



Unleashing Potential: The Influence of Agile Leadership and Workforce Agility on Adaptive Performance, with Perceived Organizational Support as a Key Moderator

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Abstract. This study examines the critical role of workforce agility in enhancing adaptive performance to support business continuity in the digital era. Individual adaptive performance contributes significantly to organizational sustainability by enabling effective management of internal changes and aligning with corporate demands. Using a quantitative approach, the study employs a purposive sampling method targeting employees in the digital industry. Structural Equation Modeling (SEM) was conducted with SmartPLS software to analyze the data. Results indicate that agile leadership and perceived organizational support are key contributors to workforce agility, which, in turn, has a positive impact on adaptive performance. These findings are particularly pertinent for the digital sector, where rapid technological shifts and evolving market needs demand a high degree of adaptability and responsiveness from employees. Agile leadership is highlighted as a pivotal factor in cultivating a culture of agility within organizations. Future research could expand this study by examining agile leadership and organizational support across diverse industries, including those less dependent on technology. Additionally, integrating objective performance metrics or observational data could validate self-reported measures and address potential biases. In Further, researchers may also explore external factors that interact with organizational agility practices, offering a more comprehensive view of factors influencing adaptive performance.

Keywords: agile leadership, workforce agility, perceived organizational support, adaptive performance

1 Introduction

In the post-pandemic era, many companies have had to rapidly adjust to swift changes. The unique characteristics of the millennial and zillennial generations add complexity to preparing human resources for uncertainty. The rapid development of digital technologies, including artificial intelligence, big data, cloud computing, and the Internet of Things (IoT), necessitates continuous adoption of new technologies by companies to remain competitive [1]. Adaptation is key to supporting employees in

The term "agile leadership" refers to a management approach emphasizing collaboration, flexibility, and adaptability in leading teams and organizations ([6] et al., 2010). The goal of agile organizational leadership is to promote creativity, flexibility, and sustained progress. Moreover, agile leadership focuses on developing the skills and mindset necessary for the organization's successful transition to new operational models. Agile leaders establish guiding principles, devise strategies, and implement procedures that facilitate a smooth transition toward organizational agility [7] Initially created for software development, agile methodology has since been adapted to many other fields. The Agile Manifesto, developed by a group of software engineers in 2001, emphasizes four core values: individuals and interactions, working software, customer collaboration, and responding to change, forming the foundation of this methodology [8]. Consequently, agile leadership requires creating an environment where teams can swiftly react to changing conditions and client demands [9].

Analyzing from an organizational perspective, company support is crucial for fostering employee behavior, making perceived organizational support essential for accelerating workplace agility. Organizational support fosters reciprocal relationships, where employees are expected to share knowledge and collaborate[10] . Employees' perception that the organization values their contributions and cares about their well-being [11] can enhance their comfort and performance. Therefore, the right leadership is necessary to manage tasks and responsibilities effectively.

Adaptive performance is closely related to dynamic changes from both market and organizational perspectives. First, [12] noted that market demands push organizations to develop innovative products, requiring changes in the work environment and routines driven by technological advancements. Consequently, employees' adaptive performance is expected to help organizations enhance their innovation capabilities. Essentially, the demand for employee adaptive performance is a logical response to changing market demands. On the other hand, dynamic job demands may lead to higher levels of burnout and distrust among employees within organizations [12] , indicating that adaptive performance also helps address market demands.

Second, adaptive performance driven by organizational demands aims to improve organizational effectiveness and manage change better. For instance, research has found that job autonomy and training enhance employees' adaptive performance [13]. [14] discovered that job autonomy fosters greater individual creativity and supports change-oriented strategies, while training provides external resources for individuals to develop better adaptation mechanisms in dynamic work environments (Han & Williams, 2008). Furthermore, [15] found that individual adaptive performance benefits organizational sustainability, particularly in managing internal changes. This evidence underscores the importance of individual adaptive performance in meeting corporate demands. Adaptive performance reflects the need to clearly address employees' ability to adapt to workplace changes. At the individual level, adaptive performance can lead to positive outcomes such as improved performance capabilities and career success [16]

This study aims to analyze the importance of workforce agility in fostering adaptive performance to sustain business operations in the digital era.

The research questions for this study are as follows:

- How does agile leadership influence workforce agility?
- How does workforce agility impact adaptive performance?
- Can perceived organizational support moderate the relationship between agile leadership and workforce agility?

2 Literature Review

Adaptive Performance

The concept of adaptive performance is generally defined as an individual's ability to adjust to dynamic work environments (Hesketh & Neal, 1999). Employees exhibit adaptive performance by modifying their behavior to meet the demands of changing work situations and novel events (Hesketh & Neal, 1999). While several scholars have emphasized the importance of various adaptive behaviors ([18]; [19]; [20]; [21]; [22] [23], [24] were the first to propose a global model of adaptive performance. This model identifies eight dimensions of adaptive performance, including: dealing with uncertain or unpredictable work situations; handling emergencies or crisis situations; creatively solving problems; managing work stress; learning new tasks, technologies, and procedures; demonstrating interpersonal adaptability; and showing cultural adaptability.

Agile Leadership

Research suggests that agile leadership should be implemented within organizations to achieve optimal results and organizational agility [25][26][27]. . Although "agile leadership" is the primary term used by many researchers, similar leadership styles are discussed in the literature. Greineder and Leicht (2020) identified servant leadership, transformational leadership, shared leadership, emergent leadership, and visionary leadership as relevant styles of agile leadership. In this study, organizational outcomes are broken down into several dimensions to allow for more in-depth analysis of organizational performance and success. These dimensions include: operational outcomes, focusing on organizational efficiency, such as productivity and innovation; employee outcomes, which assess how well the organization engages and supports its employees, such as employee satisfaction, retention, and performance; and social and environmental outcomes, which evaluate how an organization affects society and the environment, such as corporate social responsibility and community engagement. Assessing the impact of agile leadership across these dimensions provides a comprehensive understanding of overall organizational success and areas for improvement.

Perceived organizational support

Perceived organizational support (POS) refers to the organization's obligation to ensure employee well-being, which ultimately aids in achieving organizational goals [28] . Additionally, [29] defines POS as the extent to which employees feel the company cares about their well-being and values their contributions. Rhoades and Eisenberger (2002a) identify three dimensions of POS: procedural justice, which relates to the methods used

to allocate resources among employees; supervisor support, reflecting employees' perceptions of the extent to which their supervisor values their contributions and cares about their well-being; and organizational rewards and working conditions, which are HR activities that recognize employee contributions. POS is concerned with employees' perceptions of how much the organization appreciates their efforts, provides support, and is concerned about their well-being. Employees' trust in the organization influences their perception of the quality of the reciprocal relationship between themselves and the organization. Indicators of Perceived Organizational Support measured through three key indicators [56];[57]: 1) supervisor support, 2) working conditions, and 3) organizational rewards.

Workforce Agility

Workforce agility is defined as the ability of employees within a company to rapidly adapt to changes in the environment [30](Storme et al., 2020, including responding to shifting customer needs, market conditions, and developing new skills and competencies [31]. This definition aligns with [32], who states that workforce agility refers to employees' capacity to effectively manage and respond to changes in dynamic business conditions by enhancing skills and competencies as needed. [33] describe workforce agility as encompassing the ease, flexibility, and speed of the workforce in responding to environmental changes and adapting to unpredictable and uncertain situations. Additionally, workforce agility involves proactive characteristics and resilience when facing dynamic conditions[34], emphasizing the importance of employees' ability to respond effectively to changes and challenges in a competitive environment.

Petermann and Zacher (2020) define workforce agility through three behavioral dimensions: proactive behavior, adaptive behavior, and resilience. Proactive behavior involves anticipating issues related to change and initiating activities that lead to solutions. Adaptive behavior entails continuous learning of new skills and the ability to assume different roles within teams. Resilience involves functioning effectively under pressure in changing environments, maintaining a positive attitude toward change and new ideas, and tolerating uncertainty and differing opinions. [35] describe workforce agility as employees' capacity to process information quickly, adapt in volatile work environments, and be motivated by opportunities for self-development. Volatile work environments can be effectively managed by agile employees [36]. Agile employees are characterized by a friendly approach to learning, self-development, strong problem-solving skills, ease in adapting to change, creativity, and continuous acceptance of new tasks.

(Tessarini Junior & Saltorato, 2021)) define workforce agility as the ability of employees to adjust to fast-changing, flexible, and uncertain work environments through proactive and adaptive knowledge, skills, behaviors, and attitudes.[38] adds that workforce agility also includes generative behavior, or the ability to identify opportunities, overcome obstacles, and leverage [39]; [40]; [41]. Agile workforce can

also be defined as the ability to quickly adapt to environmental changes, maintain an experimental mindset, work in iterative modes, and make incremental and continuous progress toward goals (Mani & Mishra, 2021). These attributes are considered essential for enhancing work competence, responding appropriately and flexibly to needs, and swiftly adjusting to changes [42]. Agile employees can deliver higher productivity, better quality, and increased enthusiasm.

Lastly, workforce agility is defined as employees' capacity to handle ambiguous situations, adapt to new circumstances, generate creative solutions, and possess specific competencies (Syahrani et al., 2022). Employees must remain calm and focused when managing such conditions (Saputra et al., 2023). These challenges can be effectively addressed by employees equipped with relevant skills and competencies.

In summary, workforce agility can be synthesized as the ability to adjust to changing conditions, ambiguous situations, dynamic environments, and new circumstances. This adaptive ability can be effectively achieved through the enhancement and development of competencies aligned with organizational needs. Workforce agility comprises three dimensions: proactive behavior, adaptive behavior, and resilience. Proactive behavior anticipates issues related to change and initiates solutions. Adaptive behavior involves continuous improvement and development of new competencies as required. Resilience encompasses positive thinking, generating innovative ideas, and tolerating uncertainty in dynamic conditions and environments.

The Relationship between Agile Leadership and Workforce Agility

Research indicates that Agile leadership positively influences workforce agility. For instance, [44] found that leadership promoting learning and innovation enhances team adaptability and responsiveness—key components of workforce agility. Similarly, [45] demonstrated that leaders who empower and grant autonomy to their teams increase the team's ability to quickly adapt to change. [46] further emphasized that Agile leadership, which prioritizes flexibility and collaboration, is crucial for creating an agile workforce, particularly in rapidly changing business environments. Paruthi and [47] added that Agile leadership fosters a collaborative and continuous learning work culture, which in turn enhances workforce agility.

From the literature, it is clear that Agile leadership plays a pivotal role in enhancing workforce agility. Agile leaders cultivate a flexible, collaborative, and empowering work environment, enabling employees to swiftly adapt to changes and challenges.

H1: There is a positive relationship between Agile leadership and workforce agility.

The Relationship between Workforce Agility and Adaptive Performance

Several studies have examined the influence of workforce agility on adaptive performance. [48] highlighted that individual adaptability is a key component of adaptive performance, with the ability to learn and quickly adjust to new situations being central to workforce agility. [49] found that an agile workforce, capable of

adapting to change and collaborating effectively, exhibits higher adaptive performance in various work scenarios. [50] showed that a flexible and highly capable workforce—traits of workforce agility—was better able to adjust to changes and demonstrated superior adaptive performance. [51] reinforced these findings, noting that agile employees are better equipped to handle stress and uncertainty, both critical aspects of adaptive performance.

Thus, workforce agility plays a vital role in fostering adaptive performance. Agile employees, characterized by adaptability, collaboration, and continuous learning, are more effective in navigating change and new situations.

H2: There is a positive relationship between workforce agility and adaptive performance.

The Relationship between Perceived Organizational Support, Agile Leadership, and Workforce Agility

Previous literature suggests that perceived organizational support (POS) can moderate the relationship between Agile leadership and workforce agility. When employees feel supported by their organization, the positive effects of Agile leadership on workforce agility are amplified. [52] developed the concept of POS, finding that employees who feel supported by their organization demonstrate higher commitment and positive work behaviors, which can enhance agility. Rhoades and Eisenberger (2002) found that POS improves employees' perceptions of job security and well-being, further strengthening the positive effects of Agile leadership on employees' ability to adapt to change. [53] also demonstrated that POS acts as a moderator in various organizational relationships, including between leadership and agility.

Thus, POS can enhance the relationship between Agile leadership and workforce agility by reinforcing the positive effects of Agile leadership. Organizational support boosts employee motivation, trust, and access to resources necessary for agility.

H3: Perceived organizational support moderates the relationship between Agile leadership and workforce agility.

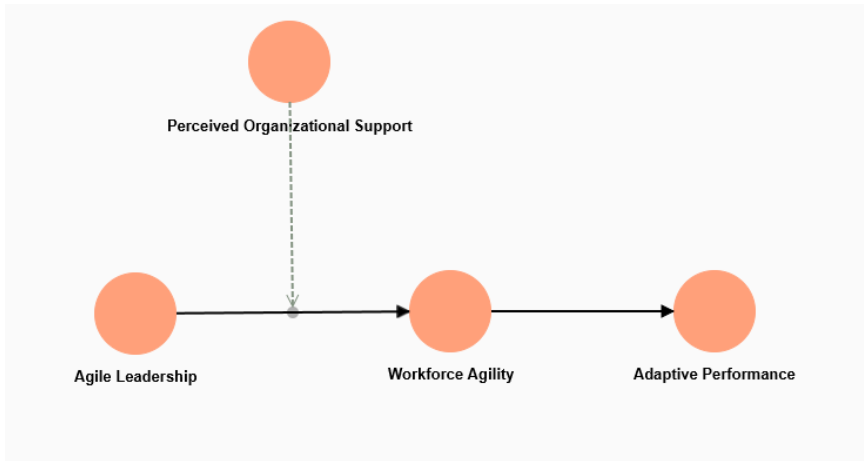


Fig 2. Research Framework

Research Hypothesis

H1: There is an influence of Agile leadership on workforce agility.

H2: There is an influence of workforce agility on adaptive performance.

H3: Perceived organizational support moderates the relationship between Agile leadership and workforce agility.

3 Research Method

The method used in this study is a quantitative research method with a purposive sampling technique, focusing on employees working in the digital industry. The research employs Structural Equation Modeling (SEM) estimated using the SmartPLS (Smart Partial Least Square) software. Data analysis and structural equation modeling are conducted through SmartPLS, following several stages: (1) Indicator validity testing, (2) Conversion of path diagrams into equation systems, (3) Construct reliability testing, (4) Hypothesis testing, (5) Inner model equations, and (6) Model evaluation [54] .

Variable Questionnaire Statements

Workforce Agility [37]

- I can easily adapt to changes in the work environment.

- I am able to make quick decisions when sudden changes occur in the workplace.
- I can swiftly adjust my work priorities when the situation changes.
- I am open to new ideas that can improve my performance.

Adaptive Performance [55]

- I can quickly adapt when there are changes in my tasks or responsibilities.
- I feel comfortable working with different approaches when necessary.
- I actively seek opportunities to learn new skills that are useful for my job.
- I do not hesitate to offer suggestions or new ideas when there are changes in the workplace.
- I am able to manage communication effectively when facing sudden changes in the job.

Agile Leadership [26]

- My leader is able to adjust our team's strategy based on changes in market conditions.
- My leader helps our team adapt to changes without losing focus.
- My leader encourages team members to share ideas and collaborate in completing tasks.
- My leader inspires team members to deliver their best performance amidst uncertainty.
- My leader practices open and transparent communication with the team.

Perceived Organizational Support [57];[58]

- I feel supported by the organization when I face stress or personal difficulties.
- I feel that my contributions are recognized and appreciated by the organization.
- I feel that the organization treats all employees fairly.

- The organization provides sufficient opportunities for my career development.
- The organization supports me in completing my tasks by providing practical assistance.

4 Result and Discussion

Table 1. Respondent Gender

	Amount	Percentage
Man	104	60%
Woman	68	40%
Total	172	100%

The total number of participants in the study is 172, providing a robust sample size for analysis. Based on Table 1, the study included 104 men, representing 60% of the total participant pool. This indicates that the male demographic forms a significant majority within the sample. Whereas, there were 68 women participants, accounting for 40% of the total.

Table 2. Respondent Education

	Amount	Percentage
High School	126	73%
Bachelor	39	23%
Master	7	4%
Total	172	100%

The total number of participants in the study is 172, indicating a substantial sample size for analyzing educational backgrounds. Based on Table 2, the majority of participants, 126 individuals, have completed their high school education, which constitutes 73% of the total. This suggests a significant prevalence of individuals at this educational level within the sample. A smaller segment of the population, 39 participants, holds a bachelor's degree, representing 23% of the total. This indicates that a considerable number of individuals have pursued higher education but are still outnumbered by those with only a high school diploma. Only 7 participants (or 4%) have attained a master's degree, highlighting that advanced education beyond a bachelor's is relatively uncommon in this sample.

Table 3. Table of Validity and Reliability

Construct	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
Adaptive Performance	0.672	0.637	0.640	0.657
Agile Leadership	0.641	0.661	0.663	0.727
Perceived Organizational Support	0.613	0.676	0.632	0.582
Workforce Agility	0.658	0.631	0.601	0.658

Based on Table 3, it can be concluded that all the variables had surpass convergent test, it shows that the value of AVE had surpass the rule of thumb [54]

Table 4. Discriminant validity

	Adaptive Performance	Agile Leadership	Perceived Organizational Support	Workforce Agility
AL1	0.270	0.551	0.105	0.061
AL2	0.453	0.906	0.121	0.110
AL3	0.281	0.710	0.074	0.013
AL4	0.736	0.775	0.103	0.071
AL5	0.270	0.279	0.091	0.074
AP1	0.814	0.324	0.424	0.241
AP2	0.838	0.811	0.241	0.025
AP3	0.734	0.323	0.424	0.261
AP4	0.710	0.320	0.241	0.050
AP5	0.812	0.232	0.342	0.201
POS1	0.019	0.025	0.596	0.366

POS2	0.014	0.006	0.735	0.154
POS3	0.048	0.083	0.506	0.435
POS4	0.107	0.017	0.704	0.203
POS5	0.105	0.177	0.643	0.015
WA1	0.034	0.011	0.004	0.553
WA2	0.311	0.296	0.239	0.810
WA3	0.307	0.298	0.342	0.697
WA4	0.517	0.589	0.361	0.644
WA5	0.317	0.619	0.208	0.736

Table 4 shows that based on the factor loadings provided for each item within the constructs (Adaptive Performance, Agile Leadership, Perceived Organizational Support, and Workforce Agility), we can interpret the construct validity by assessing whether each item has high loadings on its respective construct and lower loadings on other constructs. Construct validity is indicated by items loading significantly higher on their intended construct than on others, demonstrating convergent validity (high loadings within the construct) and discriminant validity (low cross-loadings on other constructs) [54]. Adaptive Performance (AP) shows Items AP1, AP2, AP3, AP4, and AP5 exhibit high loadings on Adaptive Performance, with values above 0.7, indicating strong convergent validity for this construct. In addition, Agile Leadership (AL) describes items AL1 to AL4 load significantly on Agile Leadership, particularly AL2 and AL3, with loadings above 0.7, indicating strong convergent validity. The next variable, Perceived Organizational Support (POS) indicate the Items POS1 to POS5 load adequately on Perceived Organizational Support, particularly POS2 and POS4, which are above 0.7. This suggests reasonable convergent validity for the construct. Lastly, Workforce Agility (WA) resulted the Items WA1 to WA5 generally load well on Workforce Agility, especially WA2 and WA3, both above 0.7, indicating good convergent validity for the construct.

Reliability test

Based on Table 3, it can be concluded that all the variables meet the criteria of 0.6 it indicates that the variable had surpassed the reliability test

R Square test

Table 5. R Square test

Construct	R-square	R-square adjusted
Adaptive Performance	0.493	0.483

Workforce Agility	0.554	0.523
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Based on Table 5, it can be concluded 48.3% can elucidate the Adaptive Performance while the rest 51.7% will be explained out this research and 52.3% variance will in Workforce Agility explained by the model's predictors:

BOOTSTRAP

Table 6. Significant Test

	Standard Deviation (STDEV)	t-statistic (STDEV)	p- value
Agile Leadership -> Workforce Agility	0.292	2.642	0.005
Workforce Agility -> Adaptive Performance	0.377	3.067	0.001
Perceived Organizational Support -> Agile Leadership -> Workforce Agility	0.033	2.372	0.001

Table 6 shows that H1 is accepted, The T-value (2.642) and p-value (0.005) confirm that this relationship is statistically significant and moderate in effect. Agile leadership positively impacts workforce agility, meaning that when leaders demonstrate agility, it fosters agile behaviors in their teams. H2 also had similar findings that, The T-value (3.067) and p-value (0.001) demonstrate that this is a highly significant and strong relationship. Workforce agility strongly impacts adaptive performance, meaning agile employees are better at adapting to changes and improving performance. Lastly, H3 is accepted that Perceived organizational support has an indirect effect on workforce agility through agile leadership. This suggests that organizational support helps cultivate leadership practices that then enhance workforce agility.

Conclusion:

The findings from this analysis reveal that both agile leadership and perceived organizational support significantly contribute to workforce agility, which, in turn, positively influences adaptive performance. This is particularly relevant in the digital sector, where rapid technological advancements and shifting market demands require a high level of adaptability and responsiveness from employees. Agile Leadership as a Key Driver of Workforce Agility: In the digital sector, agile leadership is essential for developing a culture of adaptability. Leaders who embody agility—by fostering a culture of innovation, supporting quick decision-making, and encouraging a fail-fast mentality—empower employees to embrace change and respond rapidly to new trends. For instance, in a software development company, an agile leader may promote daily stand-ups and sprint reviews, where team members discuss project progress,

challenges, and solutions in real-time. This approach not only enhances team communication but also ensures that the team is aligned and ready to pivot when necessary. Such leadership practices drive workforce agility, as employees learn to work flexibly, adjust to evolving requirements, and adopt new technologies or methodologies swiftly.

Direct and Indirect Role of Perceived Organizational Support: In the digital sector, perceived organizational support—such as access to cutting-edge tools, ongoing training, and a supportive work environment—plays both a direct and an indirect role in fostering workforce agility. Directly, when employees feel that the organization is committed to their growth and success, they are more likely to adapt quickly to changes and embrace agile work practices. Indirectly, organizational support enables leaders to adopt agile practices, which in turn enhances workforce agility. For example, a digital marketing agency that provides employees with subscriptions to the latest analytics software and regular training sessions empowers staff to utilize these tools effectively. This support allows leaders to set agile goals, such as testing new ad formats or targeting strategies in real-time, which motivates the team to be flexible and responsive to client needs and market trends.

Workforce Agility's Impact on Adaptive Performance: In the fast-paced digital sector, workforce agility has a strong and significant impact on adaptive performance, as it enables employees to respond to rapid changes and innovate continuously. Agile employees are more adept at navigating uncertainties, meeting evolving client expectations, and adapting to new digital tools and processes, thereby enhancing their overall performance. For example, in a cybersecurity company, employees who are encouraged to work with agility can quickly adapt to emerging threats, such as new types of malware, by updating security protocols or developing new solutions on short notice. This adaptability ensures high performance under pressure and keeps the organization competitive in a constantly evolving digital landscape.

Practical implication In the digital sector, where rapid changes and technological advancements are the norm, these factors are particularly critical. Agile leadership fosters a culture of flexibility and responsiveness, while organizational support—both direct and through its influence on leadership—creates an environment where employees feel empowered to adapt and innovate. Workforce agility, in turn, enables employees to respond to changing demands and uncertainties effectively, directly enhancing their adaptive performance. This suggests that digital organizations aiming to remain competitive in dynamic environments should prioritize cultivating agile leadership and robust support systems for their employees.

While these results provide valuable insights, there are limitations to consider. First, the study may have limited generalizability outside the digital sector or specific organizational contexts, as workforce dynamics and agility requirements can vary across industries. Second, the reliance on self-reported data for measuring constructs like perceived support and agility may introduce bias, as respondents might perceive or report their behaviors differently from actual performance. Third, the study does not account for external factors such as market volatility or regulatory changes, which

could influence workforce agility and adaptive performance in ways beyond the control of leadership and organizational support.

Future research could address these limitations by exploring the impact of agile leadership and organizational support on workforce agility across a broader range of industries, including those less technology-driven. Additionally, integrating objective performance metrics or observational data could help validate self-reported measures and reduce potential biases. Researchers might also examine how external factors interact with organizational agility practices, providing a more comprehensive understanding of what influences adaptive performance.

For practitioners in the digital sector, investing in leadership development programs that emphasize agile practices and building a supportive work environment with access to the latest tools and continuous learning opportunities could yield significant benefits. Organizations should also consider assessing and adapting their support structures regularly to ensure they align with employees' evolving needs in a fast-paced industry. By addressing these factors, digital organizations can foster a workforce that is not only agile and adaptable but also better equipped to thrive in an ever-changing environment.

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