

HETERARCHY AS AN IMPORTANT PROBLEM OF PROJECT TEAMS FUNCTIONING WITHIN SUPPLY CHAINS

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Abstract

The results presented in the article include the effect of cyclical annual empirical research carried out in 2016-2019. Its objective was to identify and characterize the operating conditions of project teams within supply chains. The article focuses on problems in creating, coordinating and integrating work within the appointed project teams. The research shows that one of them is the problem of heterarchy, i.e. the multiplicity and changeability of power centers, which in practice is associated with the simultaneous occurrence of many decision centers, which leads to dispersion and the instability of power. The aim of the article is to show the issues related to the phenomenon of heterarchy in project teams operating in supply chains with an indication of the conflicts that this phenomenon generates. The article has a theoretical and empirical character.

Keywords: Project team, project management, supply chain, management problems, heterarchy

1. INTRODUCTION

Hierarchical structures dominate in management practice, despite their numerous weaknesses. In response to them, both in theory and in management practice, the alternative possibilities of integration and coordination of activities within the organization are developing. These are ways that respond to the requirements of a turbulent environment and provide flexibility in the conditions of fluidity and transitivity of organizational solutions. One of them is heterarchy, understood as the multiplicity and transitivity of power centers in the organization.

Heterarchy is a phenomenon inherent to the functioning of project teams. Their inter-functional or inter-organizational nature violates the principle of one-man management and causes a multitude and transitivity of decision centers. In the literature, the advantages resulting from such a solution, mainly concerning flexibility and competence, are the most frequently mentioned. Whereas there also exist some weaknesses causing problems in employee teams.

The aim of the article is to show the issues related to the phenomenon of heterarchy in project teams operating in supply chains with an indication of the conflicts that this phenomenon generates. The article has a theoretical and empirical character.

2. DESIGN TEAMS IN THE SUPPLY CHAIN - THEORETICAL CONSIDERATIONS

In the literature on the subject and business practice it is postulated to create teams at various levels of management and operating within various functions - this is reflected in the creation of, among others, problem teams, local teams responsible for the sphere of production, management teams and project teams focused on the implementation of specific tasks. The nature of the latter, regardless of whether they are mono-functional or interdisciplinary, is characterized by temporariness, concentration on a specific goal, a departure from power based on formal authority in favor of expert power and the lack of strict division of labor within the team [9]. The specificity of the project team is also often characterized by going beyond functional boundaries, and sometimes (as in the case of the supply chain) even organizational ones.

The cooperation of individual entities in the chain begins at the stage of planning products and the demand for them, and ends with the implementation of orders and service to final customers - it, therefore, relates to various functional areas. The effectiveness of an enterprise operating in a network increasingly depends on the effectiveness of its cooperation with partners. This leads to building and implementing diversified practices of supply chain management and relations with entities that form its structure. This not only reduces costs but also creates the added value for customers by increasing the efficiency of deliveries and the quality of products offered, which results in the fact that not individual companies but supply chains compete more and more often [3]. Therefore, it is increasingly emphasized that the effective and synergistic supply chain management can be an underestimated source of competitive advantage [7]. This approach provides the shape and expression to theoretical considerations and empirical research focusing on supply chain management. To a large extent they are devoted to chain integration focusing on two perspectives [14]: the ways to achieve supply chain integration and the impact of supply chain integration on its efficiency / effectiveness.

Integration is generally understood as the process of joining parts into a whole. The increase in its level in the supply chain ensures quick access to required information, increases sensitivity to customer needs and shortens response time compared to competitors [15], which in turn creates value for shareholders by reducing costs and increasing market share [8]. The literature points to the examples of Japanese supply chains as those that achieve the highest degree of integration and lead to building partnerships between individual enterprises. For example, Liker and Choi [11] describe the Japanese supply chain (Toyota and Honda) as a "partnership model" in which a network of suppliers learns and improves processes in cooperation with producers. Similarly, Iyer and the team [6] describe Toyota's supply chain in terms of close and long-term relationships with a high level of information exchange and cooperation to solve common problems. Most empirical research on supply chain integration focuses mainly on operational management, the use of information systems and technologies. However, the cooperation of supply chain entities, leading to the integration of its participants, can also be implemented through selected practices in the field of human resources management [12,14], such as establishing teams in the network structure. The analysis of this issue provides the basis for distinguishing two levels of ability to integrate a supply chain by project team [6]:

- Level 1 (low) - internal integration variant - project teams are established mainly as a part of the supply chain leader enterprise.
- Level 2 (high) - external integration variant - the supply chain leader enterprise is the initiator in establishing inter-organizational project teams bringing together members from partner organizations.

Under level 1, a project team consisting of members of the leader's organization can carry out tasks for the same enterprise as well as for activities implemented in the supply chain. Research carried out by other authors (the Delphi method involving 13 expert practitioners and scientists) shows that the condition for external integration between organizations is the internal supply chain integration [12]. Detailed expert recommendations aimed at its achievement focus on the use of inter-functional teams and building matrix structures. Organizations need to develop a culture that is focused on horizontal workflows, as opposed to traditional functional hierarchies.

In turn, level 2, assuming the establishment of inter-organizational project teams within the supply chain, is a higher stage of integration. Thanks to this solution, in addition to the integration of the individual functional areas within the supply chain, the transfer and the diffusion of knowledge are ensured to the places where the individual tasks of the project are carried out. In addition, this option allows a more accurate selection of the project team members from the point of view of their knowledge and competences -there is a range of specialists from many, and not a single organization. Importantly, individual organizations (links) of the supply chain will more easily (in comparison with the option from level 1) accept decisions / solutions developed within the project team in which their representative participates (due to the representation of their interests). These considerations seem indisputable regarding the establishment of project teams as a supply chain integration

tool. Importantly, however, attention should be paid to possible problems that are associated with the creation and functioning of these teams.

3. HETERARCHY AS A SOURCE OF CONFLICTS IN PROJECT TEAMS

The hierarchy is understood as a system of many levels in the organizational structure, at the top of which is the highest-ranking manager (or managers) responsible for the operational activities of the organization as a whole; on subsequent levels, there are managers of lower levels. It is worth noting that the hierarchical level is understood here as each level in the organizational hierarchy, except for the lowest, where employees without managerial functions are located. In traditional, hierarchical organizations, decisions are made hierarchically, according to the principle of one-man management.

Heterarchy refers to the lateral coordination of organizational diversity, to both a structure and a condition, and to the relation of elements to one another when they are unranked or ranked in numerous different ways [2]. Stephenson [16] defines heterarchy as "an organizational form between hierarchy and network that provides horizontal links permitting different elements of an organization to cooperate, while they individually optimize different success criteria." Turning to heterarchy in design teams, according to Aime et al. [1], the heterarchical concept offers a theoretical core that integrates several distinct bodies of literature highlighting the dynamic power relations within groups. In heterarchical structures, power actively and legitimately shifts among team members to align their capabilities with dynamic situational demands [11]. The literature predominately describes the positive aspects of heterarchy, among which is the support of the processes of knowledge creation and learning of the organization, fostering greater creativity of inter-functional teams, ensuring faster response to signals from the environment and causing a reduction of the power distance in the organization. [1,4,13]. It is worth emphasizing, however, that the phenomenon of heterarchy entails significant problems. A deliberate breach of the principle of one-man management and the impermanence of power centers can cause organizational chaos and cause a sense of uncertainty and confusion among employees. These issues become particularly important in the case of the functioning of project teams with an inter-functional or inter-organizational nature, whose members are subject to several decision-making centers, which contradicts the principle of one-man management. The multitude of power centers is in this case further intensified by their impermanence and transitivity, which also contributes to the emergence of conflict situations. In this case, they result from [10]:

- receiving conflicting orders from superiors,
- fights for material and human resources scattered in different places between individual organizational units in the case of inter-functional teams (and in the case of inter-organizational teams - between different organizations),
- attempts to transfer or "planting" tasks to other organizational units (or organizations),
- changes in management style and expectations of superiors,
- the lack of continuity and consistency of decisions taken at higher levels,
- the problem of double loyalty (in the event of disagreement at the managerial level, employees experience a dilemma towards which their supervisor should be loyal).

4. RESEARCH METHODOLOGY AND GENERAL CHARACTERISTICS OF THE STUDIED ENTERPRISES

The results presented later in the article are the result of cyclical annual empirical studies carried out in 2016-2019 using the research tool in the form of a questionnaire. The objective of the conducted research, in a wide range, was to identify and characterize the operating conditions of project teams in supply chains.

One of the research areas included in the structure of the questionnaire was aspects related to problems in creating, coordinating and integrating work within the project teams, including in a heterarchical system.

Questionnaires were sent to 79 selected companies by e-mail or given directly to their employees - the potential members of project teams. Thus, research entities were deliberately chosen enterprises - the links of supply chains; the criterion of their selection was initially obtained information, that within the structure of the enterprise occur project teams, available in the public data on the company. The analysis of the results was performed using an Excel spreadsheet.

Out of 79 entities, 11 were ultimately not accepted for further analysis because the respondents indicated that no temporary project teams were established in their structure. In the case of the remaining 68, more than half were large enterprises, i.e. employing 250 or more employees (36 entities, 53 %). A quarter of the group surveyed are medium-sized companies (17 entities, 25 %). Other entities were classified as small and micro (11 entities - 16 % and 4 entities - 6 %, respectively). As for the business profile, production entities dominate (35 entities - 47 %). In 24 cases these are service entities (33 %) and in 15 commercial (20 %). It is also worth emphasizing that the surveyed companies represent various industries, including automotive, construction, IT, FMCG, furniture, textile, printing, paper, education and training, medical, mining, TSL, stone, agricultural, chemical and in e-commerce and robotics.



Figure 1 Characteristics of surveyed entities - percentage approach (n = 68)

From the point of view of the share of foreign capital in the examined enterprise, exactly half (34 out of 68 entities) are companies in which there is no foreign capital. In 31 cases, they are entities with dominant foreign capital (i.e. above 50 % of shares). Only in three entities, the share of foreign capital is a minority. Companies with German capital predominate among entities with foreign capital. There are also entities with Japanese, British, American, Finnish, Swedish, Belgian, Swiss, French, Irish, Israeli and combined Franco-American capital.

5. RESEARCH RESULTS

Among the surveyed entities declaring the establishment of temporary project teams or working groups for the implementation of specific projects, the respondents made 150 indications under 6 proposed types of projects for the implementation of which such teams are appointed (the respondents could indicate more than one answer). Most often, such teams carry out implementation projects, e.g. launching a new product, implementing a quality management system or IT system (24.7 % of total indications), and tasks to solve a specific problem, e.g. eliminating a product defect (20.7 %). Subsequently, the tasks carried out as part of the company's core business were indicated, e.g. the design of individual customer orders, unusual / individual orders and development projects, e.g. development of the company's strategy or design of a new product (in both cases 18 % of total indications). Other areas of application of the project teams achieved a lower percentage.

As indicated earlier, one of the areas studied was the heterarchy problem, which included the following questions:

- Are there situations that individuals participate simultaneously in several projects and perform different roles in them, e.g. in one project they are the manager and in another as the participant / performer?
- Does the emergence of project teams in the organizational structure result in a double subordination situation, i.e. are team members subject to two (or more) decision-making centers for the duration of their operation?

Answers to the first question indicate that in exactly 2/3 of cases (66.2 % of answers given), project team members perform different roles in individual projects. These results are not without impact on the appearance of double subordination cases in the organizational structures of the subjects studied. According to research, this situation occurs in more than half of them - 51.5 %, i.e. 35 out of 68 entities. The details are presented in the charts below (**Figure 2**).

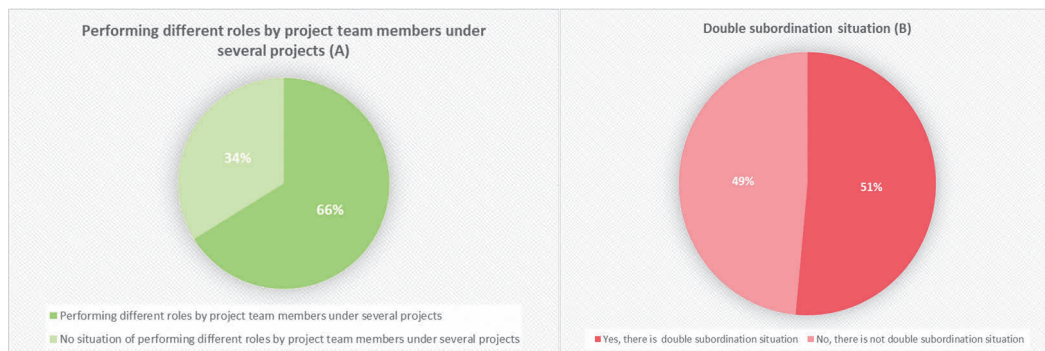


Figure 2 Percentage of indications regarding the occurrence of the situation: performing different roles by project team members under several projects (A) and double subordination (B)

It should be noted that the problem of double subordination does not occur as intensely as the issues of members of project teams performing different roles in individual projects in the supply chain. Nevertheless, in both cases, the percentage of positive responses is significant, which may affect the effectiveness and efficiency of such teams.

6. CONCLUSIONS AND SUMMARY

The conducted analysis of results allows noticing the significance of the heterarchy problem in the area of functioning project teams within supply chains. A high percentage of indications regarding the simultaneous participation in different project teams and performing different roles in them may result in the members of such teams being very flexible and skillfully adapting to nature and role they play in a given team. A multitude of roles can, on the one hand, affect the development of experience and expanding the skills of team members in project management. However, on the other hand, it can cause perceptual discomfort and in the long run it can cause difficulties in correctly performing tasks assigned to a given role, e.g. more precisely and willingly performed tasks in relation to roles that are prestigious or more suited to the character of the person who performs them, with less commitment to performing roles less significant or performed in contradiction to the predispositions of a given team member.

The described situation may be strengthened by the fact of frequent occurrence of double subordination cases in the organizational structures of the subjects surveyed. The occurrence of such a significant number of cases may cause that in many entities and projects implemented by them, problems may arise in the scope of: the communication between members of project teams, delegating tasks to team members by project managers / stem cell managers, assigning responsibility for tasks performed, difficulties in reconciling permanent duties

performed within stem cells with tasks carried out as part of the project team. These problems may, as a consequence, lead to conflicts between employees, both at the level of project teams and within stem cells. This means that the heterarchy problems can be transferred from the level of inter-organizational projects to the level of individual supply chain enterprises.

The obtained research results seem to confirm that building project teams and implementing projects within the supply chain require a different and very thoughtful approach in their management. A slightly different structure of problems and a fairly intense problem of heterarchy may suggest the need to use different management instruments and influence on such a team. The main emphasis in the functioning of inter-organizational teams should be placed on proper communication and the integration of the work of its participants, often representing links from different levels of the supply chain.

REFERENCES

- [1] AIME F., HUMPHREY, S., SCOT, D.D. & Paul J.P., The riddle of heterarchy: Power transitions in cross-functional teams, *Academy of Management Journal* 57: 2, 2014, pp.327-352.
- [2] CRUMLEY C.L., *Heterarchy and the analysis of complex societies*. In: Ehrenreich, RM, Crumley, CL & Levy, JE (Eds.), *Heterarchy and the Analysis of Complex Societies*. Archaeological Papers of the American Anthropological Association, Arlington: American Anthropological Association, 1995, pp.1-5.
- [3] HWANG M., RAU H., Stablishment of a customer - oriented model for demand chain management, *Human System Management*, Vol. 26 No. 1, 2007, pp. 23-33.
- [4] HEDLUND G., Model of knowledge management and the N-form corporation, *Strategic Management Journal*, vol. 15, 1994, p. 73-90.
- [5] IYER A., SESHARDI S., VASHER R., *Toyota Supply Chain Management: A Strategic Approach to the Principles of Toyota's Renowed Systems*, New York, McGraw-Hill, 2009, pp. 85-103.
- [6] JAGODA A., KOŁAKOWSKI T., Project team as a supply chain management integration tool - a case study of a Japanese company, *The Journal of Management and Finance* [Zespoły projektowe jako narzędzie integracji łańcucha dostaw - studium przypadku przedsiębiorstwa japońskiego, *Zarządzanie i Finanse*], vol. 14, nr 2/1, 2016, pp. 101-111.
- [7] KETCHEN D.J., HULT T.M., Bridging organization theory and supply chain management: the case of best value supply chains, *Journal of Operations Management*, Vol. 25 No. 2, 2007, pp. 573-580.
- [8] LEE H.L., Creating value through supply chain integration, *Supply Chain Management Review*, Vol. 4, No. 4, 2000, pp.30-36.
- [9] LICHTARSKI J., *Task Structures: Components, Characteristics and Conditions* [Struktury zadaniowe. Składniki, własności i uwarunkowania], Wrocław, The Publishing House of the Wrocław University of Economics [Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu], 2011, p. 79.
- [10] LICHTARSKI J.M., Heterarchy as a source of organizational conflicts - managers' and non-managers' perspective [Heterarchia jako źródło konfliktów organizacyjnych - perspektywa kierowników i nie kierowników], *Management Forum*, Vol. 3, no 4, 2016, p. 37.
- [11] LIKER J., CHOI T., Building deep supplier relationship, *Harvard Business Review on Supply Chain Management*, Bostomn MA, 2004, pp. 23-47.
- [12] MENON SANJAY T., Human resource practices, supply chain performance, and wellbeing, *International Journal of Manpower*, Vol. 33 No. 7, 2012, pp. 769-785.
- [13] NONAKA I., A dynamic theory of organizational knowledge creation, *Organization Science*, Vol. 5, no. 1 (Feb.), 1994, pp. 14-37.
- [14] PANDEY P., BHATTACHARYYA S., KAUR A., Exploring the role of HR practices in supply chain, *Journal in Advances in Management Research*, Vol. 9 No. 1, 2012, p. 114.
- [15] SEZEN B., Relative effect of design, integration and information sharing on supply chain performance, *Supply Chain management: An International Journal*. 13 No.3., 2008, pp. 233-240.
- [16] STEPHENSON, K. Neither hierarchy nor network: An argument for heterarchy, *People & Strategy*. vol. 32, no. 1, 2009, p. 6.