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Matching Leadership Style to Project Context: Exploring Contextual Factors Affecting Project Managers' Leadership Style

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Abstract: Achieving project success is of vital importance for project owner organizations in implementing strategic objectives and supporting overall company development. The project managers' leadership style is a critical factor in project success. Several previous studies (Müller & Turner, 2007; Yang et al., 2013; Tabassi et al., 2016; Bhatti et al., 2021) have analyzed the relationship between project managers' leadership styles and project performance. Most of these studies have reinforced the general view that an appropriate leadership style facilitates successful project completion (Muller & Turner, 2007; Yang et al., 2013; Tabassi et al., 2016). However, there is no single best leadership behavior, as the effectiveness of a project manager's leadership style depends on the characteristics of the project and its organizational context. Bearing this in mind, several researchers (Müller & Turner, 2010; Raziq et al., 2018; Kabore, Sane & Abo, 2021; Nauman et al., 2022) have analyzed the relationship between leadership style and project success in a more context-related manner, taking into account various project and organizational attributes. Nevertheless, these studies often differ significantly in the range of attributes they analyze and in how they conceptualize these contextual factors, leading to notable limitations. To identify the appropriate leadership style for project managers in different project contexts, there is a need to establish a comprehensive framework that includes the fundamental characteristics of both the project and its organizational context. This study provides a systematic review of project management literature, focusing on the relationship between project managers' leadership styles, attributes of project context, and project success. Our findings reveal a lack of comprehensive, context-related studies in this field. Therefore, further research is needed to highlight key project and organizational characteristics that affect the identification of appropriate leadership styles by means of deductive reasoning.

Keywords: Project manager, Leadership style, Project characteristics, Organizational features, Project success

Introduction

Most organizations operate in rapidly changing environments and therefore formulate strategic goals in order to ensure successful adaptation. Projects are temporary forms of organizing and based on this, differ from permanent organizational structures and processes in several ways. Because of the inherent characteristics of projects as temporary structures – such as novelty, uniqueness, uncertainty, complexity, and low opportunity for standardization – leadership style, in addition to the project manager's skills and competencies, has a considerable impact on project success.

Several studies (Prabhakar, 2005; Muller & Turner, 2007; Yang et al., 2013; Tabassi et al., 2016; Bhatti et al., 2021) have examined the relationship between the project manager's leadership style and project performance. These studies have concluded that the leadership style adopted by the project manager significantly impacts the successful delivery of projects (Muller & Turner, 2010). However, there is no single best leadership behavior that can be optimally applied in all situations. The most appropriate leadership style is influenced by the

inherent characteristics of the project and features of the organizational context (Muller & Turner, 2007; Larsson et al., 2015). Nevertheless, previous studies (Agarwal & Gupta, 2021; Blaskovics, 2016; Kabore et al., 2021; Raziq et al., 2018) have addressed this issue but have not provided an established and detailed analysis of project characteristics and organizational factors. Thus, there remains a significant lack of comprehensive studies that specifically focus on analyzing project managers' leadership styles in a context-related manner.

In this paper, we aim to reveal the interactions between the project managers' leadership styles and the contextual factors of the project, to identify the most appropriate leadership style for a given context. To fulfil this aim we conducted a content analysis of relevant project management papers to highlight previous findings on the relationships between contextual factors (e.g. project characteristics and organizational features), and the most appropriate leadership style of project managers. Based on the results, we can conduct further research to identify the most suitable leadership style for a given context and develop a framework that facilitates the alignment of project managers' leadership styles with the specific characteristics of projects and the organizational environment. This framework is constructed by means of a deductive approach and has significant practical implications. It has the potential to support both project managers and human resource professionals in understanding the interdependencies between leadership styles and contextual factors. By enabling the appropriate selection and development of project managers, the framework may contribute to improving project success rates. Furthermore, it can serve as a foundation for tailored development programs and future research aimed at enhancing leadership effectiveness in various project contexts.

The structure of the paper is as follows: The next chapter provides a comprehensive literature review that presents the theoretical background of the research, with particular emphasis on the interpretation of project success, leadership styles, and the role of project characteristics and environmental factors. Special attention is given to situational (contingency) theories, which argue that leadership effectiveness largely depends on contextual circumstances. The next section presents the methodology of the systematic literature review is presented, followed by the results of the analysis of selected scientific publications. The findings are analyzed within three main categories: characteristics of the project, characteristics of the organizational environment, and characteristics of the project team. This approach enables the synthesis of extant research findings and facilitates the exploration and interpretation of the relationships among them and the project managers' leadership styles. The study concludes with a summary and conclusions.

Literature Review

Project Success

It is widely accepted that project success is a multifaceted concept that can be analyzed from various perspectives and assessed both qualitatively and quantitatively. Success criteria are the requirements or benchmarks against which the project's outcome is evaluated (Han et al., 2012). Although traditional project management literature defines success in quantitative terms, several studies propose a more project-specific approach to addressing the issue. Project success is most commonly assessed using the project management triangle, which focus on compliance with time, budget, and quality (Ellis et al., 2007). These are often referred to as the "*time/cost/quality triangle*", the "*iron triangle*," or the "*golden triangle*". The criteria used to evaluate project success have evolved in accordance with the development of project management approaches. As stakeholders may prioritize different aspects when evaluating success, it can be interpreted from various perspectives (Turner & Zolin, 2012). Based on research in this area, Cooke-Davies (2004) identified three levels of project success: success of the project management activity, project success, and conscious project success (Table 1).

Table 1. Three levels of project success summarized

Success "level"	Typical criteria for success
Level 1: Project management success	time, cost, quality, technical performance, scope, safety
Level 2: Project success	benefits realized, stakeholder satisfaction
Level 3: Consistent project success	overall success of all projects undertaken, overall level of project management success, productivity of key corporate resources, effectiveness in implementing business strategy

Source: Own compilation based on Cooke-Davies (2004)

The first level is project management success, which refers to the effective implementation of project management processes. The criteria for success go beyond the traditional criteria of time, cost, and quality. In

addition, technical performance, adherence to the project's scope, and the fulfilment of safety requirements are also considered integral components. The second level is project success, which extends beyond the technical implementation of project management and necessitates close collaboration between the project team, sponsor, customer(s) and/or user(s), in addition to other organizational units. A project can only be considered truly successful if it meets stakeholder expectations and if operational management is actively involved in realizing the intended benefits. The third level is sustained project success, which goes beyond the success of individual projects or project management performance. At this level the focus is on whether the organization consistently selects and executes the right projects over time. Success criteria at this level are typically evaluated by multiple stakeholder groups and are closely linked to the organization's market position and strategic objectives.

Another significant contribution to the understanding of project success is the work of Shenhar et al. (2001), who proposed a multidimensional framework for its assessment. Their study identified four key dimensions for evaluating success: project efficiency, impact on the customer, business success, and preparation for the future. The relative importance of these dimensions may vary over time and depends on the level of technological uncertainty. Moreover, the study highlights that different stakeholders continue to interpret success in varying ways. Table 2 summarizes the four dimensions and their corresponding measures.

Table 2. Four dimensions of project success summarized

Success dimension	Measures
Project efficiency	meeting schedule goal, meeting budget goals
Impact on customer	meeting functional performance, meeting technical specifications, fulfilling customer needs, solving customer problems, costumer product usage, customer satisfaction
Business success	commercial success, creating a large market share
Preparing for the future	creating a new market, creating a new product line, developing a new technology

Source: Own compilation based on Shenhar et al. (2001)

According to Gorog's formulation (2016), a project is considered successful if its outcome contributes to achieving the strategic goal that underpins the existence of the initiating (project owner) organization, and if both the project implementation process and the resulting project outcome are accepted by the relevant stakeholders.

However, the importance of the criteria varies depending on the context (Radujković et al., 2021). Koops et al. (2017) highlight that project managers in the public sector hold differing views on how project success can be measured, i.e. what the appropriate success criteria are. The authors compiled a list of 19 success criteria for evaluating the success of public sector projects based on extensive literature review and several exploratory interviews. The researchers applied Q methodology to identify four distinct approaches to assessing project success among public project managers in various countries: the conventional project manager, the product-driven manager, the parent-oriented manager, and the manager with a focus on stakeholders. Each perspective is associated with a unique set of success criteria, which influences how criteria are prioritized or considered less significant. The study concludes that the assessment of a project's success largely depends on the perspective from which it is examined. Table 3 illustrates the five most important success criteria for each of the four identified approaches, derived from a comprehensive list of 19 criteria.

Table 3. Four perspectives of project success summarized

Perspectives	The most important success criteria
The conventional project manager	fit for purpose, within budget, project specific political or social factors, satisfies needs of users, satisfied needs of shareholders
The product-driven manager	project specific political or social factors, delivered on time, safety, effect on the professional image of client organization, satisfies needs of users
The parent-oriented manager	project specific political or social factors, delivered on time, safety, effect on the professional image of client organization, satisfies needs of users
Manager with a focus on stakeholders	delivered on time, satisfies needs of stakeholders, within budget, satisfies needs of shareholders, safety

Source: Own compilation based on Koops et. al. (2017)

While studies on success criteria have identified largely similar requirements, the spectrum of explored success factors – the conditions, facts, and circumstances that influence a project's outcome and thus contribute to its success (Han et al., 2012) – is extremely broad and complex. Nevertheless, it is crucial to adopt a systems perspective that considers the interaction between the success criteria and the factors that influence them (Silva et al., 2016). Critical success factors are those through which project managers can enhance the likelihood of project success (Ika, 2009). It can therefore be concluded that success factors influence the effective implementation of a project, and that by shaping these factors, the project manager can affect the fulfilment of the success criteria.

Although different authors often emphasize various factors as critical to project success, the role of human factors has gained increasing prominence over the years. Numerous studies highlight human factors as key elements of successful project implementation (Cooke-Davies et al., 2007; Jha & Iyer, 2007; Turner, 2007; Ramos et al., 2016; Raziq et al., 2018). This suggests that one of the primary drivers of project success is consideration of human factors, including the leadership style and competencies of the project manager, as well as the readiness and capabilities of team members.

The Project Excellence Model provides a systematic framework for understanding the factors that influence project success. It clearly distinguishes between success criteria ("what"), i.e. the results to be achieved, and success factors ("how"), i.e. how those results are attained. The model posits that the leadership style of the project manager and the professionalism of project management play a pivotal role in the successful implementation of projects. The factors contributing to project success are interdependent and must be aligned with the type of project, its objectives, and the external environment. A key lesson of the model is that success depends not only on the achievement of results (e.g. time, cost, quality), but also on the manner in which said results are delivered: specifically, through effective leadership, teamwork, stakeholder relations, and adherence to professional standards of project implementation (Westerveld, 2003).

Over time, the model has been continuously refined and expanded to incorporate new perspectives, supporting a deeper understanding of increasing project complexity and the rapidly evolving project environment. In recent years, sustainability and environmental considerations have become increasingly important in project evaluation. As a respond to these developments, IPMA (International Project Management Association) revised the model and introduced an extended framework, the Project Excellence Baseline (IPMA PEB), which was officially adopted as an IPMA standard in 2016. The assessment framework identifies three primary domains: People & Purpose, Processes & Resources, and Project Results. Achieving alignment across these three domains is critical for realizing excellence. The model not only focuses on the outcomes achieved, but also on the conscious leadership and management processes that contribute to them (Table 4).

Table 4. Summary of the IPMA Project Excellence Model (PEM)

Main areas of the model	Focus	Criteria
People & Purpose	Project excellence is founded on leaders, including sponsors, who embody the requisite values and consciously apply an effective leadership style. The presence of capable individuals in leadership roles, a shared vision among team members, and effective leadership are all crucial factors in achieving success.	A1. Leadership & values A2. Objectives & strategy A3. Project team, partner & supplier
Processes & Resources	The management of key processes and resources that ensure successful project implementation. Active handling of complexity is essential. Project management-related processes receive special attention within the model.	B1. Project management processes & resources B2. Management of other key processes & resources
Project Results	Balancing stakeholder expectations and applying effective leadership processes lead to sustainable, outstanding results that are valuable and meaningful for all key stakeholders.	C1. Customer satisfaction C2. Project team satisfaction C3. Other stakeholder satisfaction C4. Project results

Source: Own compilation based on (IPMA, 2016)

The project environment also significantly impacts performance and results. External influences may include socio-economic, geographical, political, regulatory, technological, and ecological factors, while internal influences may include organizational strategy, technological maturity, project management maturity, resource availability, and organizational culture and structure. Project complexity tends to increase with the number of internal and external influencing factors, thereby elevating the need for a sophisticated project management system. The model illustrates how various factors, competencies, processes, resources, leadership styles, and stakeholder engagement practices interact within the specific context of a project, providing a robust basis for evaluating the level of project excellence. Based on the literature, it can be concluded that numerous studies have confirmed that the project manager's leadership style significantly contributes to the successful completion of projects (Aga, et al., 2016). Nevertheless, it is important to note that different project types, assessed across various dimensions, involve distinct criteria and factors of varying importance, thereby requiring different leadership styles (Shenhar, et al., 2001).

Leadership Style

Over the years, researchers have offered various definitions of leadership. Northouse (2021, p. 6), for example, defines leadership as "a process by which an individual influences a group of individuals to achieve common goals". Nahavandi (2014, p. 25), on the other hand, defines a leader as "a person who influences individuals and groups within an organization, helps them set goals, and provides direction in achieving them, thereby enabling them to function effectively". Goleman (2019) emphasizes that effective leaders adapt to the emotional climate of their team and the challenges they face. Rather than adhering to their own temperament, they adapt their leadership style to suit the situation. According to Goleman, emotional intelligence is an indispensable skill for effective leadership (Goleman, 2005)

Leadership theories focus on different aspects and provide a framework for examining how leadership works and what constitutes effective leadership (Yukl, 2013). Classical leadership theories, which emerged in the 1930s and 1940s, focused on the leader's personality (Bakacsi, 2015). Trait theory assumes that leadership is an innate trait. According to this approach, leadership was defined as the ability to give effective instructions, with an emphasis placed on characteristics such as physical appearance, abilities, skills and personality (Müller & Turner, 2010). Initially, researchers examined the characteristics of famous historical leaders and drew general conclusions about leadership based on these characteristics. Later research also extended to analyzing personal characteristics and social background (Bakacsi, 2015). The main leadership traits include courage, openness, self-confidence, initiative, and decisiveness (Kirkpatrick & Locke, 1991; Stogdill, 1974). However, the main criticism of trait theory is that not all successful leaders possess these traits, nor does possessing them guarantee success (Nahavandi, 2014; Northouse, 2021). Another criticism is that the theory does not examine how leadership traits impact outcomes or explain their influence on group effectiveness in an organizational context. Nevertheless, trait theory provided an important foundation for subsequent behavioral and competency-based leadership models.

Subsequent research expanded to include the behavior of leaders (behavioral theory), focusing on their actions and the assumption that leadership skills can be learnt (Bakacsi, 2015; Muller & Turner, 2010; Northouse, 2021). Two of the most well-known behavioral theories emerged from studies conducted at Ohio State University (Stogdill & Coons, 1957; Fleishman, 1953) and the University of Michigan (Likert, 1961, 1967). These studies identified two basic leadership behaviors: task-oriented and relationship-oriented (Lussier & Achua, 2015). The main difference is that the latter researchers considered the two leadership styles to be mutually exclusive, whereas the former scholars argued that leaders can exhibit both styles simultaneously. Task-oriented leaders focus on meeting deadlines and achieving goals, while relationship-oriented leaders prioritize building trust, respect and a positive work environment (Henkel et al., 2019).

McGregor (1960) conducted a more nuanced study of leadership behavior, identifying two basic leadership attitudes: Theory X, which assumes that employees are passive and must be controlled by external means; and Theory Y, which assumes that people are responsible and capable of self-direction. Blake and Mouton (1964) depicted various combinations of task- and relationship-oriented behaviors in a managerial grid model, identifying five distinct points: Authority-Compliance Management; Country-Club Management, Impoverished Management, Middle-of-the-Road Management, Team Management. While trait theory and behavioral theory provide valuable insights into leadership, researchers have found that situational factors must also be considered (Northouse, 2021). This led to the development of contingency theories. These theories suggest that there is no single leadership style that can be applied in every situation, but rather that leadership styles must be adapted to the situation (Chin, 2011).

Several models have been developed within the situational approach, the most prominent of which are Fiedler's contingency model and Hersey-Blanchard's approach. According to Fiedler's contingency model (1967, 1981), leaders can be either task- or relationship-oriented, and their effectiveness depends on the specifics of the situation. Fiedler examined how managers utilize available resources to enhance group efficiency. He argued that, since a leader's leadership style remains consistent, their effectiveness varies according to the situation (Fiedler, 1967). To lead effectively, leaders must first understand the environment and context in which they are operating. To identify potential leadership styles, Fiedler (Fiedler & Garcia, 1987) developed the Least Preferred Co-worker (LPC) measure. The model highlights three situational factors: the relationship between the leader and their subordinates, the structure of the task, and the leader's positional power (Fiedler, 1967, 1978). Leader–member relations (LMR) include the degree of trust, support, and group cohesion; task structure (TS) refers to the clarity of the task; and positional power (PP) refers to the leader's power derived from their position. Task-oriented leaders are most effective when situational control is either very high or very low. In high-control environments, where everything is running smoothly, they can focus on details and support team members in executing tasks. In such well-structured environments, they tend to be confident and efficient. By contrast, they perceive situations characterized by moderate control and uncertainty as stressful and threatening because they rely heavily on clear structures and explicit guidance. In these cases, they may become overly controlling, which can lead to poor performance. In low-control situations such as chaotic environments or crises where task structure is lacking, they often make autocratic decisions and pay little attention to their team members' needs. Nevertheless, they can still achieve results as they are driven by a strong commitment to completing tasks and do not give up easily (Nahavandi, 2014). Relationship-oriented leaders, on the other hand, are most effective in situations with a moderate level of situational control where team cohesion is weak and task structures are not clearly defined. In such contexts, they can apply their interpersonal and participative skills effectively. They can resolve conflicts, involve team members in decision-making, and foster collaboration, thereby improving performance in the long term. They are particularly valuable in environments where managing interpersonal dynamics and promoting group cohesion are critical for success (Nahavandi, 2014).

Hersey and Blanchard (1982) identified four leadership styles that depend on the maturity level of followers and the balance between relationship orientation and task orientation. Their Situational Leadership model enables leaders to adapt their leadership style to suit the situation and the maturity level of their team members. The four leadership styles are as follows:

- Telling: high task-orientation, low relationship-orientation. The leader gives instructions, assigns roles, and exercises close control.
- Selling: high task and high relationship-orientation. The leader directs, supports, and persuades.
- Participating: low task-orientation, high relationship-orientation. The leader involves and supports followers and engages in joint decision-making.
- Delegating: low task and low relationship-orientation. The leader shares responsibility and decision-making authority.

The original model was based on two variables: the follower's ability and willingness to perform tasks. However, a later and more refined version, the Situational Leadership II (SLII) model developed by Blanchard et al., (1985) redefined these dimensions as competence and commitment offering a more nuanced, context-based interpretation of follower development. The SLII model categorizes followers into four levels:

- D1 – Enthusiastic Beginner: high commitment, low competence
- D2 – Disillusioned Learner: low commitment, some competence
- D3 – Capable but Cautious Contributor: variable commitment, high competence
- D4 – Self-Reliant Achiever: high commitment, high competence

Corresponding to these development levels, the model identifies four leadership styles, which combine varying degrees of directive and supportive behavior.

- S1 – Directing: The leader focuses communication on achieving goals and provides minimal support. The leader gives specific instructions on what to do and how to do it, while closely supervising performance.
- S2 – Coaching: The leader focuses on both achieving goals and on meeting the socio-emotional needs of the followers. They provide encouragement and seek input from the followers but still make the final decisions themselves.
- S3 – Supporting: The leader adopts supportive behaviors, including active listening, giving praise, asking for input, and providing feedback.

- S4 – Delegating: The leader provides minimal direction and support, thereby reinforcing the employee's autonomy, confidence, and motivation.

The essence of the SLII model lies in aligning leadership behavior with the follower's development level. The model clearly matches each development level (D1–D4) with a corresponding leadership style (S1–S4). Each development level is therefore paired with a specific leadership style that facilitates the follower's growth and supports the successful completion of tasks (Blanchard et al., 1986).

Contingency models, which remain essential to leadership theory today. They offer different interpretations of leadership behavior and its aspects, thereby enhancing our understanding of leadership and our ability to develop it. Contingency theories reject the idea that a single leadership style can be applied effectively in all situations. Instead, they emphasize the need to adapt leadership styles to specific circumstances. Accordingly, different situations require different leadership styles.

Modern integrative leadership theories (Lussier & Achua, 2015) build on earlier approaches by considering the relationships between personality traits, leadership behavior, and situational factors. These theories aim to answer the question of which behaviors and characteristics facilitate effective leadership and which factors influence the relationship between leaders and their followers. A substantial scholar to this perspective is Bass (1990), who distinguishes between two key leadership styles: the transactional leadership, which is based on the exchange of rewards for the achievement of performance goals; and the transformational leadership, which emphasizes vision, charisma, trust, and the development of followers.

In recent years, researchers have increasingly turned to studying so-called 'soft' factors, resulting in a number of new approaches that highlight the role of emotional intelligence, empathy, charisma, and leadership competencies. The competency-based approach places emphasis on the skills and abilities that enable leaders to be effective. Dulewicz and Higgs (2005) in their competency-based approach identified three main domains of leadership competencies: intellectual (IQ), managerial (MQ) and emotional (EQ). Based on their research, three distinct leadership styles were identified: goal-oriented, involving and engaging. Goal-oriented leaders set goals independently and motivate their team members to achieve them. Involving leaders adopt a less leader-centered approach involving team members in setting goals and selecting appropriate methods. Engaging leaders support team members in defining their own goals and the means to achieve them, with a strong focus on personal development.

The Inherent Characteristics of Projects

Sauser et al. (2009) emphasizes that, according to contingency theory, leadership style should be adapted to the internal characteristics of the project as well as to the organizational environment. This approach not only supports project success but also plays a crucial role in preventing failures. The importance of contextual factors is a recurring topic in project management literature, where the significance of project-specific and environmental characteristics is emphasized by numerous studies. Crawford et al. (2005) suggest that projects can be categorized using various attributes, including project size, level of complexity, geographical location, and technical discipline. Based on comprehensive literature review and focus group interviews, they identified a total of 37 attributes that can effectively support the classification of projects. These attributes represent the inherent, that is, internal and essential, characteristics of projects.

Tale 5 summarizes key studies that provide a theoretical foundation for the systematization of inherent project characteristics. While these frameworks vary in structure and emphasis, they often share common elements, such as the central role of uncertainty and complexity, which are frequently cited as fundamental attributes of projects. The identification of various dimensions of project complexity appears in numerous studies; however, the definition of complexity and the terminology used often differ. According to Baccarini (1966) complexity can be understood in relation to both the technical content of the project (including the implementation process and project outcomes) and its organizational context. Williams (1999) emphasizes that the complexity of a project increases as reciprocal interdependencies arise during execution - often due to the presence of uncertainty. Vidal and Marle (2008) interpret complexity as a source of risk, highlighting that projects characterized by a high number of risks tend to exhibit greater dynamics and more interactions, which in turn increase complexity. As Crawford (2013) points out, researchers distinguish between descriptive complexity, which is based on technology, structures, and organizations, and perceived (subjective) complexity, which individuals form based on their own experiences and interpretations of the specific situation.

Table 5. Inherent project characteristics identified in previous studies

Author(s)	Findings
Baccarini (1966)	• Complexity as interrelatedness ○ differentiation ○ interdependence
Williams (1999)	• Structural uncertainty • Uncertainty regarding goals and methods
Crawford and Pollack (2004)	• Goal/objective clarity • Goal/objective tangibility • Success measures • Project permeability • Number of solution options • Degree of participation and practitioner role • Stakeholder expectations
Xia and Lee (2005)	• Complexity ○ organizational/technical ○ structural/dynamic
Atkinson et al. (2006)	• Uncertainty ○ budget ○ stakeholders ○ the performance process
Jensen et al. (2006)	• Uncertainty (vertical; horizontal) • Interdependence (mutual dependence)
Shenhar and Dvir (2007)	• Novelty • Technology • Complexity • Pace
Geraldi and Adlbrecht (2007)	• Uncertainty: adequacy of available information for decision-making • Interdependence: interrelatedness and mutual dependencies between pieces of information
Perminova et al. (2008)	• Uncertainty • Risk
Mclain (2009);	• Uncertainty: the nature of relationships between project activities
Howell et al. (2010)	• Uncertainty • Complexity • Project team empowerment • Project importance • Project urgency
Padalkar and Gopinath, (2016)	• Uncertainty (structural, dynamic) • Complexity • Interdependence
Floricel et al. (2016)	• Complexity ○ structural complexity ○ dynamic complexity ○ representational complexity

Source: Own compilation

Further studies provide additional classifications and conceptualizations of project complexity, emphasizing the importance of contextual studies in project management. Shenhar et al. (2007) developed a four-dimensional project classification model known as the Diamond Typology, which categorizes projects based on four dimensions: Novelty, Technology, Complexity, and Pace (NCTP). The model supports the selection of appropriate leadership styles and management strategies. Bosch-Rekveldt et al. (2011) proposed a practice-oriented model for interpreting project complexity. They identified 49 factors influencing complexity, grouped into three categories: technical, organizational, and environmental complexity. Their key findings suggest that projects characterized predominantly by technical complexity may require a different type of project manager compared to those where environmental factors, such as market or regulatory conditions, are more dominant.

Floricel et al. (2016) confirmed that different types of project complexity require distinct strategies. The study highlights that the effective alignment between leadership approaches and complexity factors can significantly improve project outcomes. Larsson et al. (2015) associated the number of actors involved in a project with project complexity, emphasizing the role of leadership in the successful implementation of complex projects. Using the PAEI model (Adizes, 1976), they found that "integrator-type" leadership behavior facilitates the achievement of all performance indicators in complex projects.

These findings collectively reinforce the idea that projects vary significantly in their inherent complexity and should therefore not be managed uniformly. It is essential to understand the nature and sources of complexity in order to select appropriate leadership styles. Uncertainty is another fundamental characteristic of projects and is closely related to complexity. According to Atkinson et al. (2006), the sources of uncertainty are multifaceted and exert a substantial influence on both projects and project management. Geraldi and Albrecht (2007) examined the role of uncertainty and interdependence in decision-making. They interpreted uncertainty as the adequacy or lack of information available to support decision-making, while interdependence referred to the mutual relationships of information that affect decision quality. Görög (2003) identified several project-specific sources of uncertainty that influence the predictability of planning and implementation. He highlighted the following factors:

- The operational processes and novelty of the project outcome
- The level of detail and accuracy in defining the content and scope of the project outcome
- The novelty of the work processes required to realize the project outcome
- The accessibility and reliability of information related to the project implementation site
- The stability of the legal and regulatory environment affecting the project implementation
- The expected rate and nature of inflation during the project implementation

Gorog (1993) pointed out that uncertainty can manifest in various forms throughout project processes, requiring different approaches for effective management. Exploring the inherent characteristics of projects is of fundamental importance from the perspective of project management. Jensen et al. (2006) emphasized the importance of distinguishing between uncertainties related to the execution of activities and those associated with the environmental conditions of the project. This distinction provides a more nuanced understanding of the uncertainty-complexity relationship in project environments.

Based on the reviewed literature, it can be concluded that the inherent characteristics of projects, particularly complexity and uncertainty, are key factors that provide the basis for selecting project management tools, methods, and leadership styles that are specific to the context (Görög, 2019). Numerous studies have examined the relationship between project complexity, uncertainty and leadership styles. Their findings highlight that the level and type of complexity and uncertainty greatly influence which leadership behaviors are most appropriate in a given context.

Method

This study employed qualitative research design, focusing on a content analysis of previous research on leadership styles in project management. The primary aim was to explore and synthesize existing literature concerning the relationship between project characteristics, organizational context, and the leadership style considered most appropriate for project managers. To achieve this aim, we conducted a systematic review, followed by an in-depth content analysis of selected academic publications. Relevant literature was identified through a targeted search of journal articles published in leading project management journals indexed in the Web of Science database. The selection process was guided by the following criteria:

- Keywords: “project” AND “leadership style”
- Fields: All fields
- Document type: Article
- Document language: English
- Journals:
  - International Journal of Project Management (17 articles)
  - International Journal of Managing Projects in Business (21 articles)
  - Project Management Journal (14 articles)
  - Journal of Project Management (5 articles)
- Publication years: 2008-2025

The selection process yielded 57 relevant publications. The majority of these papers (32) were published after 2019, indicating a growing scholarly interest in the topic. Most of the recent publications appeared in the International Journal of Managing Projects in Business, highlighting the journal's essential role in this research field. In terms of authorship patterns, Nauman was the most frequent first author (three publications), while Müller contributed to six publications, either as a main or co-author.

Firstly, a comprehensive review of the titles and abstracts of the selected articles was conducted. Based on this review, studies relevant to the research aim were selected for full-text analysis, while irrelevant studies were excluded. A total of 18 studies were then analyzed in detail, paying particular attention to the leadership style approaches applied, as well as to the key findings of each study concerning the relationship between project characteristics, contextual factors, and the leadership styles of project managers. In the final phase, the content of the selected studies was organized, compared, and categorized into three main topics: characteristics of the project; characteristics of the organizational environment, and characteristics of the project team. A comprehensive presentation of the articles contained within each category is provided in the following subsections.

Results and Discussion

We analyzed 18 relevant papers that examined the relationships between project characteristics, contextual factors, and leadership styles. Most of these studies investigated the project managers' leadership styles, applying transformational and transactional leadership theories, as well as competency-based, and shared or balanced leadership approaches.

Characteristics of the Project

To identify the most effective leadership style for project managers, it is necessary to consider both project-specific characteristics and organizational factors. A project manager's behavior should align with the inherent characteristics and attributes of the project. We conducted a thorough analysis of the project characteristics examined in previous studies, as well as the key findings that emerged. When examining the characteristics of the project, researchers have mainly focused on the type of the project, its complexity and uncertainty.

In their study, Muller and Turner (2010) explored the leadership competency profiles of project managers who have demonstrated success in a variety of projects. The categorization of projects based on the scheme proposed by Crawford et al. (2005), which encompasses the extent of scope, the degree of complexity (low, medium or high), the perceived importance, and the type of the contractual agreement. The research suggests that transactional leadership style (e.g. goal setting and performance monitoring) is most effective for projects of lower complexity, while transformational leadership (e.g. inspiring a vision and focusing on people) is essential for projects of higher complexity.

Furthermore, those managers who successfully managed medium-complexity projects demonstrated particularly high levels of critical thinking (IQ), resource management, empowerment and development (MQ) and self-awareness, empathy, influence and conscientiousness (EQ). Managers of high-complexity projects demonstrated a high level of proficiency in all competency areas, with strength in visioning, motivation, and emotional intelligence. The findings underscore the notion that there is no universal, one-size-fits-all approach to effective leadership, it must be adapted to the nature and characteristics of the project.

In Yang's (2011) study, various factors affecting project complexity were examined, including the level of complexity (high, medium, low), team size, industry sector, project type, owner regulation, and international involvement. Respondents were asked to compare the given project to others within the company in terms of complexity. Findings from the Taiwanese construction industry indicate that project complexity moderates the relationship between different dimensions of teamwork and overall project success. Specifically, for highly complex projects, success largely depends on a high level of communication, collaboration, and team cohesion. Additionally, project type acts as a moderating factor, influencing the relationship between teamwork and project success. In terms of leadership styles, transformational leadership was found to significantly improve teamwork, whereas passive leadership had a negative impact. Overall, teamwork was found to have a statistically significant positive effect on project performance, with the project manager's leadership style contributing to better relationships among team members.

In a later study, Princes and Said (2022) investigated the financial sustainability of successful construction projects, with a particular focus on the relationship between project complexity (technological and organizational complexity) and leadership style. Their results revealed that a situational leadership style is especially effective in projects of high complexity, as it enables leaders to adapt to the preparedness of their team members and to evolving project conditions. Furthermore, the study highlighted that team members' performance skills and their trust in the leader serve as critical mediating factors in the relationship between project complexity and financial sustainability. Consequently, leadership style contributes indirectly to project success by fostering team members' motivation and trust in the leader. Therefore, in complex projects, situational leadership and trust in the leader jointly support financial sustainability.

On the other hand, Podgórska and Pichlak (2019) highlighted the importance of the strategy. They evaluated project complexity taking into account its size (number of people involved), level of risk, and level of uncertainty (associated with the technical advancement) Based on Dulewicz and Higgs' (2003) competency-based model, they analyzed the importance of the three competency domains (emotional, managerial, and intellectual) and concluded that different types of projects require different leadership competencies to ensure success. Their findings indicate that the emotional and managerial competencies of project leaders are strongly associated with project success, and that attributes of project complexity influence which competencies are most critical. Specifically, managerial competencies are essential in projects of high complexity (high level of risk and technical sophistication); conscientiousness (EQ) plays a key role in projects of medium complexity (average risk and technical sophistication); while communication skills (MQ) are most crucial in projects of lower complexity (low level of risk and technical sophistication).

Furthermore, Fernandes et al. (2023) investigated the relationship between complex problem-solving (CPS) in project environments and leadership style. The study provides a framework for managing complexity from a leadership perspective. The study involved 32 project managers who employed both traditional and agile project management methods. The participants came from international and Brazilian organizational contexts. The results highlight that the technical and organizational skills of project manager are not the only important factors in managing complexity. Their cognitive leadership style is also important, particularly their ability to foster knowledge sharing, communication, and collaboration among team members.

While most of the analyzed studies addressed various aspects of project complexity, only a few considered the attributes of project uncertainty. The study by Lai et al. (2018) focused on the relationship between leadership style and uncertainty. In the research, project uncertainty was assessed based on the frequency of changes in technologies and processes, in addition to the overall uncertainty of the project. The findings of the study highlighted that in projects characterized by high level of uncertainty, a transformational leadership style can be effective as it enabled the team to adapt to environmental changes more flexibly and effectively.

In their study, Wang and Yang (2021) examined the role of supplier involvement and the project leader's personality and leadership style, in sustainable new product development (SNPD) projects, as well as their impact on project success. The study emphasizes the crucial role of supplier involvement in SNPD projects and the central role of project leaders in managing uncertainty and resistance. Personality traits such as emotional stability (the opposite of neuroticism), openness to new experiences, and a transformational leadership style play a significant role in the success of SNPD projects. The personality and leadership style of the project leader are therefore fundamentally important in managing uncertainty, resistance, and communication difficulties. Table 6 summarizes the findings of previous studies examining the relationship between various project characteristics, such as project complexity and uncertainty, and the leadership style of project managers.

The review of the literature reveals that matching the project manager's leadership style to the characteristics of the project is crucial for achieving project success. Although several studies have investigated the relationship between project managers' leadership styles and project characteristics, such as complexity and uncertainty, the results are contradictory due to the inconsistent definitions and analytical approaches. Many studies tend to focus on one particular aspect, rather than adopting a comprehensive and integrated perspective. While these project characteristics significantly impact both the implementation process and the likelihood of success, the existing conceptual frameworks are often underdeveloped or fragmented (Cristóbal, 2017). It is evident that the complexity and uncertainty of a project significantly impact the leadership style adopted by the project manager. However, there remains a notable gap in literature, as no study has yet offered a holistic, empirically grounded framework that considers project characteristics. This highlights the need for further empirical research aimed at identifying the most appropriate leadership styles suited to the characteristics of the project.

Table 6. Literature considering project characteristics and leadership-related findings

Author(s)	Considered project characteristics	Findings
Muller and Turner (2010) (N=400 PMs)	Low / Medium / High complexity	Transactional leadership style is most effective for lower-complexity projects, while transformational leadership style is essential for higher-complexity projects.
Yang et al. (2011) (N=213 various project stakeholders from construction industry)	Low / Medium / High complexity compared to previous projects	Transformational leadership improves teamwork, which significantly improves project performance. Project complexity mediates the relationship between teamwork and project success.
Podgorska and Pichlak (2019) (N=102 PMs)	Low / Medium / High complexity based on level of risk, level of uncertainty, and number of people involved	Project managers' emotional and managerial competencies are strongly associated with project success. In projects of high complexity, managerial competencies are essential.
Princes and Said (2022) (N=91 PMs)	Complexity of technology / complexity of the organisation	Situational leadership style is especially effective in projects of high complexity.
Fernandes et al., 2023 (N=32 PMs)	Complex problem-solving in projects	When managing complexity, cognitive leadership style of the project manager is also important, in addition to technical and organizational skills.
Lai et al., 2018 (N=151 IS professionals)	Change of process / change of technological framework / Total project uncertainty	Transformational leadership style can be effective in projects involving high level of uncertainty.
Wang & Yang, 2021 (N=6 case studies)	Uncertainty of SNPD projects, supplier involvement	Transformational leadership style facilitates the success of SNPD projects.

Characteristics of the Organizational Environment

When examining the characteristics of the organizational context in which projects are implemented, studies analyzing the project manager's leadership style have focused on how specific organizational features influence the effectiveness of different leadership styles. Considering the organizational factors, previous studies placed more emphasis on the soft factors of the organizational environment, such as organizational culture and knowledge sharing (Csepregi & Papp-Horváth, 2024), and less attention to hard factors, such as project management approach or methodology.

Taking into account the influence of national culture, the research of Drouin et al. (2018) is based on the concept of balanced leadership. This concept views leadership as a dynamic and situation-dependent process in which authority shifts between a vertical leader, such as a project manager, and a horizontal leader, such as a functional project manager or team member, and back again. This process is intended to have a positive impact on project success. The results of the study show that, in Canadian and Australian projects, vertical leaders employed a combination of autocratic and democratic leadership styles, while Scandinavian projects were characterized by a predominantly democratic style. The study sheds light on the interaction dynamics between vertical and horizontal leaders in project management, highlighting the importance of strategic and tactical decision-making. Technical and routine operational tasks were usually carried out by horizontal leaders, while business-related and management decisions (e.g. scope changes or issues affecting time and cost) were handled by the vertical leader alone or in collaboration with the horizontal leader. The findings suggest that clearly defining the responsibilities of horizontal and vertical leaders can enhance the efficiency of tasks and decision-making in complex projects. Taking organizational culture into consideration, Agarwal et al. (2021) examined the relationship between vertical leadership (VL) and distributed leadership (DL) in connection with the psychological contract state in project-based organizations (PBOs). They found that a flexible, collaborative organizational culture supports knowledge sharing and the application of agile methods, enabling distributed leadership and the fulfilment of the psychological contract. The study's summary indicates that agile methods facilitate distributed leadership. Conversely, the use of traditional project management methodologies does not hinder distributed leadership when combined with a flexible and collaborative organizational culture.

Furthermore, Nauman et al. (2022) investigated how the empowerment climate moderates the relationship between transformational leadership, team building, and project success. The empowerment climate was conceptualized through three core dimensions: information sharing, autonomy within boundaries, and team-level accountability. To assess this construct, the study employed a 16-item scale developed by Nauman et al. (2010). Transformational leadership was measured using a 13-item instrument developed by Aga et al. (2016). The results demonstrated that transformational leadership positively influences team building, which in turn mediates its effect on project success. The findings underscore the critical role of empowerment climate in amplifying both the direct and indirect effects of transformational leadership. In organizations with a strong empowerment climate, transformational leadership more effectively fosters cohesive, high-functioning teams that contribute to achieving project objectives. Thus, transformational leadership contributes to project success not only directly, but also indirectly through enhanced team dynamics, particularly when supported by an empowering organizational environment.

Considering knowledge sharing and trust, the findings of Bhatti et al. (2021) revealed that ethical leadership is positively associated with trust and knowledge sharing. These, in turn, mediate the relationship between ethical leadership and project success. Adopting a contingency approach to leadership, the study highlights that ethical leadership is an ideal. context-specific for project managers to adopt to improve project outcomes. The results demonstrate that ethical leaders promote transparency and collaboration within project teams, thereby contributing to project success. The authors recommend that organizations develop training programs to help project managers understand and implement ethical leadership practices and foster organizational cultures that emphasize process over results.

Table 7. Literature considering organizational factors and leadership-related findings

Author(s)	Considered organizational factors	Findings
Drouin et al. (2018) (N=6 case studies)	Culture, decision making practices	In Canada and Australia, a mix of autocratic and democratic styles is used, while in Scandinavia, a predominantly democratic style. A clear division of responsibilities between horizontal and vertical leaders facilitates effective decision-making.
Zhang et al. (2018) (N=365 PMs and members)	Collaborative project delivery method (IPD)	Project managers with high emotional intelligence improve collaboration satisfaction. This relationship is mediated by transformational (TFL) and active-transactional leadership (ATL) styles.
Agarwal et al. (2021) (N=8 PBOs and 45 interviews)	Organizational culture, knowledge sharing and project management approaches	Distributed leadership is associated with a collaborative organizational culture, knowledge sharing mechanisms, and the application of agile approaches.
Bhatti et al. (2021) (N=175 project team members)	Ethical leadership and knowledge sharing	Ethical leadership is positively related to a leader trust and knowledge sharing. Leader trust and knowledge sharing mediate the relationship between ethical leadership and project success.
Nauman et al. (2022) (N=370 PMs)	Organizational climate (empowering);	In a stronger empowerment climate, transformational leaders are more effective at team building and their team-building efforts result in better project performance.
Misbahuddin et al. (2024) (N=224 PMs)	Project management approaches (waterfall, hybrid, agile).	Transactional leadership is primarily associated with the waterfall approach, while transformational and ambidextrous leadership are more suited to agile and hybrid approaches.

Taking the project delivery method into consideration, Zhang et al. (2018) investigated how project managers' emotional intelligence (EI) affects satisfaction levels within the Integrated Project Delivery (IPD) environment, and the role different leadership styles play in this relationship. The study analyzed four leadership dimensions: transformational, active transactional, passive transactional, and laissez-faire. The findings of the study revealed

that project managers with higher EI are more likely to adopt transformational and active transactional leadership styles, which enhance collaboration satisfaction (including performance contribution, efficiency, relationship quality, and interest alignment). In contrast, passive transactional and laissez-faire leadership styles have negative or non-significant effects on this relationship. The study highlights that successful IPD projects require project managers with high EI who exhibit appropriate leadership behaviors. In addition, considering the project management approaches, Misbahuddin et al. (2024) conducted research in the telecommunications sector, involving 77 companies and a total of 224 project managers. They found that more than half of the project managers used a hybrid approach, combining waterfall and agile methodologies. Based on the findings, transactional leadership style is primarily associated with the waterfall approach, while transformational and ambidextrous leadership styles are better suited to agile and hybrid approaches. Ambidextrous leadership involves balancing and integrating two seemingly contradictory yet complementary leadership styles: exploration (innovative and risky) and exploitation (efficient and predictable). Table 7 represents the findings of previously published papers and highlights the suggested leadership style against certain organizational features.

The reviewed studies clearly demonstrate that the effectiveness of project managers' leadership styles is significantly influenced by organizational context. Key organizational features, such as organizational culture, knowledge sharing, and project management approaches and methods, either enhance or hinder the impact of different leadership styles on project success. Previous findings have shown that flexible and collaborative organizational cultures support agile methods and distributed leadership. Furthermore, ethical and authentic leadership styles, when supported by trust and empowerment, positively influence knowledge sharing, team dynamics and project success. In addition, transformational leadership style suits agile and hybrid project management approaches, and transformational and active-transactional leadership styles facilitate the collaboration satisfaction in integrated project delivery. These insights underscore the importance of aligning leadership styles with organizational context to improve project performance.

Characteristics of the Project Team

The literature on the relationship between project success and leadership style examined team characteristics from multiple perspectives, highlighting that leadership effectiveness is shaped not only by the leader's behavior but also by the features of the project team and its members. The following studies explore how these team-related characteristics interact with different leadership styles to influence project outcomes. Taking the project team's working method into account, Nauman et al. (2010) examined how the empowerment climate influences leadership behavior and customer service effectiveness in projects with varying degrees of virtuality. For their empirical study, they collected data from IT project management professionals across five countries and applied linear regression and moderated regression analyses to examine the proposed relationships. Their findings suggest that an empowering climate positively affects leaders' concern for task, concern for people, as well as their customer orientation. These effects were more pronounced in highly virtual project environments. The researchers' findings also indicate that creating a supportive atmosphere of empowerment is essential to improving leadership effectiveness and customer service in virtual projects. In the contemporary context of virtual teams, communication and coordination are predominantly facilitated through electronic channels. The study highlights that task-oriented leadership is equally important in low- and high-virtual projects, while relationship-oriented leadership is particularly significant in highly virtual settings.

In their research, Daim et al. (2012), based on interviews with project team members in high-tech companies specializing in electronics design and manufacturing, concluded that communication breakdowns can cause serious harm to projects, particularly in the context of global virtual teams (GVTs). Their study identified five key areas that contribute to communication problems: trust, interpersonal relations, cultural differences, leadership, and technology. Global virtual teams, which are typically geographically dispersed, culturally diverse, and connected through electronic tools, are becoming increasingly common in the high-tech sector. While these teams often have designated project leaders, their success largely depends on the ability of team members to share knowledge effectively, regardless of their formal roles. Strong leadership is critical for projects implemented by GVTs, as project managers must promote frequent and meaningful communication and feedback, as well as establish clear communication norms to reduce misunderstandings.

Considering the project team mindfulness, Majeed et al. (2023) conducted a study in project-based organizations within the IT and telecommunications sectors, revealing that team mindfulness positively influences team cohesion, which in turn improves project team performance. Effective team leadership is a critical factor in enhancing this relationship. Effective leaders possess strong leadership skills, facilitate communication and interaction, create safe environments for sharing ideas, support team functioning, and encourage constructive

dialogue. The study emphasizes the importance of enhancing communication and transparency to boost team cohesion. The leadership style adopted by the project manager should be regularly evaluated based on feedback from team members to facilitate personalized training and coaching. In addition, the performance of the project team is also a reliable indicator of leader's effectiveness.

As far as the aspects of team collaboration are concerned, Altaher et al. (2024) conducted a study collecting data from key actors in project-based organizations, including project managers, team members, and stakeholders, across five different countries (Jordan, Saudi Arabia, China, Australia, and the United Arab Emirates). Their findings confirmed that transformational and transactional leadership styles positively impact project success. Transformational leaders increase team members' enthusiasm and commitment through their inspiring and motivating behavior, while transactional leaders clearly define roles, expectations, and reward systems, fostering accountability and performance. In contrast, laissez-faire leadership showed no direct positive effect on project success. In fact, laissez-faire leadership was found to have a negative relationship with team collaboration, suggesting that a lack of leadership direction may hinder effective teamwork. In addition, the study investigated whether team collaboration serves as a mechanism through which transformational, transactional, and laissez-faire leadership styles influence project outcomes. The results showed that team collaboration mediates the relationship between transformational and transactional leadership and project success. Therefore, fostering a collaborative team environment is important for project success.

Furthermore, Shahzad et al. (2025) examined the relationship between inclusive leadership and project citizenship behavior (PCB), focusing on the mediating and moderating mechanisms within project-based organizational contexts. Data was collected from three IT and two construction sector organizations, as both sectors are characterized by time-bound, project-based work structures. The study's findings revealed that the project team members' proactive personality is a significant factor in strengthening the relationship between project managers' inclusive leadership and team members' positive affectivity. Therefore, during the recruitment and selection process, organizations should prioritize identifying project team members with proactive personalities. These individuals tend to exhibit initiative, show resourcefulness, and seek opportunities for personal development, making them valuable members of the project team. Due to their high sensitivity towards inclusion, project team members should be managed with an inclusive approach by their project managers. Inclusive leadership fosters positive emotional states among team members, which promote voluntary, extra-role behaviors that support project success. Table 8 highlights the team characteristics analyzed in prior studies as well as the findings of previously published papers.

Table 8. Literature considering characteristics of the project team and leadership-related findings

Author(s)	Considered team characteristics	Findings
Nauman et al. (2010) (N=117 PMs)	Virtuality in project implementation	In highly virtual projects, leaders should strive for a relationship-oriented style and the creation of empowerment.
Daim et al. (2012) (N=10 project team members)	Global virtual teams	Strong leadership is critical for GVTs' projects, as it facilitates effective communication and knowledge sharing among team members.
Majeed et al. (2023) (N=379 PMs, team members, executives)	Team mindfulness	Team mindfulness boosts team cohesion, which improves project team performance, and effective team leadership strengthens these relationships.
Altaher et al. (2024) (N=202 PMs, team members, stakeholders)	Team collaboration	The results indicated that team collaboration mediates the relationship between both transformational and transactional leadership and project success.
Shahzad et al. (2025) (N=221 PMs)	Team members' project citizenship behavior (PCB).	An inclusive leadership style can enhance team members' PCB. The importance of emotions derived from inclusive leadership enhances positive project outcomes.

Overall, the previous findings support the idea, based on that the effectiveness of any given leadership style depends on the team level characteristics, such as the degree of virtuality, team collaboration, mindfulness, and project citizenship behavior of team members. Within highly virtual working environments, a relationship-oriented and strong leadership style can be effective, supporting active communication and knowledge sharing within the project team. Furthermore, effective team leadership and inclusive leadership were found to be

essential in enhancing the relationship between mindfulness and the project citizenship behavior of team members, thereby facilitating project performance. Additionally, transformational and transactional leadership styles were found to improve project success, and this relationship is mediated by team collaboration. In summary, previous studies have examined various aspects of the project team and revealed the necessity of taking these characteristics into account to identify the most appropriate leadership style for project manager.

Conclusion

Based on the literature review, it can be concluded that contextual factors cannot be ignored when examining the leadership style of project managers. The most appropriate leadership style is influenced by the inherent characteristics of the project (e.g. complexity and uncertainty), the characteristics of the organizational environment (e.g. organizational culture, knowledge sharing, project management approach), and the characteristics of the project team, where previous researches hve also shown that the virtual working environment, quality of collaboration, mindfulness, and project citizenship behavior influence the most appropriate leadership style in a given situation. Overall, these results support the idea that the effectiveness of a leadership style is highly dependent on the context and therefore needs to be adapted to the specific characteristics of the project, organization and team. Nevertheless, previous studies have focused on individual aspects or specific segments of the project context, thereby neglecting the comprehensive features of the overall context. Furthermore, the examined factors – such as complexity and uncertainty – have often been interpreted and conceptualized differently across studies, which limits the comparability of their results. In light of these limitations, it appears necessary to conduct a comprehensive study that considers the characteristics of the project, the organization, and the team that are decisive for the project manager's leadership style. This investigation could identify the most appropriate leadership styles for different project contexts, facilitating project success.

Building on these findings, we intend to further examine the relationship between project managers' leadership style and project success in a context-related manner. Specifically, our future research will explore how various leadership styles influence project success, while taking into account both project characteristics and broader contextual factors. We aim to identify the relationships between the inherent characteristics of the project, the primary factors of the organization housing the project, the project team's project management-related characteristics, and the use of different leadership styles. Based on these insights, we seek to identify which leadership styles are most appropriate in specific contexts using a deductive approach. This approach will enable a nuanced exploration of the topic and foster a better understanding of its complex interrelationships. To select our sample, we plan to include a diverse range of multinational companies engaged in product development, organizational development, or IT development, where projects with varying contexts can be analyzed. Primary data will be collected through semi-structured interviews with project managers, project team members and their superiors.

As a result of the planned study, we aim to develop a framework with significant practical implications. This framework has the potential to help project managers and human resources professionals understand the relationships between leadership styles and contextual factors. By facilitating the context-related selection and development of suitable project managers, it could contribute to improving project success rates. Moreover, it can serve as a foundation for tailored development programs and for future research aimed at enhancing leadership effectiveness across diverse project contexts.

Limitations

The systematic literature review was based on the Web of Science database; therefore, the literature coverage cannot be considered comprehensive. Although the selection process is transparent and replicable, potential biases cannot be eliminated. Nevertheless, the analysis provides a theoretical foundation for future research. We recommend repeating the review periodically to ensure the validity and relevance of the selected articles.

Scientific Ethics Declaration

Conflict of Interest

* The authors declare that they have no conflicts of interest

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