work in a team. In the next step, the recruiter and the team leader decide whether to admit the candidate to the team.

Assessment of the predispositions of selected candidates with using AC

Competences are the primary criterion in AC. A session is planned according to a specific order, i.e., [2, 23–25]:

- aim – focus on selection or development;
- establishment of a group – listing of candidates, candidates indicated by the superiors, initial tests, etc.;
- behavioral analysis related to a given task;
- listing of dimensions necessary for a task to be carried out effectively;
- tasks or exercises allowing for the measurement of the dimensions;
- matrix of tasks or exercises and dimensions; dimensions measured by a given task or exercise are defined;
- selection and training of assessors;
- observation, recording, and classification of behaviors;
- mean scores ascribed to each candidate; the candidates are chosen or rejected; promotion and development;
- feedback from the candidates;
- report from the procedure is written and presented.

Assessment Center incorporates many other methods, such as psychological tests, interviews, group discussions, presentations, or work samples.

The most important advantages Ac are helping to predict future job performance candidates and differentiate between candidates who seem very similar. One of the advantages of assessment centres is that, the tests used provide a detailed insight into the ability, alignment of values, and motives of candidates. Properly designed and administered, assessment centers are more reliable than traditional testing methods. The assessment center is eminently fair and objective. AC are easy to defend if challenged. Finally, center can play an important role by providing feedback to candidates about their strengths and weaknesses.

Defining competences and their behavioral indicators

Competences are the primary assessment criteria for candidates. Assessment can use behavioral indicators, that is, descriptions of individual behaviors [2]. This study assumed that the following competences were important for the functioning of creative teams:

- **Creativity.**
Creativity is an individual trait but it can be developed in team work. It can be difficult to quantify due to its multifaceted character. A single method for measuring creativity is often not enough. Therefore, in addition to the tasks, AC uses psychological tests (ability and personality tests) in order to take into account a candidate's creative attitude and aspects of creative thinking, specifically, fluidity, flexibility, originality, and elaboration, and to allow a candidate to express and apply their creativity. Some creative people show an interest in apparent disorder, contradiction, and imbalance perhaps. Table 3 shows the behavioral indicators of competences that can be observed during the tasks designed for this purpose.
- **Creative problem solving.**
Table 4 shows the relevant indicators. This competence manifests itself primarily in a group. It combines the ability to solve complex and open problems that do not come with a standard answer. Creative problem-solving challenges a candidate's creative barriers, standardized approach to

the subject at hand, rigidity of thinking and force predicting of various implementation scenarios for created ideas.

- Group decision making.

Group decision making is a situation faced when individuals collectively make a choice from the alternatives before them. There are phenomena related to group decision making that should be avoided, such as the polarization of opinions or the group think syndrome. Awareness of these phenomena allows for effective decisions. A team should include active, initiating, and leading persons. Table 5 shows the relevant indicators.

- Relationship building.

Relationship building encompasses many areas. It is the process of developing social connections. This competence is also important for mentors and team leaders. The more team members respect and trust one another, the more effective the teamwork. It is also important to take into account the needs of other people so that they have a sense of being able to influence the situation or problem at hand. This builds an open and authentic relationship. Table 6 shows the relevant indicators.

Table 3
Description of competence: creativity.

Competence name	Creativity
Competence definition	A personal trait; synonym of creative attitude; a mental process or ability.
Behavioral indicators of the competence	Ability to create new ideas or concepts and to make new associations. Making associations between different terms and fields of knowledge. Unusual approach to a subject. Tolerance for ambiguity or uncertainty. Perseverance in overcoming obstacles. Independent thinking. Openness to new experiences.

Table 4
Description of competence: creative problem solving.

Competence name	Creative problem solving
Competence definition	Ability to look for new and worthwhile solutions.
Behavioral indicators of the competence	Noticing new or unusual solutions to problems. Proposing many and varied (alternative) solutions. Flexibility in adapting to different situations. Overcoming perceptive patterns, mental inertia, and functional fixation during problem solving. Ability to rephrase or redefine the problem. Ability to select ideas and solutions. Ability to assess the usefulness of a new idea or solution.

Table 5
Description of competence: group decision making.

Competence name	Decision making
Competence definition	Noticing, collecting, and sharing information in order to make valid decisions.
Behavioral indicators of the competence	Making decisions that require a candidate to take responsibility. Encouraging and supporting others in decision making. Initiating a discussion in order to introduce changes in the surroundings. Sharing one's knowledge and achievements. Becoming a model of an innovative attitude for others.

Table 6
Description of competence: relationship building.

Competence name	Relationship building
Competence definition	Building a reliable team that is founded on trust. Caring for the good of the group.
Behavioral indicators of the competence	Motivating all team members for work. Showing personal interest in the needs of others. Active listening. Willingness to cooperate. Sharing constructive opinions and criticism.

Table 7
Description of competence: innovativeness.

Competence name	Innovativeness
Competence definition	Predisposition for innovation (ability to think in an innovative manner); the ability to implement and adapt newly-generated solutions.
Behavioral indicators of the competence	Following technological novelties and social trends. Knowledge of types of innovation, barriers to innovation, and planning and implementation of innovation. Taking advantage of available methods and techniques of creating innovation or creating your own activating methods. Focus on results.

- **Innovativeness.**

Innovativeness definition: tending to innovate, the quality of being innovative. As a competence, innovativeness may be considered a novelty as far as company operation is concerned. It requires new knowledge that needs to be kept up to date. In contrast to creativity, which is shown through ideas, innovativeness requires concrete solutions. In other words, innovativeness focuses on results. Table 7 shows the relevant indicators.

Assessment form

Ascribe levels to the behavioral indicators described above [2]. During an AC session, rate the observed behaviors on a scale of your choice. For instance, on a scale from 1 to 5:

- 1 – no competence,
- 2 – competence occurs sporadically,
- 3 – competence manifests itself in the majority of behaviors,
- 4 – competence manifests itself in all behaviors,
- 5 – competence manifested itself in all behaviors and that the candidate supports others in a given area.

Sample AC tasks for creative teams

This section presents the tasks that assess the aforementioned competences as part of the AC process. The tasks were designed to be universal, with any company being able to adjust them to its specific situation. In other words, the tasks can be improved and updated to suit particular needs.

The tasks can also be complemented with psychological tests, i.e., ability and personality tests.

The example contains two individual and two group tasks. Time for individual tasks lasts from 15–20 minutes. Group tasks last 50 minutes. In this case, one person participates in the AC session up to 135 minutes.

Each of the tasks indicates the competences he examines. Thanks to this, the assessors know which

indicators can be observed and evaluated. The observations are followed by: competence interview, non-role-playing discussion, simulation and presentation.

The participant receives a certain scenario for implementation, a every candidate has time to prepare and give his idea convincingly. The experience acquired during the training by the candidate will definitely be useful during the next recruitment. Examples of tasks are designed to build a specific image of the employer.

Competence interview

Task type: individual.

Name: My idea.

Duration: 15 minutes.

Competences studied in the task: creativity, decision making, innovativeness.

Instructions for the participant

Recall a recent time when you came up with a creative idea. What was your idea? How did you act upon it? Please describe the circumstances: the place, the time, the persons involved, and your actions, decisions, and implementation of your idea.

Non-role-playing discussion

Task type: group.

Name: New department.

Duration: 50 minutes.

Competences studied in the task: creativity, decision making, innovativeness, creative problem solving, building relationships.

Instructions for the participant

Your group's task is to create an innovation department that you will soon join. You have a real influence on the shape of the new department. Design the structure of the department, its positions and scope, and ascribe responsibilities.

Simulation

Task type: group.

Name: Enterprise problem.

Duration: 50 minutes.

Competences studied in the task: creativity, decision making, innovativeness, creative problem solving, building relationships.

Instructions for the participant

The current issue in the company/department is... (an actor describes the current state). Analyze the product/process/service/. Ask questions of the actor. Define the possibilities for change. Propose a solution and indicate the future state.

Presentation

Task type: individual.

Name: Trends – prediction.

Duration: 20 minutes.

Competences studied in the task: creativity, decision making, innovativeness.

Instructions for the participant

Choose a trend from a discipline you are involved in (your occupation, position, or interests) and predict how it is going to develop. Substantiate your prediction using your knowledge, statistics, particular methods, etc.

Building a creative team

The creative team should have a specific structure. Each member should have a specific role. The term “role in the team” describes specific behaviours and personal contributions and relationships with other employees. There are differences between the role in the team and the function that has been assigned to the employee. The function assigned to employees refers to the technical skills and operational knowledge that have to be acquired by the person in the particular position. The employees assigned to specific tasks are differentiated in terms of their roles, whereas the functions they perform may be the same [26].

There are formal and informal roles in the teams. The first ones are divided into a leader, an expert and a regular participant [27]. The team leader should be the person who reported the need for change and has the appropriate competences. The success of the team depends to a large extent on him/her, therefore it is important to define its features, scope of responsibilities and role. The team leader should be a strategist, a manager and an innovator. He/she

should be responsible for managing the activity of the group and stimulating participants to creative activity. The leader of a creative team should have a high level of creative attitude and be sensitive to the manifestations of other people’s creativity. Moreover, he/she should have basic interpersonal skills essential in teamwork [28, 29].

The expert, on the other hand, should assess the group’s products in a competent way. Other team members should be characterised by a lack of inhibition in generating ideas, a constructive attitude towards solving problems and a predisposition to adapt to the emotional atmosphere prevailing in the group [27].

Informal roles are not coded and are not officially named. They relate to the individual ways of thinking of the particular people. These may include, for example, analysts – experts (analysing possible decisions) or controllers – inspectors (checking the details of proposed solutions) [28, 29]. An example of a tool supporting the determination of one’s own role in the team is the test by Belbin [26]. He identified 9 group roles related to effective teamwork (Table 8).

Table 8
Group roles according to Belbin [26].

Functional roles	Role oriented to people	Roles focused on creative material analysis
Locomotive	Coordinator	Creator
Producer	Team spirit	Valuation critic
Perfectionist	Source seeker	Expert

The distinguished roles can be divided into three groups: action-oriented roles, people-oriented roles and roles oriented towards the creative analysis of the material (figure). Belbin’s test consists of four steps [26]:

- 1) Distribution of 10 points in each of the seven sections. The sections contain eight statements. The points should be distributed among the statements that best determine the respondent’s behaviour in a teamwork. The points may be awarded to several statements, in extreme cases, they may be assigned to all sentences or to only one sentence.
- 2) Transfer the results obtained in each of the seven sections to the appropriate table. It is the answer key and helps to identify roles for the respondent.
- 3) Summary of the results. Determination of: the highest-scoring role, the second highest-scoring role and lowest scoring role.
- 4) Interpretation of the results. The highest result shows the role in the group preferred by the person examined. The next highest result concerns

the role that is accepted if, for some reason, there is less need for this most preferred role (e.g. this role is occupied by another member of the team). The two lowest results relate to the areas to be developed.

Conclusion

The creative teams are a source of innovative solutions in the company. The recruitment stage is crucial in building creative teams. It is important to select employees with a high level of creativity, knowledge, skills and experience. The use of model to select candidates for creative teams is a response to the development of innovation in companies that aims to improve value on the competitive market and increase the role of internal human capital in the creation of a company's own knowledge base and solutions.

There are many recruitment models in the literature, but there are still few publications about recruitment for creative bands. Other models show how to recruit a person, not a team. Other models do not focus so much attention to employee creativity. Therefore the article fills a literature gap.

The article presents the candidate's recruitment model for a creative team and describes its individual stages. These are: pre-selection of candidates, assessment of the predispositions of selected candidates to work in a creative team and construction of a creative team. The contribution of the authors of the article in this regard is particularly valuable due to:

- the developed recruitment model of a candidate for a creative team includes a set of tools supporting the assessment at each stage;
- examines creative attitude;
- shows a work sample;
- allows to evaluate a work sample;
- identifies the creative team's competences along with behavioral indicators (a new perception at AC method);
- contains original tasks as an example of researching the competence of a creative team.

Professional guidelines on how to apply AC in practice are widely documented [30], and thus were used for the purposes of this study. According to the principles of AC, the subsequent stages include selection and training of assessors, observation, recording, and classification of behaviors, and ascribing mean scores to candidates. A pilot study also plays an important role as an attempt to implement the tool. The competences and tasks defined as part of AC are subject to verification and evaluation. Therefore

conclusions based on quantitative and qualitative data is the next stage of research.

This model was developed after an interview with leaders of employee teams of selected enterprises. The team leaders in the surveyed production companies of various industries were the management staff responsible for the implementation of a given project task in the company.

This model can be used in enterprises of various industries and sizes. An example of its application will be presented in the future planned publications.

The developed methodology will undoubtedly increase the awareness and knowledge of the company in the area of creating creative teams.

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