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AI-Based Assessments of Human Leadership, Psychological Flexibility, and Managers function

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Abstract.

This study thoroughly examines the relationship between psychological flexibility, human leadership traits, and organizational success in the fast-paced world of modern business. Using a comprehensive mixed-methods approach, researchers meticulously analyzed data from 279 managers through questionnaires that focused on psychological flexibility and leadership characteristics. The study employed AI technology to enhance leadership assessment and develop targeted intervention programs, ensuring a thorough and robust research process. The results showed significant correlations between psychological flexibility components (mindfulness, committed action) and key leadership traits (decision-making under pressure, vision setting, interpersonal communication). Content validation was performed using Lawshe's Content Validity Ratio with the input of 15 leadership experts, further reinforcing the comprehensive nature of the research. Qualitative responses from 20 managers, processed through AI platforms, revealed the transformative impact of integrating psychological flexibility with traditional leadership traits, particularly in decision-making, feedback delivery, and team cohesion. This research not only contributes to leadership theory by presenting a comprehensive model that combines psychological flexibility with conventional leadership traits but also offers organizations a practical tool for leadership development.

Keywords: Organizational Performance, Human Leadership Traits, Artificial Intelligence (AI), Leadership Assessment, Leadership Development, AI-Based Assessment Tool, Psychological Flexibility.

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1 Introduction

The 21st century has ushered in a rapidly evolving and competitive global economy, demanding new approaches to leadership that diverge from traditional 19th and 20th-century skills. This study explores the intricate relationships between organizational success, psychological adaptability, and human leadership, focusing on leveraging artificial intelligence (AI) to enhance leadership assessment and development. Human leadership has gained significant attention as organizations seek to create more empathetic, people-centric work environments (Avolio et al., 2009). Human leadership focuses on emotional intelligence, empathy, strategic vision, and the ability to create a supportive organizational culture (Goleman et al., 2013). This leadership approach emphasizes adaptability and the ability to effectively navigate complex organizational dynamics (Yukl & Mahsud, 2010).

Psychological flexibility, a key component of human leadership, has emerged as a crucial construct in understanding effective leadership in complex and dynamic organizational environments (Hayes et al., 2006). Defined as the ability to contact the present moment fully and change or persist in behavior in service of chosen values, psychological flexibility enables leaders to adapt to changing circumstances while maintaining alignment with core organizational goals (Bond et al., 2016).

The 21st century demands create moves from the perspective of solving puzzles to solving mysteries. Leadership in a changing world requires a transition from an approach that focuses on planning to one that focuses on creating and becoming. This situation requires an understanding that change is situational, flexible, and adaptive, as well as the ability to respond and act in changing situations. The dynamic reality of the 21st century requires a willingness to learn and evolve from internal and external uncertainty, to let go of control, to experience coping, and to learn together. It is necessary to transition from a hierarchical leadership model to an open and collaborative model of leadership that operates within the framework of interpersonal leadership and human development (Dumas & Beinecke, 2018).

Leadership in the 21st century requires high adaptability and various behaviors that meet needs. It is based on values, motivations, and needs and manifests itself in the leader being a personal, flexible, and visionary model who acts transparently and has confidence in leading group processes, practices, and social processes (Dumas & Beinecke, 2018). It leads and develops skills and abilities from the trust of its people and is focused on creative, transformative, ethical, and spiritual integrative processes (Trilling & Fadel, 2009). In the 21st century, managers face a rapidly evolving and competitive global economy.

Effective leadership in the 21st century demands adaptability and flexible thinking. This mindset encourages continuous learning, resilience in the face of challenges, and a belief that abilities can be developed over time. Managers must possess information skills, digital literacy, technology skills, and a commitment to environmentally and socially responsible behavior. These competencies are essential for navigating the modern global economy. Emotional intelligence (Goleman, 1998) and social intelligence (Goleman et al., 2007) are invaluable for managers. However, artificial intelligence is also important and can be used to learn and improve self-reflection, skills, and knowledge.

2 Theoretical Background

2.1 Human Leadership and Psychological Flexibility

Psychological flexibility

Psychological flexibility is the ability to experience the present consciously and impartially and to act according to individual values (Fuchs, 2022; Marom et al., 2011). It forms the basis for appropriate decision-making and behavioral processes, even when decisions and actions are accompanied by complex psychological events (Fuchs, 2024; Burke & Moore, 2015). These processes help individuals change the role of their inner experience, behavior, and communication by flexibly facing challenges (Rolffs et al., 2018).

According to Hayes & Wilson (2003), six parallel and interrelated processes form the basis of psychological flexibility: Acceptance is the state in which one is ready, willing, and able to experience private events without trying to change their frequency, content, or form (Burke & Moore, 2015). Acceptance leads to flexible and efficient behavior patterns consistent with the individual's goals and values (Yuval, 2011). Cognitive defusion distinguishes between thoughts, feelings, physiological sensations, and impulses when evaluating real-world events with full awareness of the present and choosing effective and relevant behaviors. Mindfulness in the present moment is an active, attentive, full, non-judgmental awareness of the present moment. the "I as an observer" is a multidimensional awareness of oneself that is more than the sum of personal experiences (Burke & Moore, 2015).

This ability is expressed in the individual's ability to see themselves and others as more complex than the labels associated with them and to avoid being identified by their thoughts about themselves (Yuval, 2011). Values are selected principles (Burke & Moore, 2015) that are chosen by the individual (Dahl et al., 2009), define processes, and are associated with patterns of action that guide and organize the individual's behavior (ibid.) and give it meaning (Burke & Moore, 2015). Values are like a compass that guides an ongoing process towards specific and achievable goals (Luoma et al., 2007). Committed actions reinforce effective behaviors that help individuals achieve values-based goals (Yuval, 2011).

These behaviors should be tailored to each individual's values and not motivated by external factors. They should also be regularly evaluated and adjusted as needed. Ultimately, values-based behaviors should be the ultimate goal. Psychological flexibility depends on a person's ability to efficiently balance the mental energy they invest in current events in their immediate environment and the energy they can invest in important future situations (Kashdan & Rottenberg, 2010). Automatic processes such as heuristics, stereotypes, and habits help us to interpret and respond to the environment in a balanced way. However, this process leads individuals to draw conclusions about themselves, others, and the world around them based on limited knowledge and misconceptions (Dunning et al., 2004).

Psychological flexibility helps to design efficient processes based on heuristics. Heuristics are simple mental procedures that help to find quick but incomplete answers and solutions to difficult questions and decisions (Kahneman, 2012). Heuristics help us to navigate social environments and deal with myriad verbal and non-verbal information in social interactions (Kashdan & Rottenberg, 2010). Heuristics and stereotypes allow us to draw conclusions and determine responses to conclusions daily (Shah & Oppenheimer, 2008). Heuristics and stereotypes resist rethinking

and change (Kammrath et al., 2007). They make it difficult to recognize other relevant information or gain new insights, and they prevent us from experiencing and participating in different personal situations (Funder, 1995), such as presence, mindfulness, and values (Fuchs, 2021). It requires us to recognize the tendency to decide and choose according to automatic patterns that lead to social judgments and preferences based on habits. The limitations of cognitively biased social judgments, habits and preferences, and automatic, habitual responses ultimately limit flexible, original, and predictive decisions and outcomes (Kashdan & Rottenberg, 2010). Psychological flexibility means being fully aware of one's feelings, thoughts, and behavior in line with one's values (Palladino et al., 2013).

Studies have shown that psychological flexibility affects behavior, performance levels, biases, and the ability to cope with, accept, and learn new things (Hayes et al., 2010). The ability of a person with psychological flexibility to experience negative thoughts and emotions without subsequently intervening or judging allows them to experience these thoughts and emotions without perceiving them as real and, therefore, without being affected by them (Masuda et al., 2009). In this situation, the individual's ability to react and behave according to their true values is preserved (Schmertz & Calamaras, 2009). Categorization and labeling are natural and normal processes that occur immediately and automatically. However, when a person is unable to disengage from a particular thought or when emotions and thoughts are perceived as objective representations of reality rather than temporal products of the mind (Safran & Segal, 1990), labeling may indicate a lack of acceptance and openness and lead to negative consequences (Kashdan & Rottenberg, 2010). The inability to accept frustration or deal with unwanted experiences directly reduces the effective use of attention skills and decision-making abilities. It leads to the energy invested in avoiding or changing irrevocable experiences (Wegner, 1994), causing a lack of psychological availability for adaptation and acceptance (Kashdan & Rottenberg, 2010). Psychological flexibility plays a key role in coping with situations of psychological distress. It is also positively related to prudence and presence in decision-making processes. It enables me to deal effectively with new and challenging situations and to develop alternative views and ideas. Juanchich et al. (2016) found a link between psychological flexibility and effective decision-making processes. They found that greater cognitive reflection predicts positive outcomes in real-life decision-making (Gautam & Mathur, 2018).

Research has shown that leaders with higher psychological flexibility demonstrate better decision-making skills and are rated more effective by their subordinates (Lloyd et al., 2013). This flexibility enables leaders to manage stress more effectively, cope with challenging situations, and make decisions that align with organizational goals (Kashdan & Rottenberg, 2010). In addition, psychologically flexible leaders can foster a positive organizational culture supporting innovation and resilience (Furtner et al., 2018).

The Afik model of human leadership

The model of human leadership, which was researched and validated by Fishbein (2021) and explored in this article, is ideal for leading employees in the 21st century. The challenges and complexities of the modern world are increasingly shaping workplace dynamics. Employees and managers today face unique circumstances that require adaptability and a nuanced understanding of the evolving social space inside and outside the workplace. Effective leadership means understanding and embracing the complexity of people moving between different roles and experiences in this changing landscape. It must create a work environment that values diversity, encourages adaptability, and provides employees with the support and guidance they need to excel in their multi-faceted lives.

The world's diverse challenges can bring complexity and uncertainty. The world is becoming increasingly complex and uncertain, requiring people to navigate multi-faceted issues. On the one

hand, they are experiencing individualization, but also the development of a growing divide in social diversity. People have different backgrounds and values, which leads to different perspectives and expectations. In addition, despite globalization, there are different economic and cultural norms and growing environmental concerns due to increasing vulnerability to natural and technological hazards. Managers must manage employees with different experiences and roles outside of work. Employees can quickly change roles and experiences, e.g., from playing to a professional role. Managers must also balance the expectations and behaviors of different roles and ensure that employees meet the demands. From the human leadership model perspective, effective leadership is based on communication and empathy. Managers should maintain open communication, show empathy, and recognize the different experiences of their team members. They should have clear expectations of behavior and performance in the workplace while recognizing that individuality is important. They should train and support employees to help them bridge the gap between their different experiences, which can be beneficial. The manager should embrace the diverse employee. Recognizing that employees bring different experiences and skills from different areas of their lives can lead to innovative solutions. Encouraging employees to balance their roles and responsibilities can increase their well-being and job satisfaction (Fishbein, 2021). These characteristics encompass task-oriented and relationship-oriented aspects of leadership and reflect the complexity of effective human leadership in the 21st century.

Based on the findings of Fuchs and Banaszak (2024) on psychological flexibility in decision-making processes in leadership, especially human leadership, psychological flexibility can significantly influence decision-making processes related to resource allocation, support systems, and service delivery to various stakeholder needs. Integrating psychological flexibility and behavioral economics principles provides valuable insights into potential biases and heuristics that can influence leadership decisions, especially in challenging environments.

Leaders who cultivate self-awareness, a key component of psychological flexibility, can better recognize cognitive biases and heuristics influencing their decision-making processes. This awareness is critical to people-centered leadership and enables leaders to make more informed and equitable decisions. Emotion regulation, another aspect of psychological flexibility, is particularly important in leadership contexts where affective states can influence decisions. Leaders who can effectively regulate their emotions are likelier to make decisions that align with organizational values and stakeholder needs rather than being guided by impulsive reactions or avoidance behaviors. Values-based decision-making, a cornerstone of psychological flexibility and human leadership, encourages leaders to clarify their values and use them as guiding principles. This approach can help leaders prioritize stakeholder well-being and ethical considerations over short-term profits or personal interests. By combining behavioral economics insights with psychological flexibility, leaders can implement interventions that guide decision-makers to make more equitable and value-based resource allocation and service delivery decisions.

Adaptation to different decision-making contexts and frameworks, a hallmark of psychological flexibility, is critical for effective leadership in a dynamic environment. Leaders who possess this skill can better navigate complex organizational environments and make more informed and compassionate decisions, considering the unique circumstances of those involved. In addition, psychological flexibility improves risk assessment and management in leadership positions by promoting a broader perspective, mindfulness, and empathy, thus mitigating the influence of cognitive biases in high-stakes decision-making. Finally, psychological flexibility contributes to collaborative leadership by encouraging open communication, active listening, and adaptability to different viewpoints and new approaches. This collaborative approach, essential to human leadership, leads to more inclusive and effective decision-making processes. By synthesizing insights from behavioral economics and psychological flexibility, leaders can cultivate a more pro-

fessional, objective, present, equitable, mindful, and compassionate decision-making environment. This approach prioritizes stakeholder well-being and enables leaders to remain authentic and courageous in driving social improvement, addressing one of the greatest challenges of leadership today.

According to Fuchs et al. (2023), In the milieu of the 21st-century, marked by diversity, rapid change, and interconnectedness, leader's adept at practicing psychological flexibility and embracing human leadership qualities are better equipped to address challenges effectively. They possess the ability to nurture inclusive and collaborative environments, adeptly navigate cultural nuances, and lead with empathy, all of which are pivotal for thriving in the dynamic social landscape of the modern age. Prioritizing psychological flexibility and human leadership proves indispensable as it enables adaptability in the face of change and fosters a work environment where employees feel supported and valued. Leaders who prioritize empathy, transparency, and inclusivity cultivate a profound sense of belonging among their teams, which, in turn, fuels effective collaboration and encourages individuals to contribute their best efforts. As leaders in the 21st century, understanding the concept of psychological flexibility and its profound influence on forging a positive social space for our teams is paramount. Psychological flexibility equips leaders to adapt to evolving situations and effectively manage stress, fostering an environment where employees feel valued and boosting productivity and job satisfaction. Psychological flexibility and human leadership can significantly benefit leaders in navigating the challenges of the 21st-century.

2.2 Artificial Intelligence in Leadership Assessment and Development

Integrating artificial intelligence (AI) into leadership assessment and development processes has opened new avenues for enhancing organizational performance (Cheng et al., 2019). AI-driven systems have demonstrated the ability to conduct in-depth analyses of leadership evaluations and develop tailored intervention programs based on standards of effective leadership and psychological adaptability (Campion et al., 2020).

Recent studies have highlighted AI's potential to enhance leadership assessment processes by identifying subtle cues that human evaluators might miss (Cheng et al., 2019). For instance, AI-based systems can analyze facial expressions, voice intonation, and language patterns to evaluate leadership potential with increased accuracy (Campion et al., 2020). Moreover, machine learning algorithms have shown promise in predicting leadership effectiveness by processing vast amounts of data and identifying complex patterns in leadership behaviors (Li et al., 2020). AI-driven leadership assessment tools have gained significant traction. These tools leverage machine learning algorithms to analyze vast datasets and identify patterns indicative of leadership potential and performance (Cheng et al., 2021). These tools often employ natural language processing (NLP) techniques to evaluate leadership communication styles, sentiment, and effectiveness through analysis of written and verbal data (Johnson & Smith, 2023). Campion et al. (2020) demonstrated the efficacy of AI-powered video interview analysis in predicting leadership performance with accuracy comparable to traditional human-led assessments. In leadership development, AI systems create personalized learning experiences and provide real-time feedback. Zhang and colleagues (2022) reported on an AI-driven leadership coaching platform that adapts its curriculum based on individual strengths, weaknesses, and learning patterns, resulting in significantly improved leadership competencies compared to traditional training methods. It aligns with earlier proposals by Antonakis and Day (2018) that AI can help tailor leadership development programs by identifying specific areas for improvement based on individual assessments, potentially leading to more effective skill acquisition and application. The integration of AI in leadership assessment and development offers several potential advantages. Firstly, AI systems can process and analyze much larger volumes of data than human assessors, potentially leading to more comprehensive

and objective evaluations (Li et al., 2021). This capacity for big data analysis may uncover subtle patterns and correlations that human observers overlook, providing deeper insights into leadership effectiveness. Secondly, AI-powered tools can mitigate human biases in leadership assessment, promoting greater fairness and diversity in leadership selection and development processes (Garcia-Martinez & Rodriguez-Lopez, 2022). Focusing on objective behavioral and performance metrics, these systems help organizations identify high-potential leaders from underrepresented groups overlooked in traditional assessment paradigms. Thirdly, AI solutions' scalability and cost-effectiveness make leadership assessment and development more accessible to a broader range of organizations, potentially democratizing access to high-quality leadership resources (Thompson, 2023). This democratization could lead to more diverse and inclusive leadership pipelines across various industries and organizational sizes.

Despite the promising potential of AI in leadership contexts, several challenges and ethical considerations warrant attention. One primary concern is the "black box" nature of many AI algorithms, which can make it difficult to understand and explain the rationale behind AI-generated assessments (Wang & Chen, 2022). This lack of transparency may lead to skepticism and resistance from leaders and organizations. Privacy concerns also loom large, particularly when AI systems collect and analyze large amounts of personal data. Ensuring data security and compliance with evolving privacy regulations presents an ongoing challenge for organizations implementing AI-driven leadership tools (O'Neil, 2021). Recent research by Tamburri (2021) highlights the need for robust data governance frameworks to address these concerns and ensure ethical AI deployment in leadership contexts. Moreover, there is a risk of over-reliance on AI assessments, potentially neglecting important human factors and contextual nuances that algorithms may not capture. Scholars emphasize the importance of viewing AI as a complementary tool to human judgment rather than replacing human expertise in leadership assessment and development (Davis & Robinson, 2023). This perspective is further supported by recent work from Fernández-Araoz et al. (2022), who argue for a hybrid approach that combines AI-driven insights with human expertise to achieve optimal leadership assessment and development outcomes. Researchers are exploring new frontiers in AI-driven leadership development as the field continues to evolve. For instance, Avolio et al. (2023) have begun investigating the potential of AI to simulate complex leadership scenarios, allowing leaders to practice decision-making in virtual environments that mimic real-world challenges. Additionally, emerging research by Kim and Lee (2024) suggests that AI could play a crucial role in identifying and nurturing leadership potential earlier in individuals' careers, potentially reshaping traditional leadership development timelines.

In conclusion, integrating AI into leadership assessment and development processes represents a significant paradigm shift with immense potential to enhance organizational performance. While challenges remain, particularly in the realms of transparency, privacy, and ethical implementation, the benefits of AI-driven tools in improving the objectivity, scalability, and effectiveness of leadership processes are substantial. As the field matures, a balanced approach that leverages the strengths of both AI and human expertise is likely to yield the most comprehensive and impactful leadership assessment and development strategies.

Ethical Considerations in AI-Driven Leadership Assessment

Integrating artificial intelligence (AI) in leadership assessment presents new ethical challenges that require careful consideration. While AI offers unprecedented opportunities for objective and scalable leadership evaluation, it also raises significant ethical concerns that researchers and practitioners must address. One primary ethical consideration is the potential for algorithmic bias. AI systems are trained on historical data, which may incorporate existing societal biases, potentially perpetuating or amplifying discrimination in leadership selection and development (Tamburri, 2020). For instance, if historical data reflects a predominance of male leaders, AI systems might inadvertently favor male candidates, perpetuating gender imbalances in leadership roles.

To mitigate this, it is crucial to implement rigorous bias detection and correction mechanisms in AI algorithms used for leadership assessment (Daugherty et al., 2019). Privacy and data protection represent another critical ethical concern. AI-driven leadership assessments often require access to vast amounts of personal and professional data, raising questions about data ownership, consent, and the potential for misuse of sensitive information (Toreini et al., 2020). Organizations must ensure robust data protection measures and transparent data usage and storage policies. The "black box" nature of many AI algorithms poses a significant ethical challenge, particularly in high-stakes decisions like leadership selection.

When AI systems make recommendations or decisions that affect individuals' careers, there is an ethical imperative for explainability and transparency (Gunning & Aha, 2019). Leaders and employees alike should have the right to understand how AI-driven assessments are made and the factors influencing these decisions. There are also concerns about the dehumanization of leadership assessment processes. While AI can process vast amounts of data efficiently, it may struggle to capture nuanced human qualities crucial for effective leadership, such as empathy, emotional intelligence, and ethical decision-making (Chamorro-Premuzic et al., 2020). Overreliance on AI assessments could lead to a reductive view of leadership, potentially overlooking critical human elements. The use of AI in leadership assessment also raises questions about accountability. When AI systems are involved in leadership decisions, it becomes crucial to establish clear lines of responsibility and accountability for these decisions (Doshi-Velez & Kim, 2017). it includes determining who is responsible for AI-generated assessments and how to handle disputes or appeals against these assessments. Organizations and researchers should establish ethical guidelines for using AI in leadership assessment to address ethical concerns. This could involve conducting regular audits of AI systems to identify and mitigate bias, ensuring diverse representation in AI development teams, and creating transparent processes for AI-driven decisions (Jobin et al., 2019). Additionally, it is crucial to maintain human oversight in AI-driven leadership assessments. A hybrid approach that combines AI insights with human judgment can help balance AI's efficiency and the nuanced understanding that human evaluators bring to leadership assessment (Shrestha et al., 2019). In summary, while AI has the potential to improve leadership assessment significantly, it is essential to approach its implementation thoughtfully and consider its ethical implications. By addressing issues of bias, privacy, transparency, and accountability, organizations can leverage the power of AI in leadership assessment while upholding ethical standards and human values.

3 Research Objective

This study aims to develop and validate an AI-based leadership assessment tool that integrates principles of psychological flexibility and human leadership traits to evaluate and predict managerial performance in 21st-century organizations. The research seeks to identify and empirically validate the key components of psychological flexibility and human leadership traits most predictive of effective leadership in contemporary organizational contexts while designing and implementing an AI-driven assessment methodology that can accurately and ethically evaluate these integrated leadership competencies. Furthermore, the study aims to examine the relationship between psychological flexibility, human leadership traits, and organizational performance metrics to establish the predictive validity of the assessment tool. In doing so, the research will investigate the potential of AI to enhance the objectivity, scalability, and effectiveness of leadership assessment processes while addressing ethical considerations and potential biases. Ultimately, this

study endeavors to develop a theoretical framework that explicates the interplay between psychological flexibility, human leadership traits, and AI-driven assessment in fostering leadership effectiveness in volatile, uncertain, complex, and ambiguous (VUCA) environments. Through these comprehensive objectives, this research aims to advance leadership theory and practice, offering organizations a robust, AI-enhanced tool for identifying, developing, and leveraging leadership potential in the complex landscape of 21st-century business.

4 Methodology

This study employs a mixed-methods sequential explanatory design to develop and validate an AI-based assessment tool for 21st-century leadership skills. Building upon two foundational studies—a meta-analysis on psychological flexibility and human leadership and research on functional assessment tools for special education—this research integrates quantitative and qualitative approaches to address modern leadership evaluation's complexities comprehensively. The research design unfolds in multiple phases, each informing the next. A diverse sample of 270 managers from various organizations, hierarchical levels, and management experiences initially participated in a quantitative survey. This survey incorporates the Multidimensional Psychological Flexibility Inventory MPFI (Rolffs, Rogge, & Wilson, 2018). The AFIK Human Leadership Model questionnaire (Fishbien, 2021), and the 21st Century Skill Survey (White et al.,2012). Data collection occurs via an online platform, ensuring standardization and accessibility. The subsequent analysis employs descriptive statistics, correlation analyses, and factor analysis to identify core components for the new assessment tool. Using Cronbach's alpha, reliability analysis assesses the internal consistency of newly developed scales.

Following the quantitative phase, the study moves into instrument development and validation. A new Leadership Assessment Questionnaire, based on psychological flexibility and human leadership principles, is developed in closed and open-ended formats. Content validity is rigorously assessed through expert review, utilizing Lawshe's Content Validity Ratio CVR (. A panel of 15 leadership and management experts participates in this crucial validation process, ensuring the tool's reliability and validity. Additionally, pilot testing of both questionnaire versions with a subset of 30 participants from the primary sample refines the instruments before full-scale implementation. The qualitative phase deepens the investigation by administering the open-ended Leadership Assessment Questionnaire to 20 managers from the primary sample. These participants also engage in semi-structured interviews, providing rich, contextual data on their leadership experiences and challenges. Thematic and content analyses of these responses reveal recurring patterns and themes in leadership challenges and strategies, offering nuanced insights that complement the quantitative findings. Integration of quantitative and qualitative data occurs through joint displays and the development of a conceptual model that encapsulates key components of effective 21st-century leadership. This integrative approach allows for a comprehensive understanding of the multifaceted nature of leadership in contemporary organizational contexts. A novel aspect of this study is integrating artificial intelligence into the analysis process. Based on the research findings, a structured prompt is developed and input into two distinct AI platforms. These platforms analyze the qualitative data, and their outputs are compared with human-coded results to assess reliability and validity. This innovative approach positions the study at the forefront of leadership assessment research, leveraging cutting-edge technology to enhance traditional analytical methods. The study acknowledges potential limitations, such as the inherent bias in self-reported data. This is addressed through triangulation with expert assessments and AI analysis. Generalizability considerations due to specific organizational contexts are also recognized. To enhance validity

and reliability, the research employs multiple measures including triangulation of data sources, member checking of qualitative findings, inter-rater reliability checks for qualitative coding, and comprehensive pilot testing of all instruments. These measures demonstrate the study's commitment to robust research practices and the thoroughness of its approach to leadership assessment.

This multifaceted methodology enables a thorough exploration of leadership assessment in the 21st century, combining traditional research methods with innovative AI-driven analysis. The research unfolds in five stages, each building upon the previous findings. The first stage involves administering and analyzing comprehensive questionnaires to a large sample of managers, establishing a quantitative foundation. The second stage focuses on developing new assessment tools, incorporating expert validation to ensure content validity. In the third stage, the study compares expert ratings with participant responses, bridging theoretical and practical perspectives on leadership. The fourth stage delves deeper into qualitative insights, utilizing open-ended questionnaires with a subset of managers to explore the nuances of their leadership experiences. The final stage marks a significant leap forward, integrating artificial intelligence into the analysis process. Here, carefully crafted prompts guide AI platforms in analyzing qualitative data, offering a novel approach to leadership assessment. This progressive, multi-stage design allows continuous refinement and validation of the assessment tool throughout the research process. The resulting instrument, grounded in psychological flexibility and human leadership principles, offers a robust and technologically advanced framework for evaluating and developing leadership capabilities in contemporary organizational settings. This methodological approach addresses the complex demands of modern leadership and paves the way for future research at the intersection of leadership theory, psychological constructs, and artificial intelligence.

5 Results

5.1 Results stage 1

The study included a sample of 279 management (N = 279). Table 1 presents the demographic and professional characteristics of the participants.

Table 1. Managers sample characteristics.

	N	%	Mean	S.D
Gender				
Female	145	51.97		
Male	134	48.02		
Age			19.96	4.96
Teamwork Experience				
No	3	1.07		
Less than 5	15	5.37		
5-10 years	10	3.58		
10-15 years	15	5.37		
15-20 years	11	3.94		
More than 20 Years	225	80.64		
Leadership Experience			16.51	7.65

No	34	12.81
Less than 5	9	3.22
5-10 years	23	8.24
10-15 years	46	16.48
15-20 years	16	5.73
More than 20 years	151	54.12
Education		
High school	16	5.73
B.A	57	20.43
M.A	165	57.13
Ph.D	26	9.31
Other	15	5.37

As shown in Table 1, the gender distribution was relatively balanced, with 51.97% female and 48.02% male participants. The average age of the participants was 19.96 years (SD = 4.96). What's truly impressive is that 80.64% of participants reported over 20 years of teamwork experience, and 54.12% reported more than 20 years of leadership experience. This high level of experience is not only inspiring but also a testament to the dedication of our participants.

5.2 Correlation Analysis

The first stage aimed to evaluate the importance and impact of psychological flexibility components and human leadership elements, to assess their relationships, and their influence on leader performance. The analysis aimed to isolate the core components that would form the basis for an assessment tool of leadership capabilities in the 21st century. A Pearson correlation analysis was conducted to identify the relationships between psychological flexibility components and human leadership traits. Fig. 1 presents a heatmap visualization of these correlations.

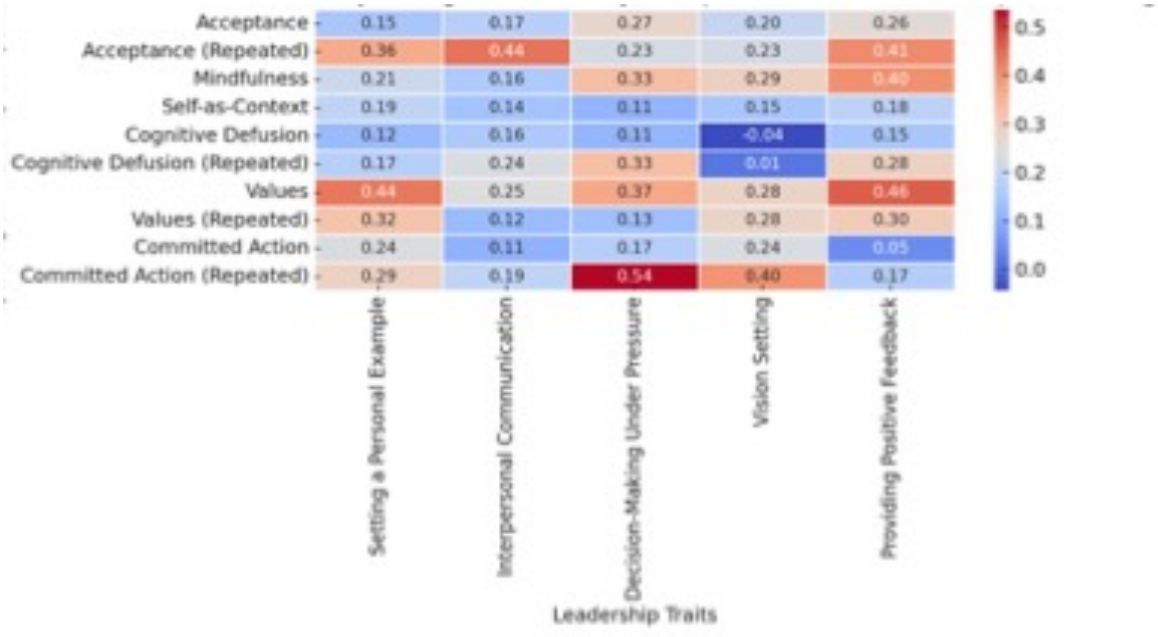

Fig. 1. Heatmap of correlations between psychological flexibility components and leadership traits.

As evident from heatmap (see Fig. 1), several significant relationships were identified: Acceptance (Psychological Flexibility) and decision-making Under Pressure (Human Leadership): $r = 0.27$, $p < 0.001$. Committed Action & Vision (Leadership): $r = 0.40$, $p < 0.001$. Cognitive Defusion & Delegation of Authority: $r = 0.21$, $p < 0.001$. Mindfulness & Providing Positive Feedback: $r = 0.41$, $p < 0.001$. The heatmap also reveals other notable correlations, such as the strong relationship between Values and Providing Positive Feedback ($r = 0.46$) and between Committed Action and Decision-Making Under Pressure ($r = 0.54$). The research, which aimed to examine the combined influence of psychological flexibility components and leadership traits on coping with 21st-century challenges, was comprehensive and thorough. A multiple regression analysis was performed, and the model explained a substantial 46.7% of the variance in coping with leadership challenges ($R^2 = 0.467$, MSE = 52.09).

Further Regression analysis examined the interactions between psychological flexibility components and human leadership traits. This model explained 54.5% of the variance ($R^2 = 0.545$). Figure 2 illustrates the significant interaction effects.

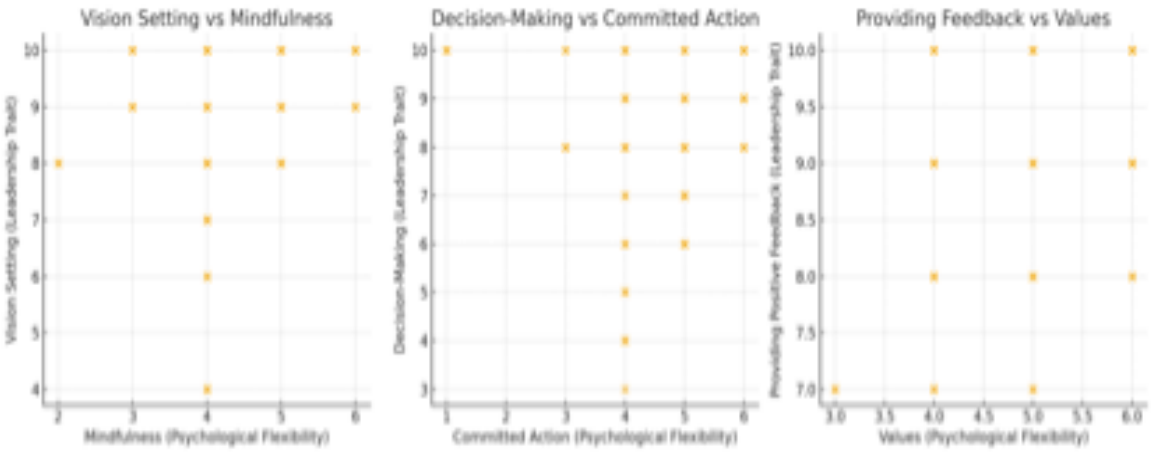

Fig. 2. Scatter plots of significant interaction effects.

The scatter plots in Figure 2 demonstrate how the interaction terms correlate with human leadership trait scores. Notably, there is a positive interaction between "Committed Action (Psychological Flexibility)" and "Vision (Leadership)", and a strong positive interaction between "Acceptance (Psychological Flexibility)" and "Interpersonal Communication (Leadership)".

The primary objective of this research was to develop an effective leadership assessment tool based on psychological flexibility and human leadership traits. The goal was to identify and evaluate the components that have the greatest impact on a leader's ability to function well and handle the challenges of the 21st century. Based on the analysis, certain key components of psychological flexibility and leadership traits have been shown to significantly influence leadership effectiveness. Table 2 presents these components along with their correlation coefficients and regression coefficients.

Table 2. Key components of psychological flexibility and human leadership with statistical measures.

Psychological Flexibility Components	Setting a Personal Example	Interpersonal Communication	Decision-Making Under Pressure	Vision Setting	Providing Positive Feedback
Acceptance	0.15	0.17	0.27	0.20	0.26
Acceptance (Repeated Measure)	0.36	0.44	0.23	0.23	0.41
Mindfulness	0.21	0.16	0.33	0.29	0.40
Self-as-Context	0.19	0.14	0.11	0.15	0.18
Cognitive Defusion	0.12	0.16	0.11	-0.04	0.15
Cognitive Defusion (Repeated Measure)	0.17	0.24	0.33	0.01	0.28
Values	0.44	0.25	0.37	0.28	0.46
Values (Repeated Measure)	0.32	0.12	0.13	0.28	0.30
Committed Action	0.24	0.11	0.17	0.05	0.24
Committed Action (Repeated Measure)	0.29	0.19	0.54	0.40	0.17

The analysis of core components of psychological flexibility and human leadership traits aimed to create a foundation for developing a leadership assessment tool for 21st-century organizational challenges. These components were selected based on their strong correlations and regression results, demonstrating their predictive power in leadership performance.

The table shows the correlation between each component of psychological flexibility and each leadership trait. Correlations can range from -1 to +1: Positive correlations (closer to +1) suggest that the leadership trait also improves as the psychological flexibility component increases. Negative correlations (closer to -1) suggest that the leadership trait may decrease as the psychological flexibility component increases. Correlations close to 0 suggest little to no relationship between the two variables.

Psychological Flexibility Components that were chosen for the Assessment Tool: Mindfulness: The ability to stay present and focused strongly correlates with leadership traits such as vision-setting and providing feedback. Including this in your assessment will help evaluate how well a leader can maintain awareness and presence in dynamic and challenging situations. That is because more mindful Leaders tend to communicate more clearly, provide more constructive feedback, and inspire their teams by focusing on the present moment. Committed Action: This is the ability to take committed steps aligned with one's values, even in difficult situations. It showed strong correlations with decision-making under pressure and vision-setting. That is because action-oriented Leaders tend to make impactful decisions that align with long-term organizational goals, especially under pressure. Measuring committed action can indicate how a leader performs in challenging or uncertain environments. Values: Acting consistently according to personal and organizational values is essential. Values correlate with several leadership traits, particularly providing positive feedback and decision-making. Leaders who align their actions with core values are more likely to inspire trust and loyalty within the organization. Assessing a leader's adherence

to values ensures they can make morally sound decisions that align with the organization's mission. Cognitive Defusion is the ability to distance oneself from unhelpful or negative thoughts. It is moderately correlated with providing feedback and other leadership behaviors. Leaders who can cognitively detach from negativity are better positioned to remain objective, especially in high-stress environments, allowing them to provide clearer and more balanced feedback.

Human Leadership Traits for the Assessment Tool: Vision Setting: Effective leaders who create and communicate a vision are critical for guiding their teams and the organization toward long-term goals. This trait consistently correlates with key components like mindfulness and committed action. A leader's ability to craft and communicate a strategic vision can indicate how well they inspire and align their teams with future objectives. Decision-Making Under Pressure: Making fast, accurate decisions in stressful situations is crucial in today's fast-paced work environments. Because This trait is strongly influenced by committed action and values, leaders who are decisive in alignment with core values tend to perform better under pressure. Including this trait can help assess how leaders manage crises or high-stakes scenarios. Providing Positive Feedback: Regular and constructive feedback is important for improving team morale, motivation, and performance. Leaders who excel in providing positive feedback are often better communicators and can foster a collaborative and supportive team culture. The data shows that this trait correlates strongly with values and mindfulness. Interpersonal Communication: Clear and effective communication is essential for managing teams and fostering an inclusive environment. That is because Leaders with strong communication skills can articulate expectations, provide direction, and ensure that their teams are aligned. This trait connects well with mindfulness and acceptance. Delegation of Authority: Effective leaders know how to delegate responsibilities and trust their team members to carry out tasks. Because This trait allows leaders to focus on high-level strategy while empowering their teams, assessing delegation skills ensures the leader can balance control with trust, a trait linked with self-as-context and mindfulness.

Key Parameters for the Assessment Tool: Psychological Flexibility: Mindfulness: Assesses the leader's ability to stay focused and present. Committed Action: Evaluates how consistently a leader takes values-based action. Values Alignment: Measures the extent to which the leader's actions reflect core values. Cognitive Diffusion: Determines the leader's ability to manage unhelpful thoughts and stay objective under pressure. Leadership Traits: Vision Setting: Assesses the ability to create, communicate, and drive a long-term vision. Decision-Making Under Pressure: Measures the leader's effectiveness in making timely and accurate decisions in stressful situations. Providing Positive Feedback: Evaluates how well the leader supports and motivates the team through feedback. Interpersonal Communication: Determines the clarity and effectiveness of the leader's communication with the team. Delegation of Authority: Assesses the leader's ability to delegate tasks and empower team members.

The choices are based on the correlation analysis and the regression results to numerically support the inclusion of psychological flexibility components and leadership traits in the assessment tool. These analyses helped quantify the impact of each component on leadership effectiveness in the context of 21st-century leadership challenges.

Psychological Flexibility Components: Mindfulness: Mindfulness is highly correlated with traits critical for leadership, such as vision-setting and feedback. The strong regression coefficient shows that it significantly impacts the overall ability to handle leadership challenges. Correlation with Vision Setting: 0.29. Correlation with Providing Positive Feedback: 0.40. Regression coefficient for Mindfulness in the overall model: 4.31. Committed Action: Leaders committed to acting in line with their values have strong decision-making abilities under pressure. Including this component ensures that the assessment measures leadership resilience in challenging situations. Correlation with Decision-Making Under Pressure: 0.17. Correlation with Providing Feedback: 0.24. The regression coefficient for Committed Action is 2.56. Values: Leaders who act based on their

values show better feedback and decision-making abilities. This component is highly relevant for assessing ethical and value-driven leadership. Correlation with Providing Positive Feedback: 0.46. Correlation with Decision-Making Under Pressure: 0.37. The regression coefficient for Values is 2.56 (Negative in some cases due to possible overemphasis). Leadership Traits: Vision Setting: A strong vision is crucial for effectiveness. The high correlation and significant regression coefficient make it a central trait for any leadership assessment. Correlation with Mindfulness: 0.29. Correlation with Committed Action: 0.40. Regression coefficient for Vision Setting: 4.21. Decision-Making Under Pressure: Decision-making under pressure is one of the most critical traits for modern leadership. Its high correlation with flexibility components and the strong regression coefficient indicates that it should be a core part of the evaluation tool. Correlation with Committed Action: 0.54. Correlation with Values: 0.37. The regression coefficient for Decision-Making: 4.24. Providing Positive Feedback: Correlation with Values: 0.46. Correlation with Mindfulness: 0.40. Regression coefficient for Providing Feedback: 4.24. Conclusion: Leaders who give constructive and positive feedback tend to have higher team performance. Including this trait in the assessment will evaluate a leader's ability to motivate and engage their team.

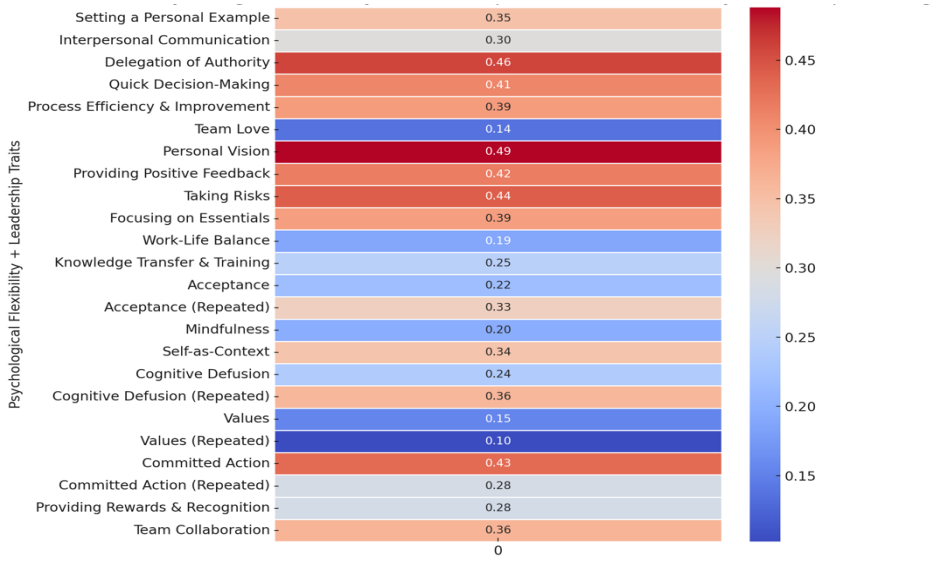

Fig. 3. Bar chart comparing key components' correlation coefficients and regression coefficients.

The correlation heatmap shows the relationship between psychological flexibility and leadership traits and 21st-century leadership challenges that affect the organization—the heatmap highlights which traits and flexibility components are more closely associated with leadership challenges in modern settings. The darker colors indicate stronger correlations, either positive or negative. The statistical analyses reveal significant relationships between these components and the ability to cope with 21st-century challenges, highlighting the importance of an integrated approach in evaluating and developing effective leadership in the modern era. Identifying key psychological flexibility components and their interactions with crucial leadership traits offers valuable insights for leadership development programs. The high predictive accuracy of the model for specific leadership outcomes, while potentially indicative of overfitting, suggests a strong potential for a nuanced understanding of leadership effectiveness. The findings underscore the complex interplay between psychological flexibility and leadership traits in addressing modern leadership

challenges. It points to the need for a multifaceted approach to leadership assessment and development that considers both leaders' internal psychological processes and their external behaviors and skills.

5.3 Results stage 2

Table 3. Experts sample.

	N	%	Mean
Gender			
Female	6		40.00
Male	9		60.00
Age			58.03
Experience			14.71
Organization			
Big	5	33.33	
Medium	3	20.00	
Small	7	46.66	

Leadership functional assessment parameters underwent content validation analysis using Lawshe's Content Validity Ratio CVR (Lawshe, 2015), which involved expert evaluations across three categories: essential for functional assessment, impacting function but not pertinent for assessment, and not necessarily impacting function or beneficial for evaluation. The Lawshe's Content Validity Ratio (CVR) was computed for each parameter using the formula: CVR = (ne - N/2) / (N/2), where it represents the number of experts assessing the item as "necessary" and N denotes the total number of experts.

Table 4. Experts' evaluation

Question	Does not necessarily	%	Efficient but not necessary	%	Necessary	%
Mindfulness – Q1	3	20	7	46.67	5	33.34
Mindfulness – Q2	1	6.67	1	6.67	13	86.67
Committed Action– Q1	3	20	1	6.67	11	73.33
Committed Action– Q2	2	13.34	3	20	10	66.67
Values Alignment– Q1	4	26.67	6	40	5	33.33
Values Alignment– Q2	0	0	2	13.33	13	86.67
Cognitive Defusion– Q1	1	6.67	0	0	14	93.33
Cognitive Defusion– Q2	0	0	0	0	15	100
Vision Setting – Q1	2	13.33	1	6.67	12	80
Committed Action– Q2	2	13.33	0	0	13	86.67
Decision-Making Under Pressure– Q1	2	13.33	4	26.67	9	60
Decision-Making Under Pressure– Q2	0	0	0	0	15	100
Providing Positive Feedback– Q1	0	0	3	20	12	80

Providing Positive Feedback – Q2	0	0	3	20	12	80
interpersonal Communication– Q1	0	0	0	0	15	100
interpersonal Communication – Q2	0	0	2	13.33	13	86.67
Delegation of Authority– Q1	1	6.67	2	13.33	12	80
Delegation of Authority– Q2	1	6.67	2	13.33	12	80

CVR calculations are based on evaluations from 15 experts for each question. Each row shows the question, the number of experts who deemed it essential, the CVR calculation, and the adjusted CVR value based on the scale of -1 (not relevant), 0 (useful but not essential), and 1 (essential).

Table 5. CVR results

Question	Necessary	CVR_Calculation	Adjusted CVR
1	5.0	-0.33	-1
2	13.0	0.73	1
3	11.0	0.47	0
4	10.0	0.33	0
5	5.0	-0.33	-1
6	13.0	0.73	1
7	14.0	0.87	1
8	15.0	1.0	1
9	12.0	0.6	1
10	13.0	0.73	1
11	9.0	0.2	0
12	15.0	1.0	1
13	12.0	0.6	1
14	12.0	0.6	1
15	15.0	1.0	1
16	13.0	0.73	1
17	12.0	0.6	1
18	12.0	0.6	1

For CVR negative, the Adjusted CVR is -1. This means that the question is considered Irrelevant by most experts. CVR is positive but below 0.5, and the Adjusted CVR is 0, meaning the question is useful but not essential. CVR that is greater than 0.5, the Adjusted CVR is 1, meaning the question is considered Essential.

Question 1, for example, CVR=5−(15/2)15/2=5−7.57.5=−2.57.5=−0.33. Since the CVR is negative, the Adjusted CVR is -1. Question 2 for example CVR=13−(15/2)15/2=13−7.57.5=5.57.5=0.73CVR=15/213−(15/2)=7.513−7.5=7.55.5=0.73. Since the CVR is greater than 0.5, the Adjusted CVR is 1.

After including the Total number of valid questions (18) And the Sum of Adjusted CVR values (13), The Overall Score is 0.72. This overall score indicates that the experts consider most of the questions useful or essential experts consider. This indicates that the questionnaire has been designed with relevant content for leadership assessment. This suggests that the questionnaire is well-aligned with leadership assessment needs, with room for improvement in some questions to increase their relevance.

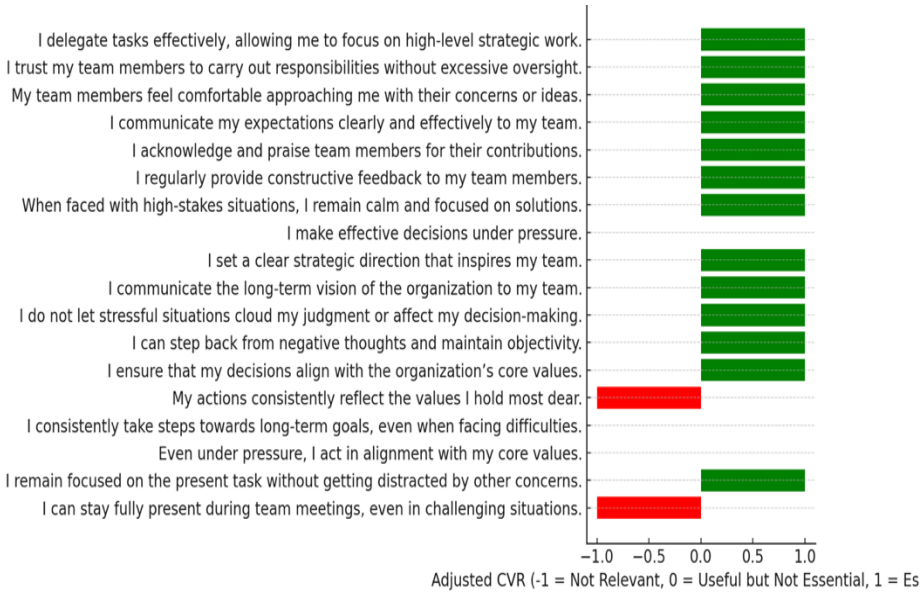

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Fig. 4. Questionnaire CVR.

The graph clearly distinguishes between Red for Questions marked as Not Relevant (Adjusted CVR = -1). Non-for Questions marked as Useful but not Essential (Adjusted CVR = 0). Green for Questions marked as Essential (Adjusted CVR = 1). The overall score of 0.72 indicates that the questionnaire has good content validity.

6.1 Results stage 3

Table 6. Key components of psychological flexibility and human leadership evaluation comparation

Component	Type	Expert Rank	Survey Rank	Differences
Cognitive Diffusion	Psychological Flexibility	1	7	Significant difference
Interpersonal Communication	Leadership Trait	2	8	Significant difference
Decision-Making Under Pressure	Leadership Trait	3	2	Similar ranking
Delegation of Authority	Leadership Trait	4	9	Significant difference
Providing Positive Feedback	Leadership Trait	5	3	Similar ranking

Vision Setting	Leadership Trait	6	4	Similar ranking
Committed Action	Psychological Flexibility	7	5	Similar ranking
Mindfulness	Psychological Flexibility	8	1	Significant difference
Values Alignment	Psychological Flexibility	9	6	Slight difference

The different evaluation of the leaders components show Similarities and gaps. Similarity found regarding Decision-Making Under Pressure that Ranked high by both experts (3rd) and participants (2nd). Providing Positive Feedback Ranked 3rd by participants and 5th by experts, indicating a shared recognition of its importance in leadership. Vision Setting Ranked similarly by both groups (4th by participants and 6th by experts). Points that these components are a core leadership component by both groups.

Differences found addressing to Mindfulness that Ranked as the most important by participants (1st) but much lower by experts (8th). Cognitive Diffusion Ranked 1st by experts but 7th by participants. Experts may value its role in psychological flexibility, while participants may not see it as a day-to-day necessity for leadership. Interpersonal Communication Ranked 2nd by experts but much lower by participants (8th), indicating that experts view communication as more crucial for leadership than participants do, and Delegation of Authority Ranked 4th by experts but only 9th by participants, suggesting participants may view delegation as less central to leadership effectiveness.

The gaps can be explained by few causes: Participants and experts responded to different sets of questionnaires. This could have caused variations in how the components were interpreted and prioritized. Experts answered two questions per component, which may have led them to perceive some as redundant, possibly affecting the ranking of certain components. Another factor that could explain these differences is the background of the consulted experts. The experts specialize in leadership and management, not in psychological flexibility or Acceptance and Commitment Therapy (ACT). Their unfamiliarity with psychological flexibility concepts, such as Cognitive Diffusion or Committed Action, may have influenced their rankings. Leadership experts might prioritize more traditional leadership traits like decision-making, communication, and delegation, while potentially undervaluing psychological flexibility components, which are more nuanced and less familiar. This difference in expertise may explain why some components central to psychological flexibility theory were ranked lower by leadership experts, who may not fully grasp the impact of these elements on leadership effectiveness.

The Core Leadership Components in bout groups are Decision-Making Under Pressure, Providing Positive Feedback, and Vision. The findings reveal significant perception gaps between experts and participants, likely due to the structure of the questionnaires and the different perspectives on leadership. However, there are core components, such as Decision-Making Under Pressure and Vision Setting, that are consistently viewed as essential by both groups. These shared components can serve as key metrics for assessing successful leadership in the future.

6.2 Results stage 4-5

To examine the components selected for the design of the assessment tool, an open-ended questionnaire was administered to 20 managers. They were asked to describe how they would handle various situations in the organization. Based on the information and insights gathered, a

refined and precise prompt was developed, which included guidelines for analyzing the questionnaires according to the chosen parameters. Tables 7-16 present an example of findings collected from five managers and analyzed using the tool.

AI 1. Tables 7-11 represent the 1st stage of AI Leader evaluation

Table 7. Manager 1

Component	Score	Supporting Quote	Explanation of Score
Mindfulness	1	"The master plan is my guiding light in every stage"	Shows focus and presence, relying on a clear strategy to guide actions.
Committed Action	-1	"Sometimes value conflicts are unavoidable"	Admits indecision when values conflict, leading to inaction.
Values Alignment	1	"I am responsible only for the process, not the results"	Demonstrates consistency in values by prioritizing the process over results.
Cognitive Diffusion	1	"I hardly have any negative thoughts about myself"	Shows the ability to distance from negative thoughts, reflecting emotional regulation.
Vision Setting	0	"During COVID... I called them and checked who's willing..."	Demonstrates leadership but lacks a clear, long-term vision during stressful periods.
Decision-Making Under Pressure	1	"Work is above all, even above personal connections"	Shows prioritization of organizational goals over personal relationships.
Providing Positive Feedback	0	"The employees always see me as a leader"	Lacks a clear feedback mechanism, focusing more on leadership presence than encouragement.
Interpersonal Communication	1	"I use these (empathy, vision) daily in almost every decision"	Effective communication through regular use of empathy and clarity in decisions.
Delegation of Authority	1	"I ensured all my employees, who were branch managers..."	Demonstrates trust by regularly involving employees in decision-making processes.

Overall Score for Manager 1: 6 out of 9

Table 8. Manager 2

Component	Score	Supporting Quote	Explanation of Score
Mindfulness	1	"In my constant effort to stay focused on what matters"	Demonstrates focus on important tasks during stress.
Committed Action	-1	"The Subprime Crisis—worried that my clients would lose their savings"	Focuses on anxiety, failing to act decisively to resolve the issue.
Values Alignment	-1	"I remind myself to try to be a better person"	Shows vague commitment to values without clear connection to decisions.
Cognitive Diffusion	1	"I try to see the bigger picture, not holding onto negative thoughts"	Demonstrates the ability to maintain perspective and distance from unhelpful thoughts.

Vision Setting	0	"I wasn't able to drive the team as I expected"	Acknowledges difficulty in leading the team, lacking a clear vision for the long term.
Decision-Making Under Pressure	1	"I made a quick decision despite the pressure because it was the right thing"	Demonstrates decision-making under pressure, focusing on doing the right thing.
Providing Positive Feedback	0	"I give bonuses and attention but need to improve in feedback"	Shows effort but lacks consistent positive feedback mechanisms for motivating the team.
Interpersonal Communication	1	"I always make sure to listen and work with the team positively"	Reflects positive communication through listening and encouraging team input.
Delegation of Authority	1	"I trust my team and set clear goals for them"	Trusts the team to handle responsibilities by setting clear objectives and delegating tasks.

Overall Score for Manager 2: 3 out of 9

Table 9. Manager 3

Component	Score	Supporting Quote	Explanation of Score
Mindfulness	1	"I always focus on the tasks required of me"	Demonstrates clear focus and attention to important tasks.
Committed Action	-1	"I was asked to handle important tasks but didn't receive enough support"	Admits failing to act despite understanding the importance of the task.
Values Alignment	-1	"Things are clear in my field, but not always feasible to implement"	Acknowledges values but fails to consistently align actions with those values.
Cognitive Diffusion	1	"I deal with pressure by focusing on the goal"	Demonstrates effective management of stress by maintaining focus on the desired outcome.
Vision Setting	0	"I don't have a clear way to drive the team"	Admits a lack of long-term vision, struggling to guide the team effectively.
Decision-Making Under Pressure	1	"I made decisions immediately despite the team's resistance"	Shows quick and decisive action under pressure, prioritizing necessary outcomes.
Providing Positive Feedback	0	"I have team-building activities but not enough positive feedback"	Lacks structured feedback mechanisms to reinforce good performance.
Interpersonal Communication	1	"I make sure to communicate with the team daily"	Demonstrates strong communication skills by ensuring regular and open dialogue.
Delegation of Authority	1	"I trust my employees to complete the work"	Reflects trust in the team by delegating tasks and trusting them to execute effectively.

Overall Score for Manager 3: 3 out of 9

Table 10. Manager 4

Component	Score	Supporting Quote	Explanation of Score
Mindfulness	1	"I'm always focused and open to challenges"	Demonstrates focus and presence, especially in handling challenges.
Committed Action	-1	"Firefighting, no clear path sometimes"	Indicates a reactive approach to leadership, failing to act proactively.
Values Alignment	0	"My loyalty is absolute, but sometimes it's hard to maintain values"	Acknowledges commitment to values but struggles with consistency in aligning decisions.
Cognitive Diffusion	1	"I manage to distance myself from negative thoughts and act effectively"	Shows effective emotional regulation by distancing from unhelpful thoughts.
Vision Setting	0	"No specific challenge, sometimes hard to drive the team"	Acknowledges struggles in driving a long-term vision for the team.
Decision-Making Under Pressure	1	"I led the team despite resistance during COVID"	Demonstrates strong decision-making skills under pressure, prioritizing organizational success.
Providing Positive Feedback	0	"I believe in an open door policy but don't give enough positive feedback"	Lacks structured positive feedback mechanisms, despite promoting open communication.
Interpersonal Communication	1	"It's important for me to always listen to employees"	Demonstrates strong interpersonal communication by listening and staying available to employees.
Delegation of Authority	1	"I delegate responsibilities as needed"	Reflects trust and delegation of responsibilities, ensuring tasks are distributed effectively.

Overall Score for Manager 4: 3 out of 9

Table 11. Manager 5

Component	Score	Supporting Quote	Explanation of Score
Mindfulness	1	"I stay focused by adhering to ethics and the law"	Demonstrates focus and presence through ethical guidance in challenging situations.
Committed Action	0	"Sometimes it's hard to deal with opposition" (Acknowledges difficulty, but no decisive action taken)	Acknowledges challenges but lacks evidence of consistent, decisive action.

Values Alignment	1	"I try to be connected to my values and act out of connection, and sometimes when necessary to admit mistakes at least to myself"	Shows strong alignment with personal and organizational values, even when conflicts arise.
Cognitive Diffusion	1	"I manage to distance myself from negative thoughts and continue acting"	Demonstrates strong ability to manage negative thoughts and maintain focus.
Vision Setting	1	"Partnership always helps me to expand perspective, promote things, bring initiatives, and more..."	Reflects a clear effort in leading with a strategic vision, though admits challenges.
Decision-Making Under Pressure	1	"I managed to lead the team despite resistance during the war"	Shows strong decision-making under pressure, prioritizing team leadership in difficult situations.
Providing Positive Feedback	0	"I'm working on building partnerships but not providing enough positive feedback"	Admits lack of consistent positive feedback, impacting team motivation.
Interpersonal Communication	1	"I believe in fostering open communication with my team"	Demonstrates strong communication skills by prioritizing open and transparent dialogue.
Delegation of Authority	1	"I trust my team to handle the tasks responsibly"	Shows trust in the team by delegating tasks and responsibilities effectively.

Overall Score for Manager 4: 7 out of 9

Analysis for Manager 5. Manager 5 demonstrates strong leadership in multiple areas, including mindfulness, values alignment, decision-making under pressure, and vision-setting. However, there is room for improvement in committed action and providing positive feedback. By addressing these gaps, the manager can further enhance their leadership effectiveness and team performance.

AI 2. Tables 12-16 represent the AI 2 Leader evaluation

Table 12. Manager 1

Component	Score	Supporting Quote	Explanation of Score	Justification of Score
Mindfulness	1	"I always tell myself that I have a solution for every problem - I just need to breathe deeply, relax, and find a solution. The solution always comes."	Demonstrates awareness of mental state and use of breathing techniques.	The quote shows active use of mindfulness techniques (deep breathing, relaxation) to manage challenges.

Committed Action	1	"When I have distress in a certain area, it's hard for me to divide my attention. I must focus on the problem until I find a solution."	Shows dedication to problem-solving despite discomfort.	The quote indicates persistence in face of difficulties, aligning with committed action principles
Values Alignment	1	"I try to be connected to my values and act out of connection, and sometimes when necessary to admit mistakes at least to myself"	Shows strong alignment with personal and organizational values, even when conflicts arise.	
Cognitive Diffusion	1	"I manage to distance myself from negative thoughts and continue acting"	Demonstrates strong ability to manage negative thoughts and maintain focus.	
Vision Setting	1	"Partnership always helps me to expand perspective, promote things, bring initiatives, and more..."	Reflects a clear effort in leading with a strategic vision, though admits challenges.	
Decision-Making Under Pressure	1	"I managed to lead the team despite resistance during the war"	Shows strong decision-making under pressure, prioritizing team leadership in difficult situations.	
Providing Positive Feedback	0	No direct quote demonstrating positive feedback to employees	Lack of mention suggests this may not be a regular practice.	Without evidence of providing positive feedback
Interpersonal Communication	1	"I made sure all my employees (who were managers in their branches) would come to the central office in Kiryat Ono every Sunday, and that's how we would start the week with an open conversation about everything."	Demonstrates commitment to open, regular communication with team.	The quote shows proactive efforts to maintain open communication
Delegation of Authority	-1	"Currently, I don't have enough employees to lead these pro		

Overall Score for Manager 4: 5 out of 9

Table 13. Manager 2

Component	Score	Supporting Quote	Explanation of Score	Justification of Score
Mindfulness	0	No clear evidence of mindfulness practices	Absence of quotes demonstrating present-moment awareness or mindfulness techniques.	Without evidence of mindfulness practices, a neutral score is given.
Committed Action	1	"We managed to prevent withdrawals through conversations with the partner and professional factors during the financial crisis"	Shows taking action aligned with goals despite challenging circumstances.	The quote demonstrates committed action in face of a crisis, justifying a high score.
Values Alignment	0	No direct quote addressing values	Lack of explicit mention of guiding principles or values.	Without mention of values, a neutral score is assigned.
Cognitive Diffusion	1	"Take things in proportion"	While this shows some perspective, and some separating from thoughts or emotions.	The quote suggests some perspective-taking indicate cognitive defusion,.
Vision Setting	-1	No evidence of long-term vision setting	Absence of quotes related to future planning or strategic direction.	Lack of any mention of long-term planning or vision.
Decision-Making Under Pressure	1	Demonstrated ability to handle the subprime crisis	Shows capacity to make decisions in high-stress financial situations.	The reference to managing a financial crisis indicates strong decision-making under pressure,.
Providing Positive Feedback	0	No clear evidence of providing positive feedback	Lack of mention suggests this may not be a regular practice.	Without evidence of providing positive feedback,.

Interpersonal Communication	0	No clear evidence of mindfulness practices	Absence of quotes demonstrating present-moment awareness or mindfulness techniques.	Without evidence of mindfulness practices, a neutral score is given.
Delegation of Authority	1	"We managed to prevent withdrawals through conversations with the partner and professional factors during the financial crisis"	Shows taking action aligned with goals despite challenging circumstances.	The quote demonstrates committed action in face of a crisis, justifying a high score.

Overall Score for Manager 2: 1 out of 9

Table 14. Manager 3

Component	Score	Supporting Quote	Explanation of Score	Justification of Score
Mindfulness	0	"I'm very focused because it involves human lives"	Shows focus but not clear mindfulness; lacks evidence of present-moment awareness techniques.	While the quote shows focus, it doesn't demonstrate specific mindfulness practices,.
Committed Action	1	"I'm used to such situations, I've lived this for a long time"	Indicates persistence in facing challenging situations.	The quote suggests consistent action in difficult circumstances, aligning with committed action principles
Values Alignment	1	"Integrity" mentioned as a key value	Explicitly states a guiding principle, showing awareness of values.	The direct mention of a specific value (integrity)
Cognitive Diffusion	0	No clear evidence of cognitive defusion techniques	Lack of mention of separating from thoughts or emotions.	Without evidence of cognitive defusion techniques
Vision Setting	-1	"I struggle with long-term goals, most of my work is responsive"	Directly states difficulty with long-term planning.	The quote explicitly mentions

				challenges with long-term planning
Decision-Making Under Pressure	1	Demonstrated ability to make decisions in high-pressure security situations	Shows capacity to make decisions in stressful circumstances.	The reference to decision-making in high-pressure security situations
Providing Positive Feedback	0	No clear evidence of providing positive feedback	Lack of mention suggests this may not be a regular practice.	Without evidence of providing positive feedback
Interpersonal Communication	0	Limited information on communication style	Insufficient evidence to assess communication skills.	Lack of clear information about communication style
Delegation of Authority	0	No clear evidence for or against delegation		

Overall Score for Manager 3: 3 out of 9

Table 15. Manager 4

Component	Score	Supporting Quote	Explanation of Score	Justification of Score
Mindfulness	0	"I try not to get into stress and deal with issues in a professional manner"	Shows attempt at emotional regulation but doesn't demonstrate specific mindfulness practices.	While the quote shows some stress management, it doesn't indicate clear mindfulness techniques
Committed Action	1	"I dealt with the war the same way I dealt with Corona. It was easier to execute things because the system was already well-oiled"	Demonstrates ability to apply learned strategies to new challenges.	The quote shows consistent action across different crises, indicating committed action
Values Alignment	0	"Listening, listening, and listening to field workers because that's	Shows empathy but doesn't clearly	While the quote shows empathy, it

		the only way to understand their real difficulties"	demonstrate consistent application of personal or organizational values.	doesn't explicitly link to values,
Cognitive Diffusion	0	"With experience, I've encountered many situations, so the level of stress decreases and professionalism increases"	Indicates adaptability but doesn't show specific cognitive defusion techniques.	The quote suggests adaptation over time but doesn't demonstrate clear cognitive defusion,
Vision Setting	-1	No clear evidence of long-term vision setting	Lack of mention of long-term planning or strategic vision.	The absence of any mention of long-term planning or vision
Decision-Making Under Pressure	1	"Today I can say that the ability to make decisions is faster (sometimes immediate solutions) and more intelligent"	Demonstrates improved decision-making skills over time, especially under pressure.	The quote indicates development of quick and effective decision-making skills,
Providing Positive Feedback	0	"I believe in an open door. For any problem an employee has, I'm available for them 24/7 via WhatsApp, phone, email, and more."	Shows availability but doesn't specifically demonstrate providing positive feedback.	While the quote shows accessibility, it doesn't specifically mention positive feedback
Interpersonal Communication	1	"I organize a trip or meeting outside of work areas twice to pamper the employees and strengthen the connection between them more and more"	Shows effort in team building and communication outside work context.	The quote demonstrates proactive efforts to improve team relationships
Delegation of Authority	-1	No clear evidence for delegation, and the constant availabi		

Overall Score for Manager 4: 2 out of 9

Table 16. Manager *5*

Component	Score	Supporting Quote	Explanation of Score	Justification of Score
Mindfulness	1	"The ability to listen and understand the other side even though their behavior doesn't seem right to me expanded my ability to accept and understand"	Demonstrates present-moment awareness and non-judgmental attitude.	The quote shows active practice of non-judgmental awareness, a key aspect of mindfulness
Committed Action	1	"I opened up the competition with the teams, we had in-depth conversations, I listened with full attention but also represented my perceptions"	Shows taking action aligned with values despite potential conflict.	The quote indicates willingness to engage in difficult conversations and actions, aligning with committed action principles
Values Alignment	1	"I try to be connected to my values and act out of connection, and sometimes when necessary to admit mistakes at least to myself"	Explicitly mentions acting in alignment with values and shows self-reflection.	The direct reference to connecting with values and acting.
Cognitive Diffusion	1	"I can be overly focused on an opinion that's important for me to bring, but I try to maintain perspective"	Demonstrates awareness of thought patterns and attempt to gain distance from them.	The quote shows recognition of thought patterns and efforts to maintain perspective, indicating cognitive defusion
Vision Setting	1	"Partnership always helps me to expand perspective, promote things, bring initiatives, and more"	Shows forward-thinking and initiative.	The quote demonstrates a proactive approach to growth and development, aligning with vision setting,
Decision-Making Under Pressure	1	Demonstrated ability to make difficult decisions regarding special education placements	Shows capacity to make challenging decisions with long-term implications.	The reference to making difficult decisions in a sensitive area indicates strong decision-making skills

Providing Positive Feedback	1	"The ability to listen and understand the other side even though their behavior doesn't seem right to me expanded my ability to accept and understand"	Demonstrates present-moment awareness and non-judgmental attitude.	The quote shows active practice of non-judgmental awareness, a key aspect of mindfulness
Interpersonal Communication	0	1	"Creating good partnerships, giving space to every person as a human being, joint events outside the work framework, praise"	Shows strong focus on building relationships and effective communication.
Delegation of Authority	1	0	No clear evidence for or against delegation	

Overall Score for Manager 2: 8 out of 9

6.3 Comparation between AI platforms

Table 17. Comparation between AI platforms assessments

Manager	AI 1 Overall Score	AI 2 Overall Score	Explanation of Differences
Manager 1	6/9	5/9	**AI 1** focused on strong leadership components like mindfulness, decision-making, and delegation, while **AI 2** gave lower scores for delegation due to lack of resources.
Manager 2	3/9	1/9	**AI 1** acknowledged effort in committed action, values, and feedback, while **AI 2** scored lower due to absence of explicit mindfulness, values alignment, and delegation evidence.
Manager 3	3/9	3/9	Both analyses aligned in their overall score. However, **AI 2** gave more emphasis on values ("integrity"), while **AI 1** focused on lack of committed action and values alignment.
Manager 4	3/9	2/9	**AI 1** recognized mindfulness and delegation more positively, while **AI 2** gave a lower score due to the lack of evidence for vision setting and delegation practices.
Manager 5	7/9	8/9	**AI 2** provided a higher score for **positive feedback** and **committed action** due to Manager 5's efforts in team engagement and strategy, whereas **AI 1** scored these lower.

AI 1 generally scored higher in mindfulness and values alignment, focusing on actions and leadership strategy. AI 2 was more critical when managers didn't provide direct quotes addressing these areas. AI 2 was more stringent in scoring delegation of authority, often giving a lower score where no direct evidence was provided. AI 1 took a more lenient approach if managers demonstrated trust in their teams. Both AI platforms highlighted issues with vision setting, but AI 1 gave more neutral scores, whereas AI 2 gave negative scores in cases where no clear vision for long-term goals was presented. AI 2 was more lenient in committed action and positive feedback where partial efforts were mentioned, while AI 1 required clearer, consistent action and structured feedback mechanisms. The two AI platforms generally agree on areas such as decision-making and communication but diverge in their expectations for explicit evidence of values, delegation, and feedback. AI 1 is more forgiving of partial evidence, while AI 2 demands explicit examples for higher scores.

This comparison can help provide a balanced perspective on each manager's strengths and areas for improvement based on different evaluative criteria. A brief summary of the weighted results from the two AI tools shows that Manager 1: Overall score of 5.5 out of 9 Manager 2: Overall score of 2 out of 9 Manager 3: Overall score of 3 out of 9 Manager 4: Overall score of 2.5 out of 9 Manager 5: Overall score of 7.5 out of 9.

These scores and conclusion represent an average of the evaluations from both AI tools. The AI evaluations suggest that Manager 1 demonstrates strong mindfulness, cognitive diffusion, and interpersonal communication skills. They show a clear strategic focus and ability to make decisions under pressure. However, there are areas for improvement in committed action and providing positive feedback. As a 21st century leader, Manager 1's strengths in mindfulness and strategic thinking position them well to navigate complex, rapidly changing environments. Their focus on interpersonal communication and delegation suggests an inclusive leadership style that could foster innovation and employee engagement. However, the inconsistency in committed action might hinder the organization's ability to execute strategies effectively, potentially leading to missed opportunities or delayed responses to market changes. To maximize organizational performance, Manager 1 should focus on developing more consistent follow-through on commitments and implementing structured positive feedback mechanisms to boost team morale and productivity.

The evaluations indicate that Manager 2 excels in committed action and decision-making under pressure, particularly in crisis situations. However, there are significant areas for improvement across multiple dimensions, including mindfulness, vision setting, and delegation of authority. As a 21st century leader, Manager 2's crisis management skills are valuable, but the lack of long-term vision and limited delegation could severely hamper the organization's growth and adaptability. The absence of clear values alignment and limited interpersonal communication skills may lead to a disconnected workforce and difficulty in fostering a strong organizational culture. To improve organizational outcomes, Manager 2 should prioritize developing a clear long-term vision, improving delegation skills to empower team members, and enhancing interpersonal communication to build a more cohesive and motivated workforce.

The evaluations suggest that Manager 3 demonstrates strengths in committed action and decision-making under pressure, with a clear emphasis on values (particularly integrity). However, there are notable weaknesses in vision setting and limited evidence of mindfulness practices or cognitive diffusion techniques. As a 21st century leader, Manager 3's strong ethical foundation and ability to perform under pressure are valuable assets. However, the lack of long-term planning and limited use of mindfulness techniques could lead to reactive rather than proactive leadership. This may result in the organization constantly firefighting rather than innovating and growing strategically. To enhance organizational performance, Manager 3 should focus on developing long-term strategic planning skills, incorporating mindfulness practices to improve self-awareness

and stress management, and working on delegation to build a more empowered and efficient team structure.

The evaluations indicate that Manager 4 shows strength in decision-making under pressure and interpersonal communication. However, there are significant areas for improvement in vision setting, delegation of authority, and mindfulness practices. As a 21st century leader, Manager 4's interpersonal skills and ability to make quick decisions are valuable. However, the lack of long-term vision and limited delegation could restrict the organization's growth potential and ability to adapt to changing market conditions. The constant availability mentioned might lead to burnout and create dependency within the team. To improve organizational outcomes, Manager 4 should prioritize developing a clear long-term vision, implementing delegation strategies to empower team members, and establishing boundaries to promote a more sustainable leadership approach and foster team independence.

The evaluations suggest that Manager 5 demonstrates significant strengths across multiple dimensions, including mindfulness, committed action, values alignment, cognitive diffusion, vision setting, decision-making under pressure, and interpersonal communication. As a 21st century leader, Manager 5's well-rounded skill set positions them to excel in complex, dynamic environments. Their strong foundation in psychological flexibility combined with strategic vision and effective communication skills suggests an ability to lead with agility, foster innovation, and build a resilient organizational culture. To further enhance organizational performance, Manager 5 could focus on developing more explicit delegation strategies and continue to refine their already strong leadership practices.

In conclusion, while these AI evaluation tools show promise in contributing to leadership development and organizational improvement, they should be viewed as part of a broader, integrated approach to leadership assessment and development. When used thoughtfully and in conjunction with other methods, they have the potential to provide valuable insights that can drive significant improvements in leadership effectiveness and organizational performance.

7 Discussion and summary

This research contributes a significant advancement in leadership development by designing and validating an AI-based assessment tool grounded in psychological flexibility and human leadership traits. By integrating key psychological components with contemporary leadership attributes, the study deepens our understanding of how leaders can better navigate the complexities of 21st-century organizational challenges and offers a practical tool to evaluate and enhance leadership effectiveness.

7.1 Novelty, Contributions, and Insights

One of the primary innovations of this research lies in developing an AI-driven leadership assessment tool that marries psychological flexibility—a cognitive-behavioral concept—with human leadership traits. Combining these two frameworks creates a multidimensional approach to leadership evaluation that transcends traditional assessments. Psychological flexibility, which includes components such as mindfulness committed action values alignment and cognitive defusion, is increasingly recognized as critical for adaptive leadership in environments characterized by vola-

tility, uncertainty, complexity, and ambiguity (VUCA). By blending these psychological dimensions with core leadership traits like decision-making under pressure, vision setting, providing positive feedback, and interpersonal communication, the research addresses the multifaceted nature of modern leadership challenges in a way that is both empirically grounded and practically applicable. Integrating AI-driven assessment into this framework represents a novel methodological advancement. By leveraging artificial intelligence to evaluate open-ended responses and structured questionnaires, the tool enhances the precision of leadership evaluations and mitigates cognitive biases that may arise in traditional assessment processes. This methodological innovation holds considerable promise for future leadership development programs, as AI can provide scalable, consistent, and data-driven insights essential for evaluating leaders in real-time across different organizational contexts.

7.2 Key Findings from Each Stage of the Research

Several key findings emerged throughout the research that underscore the complexity of leadership evaluation and development in contemporary organizational settings. Correlation Between Psychological Flexibility and Leadership Traits : The initial phase of the research revealed significant correlations between specific components of psychological flexibility and human leadership traits. For instance, mindfulness demonstrated a strong relationship with both vision setting ($r = 0.29$) and providing positive feedback ($r = 0.40$). It indicates that leaders who maintain present-moment awareness are better equipped to articulate strategic visions and provide constructive, motivational feedback to their teams. Similarly, committed action was found to have a strong correlation with decision-making under pressure ($r = 0.54$), highlighting that leaders who consistently take value-based actions are more capable of making impactful decisions in high-stress environments. These findings emphasize the importance of integrating psychological flexibility into leadership assessment, providing a more holistic view of a leader's ability to cope with internal and external pressures. Validation through Expert Judgment: The second phase of the research involved validating the tool through expert judgment using Lawshe's Content Validity Ratio (CVR). This process affirmed the relevance of key psychological and leadership components and highlighted certain gaps in how leadership experts perceived these elements compared to the research participants. For example, cognitive diffusion was ranked highly by experts but was less appreciated by participants, suggesting that experts value the ability to distance oneself from negative thoughts more than those actively engaged in leadership roles. Conversely, participants emphasized mindfulness more, perhaps because of its more tangible and immediate application in daily leadership tasks. This divergence between expert and participant perceptions suggests that while traditional leadership competencies remain essential, practitioners' recognition of the importance of psychological adaptability in leadership is growing. AI Evaluation of Leadership Practices: The final stages of the research used two AI platforms to evaluate open-ended responses from managers based on the leadership components identified earlier. The AI platforms provided nuanced insights into the leaders' behaviors, showing how well they aligned with the core components of psychological flexibility and human leadership. The results highlighted certain discrepancies between leadership theory and practice. The AI evaluation tools demonstrate potential as effective instruments for assessing and improving leadership in organizations. Their strengths lie in several key areas: Comprehensive framework: The evaluation covers a wide range of leadership components, including both traditional leadership skills (e.g., decision-making, communication) and psychological flexibility elements (e.g., mindfulness, cognitive defusion). This holistic approach aligns well with the complex demands of 21st century leadership. Evidence-based scoring: The use of supporting quotes and explanations for each score provides transparency and allows for more nuanced understanding of each leader's performance. Quanti-

tative and qualitative data: The combination of numerical scores and qualitative explanations offers a rich dataset for analysis, enabling both quick comparisons and in-depth insights. Identification of strengths and development areas: The evaluations clearly highlight each leader's strengths and areas for improvement, providing actionable insights for targeted development. Potential for standardization: The structured approach allows for consistent evaluation across different leaders and organizations, facilitating benchmarking and longitudinal studies.

7.3 Practical Implications

The AI-based tool developed in this study offers organizations a more comprehensive and objective method for evaluating leadership capabilities. Traditional leadership assessments often focus narrowly on cognitive skills or decision-making abilities. However, this tool introduces a broader, more dynamic set of criteria, including emotional and psychological resilience, adaptability, and the capacity to inspire and motivate through values-based action. Furthermore, the AI-driven analysis offers a scalable solution for organizations seeking to assess leaders at different levels and contexts. By automating the evaluation process, the tool reduces the risk of human bias in leadership assessments, thus providing more consistent and objective insights. It is particularly valuable in global organizations, where leadership styles and challenges may vary widely across cultures and regions. The emphasis on psychological flexibility also aligns with emerging trends in leadership development, which increasingly recognize the importance of emotional intelligence, resilience, and adaptability in navigating the complexities of modern work environments. By embedding these psychological components into the leadership assessment tool, organizations can better identify leaders with the mental agility and emotional strength needed to lead in a rapidly changing world.

8 Limitations of the Research

Despite its contributions, the research has several limitations that should be acknowledged:

1. While the sample size is sufficient for this study, it may limit the generalizability of the findings across different industries or cultural contexts. Leadership traits and the relevance of psychological flexibility components may vary significantly depending on organizational culture, the nature of the industry, and the regional or national context.
2. Relying on self-reported data from the managers and the expert panel introduces the potential for bias. While AI-driven evaluation helps mitigate this to some extent, future studies could benefit from incorporating more objective performance metrics or 360-degree feedback from subordinates, peers, and supervisors to triangulate the assessment of leadership traits.
3. The evaluations are based on specific quotes or behaviors, which may not capture the full complexity of a leader's performance or the organizational context.
4. The evaluations are based on self-reported information from the leaders, which may not always accurately reflect their actual behaviors or impact.
5. While the tool was robustly validated using two AI platforms, the differences in their scoring criteria highlight the challenge of developing universally accepted standards for leadership assessment via AI.

More work is needed to refine these AI algorithms and ensure they can accurately and nuancedly interpret complex human behaviors, such as decision-making and emotional intelligence. AI models need to be carefully designed and trained to reduce potential biases in leadership evaluation. For that, it is important to regularly update the AI models with the latest research in leadership and organizational psychology to ensure relevance and accuracy. In addition, While the evaluations provide insights into leadership behaviors.

9 Future Research

Given the innovative nature of this research, several avenues for future investigation emerge. Further exploration is needed into the cross-cultural applicability of the psychological flexibility-leadership framework. It would be valuable to examine how different cultural contexts influence the perceived importance of leadership traits and psychological flexibility components, particularly in multinational organizations. Also, future research could explore the longitudinal effects of developing psychological flexibility in leaders. While this study provides a snapshot of the relationship between psychological flexibility and leadership effectiveness, it would be insightful to track leaders over time to see how improvements in psychological flexibility impact long-term organizational performance and leadership success. Moreover, additional studies could refine the AI algorithms used for leadership assessment by incorporating machine learning techniques that allow the AI to adapt and improve its evaluations based on feedback from real-world leadership outcomes. This would enhance the precision and reliability of the tool, making it an even more powerful resource for organizations seeking to develop their leadership talent. Future research will have to measure the impact on organizational performance directly. Future research will also analyze this tool's effectiveness based on our observations and other reports. There is also a need to Link leadership evaluations to key performance indicators (KPIs) better to understand the relationship between leadership behaviors and organizational outcomes.

10 Conclusion

This research provides a novel and valuable contribution to leadership assessment by integrating psychological flexibility and human leadership traits into an AI-based evaluation tool. The findings underscore the importance of cognitive and emotional adaptability in modern leadership, particularly in the face of 21st-century challenges. While there are limitations in the current study, the tool developed has significant practical applications and offers a strong foundation for future research in leadership development. As organizations continue to grapple with complex and dynamic environments, the ability to assess and develop leaders who are both psychologically flexible and strategically competent will be key to their success.

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