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Competition in shaping the engagement of teams within an organization

Abstract

Research background and purpose: Considering the importance of work engagement, attention was paid to the possibilities of shaping it. Since the need to belong is important for engagement and, at the same time, it is competition that triggers activity, the aim of the article was to examine how competition affects team work engagement.

Design/methodology/approach: Twelve teams from different industries participated in the survey. Because rivalry can have different reasons as well as take place under different conditions, attention was paid to: (1) the competitive environment in the organization, (2) the quality of the rivalry and (3) the trait competitiveness of the team members.

Findings: According to the results of the study, the high quality of competing should be considered important for team work engagement. The motive for competing is also significant: the superiority of achievement orientation over egoistic orientation was established.

Value added and limitations: This study contributes to the limited literature on team work engagement by focusing explicitly on team-level competition and by jointly examining three aspects of competition: employees' trait competitiveness, the competitive environment created by organizational rules and practices, and the quality of competition in terms of its constructiveness. The findings highlight the importance of high-quality, achievement-oriented competition for maintaining a high level of team work engagement in teams operating in different industries. However, the exploratory nature of the research, the purposive sampling of twelve teams of different sizes, and the omission of factors such as formalization, centralization and psychological competitive climate limit the generalizability of the results and indicate directions for further studies.

Keywords: *competition, rivalry, engagement, teams, team work engagement*

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1. Introduction

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Modern organizations increasingly rely on team-based forms of work, due to the complexity and interdependence of tasks. Within such collective, interdependent action, different patterns of relations between employees may emerge, including collaboration, competition and conflict. As is well known, a group is not a team (Pezzoni & Visentin, 2024), and not every team operates effectively. While collaboration is associated with mutual help and coordinated efforts toward shared goals, competition introduces elements of rivalry into these relationships and may either enhance or undermine team functioning and performance, depending on its conditions and perceived fairness. Consequently, numerous studies have examined the determinants of effective team functioning (Gerbeth & Mulder, 2023; Ginting-Szczesny et al., 2024; Jiang et al., 2023).

Work engagement is one of the currently essential issues in the field of human resources management, as it is strongly linked to individual performance, well-being and organizational outcomes. A lot of research is devoted to searching for the determinants of engagement. Among other things, the need of belonging is indicated as important for an individual's engagement and it can be implemented in team-based work. According to Ayers (2009) being on a "winning team" contributes to achieving the highest level of engagement. At the same time, he emphasizes that creating such an efficient team is not easy. One of the possibilities in this regard may be to identify factors that influence the cooperation or engagement of team members. For the authors, the concept of a winning team was a reference to competition. It has been proved that groups that compete with others improve the coordination of activities (within the group) and are more creative and productive (cf. Bornstein, 2003; Riechmann & Weimann, 2008; Kato & Shu, 2016). According to Marino and Zabochnik (2004) they may also reduce or even eliminate the so-called "free-rider" effect, which means better cooperation. Tauer and Harackiewicz (2004) emphasize in turn that intergroup competition leads to deriving greater pleasure from work and achieving higher efficiency than "pure" cooperation and "pure" competition. These findings suggest that competition can have an impact on employee engagement.

Previous research has shown that competition between groups may improve coordination, creativity and productivity, and reduce free-riding, which in turn may foster better cooperation and performance. Studies have also demonstrated that competitive employees tend to display higher work-oriented activity and energy, and that goal orientation moderates the relationship between a competitive work environment and individual work engagement. However, much less attention has been paid to team-level engagement, and the literature does not identify studies directly addressing how different forms and conditions of competition within organizations relate to team work engagement. This reveals a research gap concerning the joint effects of employees'

trait competitiveness, the competitive work environment and the quality of competition on team work engagement.

Accordingly, the study addresses the following research question: how are different facets of competition related to team work engagement? More specifically, we examine whether and how employees' trait competitiveness, the competitive work environment created by organizational rules and practices, and the quality of competition are associated with the level of team work engagement.

Against this background, the present study aims to examine whether and how three facets of competition – employees' trait competitiveness, the competitive environment created by organizational rules and practices, and the quality of competition in terms of its constructiveness – are related to the level of team work engagement in teams operating in different industries. To this end, competition is analysed in twelve teams, with particular attention paid to the overall competitive environment, the perceived quality of competition and team members' individual competitiveness.

The remainder of this article is structured as follows: Section 2 outlines the theoretical background, Section 3 describes the research methods, Section 4 presents the empirical results, and Section 5 discusses the findings and concludes with implications, limitations and directions for future research.

2. Theoretical background

2.1. Characteristics of competition within an organization

When analysing competition in organizational settings, a certain paradox becomes apparent. On the one hand, competition is often perceived as inherently “unhealthy”, which leads some authors to argue that it should be avoided, while on the other hand, competition is so universal and pervasive that it is frequently taken for granted by other authors (Moczulska, 2023). These contrasting views may partly explain both the relatively limited number of studies explicitly addressing competition and the predominance of research using the term “competition” over work referring more specifically to “rivalry”.

Ames defines *competition* as “a situation of negative interdependence between participating people, such that the likelihood of a given person achieving a goal or receiving a reward is reduced in the presence of other people” (cited in: Chang & Chen, 2012, p. 168). Similarly, Kilduff et al. (2010, p. 945), although considering *competition* in the context of an individual's own achievements, define it as “a subjective competitive relationship between at least two individuals (actors), which is associated with psychological engagement and the perception of the stakes of competition for the main actor, regardless of the objective characteristics of the situation”.

It can be noted that the first definition in particular refers to Deutsch's theory, according to which competition is a "win-lose" situation (based on a zero-sum game), Kotarbiński (Karolczak-Biernacka, 1981) calls such a situation *negative cooperation*, pointing to the second option, namely *positive cooperation*, where the goal can be achieved by many people, independently of others).

With regard to organizations, Kohn (cited in: Brown et al., 1998) draws attention to structural competition resulting from the rules adopted for the distribution of rewards. Such rules involve performance evaluation, supervisory practices, and remuneration. For this reason, rewards of a material or intangible nature are awarded to a limited number of employees. Structural competition can be a kind of competition "trigger". When writing about rules within an organization, it should be noted, following Fletcher and Nusbaum (2010), that competitiveness within an organization may concern not only rewards, but also recognition and status.

However, Brown et al. (1998) note the subjective feeling of an employee, referring to the degree to which they perceive the dependence of organizational rewards on comparisons of their results with the results of others, which results in an attitude towards competition described by the authors as *competitive psychological climate*. According to the authors the employees' perception may be more important than objective rules regarding the conditions created within an organization.

It should be noted that competitiveness within an organization may not only be the result of forced (external) necessity, but also stem from an internal "source". *Purposeful competitiveness* (intentional) means that the employee likes to compete. As Helmrei and Spence report, (as cited in Brown et al., 1998, p. 90), individuals may "derive pleasure from interpersonal competition and the desire to win and be better than others". There are two main motives highlighted here. One (task orientation) is related to the focus on achievements (learning, development), and the other (egocentric orientation) is based on the desire to deprive others of the benefits of winning (Chang & Chen, 2012). The type of drive influences how the other side of the competition is treated. Thus, we are dealing with either a task conflict (task orientation) or a relationship conflict (egocentric orientation). In the case of a task conflict, the ability to pursue one's own goal promotes competition between competing entities. Conversely, in the case of a relationship conflict (as well as in a situation where only one or a limited number of people can achieve the goal), competition may resemble a fight and its participants may suffer hostile treatment (cf. Chang & Chen, 2012).

When writing about competition within an organization, it is also worth taking into account the importance of the conditions of competition. Tjosvold syndrome associates them with *constructive competition*. It occurs when competing is an enjoyable experience resulting in increased efforts toward achievement, maintaining more positive interpersonal relationships, and mental health and well-being. It is

supported by Tjosvold et al. (2003): the clarity of competition rules, equality in achieving the goal (the perception of the chance of receiving a prize), the importance of winning (whether it is important, or constitutes the goal), the nature of the tasks (physical/intellectual, simple/difficult, more/less complex), sharing resources (dependency on others). Its opposite is *non-constructive* competition. Based on the research results, Tjosvold, Johnson, Johnson and Sun (2003) emphasize the importance of both clarity of rules and equality in achieving goals, as well as: interpersonal relationships (previous relationships, trust, respect and recognition of competences).

Finally, the differences in the intensity of competition observed in the context of gender and industry should be mentioned. In the light of research, men can be considered more competitive than women (Walters et al., 1998; Green and Rechis, 2006; Cotton et al., 2015, Lavy, 2013; Flory et al., 2015). Conversely, as Birkinshaw (2001) notes, in industries that deal with chemicals, cars and food products, competition within organizations is extremely rare, while in the rapidly changing high-tech sector it is very common. In turn, in the pharmaceutical industry, there is high competition at the early research stage, which is not observed at the drug development stage.

In team competition, group size, composition and social identity were considered important. According to Riechmann and Weimann (2008), competing groups should be as small as possible, and Bornstein et al. (2002) stipulate the maximum size: seven people. According to Baer et al. (2010) the variability of group composition affects its creativity. What is important, closed groups are creative only to a moderate level of competition intensity among them. In the case of open groups, on the other hand, creativity starts at this level. A new group member reduces creativity at low/intermediate levels of competition, while fierce competition induces an increase in effort and energy devoted to reconfiguring the goal structure of accepting a new member and a subsequent increase in creativity. In turn, Kato and Shu (2016) state that social identity reduces competition between group members and increases intergroup competition. Moreover, the use of incentives promotes efficiency more in an integrated (where different social identities coexist in the same workplace) rather than a segregated (same social identity of participants) workplace.

In summary, prior research has identified multiple structural and psychological facets of competition in organizations, including formal rules for allocating rewards, employees' perceptions of a competitive climate and individual differences in competitiveness, as well as the distinction between constructive and non-constructive forms of competition. However, these strands of research have rarely been integrated within a single analytical framework and have not been systematically linked to outcomes at the team level. This lack of integration highlights a need to examine how different facets of competition jointly operate in team settings, which directly motivates the research question formulated in this study.

2.2. Competition and team work engagement

Team engagement shall be defined according to Torrente et al. (2012, p. 107) as: “a positive, shared state of team members recognition by vigour, absorption and dedication”. Vigour refers to “high levels of energy and mental resilience while working, the willingness to invest effort in one’s work, and persistence even in the face of difficulties.” Dedication is characterized by “being strongly involved in one’s work and experiencing a sense of significance, enthusiasm, inspiration, pride, and challenge”. Absorption means “being fully concentrated and happily engrossed in one’s work, whereby time passes quickly and one has difficulties with detaching oneself from work” (Schaufeli & Bakker, 2004, p. 295).

A review of the literature shows that relatively few studies have examined the relationship between competition and work engagement. The available research focuses mainly on organizational culture, reward systems and trait competitiveness. However, these studies address engagement rather at the individual rather than the team level.

It was established that competitive employees are characterized by higher work-oriented activity and energy (cited in: Jones et al., 2017). People with a high level of task orientation, however, are engaged regardless of the competitiveness of the work environment, and those with a low level are less engaged in a competitive environment. The need for a person to adapt to the work environment and the possible importance of the perception of the degree of competition in the organization may be suggested (the psychological competitive climate).

According to the research results of Victor and Hoole (2017), employees show higher work engagement when they receive rewards, which the authors account for using the theory of social exchange (in the case of external rewards) and the sense of meaningfulness (in the case of internal rewards). Chen and Miller (2015), in turn, write about intangible rewards and recognition as types of incentives that can increase individuals’ internal motivation to perform tasks. As for the team’s engagement, however, the method of awarding the prize may be important in this respect. Beersma et al. (2003) point to the use of a cooperative reward structure for interdependent work. Similarly, the research results of Yue, Fong and Li (2019) show that group rewards and not competitive rewards (individual for each team member) promoted the team’s adaptation to change. What is also important for engagement is the rule used to distribute the reward within the team (Gunnthorsdottir & Rapaport, 2006, p. 185), and therefore whether the division is based on equality (everyone receives the same amount) or equity (team members are awarded in proportion to their individual contributions) - as shown by Hargreaves-Heap et al. (2015), for team members with lower competencies, the average effort level is approximately twice as high when competing as the average effort level using the equality rule. High inequality, in turn,

results in the disappearance of task participation. It persists with moderate inequality of reward distribution. It is thus worth suggesting, following Benard and Barclay (2020), that the possibility of awarding the prize democratically be adopted, i.e. by the voting of people participating in a collective action.

It should be added that in the case of intergroup competition, the sense of justice, mainly procedural, is important (Enns & Rotundo, 2012). The sense of injustice leads to retaliatory behaviour, which is strengthened by strong identification with the group.

Overall, existing studies suggest that competition and competitiveness can be associated with higher activity, energy and engagement at the individual level and that these relationships are shaped by goal orientation, reward structures and perceptions of the work environment. Yet, prior research has focused predominantly on individual work engagement and has seldom examined engagement as a shared, team-level state. Moreover, we lack empirical evidence on how trait competitiveness, the competitive work environment and the quality of competition combine to influence team work engagement. These gaps provide the theoretical rationale for our focus on team work engagement and for the research question guiding the present study.

3. Research methods

3.1. Research sample

The study has an exploratory character due to the paucity of research directly addressing team competition and team work engagement.

As competition may vary depending on the industry, teams operating in various industries, carrying out various scopes of tasks, were invited to participate in the research. Teams of permanent nature were selected, operating for at least one year and sharing common physical work space. Therefore, twelve stable teams operating in various industries were purposefully selected. The inclusion criteria were: (1) permanent teams (ad hoc project teams were excluded), (2) at least one year of team operation, and (3) a common physical workspace (dispersed/remote teams were excluded). Table I summarizes the basic characteristics of the researched teams in relation to: the number of people in the team, the diversity of team composition due to gender, the stability of the team composition, the type of composition due to the formal bond of team members - i.e. their structural affiliation to organizational units, the type of tasks due to their nature, the scope of diversity of the tasks performed as well as their degree of difficulty.

Table 1. Basic characteristics of the studied teams

	Team code											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Number of people in the team	25	12	9	10	13	3	6	9	5	6	7	12
Diversity of composition	M	M	F	F	FM	F	FM	F-M	FM	F-M	FM	FM
Constancy of composition	US	S	U	S	S	S	S	U-S	S	S	SU	SU
Type of composition	N	N	B	B	B	B	B	N	B	B	B	N
Type of tasks	In-Ph	Ph	In-Ph	In	In	In	In	Ph	In	In-Ph	In-Ph	In-Ph
Extent of task differentiation	Fi	V	Fi-V	Fi	Fi-V	V	Fi-V	Fi-V	Fi-V	Fi-V	V	Fi
Degree of difficulty of tasks	Md	Md	Md	E	D	D	Md	Md	D	Md	Md	Md

Legend: F: female, M: male, F-M: equal number of women and men, FM: higher number of women, MF: higher number of men, S: closed teams, U: open teams, S-U: the same the number of permanent and temporary members, SU: teams with mostly permanent members, US: teams composed of a small group of permanent members; B: block assignment, N: network assignment; In: intellectual tasks, Ph: tasks related to physical work, Ph-In: types of tasks of a mixed nature; Fi: rather repeatable/fixed range, V: rather diverse/variable scope of tasks, Fi-V: some tasks of a permanent nature and some of a variable nature; E: easy and rather easy tasks, Md: tasks of moderate difficulty, D: difficult and very difficult tasks.

Source: own study

The qualified teams carried out various scopes of tasks in areas such as: mining and quarrying (team I), construction (team II), trade (team III: clothing industry), supporting activities (team IV: protection of classified information), financial activities and insurance (team V: banking services), administration and support activities (team VI: real estate maintenance), professional, scientific and technical activities (team VII: accounting - and team VIII: legal projects), education (teams: X and XI). Importantly, in two teams the work experience of its members was shorter than three years. In the remaining ones, the experience of members ranged from 3 to 10 years. It should be emphasized that for the majority of respondents, their seniority corresponded to their working time in the analysed team, and thus the professional experience of most team members was largely gained by working in a team.

The data were collected between September and December 2022 using a structured questionnaire administered in person by the researchers. Respondents completed the questionnaire individually, in the presence of the researcher, which allowed any questions about the items to be clarified while ensuring that team members did not communicate with each other during completion. Participation in the study was voluntary and respondents were assured of the anonymity and confidentiality of their answers.

3.2. Research tool

To assess the team's engagement, the Team Work Engagement tool (TWE, 7) was used. In turn, the competition assessment involved:

- Competitive Work Environment Scale (Fletcher and Nusbaum, 2010),
- measurement items for trait competitiveness (Brown et al., 1998),
- an original questionnaire to assess the quality of competition constructed based on the work of Tjosvold et al. (2003, 2006 - constructiveness of competition) and Brown's team (1998 - method of competition).

In the comparative analysis of teams in the discussed area, multidimensional cluster analysis was applied. Euclidean distance was used as the function of distance (Stanisz, 2006). The single-link method, also known as the nearest neighbour method, was adopted as the principle for linking clusters together. Within it, the distance between two clusters is determined by the distance between the two closest objects (the nearest neighbours) belonging to different clusters (Stanisz, 2007). For the purposes of grouping objects (factors), the hierarchical agglomeration method and non-hierarchical grouping using the k-means method were applied. The first of the above methods enables generating hierarchically ordered clusters, which can be presented in the form of a hierarchical tree (dendrogram) presenting the distances between objects. The second one moves objects between the indicated number of clusters in order to minimize intra-group variability and maximize inter-group variability (Stanisz, 2006). The use of k-means clustering was intended to confirm the observed clusters in the agglomeration method. To deepen the analysis, we also examined the statistical relationships between the indicators of competition and engagement and the team characteristics listed in Table 1: gender composition, type of tasks, degree of task difficulty, extent of task differentiation, team size and structural type (block vs. network assignment). The stability of team composition (five categories with $N = 12$, four of which have $n = 1-2$) was not tested because the distribution across categories was too fragmented. These relationships were analysed using the Kruskal-Wallis test for categorical variables and Spearman's rank correlation for the continuous variable (team size). In total, 78 tests were performed (6 team characteristics $\times 13$ indicators, excluding combinations with an insufficient number of observations in a group). Given the multiple testing, the Benjamini-Hochberg false discovery rate (FDR) correction was applied to the full set of p-values.

4. Results

4.1. Competition: trait competitiveness

Taking into account the result of the cluster analysis, three groups were distinguished (Figure 1).

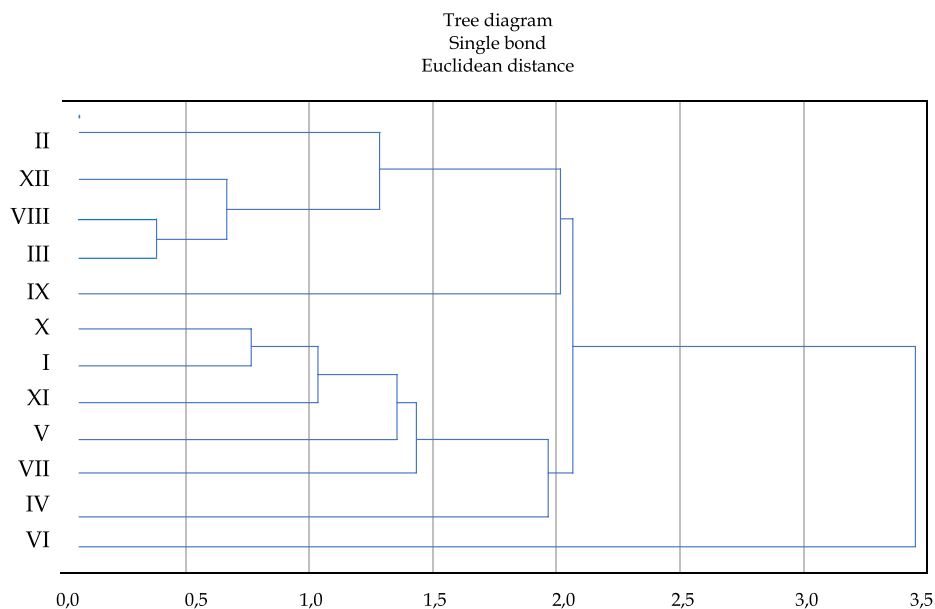


Figure 1. Classification of teams according to trait competitiveness

Source: own elaboration based on research

Team “VI”, constituting a separate group, is characterized by the highest rates of both trait competitiveness, as well as both examined competitive drives. The second group consisted of six teams: “X”, “XI”, “I”, “V”, “VII” and “IV”. Teams in this group are characterized by a moderate degree of competitiveness and egocentric orientation, as well as a high degree of achievement orientation. The third group is distinguished by the lowest indicators of trait competitiveness. At the same time, the low degree of egocentric orientation should be noted here. Taking into account the data on the trait competitiveness, it can be concluded that the dominant drive for competing in all groups was achievement orientation (Table 2). In line with the findings of Chang and Chen (2012), this type of orientation can be associated with a task orientation.

Table 2. Elements of individual clusters according to trait competitiveness

Cluster Number	Team code	Distance	Trait competitiveness		Orientation			
					egocentric		achievement	
			M ± SD	Variance	M ± SD	Variance	M ± SD	Variance
1	X	0,31	15,91 ± 1,25	1,57	3,98 ± 0,31	0,10	5,02 ± 0,89	0,79
	XI	0,90						
	I	0,30						
	VII	1,12						
	V	0,75						
	IV	1,14						
2	II	0,72	11,23 ± 0,81	0,65	2,81 ± 0,2	0,04	4,87 ± 0,97	0,95
	XII	0,66						
	VIII	0,27						
	III	0,26						
	IX	1,04						
3	VI	0,00	20,67 ± 0	0,00	5,17 ± 0	0,00	6,25 ± 0	0,00

Source: own elaboration based on research

Considering the competitive environment, it is worth mentioning team (Table 3):

- “V” as the one whose members recognized the high competitiveness of the environment at each level, i.e. individual, team and organizational
- “IX” being the opposite of the former and therefore less competitive,

Table 3. Competitive environment in analysed teams

	Team code	M ± SD	MdN [Q25 - Q75]	Min. - Max.	Confidence interval		SE	Kruskal-Wallis test	E_R^2	Post hoc	
					-95,00%	+95,00%					
Competitive environment	Organizational level	II	4,4 ± 0,65	4,63 [4,63-4,75]	3,25-4,75	3,60	5,20	0,29	H(11, N = 60) = 37,06; p < 0,001	0,63	V > III (p < 0,01) / V > IX (p < 0,001) / IV > IX (p < 0,05)
		X	3,78 ± 0,81	3,63 [3,19-4,38]	3-4,88	2,49	5,07	0,41			
		XI	4,05 ± 0,39	4,13 [3,7 -4,13]	3,63-4,63	3,56	4,54	0,18			
		XII	4,23 ± 0,46	4 [4-4,75]	3,75-4,88	3,74	4,72	0,19			
		I	4,11 ± 0,58	4 [3,75-4,38]	3,5-5,25	3,57	4,64	0,22			
		VII	4,29 ± 0,62	4,31 [4-4,5]	3,38-5,25	3,65	4,94	0,25			
		VIII	3,75 ± 0,72	3,75 [3,25-4,25]	2,88-4,63	2,60	4,90	0,36			
		V	5,36 ± 0,83	5 [4,75-6]	4,25-6,63	4,72	6,00	0,28			
		IV	5,21 ± 0,44	5,25 [4,75-5,63]	4,75-5,63	4,12	6,30	0,25			
		III	2,54 ± 0,62	2,25 [2,13-3,25]	2,13-3,25	1,01	4,07	0,36			
		VI	3,63 ± 0	3,63 [3,63-3,63]	3,63-3,63	-	-	-			
		IX	2,53 ± 1,02	2,5 [2,25-3,25]	1-3,63	1,26	3,79	0,45			
	Team level	II	3,93 ± 0,72	3,88 [3,75-4]	3-5	3,04	4,81	0,32	H(11, N = 60) = 33,2; p < 0,001	0,56	V > IX (p < 0,01) / III > IX (p < 0,01)
		X	3,97 ± 0,28	3,88 [3,81-4,13]	3,75-4,38	3,53	4,41	0,14			
		XI	4,45 ± 0,63	4,25 [4,13-4,75]	3,75-5,38	3,67	5,23	0,28			
		XII	4,17 ± 0,57	4,19 [3,88-4,25]	3,38-5,13	3,56	4,77	0,23			
		I	4,07 ± 0,86	4,38 [3,38-4,75]	2,63-5	3,28	4,86	0,32			
		VII	4,06 ± 0,53	4 [3,63-4,25]	3,5-5	3,50	4,62	0,22			
		VIII	3,81 ± 0,53	3,88 [3,44-4,19]	3,13-4,38	2,98	4,65	0,26			
		V	4,76 ± 0,67	4,75 [4,13-5,13]	4,13-6,13	4,25	5,28	0,22			
		IV	3,21 ± 0,69	3,25 [2,5-3,88]	2,5-3,88	1,50	4,92	0,40			
		III	6,04 ± 0,56	6 [5,5-6,63]	5,5-6,63	4,64	7,44	0,33			
VI	3,38 ± 0	3,38 [3,38-3,38]	3,38-3,38	-	-	-					
IX	2,28 ± 1,01	2,25 [1,63-3]	1-3,5	1,02	3,53	0,45					

Competitive environment	Individual level	II	4,06 ± 0,73	4,14 [4,14-4,29]	2,86-4,86	3,15	4,97	0,33	H(11, N = 60) = 39,14; p < 0,001	0,66	V > III (p < 0,05) / V > IX (p < 0,001)
		X	4,25 ± 0,59	4,14 [3,79-4,71]	3,71-5	3,32	5,18	0,29			
		XI	4,17 ± 1,07	3,86 [3,86-5]	2,71-5,43	2,84	5,50	0,48			
		XII	4,48 ± 0,69	4,14 [4-4,86]	4-5,71	3,76	5,20	0,28			
		I	4,16 ± 0,43	4,29 [4-4,43]	3,29-4,57	3,76	4,56	0,16			
		VII	3,33 ± 0,75	3 [2,86-4,29]	2,57-4,29	2,54	4,12	0,31			
		VIII	3,04 ± 0,58	2,86 [2,64-3,43]	2,57-3,86	2,12	3,95	0,29			
		V	5,19 ± 0,85	5,14 [4,57-5,43]	4,29-7	4,54	5,84	0,28			
		IV	5,38 ± 1,7	6,14 [3,43-6,57]	3,43-6,57	1,15	9,61	0,98			
		III	1,9 ± 1,2	1,29 [1,14-3,29]	1,14-3,29	-1,07	4,88	0,69			
		VI	2,71 ± 0	2,71 [2,71-2,71]	2,71-2,71	-	-	-			
		IX	1,86 ± 0,58	1,86 [1,71-2,14]	1-2,57	1,14	2,58	0,26			
	Total	II	12,38 ± 1,08	12,52 [12,39-12,91]	10,61-13,48	11,04	13,72	0,48	H(11, N = 60) = 41,25; p < 0,001	0,70	XII > IX (p < 0,05) / VIII < V (p < 0,05) / V > VI (p < 0,05) / V > IX (p < 0,001)
		X	12 ± 0,49	12,12 [11,71-12,29]	11,3-12,46	11,22	12,78	0,25			
		XI	12,67 ± 1,06	12,5 [11,73-13,68]	11,59-13,86	11,35	13,99	0,47			
		XII	12,87 ± 0,69	12,88 [12,39-13,14]	11,98-13,96	12,14	13,60	0,28			
		I	12,34 ± 1,12	12,66 [11,5-12,95]	10,55-14,02	11,30	13,38	0,42			
		VII	11,69 ± 1,12	11,52 [11-12,23]	10,32-13,54	10,52	12,86	0,46			
		VIII	10,6 ± 1,16	10,6 [9,77-11,43]	9,2-12	8,75	12,45	0,58			
		V	15,32 ± 1,97	15,04 [13,57-17,55]	13,04-18	13,80	16,83	0,66			
		IV	13,8 ± 2,32	13,89 [11,43-16,07]	11,43-16,07	8,03	19,57	1,34			
		III	10,49 ± 1,37	10,02 [9,41-12,04]	9,41-12,04	7,07	13,90	0,79			
		VI	9,71 ± 0	9,71 [9,71-9,71]	9,71-9,71	-	-	-			
		IX	6,66 ± 2,38	6,96 [5,98-8,07]	3-9,27	3,70	9,62	1,07			

Source: own elaboration based on research

- “III” – team, competitiveness of the environment as high at the team level and low at the individual and organizational level.

It was mainly among these teams that significant differences were found (Table 3): (1) at each level between teams “V” and “IX”; (2) at the organizational and individual level in the case of teams “V” and “III” - and also - (3) at the organizational level between teams “IV” and “IX”, and at the team level between teams “III” and “IX”.

4.2. Competition: competitive environment

As for competitive environment, the results of cluster analysis reveal five groups (Figure 2). The first group consists of teams “V” and “IV”. It is characterized by the highest degree of competitive environment created at the organizational and individual level and a moderate degree at the team level (Table 4). The second cluster consists of one team: “IX”, which is distinguished by the lowest level of the competitive environment in relation to all analysed levels. The situation is similar in the case of the third group, i.e. team “III”.

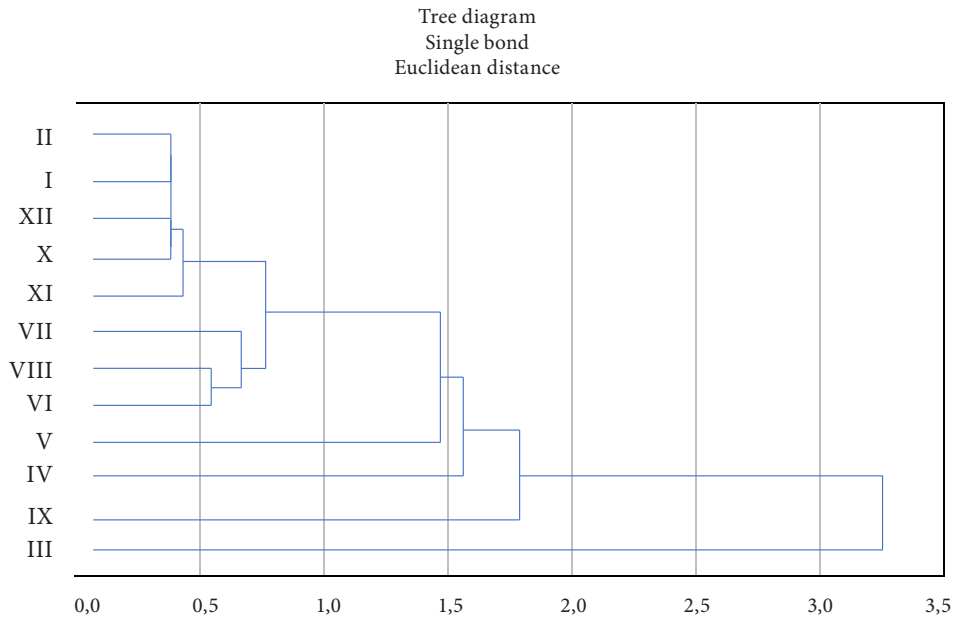


Figure 2. Classification of teams by competitive environment

Source: own elaboration based on research

However, the exception here is the team level. It is the highest of all the clusters created, as well as three times higher than the remaining levels in this cluster (complex). The fourth group consists of five teams (“I”, “II”, “X”, “XI”, “XII”) with a similar, moderate competitive environment at each of the analysed levels, and at the same time - slightly higher at the individual level than at the organizational and team level. The opposite is true, i.e. the least competitive environment at the individual level and the least competitive environment at the team and organizational level in the last group, including three teams (“VII”, “V, III” and “VI”).

Table 4. Elements of individual clusters according to competitive environment

Cluster Number	Team code	Distance	Organizational level		Team level		Individual level	
			M ± SD	Variance	M ± SD	Variance	M ± SD	Variance
1	IX	0,00	2,53 ± 0	0,00	2,28 ± 0	0,00	1,86 ± 0	0,00
2	VII	0,34	3,89 ± 0,35	0,13	3,75 ± 0,35	0,12	3,03 ± 0,31	0,10
	VIII	0,09						
	V	0,32						
3	III	0,00	2,54 ± 0	0,00	6,04 ± 0	0,00	1,9 ± 0	0,00
4	II	0,22	4,11 ± 0,23	0,05	4,12 ± 0,21	0,04	4,22 ± 0,16	0,02
	X	0,21						
	XI	0,20						
	XII	0,16						
	I	0,04						
5	V	0,45	5,28 ± 0,11	0,01	3,99 ± 1,1	1,21	5,29 ± 0,13	0,02
	IV	0,45						

Source: own elaboration based on research

4.3. Competition: quality

As for the quality of competition, two clusters can be distinguished (Figure 3). The first one includes four teams (“V”, “IX”, “IV”, “III”), which are characterized by positive competition conditions and a way of competing at a moderate level (Table 5). The second

cluster, however, consisting of the remaining seven teams, is distinguished by low indicators of both variables regarding the quality of competition.

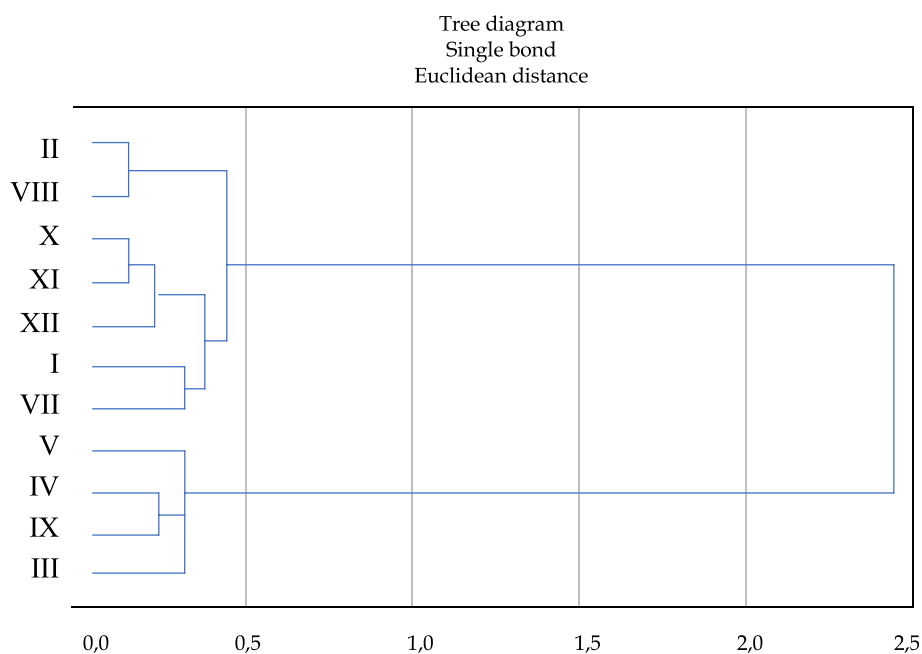


Figure 3. Classification of teams according to the quality of competition

Source: own elaboration based on research

Table 5. Elements of individual clusters according to the quality of competition

Cluster Number	Team code	Distance	Way of competing		Competition conditions	
			M ± SD	Variance	M ± SD	Variance
1	V	0,29	2,75 ± 0,32	0,10	5,19 ± 0,14	0,02
	IV	0,18				
	III	0,12				
	IX	0,22				

2	II	0,38	2,09 ± 0,42	0,18	2,57 ± 0,17	0,03
	X	0,12				
	XI	0,11				
	XII	0,07				
	I	0,33				
	VII	0,41				
	VIII	0,42				

Source: own elaboration based on research

Finally, the analysis was performed for the three analysed issues. Four clusters were obtained (Figure 4).

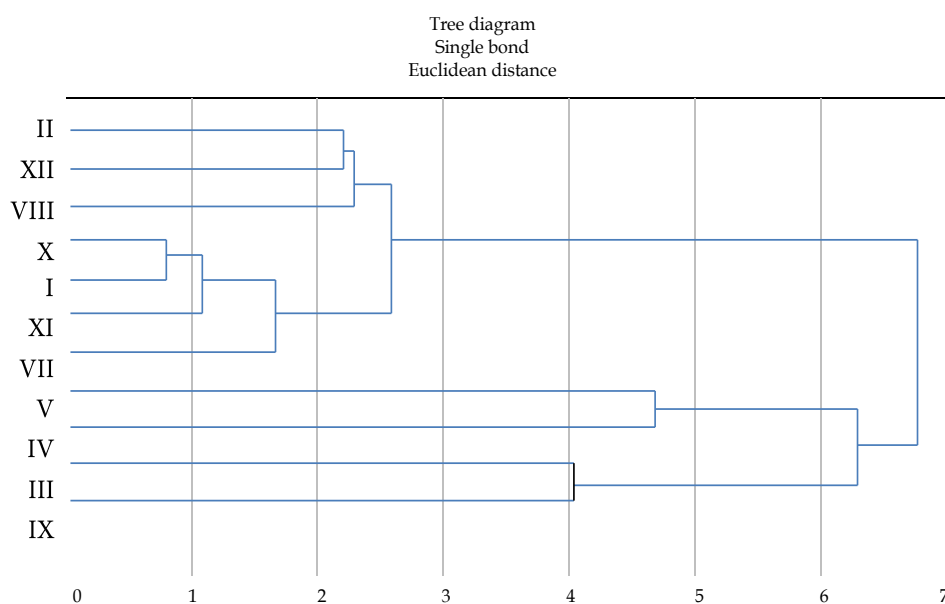


Figure 4. Classification of teams according to the analysed variables regarding competitiveness

Source: own elaboration based on research

The first one included two teams - “V” and “IV”, which are characterized by the highest (among the teams) degree of both the competitiveness of their members and the competitive environment (Table 6). The quality of the competition is also high. It is rated higher only in clusters consisting of teams: “III” and “IX”, which are also distinguished by the lowest degree of the other two issues, i.e. competitive environment and trait competitiveness. The third cluster included teams with the lowest level of competitive quality and a moderate level of other issues. In turn, the fourth cluster were teams with relatively low quality of competition, moderately competitive work environment and high trait competitiveness of their team members.

Table 6. Elements of individual clusters according to competitive features, competitive environment and quality of competition

Cluster Number	Team code	Distance	Trait competitiveness		Competitive environment		Quality of competition	
			M ± SD	Variance	M ± SD	Variance	M ± SD	Variance
1	III	1,17	11,13 ± 0,75	0,57	8,57 ± 2,71	7,34	14,61 ± 0,55	0,30
	IX	1,17						
2	II	0,68	11,29 ± 1	1,00	11,95 ± 1,2	1,43	4,63 ± 0,59	0,34
	XII	0,82						
	VIII	0,84						
3	V	1,32	16,17 ± 1,65	2,72	14,56 ± 1,07	1,15	13,85 ± 2,58	6,63
	IV	1,32						
4	X	0,24	15,79 ± 1,28	1,65	12,18 ± 0,43	0,18	5,89 ± 0,45	0,20
	XI	0,86						
	I	0,38						
	VII	1,04						

Source: own elaboration based on research

4.4. Team engagement

Comparing teams by engagement using cluster analysis revealed two groups. The first one - with the highest engagement - included two teams: "VI" and "IX". The second one assessed the remaining teams with lower engagement (Figure 5).

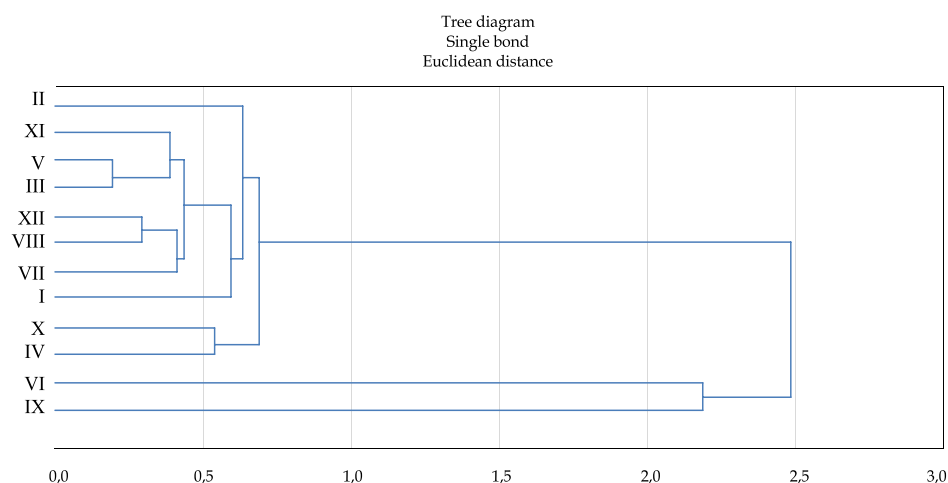


Figure 5. Comparison of teams by teams work engagement

Source: own elaboration based on research

It can be seen that teams from the first cluster showed a higher degree of engagement in three of its dimensions (vigour, absorption, dedication), but they were simultaneously more diverse. Teams from the other cluster were characterized by lower engagement and lower diversity (Table 7).

Table 7. Elements of individual clusters by team work engagement

Cluster Number	Team code	Distance	Team work engagement					
			Vigor		Absorption		Dedication	
			M ± SD	Variance	M ± SD	Variance	M ± SD	Variance
1	VI	0,64	5,6 ± 0,57	0,32	5,13 ± 1,23	1,50	5,43 ± 0,8	0,64
	IX	0,64						

2	II	0,51	3,02 ± 0,34	0,12	3,13 ± 0,53	0,28	2,94± 0,37	0,13
	X	0,52						
	XI	0,26						
	XII	0,18						
	I	0,30						
	VII	0,36						
	VII	0,20						
	V	0,40						
	IV	0,55						
	III	0,50						

Abbreviations: M – mean; SD – standard deviation

Source: own elaboration based on research

4.5. Competition and engagement

Analysing aspects related to competitiveness in the organization in the context of engagement, it can be noted that team “IX” with the highest engagement was characterized by a high quality of competition, a moderate degree of trait competitiveness of employees and a low competitive environment (Table 6). Since in all the teams under study the dominant motive for competing is an achievement-oriented focus, this result is consistent with the conclusion of Jones and his team (2012) that, for the level of engagement, the task orientation of team members is more important than the degree of competitiveness in the work environment. Interestingly, this team forms one cluster with team “III” when it comes to trait competitiveness, quality of competition and the competitive work environment created. The only difference between these teams concerns the last variable. Team “III” engaged in competition with other teams. For this reason, taking into account the lower level of engagement in this team (than in “IX”), it may be assumed that competition among teams may have a negative impact on team engagement. Still, the degree of engagement of teams “V” and “IV” was the same as that of team “III” (Table 7), and these are teams with the highest degree of competitive environment (Table 4). Team “VI”, on the other hand, shows engagement similar to team “IX” (Table 7), and in the case of the competitive work environment being created, it is clustered with teams “VII” and “VIII” with a higher degree of competition at all levels compared to team “IX” and two (organizational and individual) for team “III”. Considering the fact that

the members of team “VI”, despite demonstrating a moderate degree of competitiveness of the created work environment, unanimously stated that they do not compete within the organization¹, it can be assumed that the rules that stimulate competition in the organization may not be sufficient for it to exist. Adapting to the rules may be important, i.e. *taking up competition* or – as indicated by Brown et al. (1998) – *perceiving* work environment as competitive. This is justified in the context of the results obtained as members of team “VI” were characterized by the highest degree of competitiveness. It was also demonstrated (although at a slightly lower level) by members of team “IX”. Therefore, it seems that an employee’s competitive attitude promotes engagement (cf. Jones 2012), with an indication that these relationships may be less evident at the team level.

As for traits of the teams (Table 1), the number of people in the team (also in relation to the subject) can be considered a significant difference and therefore a factor that may be important for the discussed results. Teams “VI” and “IX” (3 and 5 people, respectively) can be considered small, and “V”, “IV” and “III” - too large (from 9 to 13 people). The last of them is also distinguished by the openness of its composition, which, however, does not seem to be an important factor in view of the other results.

It should be noted that in the subject literature attention is paid to matching the employee’s traits to the work environment as important for engagement. In our study, this situation seems to be the case in teams “II”, “XII” and “VIII” (Table 6). Still, their level of involvement is moderate. Interestingly, in the case of the team with the highest engagement, there is an advantage of competitive traits over rules that create competitive work environment. It should also be noted that in the case of teams “IX” and “VI”, the degree of individual levels of the competitive environment is similar and decreases according to the level (organizational-team-individual). The opposite is true in teams: “II”, “XII” and “VIII”. It should perhaps be added that the difference between the above-mentioned teams and team “IX”, with the highest engagement rate, is the level of competition quality. Their competitive conditions are worse.

Additionally, although in the case of teams “V”, “IV” and “III” the competitiveness of the characteristics exceeds the level of the created work environment (Table 6), these teams are characterized by diversity (disproportion) in terms of the levels of the last variable (Table 4). At the same time, they share the high quality of the competition conditions and the low quality of the competition method with team “IX” (Table 5). Thus, the conclusion can be drawn about the importance of the quality of competition for employee engagement. To some extent, this result is supported by the findings of Yue,



1 None of the team members indicated competitors (persons/groups) within the organization.

Fong and Liu (2019), who demonstrated that rewards based on overall team performance, rather than competitive individual rewards, foster more favourable team functioning and can be seen as one manifestation of higher-quality competition.

Taken together, these results highlight the central role of high-quality, achievement-oriented competition for team work engagement in the twelve teams studied. In additional analyses, we examined whether team gender composition, task characteristics, team size and structural type were related to competition and team work engagement. Overall, the additional analyses did not reveal any statistically significant effects of team gender composition, task characteristics, team size or structural type on the indicators of competition and team work engagement once the Benjamini–Hochberg correction for multiple testing was applied. In particular, formal tests showed no significant differences between teams dominated by women, teams dominated by men and mixed-gender teams, although descriptively the highest competition quality was observed in female-dominated teams and the lowest in male-dominated teams, a pattern that requires confirmation in larger samples. Similarly, initial associations between task type, task difficulty, team size and structural type and various indicators of competition and engagement were rendered non-significant after FDR correction and should therefore be treated as exploratory signals rather than confirmed effects. These findings suggest that, within the present small sample of twelve teams, team composition and task characteristics do not exert a statistically demonstrable influence on competition and engagement beyond the mechanisms identified in the main analyses. Consequently, the observed descriptive tendencies (especially for structural type, task difficulty and team size) are best interpreted as hypotheses for future research rather than as robust empirical conclusions.

5. Discussion

The obtained results confirm and deepen the findings present in the literature regarding the ambiguous relationship between competition and engagement. The observed primacy of an achievement-oriented competitive motive (rather than egocentric rivalry) as a factor conducive to engagement corresponds with the opposing processes model proposed by Murayama, Elliot and Jury (2024). According to this model, competition simultaneously activates performance-approach goals (striving to outperform others) and performance-avoidance goals (striving not to be worse than others), which have opposite consequences for engagement and performance. This may explain why teams with a high level of competitive environment (e.g. “V”, “IV”) did not differ in their level of engagement from teams operating under more moderate competitive conditions, and why the decisive factor was not the intensity but the quality of competition and the predominance of achievement motives. This conclusion is also consistent with the distinction proposed by Buckley et al. (2024), who showed that direct rivalry tends

to weaken intrinsic motivation and, as a “necessary evil”, may evoke fear of failure, whereas indirect competition (referenced to an objective standard rather than a rival) supports engagement. The team “III”, which was the only one to report inter-team competition, achieved a lower level of engagement than team “IX”, which had a similar profile of trait competitiveness and competition quality but no inter-team rivalry. This difference appears to support the proposition that direct, zero-sum rivalry between organisational units has different consequences for engagement than competition referenced to one’s own achievements. The specific profile of team “VI”, which is the smallest team, composed entirely of women, and at the same time the team with the highest trait competitiveness, reporting no competitors within the organisation, may be interpreted in terms of the concept of autotelic or playful competition described by Pap, Tisu and Virgă (2026). These authors argue that competition functioning as a voluntary, intrinsically rewarding element of work (rather than an externally imposed organisational rule) promotes feelings of competence and engagement regardless of the objective level of competitiveness in the environment. The high trait competitiveness of the members of team “VI”, combined with the absence of perceived external competition, suggests that in this team competition may have taken precisely such an internal, autotelic form. This is also consistent with Brown et al. (1998), who emphasise the importance of actually engaging in competition and perceiving the environment as competitive, rather than merely introducing formal rules intended to trigger competition.

The importance of competition quality for engagement (stronger than the mere intensity of the competitive environment) also corresponds with Howell’s (2025) observation that moderate, well-designed competition (for example in the form of gamification) supports engagement by sustaining motivation and persistence, whereas exposure to a highly competitive environment alone, without appropriate “quality” of competition, does not necessarily yield similar effects. In this light, the recommendation emerging from our results – namely that the highest level of competitive environment should be maintained at the organisational level and the lowest at the individual level, while preserving high, constructive competition quality – finds support in the broader stream of research on designing competition that fosters, rather than undermines, engagement.

It should be noted that team composition in terms of gender did not prove to be a differentiating factor for the phenomena studied. It is nevertheless worth mentioning that the highest competition quality was observed in teams composed exclusively of women, and the lowest in teams composed exclusively of men. This pattern runs counter to the findings of the meta-analysis by Walters et al. (1998), according to which men usually display higher competitive tendencies in negotiation contexts. This discrepancy may be due to the specificity of the sample (among 12 teams, only 2 were composed exclusively of women and 2 exclusively of men) and requires confirmation in a larger sample. It may also be explained, following Cotton et al. (2015), by the

fact that differences in competitiveness between women and men may depend more strongly on the situational context (e.g. the presence of a rival with known status, reward structures) than on gender as a stable trait. This is consistent with the absence of a gender effect in our results and the simultaneous presence of effects for team structural type (block vs. network assignment) and task difficulty, that is, contextual rather than demographic factors. A factor that appears more important than gender composition for differentiating the phenomena studied may be team size. The example of team “VI” (small, composed of women, not competing with other teams) compared with teams “III” and “IV” (larger, with a higher proportion of women), in which trait competitiveness exceeds the level of the created work environment, suggests that it may be team size, rather than the gender of its members, that differentiates the perception of environmental competitiveness. Additional analysis supports this observation: team size correlates significantly (at the uncorrected level) with the perceived competitiveness of the organisational environment ($\rho = 0.64$; $p = 0.025$), meaning that larger teams operate in organisations perceived as more competitive at the overall organisational level. Although this effect disappeared after correction for multiple testing ($p_{\text{BH}} = 0.433$), its direction and magnitude (the second-lowest uncorrected p -value in the entire analysis) make it, alongside structural type, a justified candidate for further, confirmatory verification in larger samples.

Similarly, the results indicate that task type and task difficulty are (at the uncorrected level) related to competition quality and engagement, and that structural type is related to competition quality more strongly than any other variable studied ($p = 0.008$). Teams with block assignment exhibit clearly higher competition quality ($M = 10.71$) than teams with network assignment ($M = 4.85$). This result can be interpreted in light of the distinction between block and network structures as different models of work coordination: in block structures, with clearly delineated organisational units, competition may take on a more formalised and thus potentially more constructive form (higher competition quality), whereas in network structures, with more diffuse and overlapping roles, competitive conditions may be less clearly defined. This interpretation is consistent with the concept proposed by Pap et al. (2026), according to which higher-quality competition has both instrumental and autotelic features (rather than being purely status-driven) and requires certain organisational frames in order to foster engagement rather than only short-term effort. At the same time, in line with Buckley et al. (2024), the organisational context (in this case block structure) serves as a facilitating condition rather than a guarantee of high competition quality. This is reflected in the absence of a comparably strong relationship between structural type and the level of team engagement in our results. It must be explicitly stated, however, that after applying the Benjamini–Hochberg correction none of the results remains statistically significant. With a sample of 11–12 teams, the statistical power of the tests is very limited, and the rigorous correction for multiple testing, though

methodologically justified, practically prevents confirmation of any effects at this sample size. The results should therefore be treated as hypotheses to be tested in studies with larger, more balanced samples of teams, rather than as confirmed findings. The data obtained point to promising directions for further research (team structural type, team size, task difficulty), but do not allow, given the present sample size, for unequivocal confirmation of the importance of the variables analysed in shaping team competition and team work engagement.

Taken together, these observations, despite the limited statistical power, point to the central role of achievement-oriented motives and the quality and configuration of competitive conditions in shaping team work engagement, which is summarised in the Conclusions section.

6. Conclusion

The literature to date has not identified studies directly dedicated to team competition and team work engagement. The present study reduces this gap by examining how different facets of competition relate to engagement at the team level. Comparing twelve teams carrying out different scopes of tasks indicates that the primacy of the achievement-oriented competitive motive over the egocentric motive is indispensable for shaping a high level of team work engagement. In addition, team engagement appears to depend on the intensity and configuration of the competitive environment, with the most favourable pattern being a relatively low level of competition at the individual level and a higher level at the organizational level, combined with high-quality, constructive competition.

From a theoretical perspective, the study contributes to the literature on work and team engagement by explicitly focusing on team-level competition and by jointly considering three facets of competition: employees' trait competitiveness, the competitive work environment created by organizational rules and practices and the quality of competition in terms of its constructiveness. The findings suggest that an achievement-oriented competitive motive and high-quality, constructive competition can support high levels of team work engagement even in the presence of a competitive environment, thereby extending prior research that has focused mainly on individual engagement and has examined these facets of competition in isolation. At the same time, the results indicate that the relationships between competitiveness and engagement may be less evident at the team than at the individual level, which points to the need to distinguish clearly between individual and shared, team-level engagement in future conceptual and empirical work.

From a practical point of view, the results underline the importance for managers of shaping not only the intensity but also the quality of competition within teams and organizations. When designing competitive environments, it seems advisable to limit

direct, zero-sum rivalry at the individual level, to emphasize achievement-oriented rather than egocentric motives and to strengthen team-level and organizational-level mechanisms that reward team performance, fairness and constructive forms of competition. Attention should also be paid to person–environment fit in terms of employees' competitive orientation and perceptions of the degree of competition, as these factors may determine whether competition supports or undermines team work engagement.

At the same time, several limitations of the study need to be acknowledged. First, the research has an exploratory character and relies on purposive sampling of twelve stable teams from different industries, which limits the statistical generalizability of the findings to the broader population of teams and organizations. Second, certain structural and contextual factors, such as the formalization and centralization of teams or the psychological competitive climate, were not controlled for, although they may influence both competition and engagement. Third, the cross-sectional design and reliance on questionnaire data do not allow for strong causal inferences. In addition, no systematic data were collected regarding the indicators used by organizations to form teams, such as selection criteria, competency composition, or prior collaboration history, which should be considered a limitation of the study.

Future research could address these limitations by examining larger and more diverse samples of teams, including teams of comparable size, by incorporating measures of formalization, centralization and psychological competitive climate. It would also be valuable to employ longitudinal and multi-source designs to capture how team competition and team work engagement evolve over time in response to organisational and contextual changes, and to compare teams operating in different sectors of the economy in order to better understand how industry-specific features shape competitive dynamics and the level of team work engagement.

In the longer term, it also seems reasonable to seek answers to questions such as:

- In the set of conditions corresponding to the findings made, will a high level of engagement be demonstrated only (as in the study) by teams with a very high and very low level of intensity of competitiveness?
- What specific actions should be undertaken in the case of teams with very high and very low levels of competitiveness?

Authors' contribution

R.W.: article conception, theoretical content of the article, analysis and interpretation of results, draft manuscript preparation. **M.M.:** article conception, theoretical content of the article, research methods applied, conducting the research, data collection, analysis and interpretation of results, draft manuscript preparation.

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Declaration of Generative AI and AI-assisted technologies in the writing process

During the research process to writing the article, the authors did not use AI.

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