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Unlocking leadership potential: A systematic literature review on exploring transformational and quantum leadership styles for effective program management

By

Tamirat Leulseged Abera[1]; Assefa Tsegay Tensay (PhD)[2]; Gedif Tessema Sinishaw(PhD)[3]

Abstract

Numerous studies have identified leadership styles for projects, but their alignment with programs lacks empirical evidence. This systematic literature review aims to bridge this gap by examining the resonance of transformational and quantum leadership styles with program management. The review synthesized 53 relevant studies, revealing valuable insights. Findings suggest that transformational and quantum leadership share communal characteristics with program management, and they have the potential to enhance program success. The review offers practical implications and advances program leadership knowledge by challenging the notion of managing programs solely with project management leadership derivatives.

Keywords: *Program, Program management, Leadership, Transformational leadership, Quantum leadership.*

1School of Mnangement & Public Adminstration, College of Business & Economics, University of Gondar
2 School of Mnangement & Public Adminstration, College of Business & Economics, University of Gondar
3 School of Mnangement & Public Adminstration, College of Business & Economics, University of Gondar

1. Introduction

In today's modern world, organizations are increasingly embracing a project-based approach, which constitutes approximately 30% of the global GDP, translating to tens of trillions annually (PMI, 2017) due to digital transformation, agile methodologies, and temporary organizational structures (WEF, 2023). Among other forms of project-based work arrangements, programs possess the connective capacity to enhance coherence and coordination in complex governance processes and foster interdependencies among policy domains, projects, plans, and initiatives (Buijs, 2018) by addressing the limitations of managing individual projects (Maylor et al., 2006) like time dilation and many others (Prieto, 2024). As a result, program managers play a crucial strategic role that necessitates a leadership style capable of responding to program complexities and ensuring program success (Curlee & Gordon, 2014).

The academic community is actively involved in assessing the competence of program managers and developing constructs for measuring program success and identifying its factors (Shao et al., 2012). While leadership styles have been extensively studied in the context of projects, there is a lack of empirical research by academia and the world of practice specifically focused on leadership styles tailored to programs (Miterev et al., 2020).

This research gap can be attributed to the interchangeability of the terms "projects" and "programs" arouse from a lack of understanding of their distinct characteristics in terms of goals, complexities, interdependencies, and management/leadership approaches (Bojeun, 2014). The Project Management Institute (PMI) highlighted the distinct aims of projects and programs. Unlike projects, programs have a strategic focus and consist of interconnected components that share or complement common goals. They are long-term endeavors designed to navigate uncertainty and complexity by effectively managing both internal and external changes (PMI, 2017).

Recognizing the limited empirical evidence on leadership styles specifically suited for program management's unique characteristics and the importance of differentiating leadership approaches in projects and programs, Curlee & Gordon (2014) suggest that transformational leadership effectively aligns with the adaptive, delegative, and culturally respectful traits of program managers. Furthermore, Buijs (2018) emphasizes the relevance of complexity leadership theories in governing programs, while Martinsuo, Tilebein, et al. (2022) underscore the significance of modeling complex adaptive systems, foundations of Quantum leadership (Danah Zohar, 2022) in successful program management.

This systematic literature review synthesizes recent empirical research to assess the potential of transformational and quantum leadership styles in driving effective program management, ultimately informing managerial practice and guiding future research directions.

2. Literature Review

Program and its Management

The origins of project works can be traced back to ancient engineering and architectural achievements, including king Solomon's temple, the Inca Road systems, and the Egyptian pyramids (Curlee & Gordon, 2014). However, it was in the late 1950s and early 1960s that the modern era of project management emerged with the development of the Project Evaluation and Review Technique (PERT) for the Polaris

submarine program. Despite these advancements, the traditional project management approach often overlooked the interdependencies and interferences among projects, leading to the emergence of program management as a new approach (Maylor et al., 2006).

Programs are, frameworks consisting of interdependent projects focused on organizational benefits or strategic aims. They involve the structured coordination of a set of lower-order strategic initiatives (Kunisch et al., 2023) contributing to the achievement of new systems with the intention that their combined effect is greater than the sum of the parts and processes within an organization.

Likewise, scholars and experts offer diverse perspectives on programs management, emphasizing its role in optimizing integration, enhancing connections, coordinating projects and resource sharing, implementing strategies, and obtaining benefits not available when managing individual components (van Broekhoven & van Buuren, 2020). Managing a program requires both planning and coping strategies, involves multiple stakeholders, and necessitates a transformational approach (Pellegrinelli et al., 2007) that emphasizes holistic perspectives, alignment with overarching goals, and decision-making structures that foster learning (Shao et al., 2012). Program management distinguishes itself from the short-term focus of individual projects management and often operates as a hybrid approach, blending planned implementation with emerging strategies shaped by participating actors that needs adaptive management practices and dissipative self-organization (Buijs, 2018).

Equating project management with program management can lead to issues such as excessive control focus, inadequate alignment between program components with the evolving business context, and missed opportunities for cooperation and shared learning among program stakeholders (Maylor et al., 2006). Therefore, managing programs requires a leadership style that can effectively accommodate the complexities inherent in them.

Paradigmatic Underpinnings of Transformational and Quantum Leadership Styles

Two prominent paradigms, Newtonian and Quantum physics, have influenced theories across various fields, including management and leadership. Organizations driven by traditional or Newtonian leadership perspectives are characterized as mechanistic, deterministic, hierarchical, power concentrated at the top, and change is reactive and challenging (Frederick Chavalit Tsao, 2019). There is a focus on division of labor and competition, human capital is seen as a passive resource, cognitive intelligence is valued, efficiency and effectiveness are prioritized for profit maximization, shareholder value takes precedence, ethical considerations are neglected and there is a lack of responsibility towards the community and the environment (Necdet Konan & Mermer, 2021). Although this paradigm may appear impractical and incompatible with the current era, the leadership styles derived from it still hold significant relevance in managing organizations.

From the traditional/Newtonian paradigm, the full-range leadership theory, which includes transformational, transactional, and laissez-faire styles, is widely recognized. The concept of transformational leadership began with James V. Downton in 1973 and was subsequently expanded by James Burns in 1978. Transformational leadership stands out from other styles due to its emphasis on the greater good and its positive impact on generating creativity and organizational innovation. This leadership style is characterized by empowering and revealing the potential of followers and aligning personal factors with organizational objectives to secure collective interests. It promotes collaboration, positive behaviors, and fosters superior social outcomes that motivate every employee to become leaders

(Deng et al., 2023).

Bernard M. Bass (1985) identified four key elements that define transformational leadership model and style: Idealized Influence (II) involves the leader acting as a role model, gaining influence through exemplary behavior and values, and inspiring followers to emulate their actions. Inspirational Motivation (IM) pertains to the leader's ability to develop and communicate a compelling vision for the future, inspiring and motivating followers to work towards shared goals and envision success. Intellectual Stimulation (IS) encourages critical thinking, problem-solving, and innovation by challenging assumptions, seeking diverse perspectives, and fostering creativity among followers. Individualized Consideration (IC) emphasizes treating followers as unique individuals, enhancing their consciousness, morals, and skills through acknowledging their specific needs, strengths, and aspirations, going beyond a one-size-fits-all approach (Bass, B. M., & Avolio, 1994). These four elements collectively form the foundation of transformational leadership, enabling leaders to foster teamwork and navigate complex and challenging environments and help them go beyond meeting performance expectations and actively seek to drive growth and improvement.

Due to its intuitive appeal and process-focused nature, it has garnered extensive research attention and offers a broader perspective on leadership that complements other models. While there may be some controversies regarding its impact on project success and employee performance, transformational leadership shown positive effects in project-oriented organizations (Deribe et al., 2016) and is projected to be ideal for managing programs (Curlee & Gordon, 2014).

Traditional leadership approaches, rooted in Newtonian thinking, have proven inadequate in the face of global uncertainties such as climate change, identity, insecurity, inequality, nuclear threats including the recent COVID-19 crisis among others (Nita, 2014). To address these challenges, a shift in consciousness is required to bridge the ontological gap and embrace a new state of being characterized by Quantum leadership (Zohar, 2016). Quantum leadership values orientation and initiative, providing multiple alternatives for action and fostering a learning organization (Hanine et al., 2019). In quantum leadership, decision making and problem solving is shared among all employees based on trust and respect rather than formal authority and collective intelligence is cultivated throughout the organization (Danah Zohar, 2022).

Quantum organizations, have a business purpose centered around creating a flourishing enterprise, adopt a self-aware and holistic leadership mode, and their organizing principle is driven by wholeness (Frederick Chavalit Tsao, 2019). Quantum leadership contributes to organizational excellence by equipping organizations with the ability to learn, change, and improve their agility. It enhances organizational performance by creating a climate of integrity, reliability, and commitment among employees, emphasizing teamwork over hierarchy that fosters synergy and balance between competitive and collaborative forces, avoids widespread fragmentation, and provides a holistic vision that enables organizations to see interconnections clearly (Porter-O'Grady, Tim, Malloch, 2002). In the quantum world, competence requires breadth and depth of character. Narrow expertise in a single area is insufficient and leaders commit to constant personal growth, embrace lifelong learning and exploration, and recognize that knowledge and experiences can come from anywhere (Necdet Konan & Mermer, 2021). To develop these capabilities, leaders need to cultivate spiritual intelligence (SQ), cognitive intelligence (IQ), and emotional intelligence (EQ), along with seven quantum skills (Shelton & Darling, 2001) and apply its twelve quantum principles. Quantum leadership which inherently possess complexity (Danah Zohar,

2022) may be an effective style in managing programs due to its ability to handle them as complex adaptive systems Martinsuo, Tilebein, et al. (2022).

Communal characteristics of program management leaders, transformational leadership and quantum leadership styles

From the literature discussed above as a novel approach, this review identified the following nine communal characteristics of program management leaders, Transformational leadership, and Quantum leadership styles:

Table 1. Description of communal characteristics

Characteristic	Description
Peculiar Character of the Leader	refers to the unique qualities, traits, and personal style exhibited by the leader. It emphasizes the individuality and distinctiveness of the leader as "leader of leaders" which sets them apart and influences their leadership approach.
Contribution to Benefits Realization / Value-Oriented Nature	leaders focus on delivering tangible outcomes and ensuring that the intended benefits of a certain endeavor or initiative are realized.
Focus on Strategic Issues	implies that the leader recognizes and prioritizes both the business criticality and the transformational aspects of the initiatives they lead. They align their efforts with the long-term goals and vision of the organization, taking into account the broader strategic context.
Change Facilitation Role	the leader's role in facilitating and managing change within the organization. They promote a culture of adaptability, and provide support to individuals and teams to navigate through transitions effectively.
Ability to Handle Complex, Uncertain, and Unpredictable Situations	infers that leader excel in navigating ambiguity, making informed decisions in the face of uncertainty, and adapting their strategies to changing circumstances.
Response to Fragmentation to Foster Integration	denotes to leaders' response to fragmentation and fostering both vertical and horizontal integration through collaboration, communication, and alignment across different teams, departments, and hierarchical levels.
Innovative/Iterative/Non-Sequential Nature	the leader's inclination towards non-linear thinking and creative problem-solving. They understand that progress often requires iteration and adaptation rather than following a rigid, sequential process.
Systematic Nature and Emphasis on Relatedness	refers to the extent to which leaders adopt a systematic approach that interconnects different parts to have a greater whole.

Dependency on Teamwork	the leader's reliance on effective teamwork and understanding the value of leveraging diverse skills, perspectives, and expertise within a team through creating an environment that encourages cooperation, trust, and mutual support to achieve shared goals.

By enumerating these common characteristics, the researchers aim to demonstrate how these leadership theories can effectively inform and enhance program management strategies. Transformational leadership by inspiring and motivating teams, can be operationalized through practices such as regular feedback sessions and team-building activities that foster collaboration (Deng et al., 2023; Bojeun, 2014). Similarly, quantum leadership emphasizes adaptability and dynamic decision-making, which can be illustrated through the implementation of agile management methodologies that respond to changing program conditions (Prieto, 2024).

Research aim

This systematic literature review aims to evaluate the potential of transformational and quantum leadership styles for effective program management. It challenges the conventional view of program leadership as simply a derivative of project leadership by examining the distinct leadership requirements inherent in program environments.

Method

This systematic literature review, undertaken within the context of ongoing PhD research, investigates the potential of transformational and quantum leadership styles for effective program management. The methodology consisted of a rigorous systematic review of relevant literature identified through database searches.

Articles search strategy

An initial search was performed through the electronic databases: Science Direct (Elsevier & Pergamon), Emerald, SAGE, Taylor & Francis, Wiley Online and other relevant ones (listed in Figure 2). Search terms like "Program/Programme management," "Leadership," "Successful program management," "Transformational leadership," and "Quantum leadership" were combined using Boolean operators. The researchers established specific inclusion and exclusion criteria for selecting articles: a) published in English, b) from peer-reviewed journals, c) focus on program management, transformational and quantum leadership styles, d) published in Scopus indexed journals listed in May 2023, e) have publication dates between January 2016 and December 2023, and f) include specific words in their title or keywords. Following a rigorous screening process (shown in Figure 1 below), a final sample of 53 articles was selected for the full review.

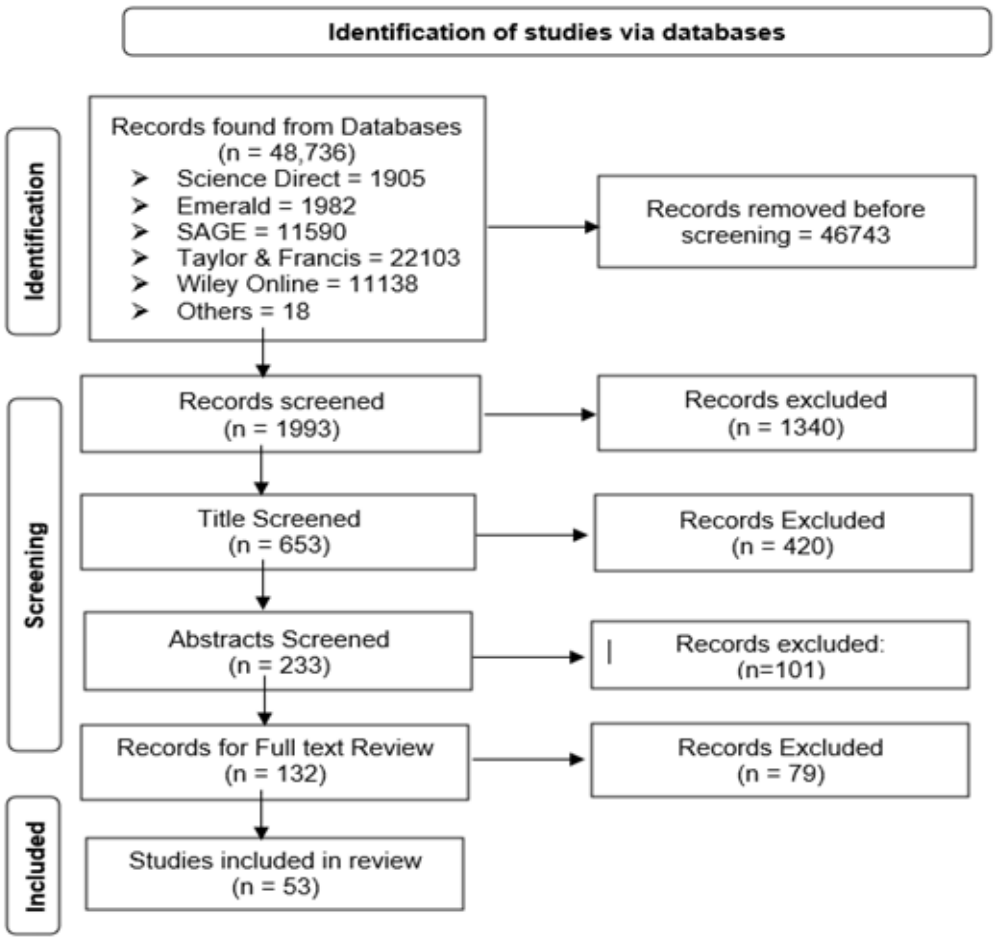

Figure 1. PRISMA: flow chart for the systematic literature review

3. Results

Descriptions of the Publications

As shown in Figure 2, the 53 identified articles included 41 empirical studies and 12 theoretical reviews. 31, 13 and 9 studies were in program management, Transformational leadership and Quantum leadership styles respectively. The majority of articles were published in 2022 (22.6 %, 12 articles), followed by 2023 (15.1 %, 8 articles), and 2018 (13.2%, 7 articles). The International Journal of Project Management contributed the largest share (37.7%, 20 articles) of the 28 journals represented. Project Management Journal and Frontiers in Psychology each contributed 3 articles, while Leadership and Organization Development Journal and Computational Intelligence and Neuroscience each contributed 2 articles. The remaining 23 journals contributed 1 article each.

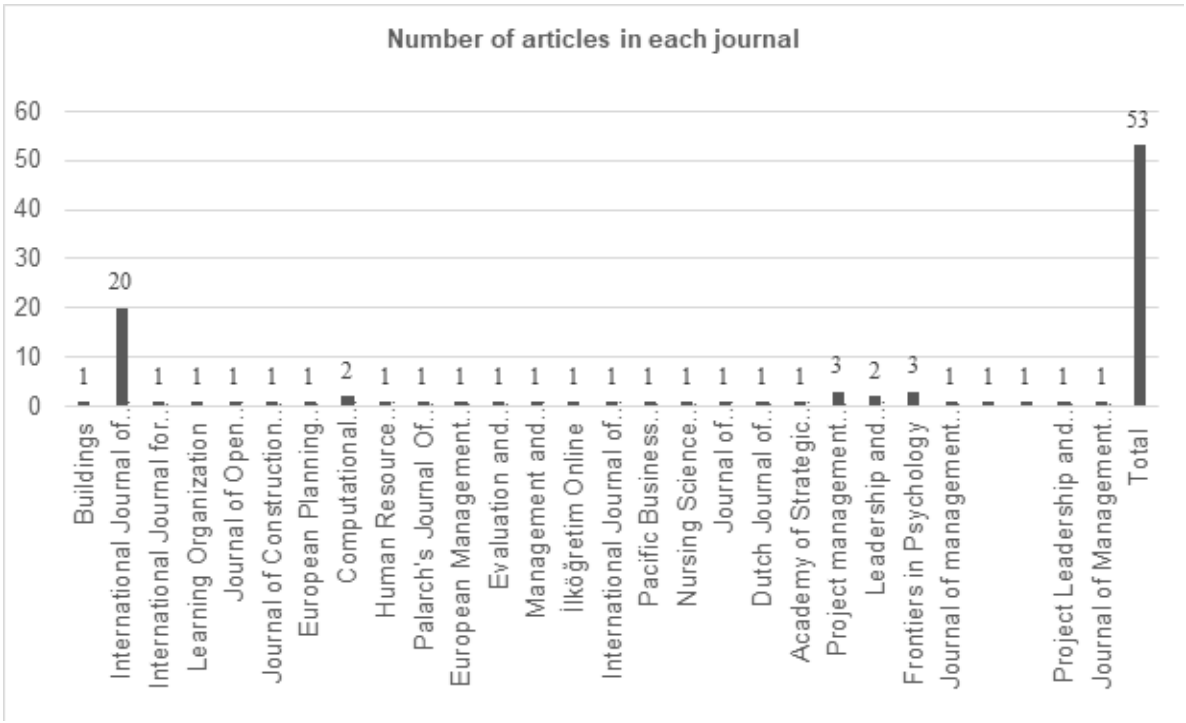

Figure 2. Summary of the journals from which the articles are selected

The studies encompassed various sectors with a notable emphasis on infrastructure construction. 29 & 24 studies had qualitative and quantitative approaches respectively. Transformational leadership style was mostly measured by adopting a multifactor leadership questionnaire (MLQ) of Bass & Avolio, (2000) and leadership dimensions questionnaire (LDQ) of Dulewicz (2005) and Quantum leadership was measured by Konnan and Mermer, (2021) instrument and other qualitative options.

Complementarity between the two leadership styles and program management

The review reveals how program management/leadership, transformational leadership, and quantum leadership styles complement each other based on nine shared characteristics, as follows:

As far as a program, a transformational and a quantum leaders peculiar character is concerned: Program managers, equipped with diverse qualifications and abilities (Trzeciak et al., 2022) aspire to demonstrate visible leadership at the grassroots level (Harikkala-Laihinen, 2022), specify stakeholders' role and optimize project network structures (Martinsuo & Ahola, 2022) through adopting a pragmatic and effective approach (M. Liu et al., 2022). They act as political change agents (van Broekhoven & van Buuren, 2020), serve as internal supporters, visionary idea generators, strategic thinkers, and intervene in discursive patterns and polarizations (Vuorinen & Martinsuo, 2018). Program managers facilitate collective sensemaking (Laine et al., 2016) learn from partnerships, promote adaptive management & exploration, and bridge the local and global (Lannon & Walsh, 2020). On the other hand, Transformational leaders inspire employees in a collective culture, develop their self-management or self-leadership skills (Zhao et al., 2021), best in leading temporary project-based organizations (Ali et al., 2021) and ameliorating firm performance. Quantum leaders nurture and inspire followers, perceives everyone as a potential leader and possess technical proficiency, intellectual analytic prowess and interpersonal skills

(S. Geok & Ali, 2023). Thus, program management and transformational leadership as well as program management and quantum leadership complement profoundly.

When we evaluate contribution to benefits realization/ their value oriented nature: since, the key value of a program that sets it apart from a single project is the delivery of long-term, company-wide benefits (Yan et al., 2019), exogenous and endogenous values (Denicol & Davies, 2022) realized through the cumulative potential generated by the program's projects (Zwikael & Huemann, 2023), a program manager is responsible for responding to tensions to offer long-term benefits as well as leadership and management (Masimula et al., 2023) and identifying organizational preconditions to define, create and capture values (Miterev et al., 2020) in cooperation with line managers of organizations (Fernandes & O'Sullivan, 2021). By the same token, transformational leadership is easily adaptable to tailor initiatives to realize benefits (Lawrason et al., 2023) whose leaders stimulate employees to associate their sense of self with the project organization to benefit both individual & organizational outcomes (Ding et al., 2017). Likewise, Quantum leaders promote employees lifelong learning (Wan Geok & Bin Bilal Ali, 2021), cultivate potential holistic development (Laszlo, 2020) and work to realize benefits of all including their subordinates and themselves (Bilgen & Elçi, 2022). Thus, as far as their value oriented or benefits realization feature is concerned these leadership styles tribute program management.

The extent to which programs and transformational leadership as well as Quantum leadership styles focus on strategic issues shows that, programs help project-based firms to secure short-term and long-term strategies alignment (Benmahmoud-Jouini & Charue-Duboc, 2022) and establishing a clearer link between Projects and Programs (Köpsén 2022) through innovative strategies that improve program success (Yan et al., 2019). The program reflects a broader shift from narrow execution-oriented to a more strategic management of projects manifested by its business-criticality and transformative approach (Vukomanović et al., 2016). On the other hand, Transformational leaders create some units focused on strategic alignment or continuity (Abbas & Ali, 2023) by building a learning organization that enables to understand their mission and goal direction to members and promote strategic project success (Misra & Srivastava, 2018). Identically, Quantum leadership is evolutionary, future driven and substantiates seeing beyond the horizon whose leader draws a great deal of insight and inspiration cultivated from his or her individual potential inner light (Sazesh & Siadat, 2019), places a high value on a common, positive vision & a sense of unity and greater purpose among organization members (Laszlo, 2020).

Their change facilitation role can be narrated as: Programs are one of the organizing modes in the dynamic context of contemporary organizations frequently adopted by practitioners to organize and manage strategic, integrated and multi project transformations/changes that change not only the organization but also its identity (Martinsuo & Hoverfält, 2018) via implementing different alternatives. Programs help to adapt to changes in strategy and the context/environment (Geraldi et al., 2022) through support from the parent organization (Martinsuo & Ahola, 2022). Since any program is comprised of several strategic change initiatives (Kunisch et al., 2023), the program manager has a championing role in creating the change vision for the program and its respective projects (Vuorinen & Martinsuo, 2018). Likewise, Transformational leaders have a change-oriented nature and provide an environment in which people are able to accept change (Han et al., 2018; Parveen & Adeinat, 2019). In addition, they promote change by making their specialist employees to exploit and generalist ones to explore so as to contribute to efficiency and innovation (Abbas & Ali, 2023). Similarly, Quantum leadership as a direct- intuitive strategy is the fourth type of theory of change (Laszlo, 2020) goes with major social transformations and organizational agility (Sazesh & Siadat, 2019). Quantum leaders are flexible and their organizations

are ready for change comes from anywhere in the organization at any time (Bilgen & Elçi, 2022). They embrace self-transformation and induce potential energetic vibrations (Wan Geok & Bin Bilal Ali, 2021) and feels its excitement and inspire others to cooperate in advancement and discovery (Watson et al., 2018). The change-oriented nature of the three themes exhibits their alignment which sounds good to handle the ever changing internal and external environment.

Programs generally incorporate technical and organizational complexity among tasks as well as teams that depend on other teams and associated with tensions stemming from the different requirements and expectations of the involved stakeholders (Martinsuo & Ahola, 2022) which call for adaptability management (Dingsøyr et al., 2018) as well as more coordination to cope up with challenges (de Groot et al., 2022) and the changing context (Shao, 2018) which are not possible without effective risk management (Miterev et al., 2016). Firms launch growth or efficiency-oriented programs to tackle organizational complexity (Zhou et al., 2022) because programs foster resilience and responsiveness to creeping disruptions (Midler et al., 2019) through new knowledge, tools and approaches (Köpsén 2022). By the same token, Transformational leadership is adept to complex & uncertain environments (Han et al., 2018) and a style of volatile and globalized business through improving expertise with strong leadership charm and abilities to respond to uncertainties and technological changes within the industries (Abbas & Ali, 2023). Similarly, Quantum leadership is effective to achieve organizational objectives or goals in chaotic environments (Bilgen & Elçi, 2022) which makes it best suited to nonlinear, unpredictable and extremely complicated organizational contexts featured by strong pressure to transform, volatile occurrences, ambiguous goals and orders that appear of their own accord (S. Geok & Ali, 2021). Quantum leaders' way of thinking and decentralization has paramount importance to tackle the prevailing uncertainty, indeterminism and discontinuity (Hadizadeh et al., 2021). All these congruences among the three themes make them complexity leadership-oriented ones.

As far as the three themes fostering integration communal character is dealt: since program management's soft and relational skills of collaborating and delivering with clients, not for clients (coordination between multiple actors/projects) are fundamental to provide harmonious environment that promote program success (Vuorinen & Martinsuo, 2018), project-based firms give due attention to the inter-organizational network arrangement (Martinsuo & Ahola, 2022). Crossing of social, cognitive and physical boundaries by program managers (van Broekhoven & van Buuren, 2020) to create collective sense making among members, cooperate with the environment and foster vertical and horizontal integration (Yan et al., 2019) help to combine both competition and cooperation ambidexterity between projects (Midler et al., 2019). In the same feature, Transformational leadership creates a conducive platform and helps to have a shared decision making among organization members (Parveen & Adeinat, 2019) through motivating and inspiring them to have an integrated and coordinated project accomplishment (Ding et al., 2017). Similarly, Quantum leadership involves holistic rather than fragmented actions with interconnected work processes and individuals that can better serve each other via cooperation (S. Geok & Ali, 2023) and its leaders are high on the scale of consciousness connectedness among the network (Laszlo, 2020). Thus, we can deduce that, program management, transformational leadership and quantum leadership applaud integration to counteract fragmentation.

From the shared features of being innovative/ iterative /non sequential nature: a program office is responsive (Denicol & Davies, 2022) in delivering desired benefits in a non-linear and highly emergent way (Prakash et al., 2023) through knowledge and technology transfer (Trzeciak et al., 2022) offered in learning from every aspect without waiting for formal undertakings (Martinsuo & Ahola, 2022). As a

non-sequential initiative, a program shows the coexistence of integration and isolation ambidextrously (Benmahmoud-Jouini & Charue-Duboc, 2022) and require to be sensitive of the interaction with context (Shao, 2018) and its management follows a flexible, iterative and explorative approach (Miterev et al., 2020). The negotiation and sensemaking in programs with non-rational and social elements (Laine et al., 2016) demands managers to use their intuition during volatile situations. Similarly, Transformational leadership focus on organizational learning, an enabler to radical innovation and related capabilities (Xie, 2020) to manage changing environment and enables employees to generate ideas and resolve problems iteratively (Ali et al., 2021). And, Quantum leadership is ideal in revealing innovative behavior and create flexible working system that help to develop new solution proposals. Through the conditions of total acceptation, presence and talent, Quantum leadership passes experience, learning, action and creativity stages that bring responsiveness as required (Paz et al., 2017), enhances spontaneity and catalyze others to rally in the journey of discovery and advancement (Watson et al., 2018).

When we see their systematic nature, Programs are designed to achieve transformation within a broad system, whose sub systems with work coherence and alignment are all equally relevant and challenging (Masimula et al., 2023) and crucial to unlock added value and realize long-term benefits and serve several stake holders simultaneously (Prakash et al., 2023). program management needs holistic management that foster vertical and horizontal communication in hierarchical structures (Trzeciak et al., 2022) to cross and reconstruct organizational boundaries transcend a single set of arrangements so as to handle the program in a synchronized manner (Näsänen & Vanharanta, 2016) and their systematic management services help owners with insufficient management capacity (Liu et al., 2022). Besides, system view of program success best results often occurs not from large-scale efforts but from small, well-focused actions (Yan et al., 2019). Likewise, a Transformational leader works in a systematic manner through synergizing all types of organizational components, motivates and inspires team members towards a holistic conception of project success (Deribe et al., 2016). And, rooted from complex adaptive and quantum systems, Quantum leadership, focuses on the process (which is considered indefinable and unlimited) and is a holistic approach emphasizing relationships and self-organizing context integration that enables the interpretation of new events in complicated living systems (S. Geok & Ali, 2023). It is founded on unitary than part (Watson et al., 2018) and sees everything is entangled and interconnected whole composed of potentials (Laszlo, 2020). The very systematic nature of transformational leadership and quantum leadership shows their alignment with program management.

And finally, Team work is among the top significant factor for program success (Trzeciak et al., 2022; Zhou et al., 2022) and the interaction in program group not only mirrors but also produces the group's capacity to contribute to transformation (Näsänen & Vanharanta, 2016). In program management team members exploratory and exploitative capabilities (Denicol & Davies, 2022) enhances shared/collective learning (de Groot et al., 2022) used to solve problems and foster productivity (Lu & Li, 2021). High presence of horizontal coordination across teams is particularly important in a multiteam program (Dingsøyr et al., 2018) whose core team and component projects team members have a role of connecting programs and their divisions (Benmahmoud-Jouini & Charue-Duboc, 2022) to establish a community of practice (Midler et al., 2019) that facilitate the co-creation of new knowledge within the program (Lannon & Walsh, 2020). Similarly, Transformational leaders boost team work quality by motivating and clarifying the primary goal of project expectations and responsibilities of individual team members (Masa'deh et al., 2016). These leaders create a participatory working environment for organizational teams to enhance decision making (Parveen & Adeinat, 2019) and sacrifice their own interest for the betterment of the team to enhance cohesion & mutual understanding and create a harmonious working

atmosphere (Ding et al., 2017). They promote group or individual leadership role in a chaotic & complex environment (Watson et al., 2018) and generate appropriate human capital for organizational learning. Transformational leadership has critical spillover effects on individual level motivation and outcomes (Lu & Li, 2021) and enhances team building activities that improve project success and job satisfaction in complex and dynamic environments (Deribe et al., 2016; Misra & Srivastava, 2018; Tabassi et al., 2017).

Likewise, Quantum leaders create and promote a learning climate and foster behavioral learning within the organization (Wan Geok & Bin Bilal Ali, 2021). They communicate, cooperate, value ideas and support their employees through establishing informal relationships (Bilgen & Elçi, 2022) which makes them people centric leaders that appreciates diversity, empathy and differ dialogue view points and construct atmosphere of confidence, trust and a sense of belonging between employees to meet stipulated goals (Laszlo, 2020). These confirms that team work is a pillar to programs, transformational leadership and quantum leadership styles.

Overall, the empirical evidence suggests that the nine defining characteristics identified in this review are equally present across program management, transformational leadership, and quantum leadership styles.

Potentials of transformational and quantum leadership styles for effective program management

The Project Management Institute's Program Standard recognizes the importance of leadership of the program manager that must be demonstrated up and down the chain of command (PMI, 2017). As a complex leader, a program manager follows the right type of leadership style that strongly resonates to the peculiar characteristics of a program and its management (Curlee & Gordon, 2014).

Transformational leadership has a significant effect on workplace outcomes (Deng et al., 2023) and it works differently in project settings than in the context of permanent organizations. A transformational program manager is a role model and gifted with a capacity to exert certain amount of influence on stakeholders which include program staff, projects managers, line management or process coordinators, sponsors, owners, steering committee members, donors, other responsible parties and the community at large. He/she acts as leader of leaders who aspires to confirm leadership at lower level being as a change agent responsible to develop and articulate the programs vision through creating visual representations on the mind of stakeholders about the benefits planned to be realized in the course of completing its component projects, subsidiary programs and other related activities successfully (PMI, 2017). An ideal transformational program manager arouses the intelligence and rationality and focused on problem solving through generating different alternatives iteratively that foster innovation and creativity so as to handle the complex, unpredictable and multifaceted problems expected while managing programs.

Besides, a transformational program manager through his concern for relatedness and systemic perspective responds to potential fragmentation arouse from managing component parts conventionally so as to foster integration. Through building a harmonious team, Transformational leadership helps to realize benefits of projects (Deribe et al., 2016). Moreover, a program manager with transformational leadership style who strongly believes in team work will consider individuals treatment as themselves not just as a member of a group so as to build a heart-to-heart relationship with each and every follower that promote healthy working relationships. These leaders recognize the uniqueness and diversity of

the beliefs and values of component members and provide corresponding support to their success (Zhao et al., 2021). Thus, from the traditional leadership styles transformational leadership has paramount importance in managing programs.

On the other hand, applying a derivative of project management leadership styles to programs (without considering programs as larger systems with a variety of sub systems and as a twofold coevolutionary process) has been emphasized in the literature. This will make a program nothing more than a collection of loosely- (but often non-) linked projects which calls a certainly different leadership style for programs. These needs a program and its management to amalgamate itself with studies in the field of complex social systems. Programs require a holistic system that accommodates diversity, adds value to stakeholders, and mitigates the negative impacts of poorly performing projects (Buijs, 2018) that can be realized through Quantum leadership (Zohar, 2016).

A quantum program manager knows what is expected from him/her and stakeholders, has the ability to cope up challenges encountered during program implementation and respond the context spontaneously. Such a leader is inspirational and positively motivated to realize program benefits to its beneficiaries beyond attaining a single target unlike projects and knows that a decision made at any component will have its own butterfly effect on the whole program (Danah Zohar, 2022). A quantum program manager who leads different components may face criticisms from others that needs him/her to be a self-critical person who admits what he believes as failure and be resilient for negative opinions provided by others as well as reframe and learn from setbacks or mistakes so as to grasp opportunities and such a manager should have humility, knowing that every participant in the program is equally important. A program manager with quantum leadership style always sees beyond the horizon, collect and brainstorm ideas from all concerned to confirm that managing programs need celebrating diversities with plenty of ideas, experiences and exposures and bring order out of chaos like input problems, facilitation short comes and others. He/she is compassionate, adept and respectful who understands a tiresome engagement of employees and stakeholders in its components and with a sense of vocation; feels as a servant engaged to serve with respect. Quantum program manager skills such as, quantum seeing to avoid cognitive biases and have the ability to change perceptions, Quantum thinking to entertain opposite/paradoxical ideas emerge from different components, Quantum feeling to have a vital and positive emotional posture in adversity, Quantum knowing to lead entire components with full knowledge, Quantum acting to act responsibly by understanding each part influence and being influenced by other parts, Quantum trusting to trust the process including chaos as an integral part of it and conflicts as good sources of win-win solutions and quantum being for the sake of connecting different program parts and stakeholders are essential (Shelton & Darling, 2001). Therefore, complex adaptive systems (equivalents of quantum systems and foundations for quantum leadership) could have a potential for managing effective and successful programs.

4. Conclusion, Limitations and Future research avenues

Conclusion

The majority of research on programs and their management consists of defining the core features of programs, identifying success factors and competences needed with less attention in finding appropriate leadership style across the problem of managing programs through projects management leadership

which disregarded programs innate features. Since the focus of this systematic literature review was to evaluate the two leadership styles potential for managing programs it revealed that:

A program and its management, transformational and quantum leadership styles have communal characteristics like; all focus on transforming followers into leaders, empowering them to become agents of change and fostering leadership potential in everyone, emphasize addressing fragmentation, promoting integration, and encouraging collaboration among different stakeholders. They aim to achieve synergistic benefits by combining various components and ensuring their realization by users and stakeholders. All the three follow a systematic approach, establishing fluid relationships within their respective frameworks. They play a vital role in facilitating long-term organizational change and success through the implementation of new systems, processes, and transformative actions. All require adaptive approach to handle complexity, uncertainty, and unpredictability effectively. They emphasize strategic alignment actions with overall organizational goals and vision. Three of them adopt an iterative and non-sequential decision-making approach, continuously adapting and refining their strategies. And they recognize the importance of teamwork, collaboration, and coordination among various components and stakeholders.

This review concludes that transformational leadership (rooted in Newtonian leadership styles) and quantum leadership (stemming from the quantum paradigm) offer potential models for effective program management, based on observed congruencies that will lay a foundation to future academic research to focus on developing discrete program management leadership models.

Furthermore, practitioners should reconsider the derivative application of project management leadership styles to programs, given the absence of a dedicated program management leadership model established in prior studies. Thus, several practical applications for program managers aiming to enhance their leadership styles can be taken from this review. First, adopting transformational leadership practices is essential: program managers should articulate a compelling vision that inspires team members and stakeholders, clearly communicating the long-term benefits of the program to foster a shared understanding of goals. Additionally, empowering team members by developing their self-management skills can enhance individual accountability and motivation, improving overall program performance. Second, implementing quantum leadership principles involves embracing complexity; program managers should acknowledge the interdependencies within their program components and promote a culture of open communication and collaboration to facilitate adaptability in changing circumstances. Quantum program leaders should also foster innovation by creating an environment where team members feel safe to experiment and recognize that failures can be valuable learning opportunities. Third, creating a learning organization is crucial, as both leadership styles emphasize continuous learning. Program managers should implement practices like knowledge-sharing sessions and collaborative problem-solving workshops to enhance team resilience and adaptability. Furthermore, enhancing stakeholder engagement is vital; program leaders should actively involve stakeholders in decision-making processes to ensure diverse perspectives are valued, achieved through regular consultations and feedback mechanisms. Lastly, addressing fragmentation within programs requires prioritizing integration across projects, establishing clear communication channels, and fostering relationships among project teams to align with overarching goals.

Limitations and future research avenues

While this systematic literature review followed rigorous steps to ensure credibility, it has several limitations. The review was restricted to indexed, peer-reviewed journals published in English, which may overlook relevant research in grey literature or studies in other languages. Additionally, the conclusions were focused on program, transformational, and quantum leadership styles, indicating potential avenues for future research to explore other leadership approaches. Future studies could empirically validate these propositions by examining the impact of transformational or quantum leadership on program success, potentially incorporating mediators or moderators such as context, team building, and stakeholder engagement in governmental, private, and non-governmental programs. Moreover, other areas of inquiry, such as investigating how servant leadership, emphasizing the importance of serving others—affects team dynamics and program outcomes, as well as evaluating culturally adaptive leadership styles, could provide valuable insights into enhancing program success in multicultural teams.

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