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The Effects Of Digital Leadership, Digital Literacy, And Digital Competency On Innovative Work Behavior Among Web3 Remote Workers In Surabaya City

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Abstract

This study analyzes the influence of Digital Leadership, Digital Literacy, and Digital Competency on Innovative W This study examines the influence of Digital Leadership, Digital Literacy, and Digital Competency on Innovative Work Behavior (IWB) among Web3 remote workers in Surabaya City. The research is grounded in the transformation of remote work within the Web3 ecosystem, which presents innovation challenges due to limited spontaneous social interaction. This study addresses both a contextual gap, focusing on the underexplored population of Web3 workers, and a methodological gap by integrating three key digital factors into a single analytical framework. A quantitative approach was employed using purposive sampling, involving 70 Web3 remote workers in Surabaya. Data were analyzed using multiple linear regression with SPSS software. The results show that Digital Leadership (β = 0.330), Digital Literacy (β = 0.322), and Digital Competency (β = 0.301) have a positive and significant effect on Innovative Work Behavior ($p < 0.05$). Simultaneously, the variables significantly influence IWB ($F = 45.646$), with a coefficient of determination (R^2) of 0.675, indicating that 67.5% of the variation in IWB is explained by the model. These findings confirm that the integration of digital leadership, strong digital literacy, and well-developed digital competency plays a critical role in enhancing innovative work behavior in Web3 remote work environments. The study contributes to the development of Upper Echelons Theory in the context of decentralized digital work and provides practical insights for organizations in designing effective digital talent strategies.

Keywords: Digital Leadership, Digital Literacy, Digital Competency, Innovative Work Behavior, RBV, Surabaya.

INTRODUCTION

Digitalisasi Digitalization has reshaped traditional workplaces by crafting a digital work ecosystem that breaks free from the old structural and location limits of conventional organizations. Virtual collaboration platforms make widespread remote work possible, yet they also bring issues like frayed social ties among team members, calling for more organized communication setups (Kniffin et al., 2021). These shifts look set to stick around, so companies need to adapt with flexible HR policies, investments in backup tech, and building up personal skills for virtual environments (Bloom et al., 2023). Flexible arrangements in this digital setup have a major hand in employee performance, channeled through innovative work behaviors (Wahyudi Rahman et al., 2020).

Conventional work practices are shifting fast, hitting a more dynamic stage now that the Web3 ecosystem is emerging as a natural follow up to the rise of decentralized internet tech. Web3 builds this self reliant, project focused workspace where remote work takes center stage as the main way things run, really spotlighting what each person brings to the table, it's sparking quicker, more adaptable patterns driven by fresh ideas and innovation (Murray et al., 2022). All this puts real pressure on people to keep innovating nonstop it's basically the must have for staying in the game and holding your own in worldwide competition. How well this tech rolls out hinges a lot on whether folks are tech ready to back up digital learning and those work ecosystems (Husin & Kharisma et al., 2024).

Remote work is getting a big boost from global job market shifts leaning hard into digital tools as the go to for shaking up businesses (Zahidi, 2023). These shifts are speeding up the labor scene, making it nimbler, and laying the groundwork for cutting edge digital setups like Web3. In the middle of all this change, jumping into work-from-home has turned into a key piece for keeping output steady through tech upheavals (Fazlurrahman et al., 2020). Research points out how blockchain steps in to make matching workers to jobs smoother and faster, boosting clarity and smooth operations across the global workforce (Lee et al., 2025).

In today's high speed workplaces, innovative work behavior (IWB) stands out as crucial for keeping both companies and people afloat long term it's all about coming up with, pushing, and rolling out fresh ideas that give a real edge over the competition (Handiman & Adam, 2024). That said, remote setups run into roadblocks from missing face to face chats, which can stifle creativity by eroding that sense of psychological safety and cutting down on knowledge swaps that matter (Hafizhah & Etikariena, 2024). On top of that, working remotely ramps up mental strain through indirect, out of sync communication, demanding extra brainpower just to stay on track operationally and socially (Wei et al., 2022).

To tackle these hurdles, things like digital leadership, digital literacy, and digital skills are seen as game changers for boosting innovative behaviors in virtual spaces. They help by sharpening communication, tightening team collaboration, and making it easier for folks to handle info overload ultimately letting them meet remote demands head on and spark new ideas without as much friction. Still, a lot of past studies zeroed in on traditional setups and treated these digital elements separately, so we're left with holes in context and methods when it comes to unpacking how innovation really works for remote folks in the Web3 world (Astuti & Setiawan, 2023). That's why this research dives into how digital leadership, literacy, and competency shape IWB for Web3 remote workers, zeroing in on Surabaya (Hassan et al., 2025).

Theoretical Framework

This research draws on Upper Echelons Theory (UET) as its core framework to show that an organization's ability to thrive in digital spaces depends less on the tools or systems in place and more on the traits of its top leaders when they make key strategic calls. Upper Echelons Theory (UET) basically holds that what organizations achieve and decide comes straight from the values, past experiences, backgrounds, and ways of thinking of those at the top (Hambrick & Mason, 1984). For remote workers in the Web3 scene, the qualities of these leaders act as guiding forces that steer company choices and paths forward. UET helps explain how leaders' skills in building digital leadership, boosting digital literacy, and growing digital competency all feed into sparking Innovative Work Behavior (IWB) among Web3 remote workers right there in Surabaya.

Variable Definitions

Digital leadership means a leader's knack for tapping into and handling digital tech to motivate, steer, and equip teams toward company goals in virtual setups (Hassan et al., 2025). Among remote workers in the Web3 world, it acts as a vital bridge for building teamwork structures, psychological safety, and lasting innovation, with leaders stepping up as resource linkers and enablers (Handiman & Adam, 2024). Key signs of digital leadership cover grasping digital shifts, crafting a tech-centered vision, pushing tech use at work, building team digital skills, spurring adaptation to digital changes, and leading by example with digital tools (Çetinkaya & Sürücü, 2025). All this mixes hands on tech know-how with flexible leadership fit for the digital era.

Digital literacy covers a broad set of skills for finding, judging, using, making, and sharing info smartly via digital gadgets (Deschênes, 2024). In spots like Web3 remote work, it lays the groundwork for fresh ideas by handling tricky info that fuels online teamwork (Dwi Aryani et al., 2025). Markers for digital literacy include getting digital tech trends for career growth, spotting workplace digital upsides and pitfalls, hunting down solid career related info, using tech to solve problems, running apps and features for pro chats, knowing digital risks, and

grasping the rules and ethics around it all (Rahmat et al., 2024). Together, they blend tech savvy, sharp analysis, and moral smarts to tackle job related digital hurdles.

Digital competency boils down to hands on command of digital tools to hit personal, work, and social targets smoothly (Vuorikari et al., 2022). Within Web3, it turns creative sparks into real world action through stuff like comms platforms, project tracking, and blending collab tools (Castillo et al., 2025). To gauge it, we pull from Liu et al. (2024) with skills like processing info, checking digital info's trustworthiness, organizing files, chatting via different digital means, teaming up on shared docs, jumping into online platforms, and crafting or tweaking advanced digital stuff. These point to the tech and planning chops needed to innovate and roll with decentralized work vibes.

Innovative Work Behavior (IWB) captures personal actions in dreaming up, pitching, and putting new worthwhile ideas into play to boost job output and company edge (Gunawan, 2024). In Web3's quick, spread out scene, IWB matters big time since personal innovations build cred and rep in project networks. We measure IWB via workers' skills in brainstorming quality boosting ideas, chasing fresh methods or tools for tasks, finding smarter task ways, rallying others on new concepts, helping roll out those ideas, and pushing new workplace developments (Azis et al., 2024). These show how remote crews can turn thoughts into lasting fixes as a group (Khodijah, 2025).

Relationships Among Variables

The Impact of Digital Leadership on Innovative Work Behavior Among Web3 Remote Workers. Digital leadership is the strategic capability of leaders to leverage digital technology to influence, guide, and empower teams to effectively achieve organizational goals in a virtual environment. The Upper Echelons Theory perspective explains that the characteristics of top-level leaders determine the organization’s strategy, decision-making patterns, and direction of innovation (Hambrick & Mason, 1984). In the context of remote workers within the Web3 ecosystem, digital leadership plays a crucial role in fostering transparent communication, creating psychological safety, and supporting a culture of experimentation that enables innovative work behaviors to emerge (Erhan et al., 2022). Furthermore, digital leaders serve as architects of a work environment that encourages idea exploration and intellectual risk-taking (Handiman & Adam, 2024), while Hassan et al. (2025) assert that digital-based leadership capabilities can transform the challenges of virtual isolation into opportunities for sustainable innovation.

H1: Digital Leadership Influences Innovative Work Behavior Among Web3 Remote Workers.

The Impact of Digital Literacy on Innovative Work Behavior Among Web3 Remote Workers

Digital literacy boils down to a person's skill in critically handling, assessing, and sharing information using digital tools. Upper Echelons Theory stresses that this individual-level digital literacy shapes the way people handle info and craft strategic choices that spark innovation (Fransisca et al., 2024). Within remote Web3 settings, it forms the mental backbone for dealing with intricate data and advancing original thoughts (Renaldi et al., 2025). Studies back this up, showing how it ramps up innovative work behavior via smart digital knowledge handling and teamwork online (Dwi Aryani et al., 2025).

H2: Digital Literacy Influences Innovative Work Behavior Among Web3 Remote Workers.

The Impact of Digital Competency on Innovative Work Behavior Among Web3 Remote Workers

Digital competence means getting a solid grip on digital technologies so people can bring innovative ideas to life, tackle issues, and create worthwhile results. From the Upper Echelons Theory angle, individual digital competence stands as a key resource that turns visions and know-how into real innovative steps (Chen & Shen, 2025). In Web3 contexts, strong digital skills aid in running projects and teaming up in spread-out ways, which in turn nurtures innovative work behavior (Liu et al., 2024). Earlier work also makes clear that digital competence serves as a

booster, enhancing personal innovation in self-directed work spaces (Lutfi Astuti & Setiawan, 2023).

H3: Digital Competency Influences Innovative Work Behavior Among Web3 Remote Workers.

Conceptual Framework

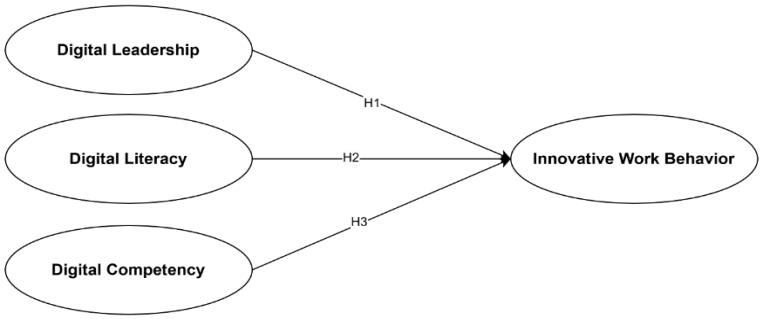

Figure 1. Conceptual Framework

This study's conceptual model lays out how Digital Leadership (X1), Digital Literacy (X2), and Digital Competency (X3) act as key drivers shaping Innovative Work Behavior (IWB) (Y) for remote workers in Surabaya's Web3 scene. It builds on Upper Echelons Theory (Hambrick & Mason, 1984), which points out that people's personal traits, skills, and leanings directly mold their strategic choices, daily work habits, and creative actions inside organizations. Here, digital leadership works as a core strength letting leaders motivate, direct, and boost teams to adjust and come up with new things in online workspaces (Azis Rahayu et al., 2024). Past research shows digital leadership makes a real difference in worker results, especially by ramping up innovative actions in digital job setups. Digital literacy, meanwhile, captures someone's mental sharpness in hunting down, judging, and making use of digital info to back fresh ideas and choices (Pilav-Velić et al., 2021). Real-world data backs that folks with stronger digital literacy show more robust innovative work behavior since they handle info better and whip up clever fixes in digital spaces. Digital competency, on the other hand, covers the hands on tech skills needed to run tools, get tasks done, and turn thoughts into solid outcomes (Sary et al., 2023). Studies before this one underline how digital competency fuels innovative work behavior by helping people wield digital gear to bring ideas to life. Put together, these three digital elements are expected to beef up innovative work behavior through better thinking and tech handling at work, plus smoother teamwork, chats, and creative sparks in loose, off sync environments. So the model checks the straight links between these factors, spotlighting how digital leadership, literacy, and competency team up to push innovative work behavior in today's shifting digital jobs.

RESEARCH METHODS

This research takes a quantitative path to check how independent variables affect the dependent one by crunching numbers through stats. We picked this approach because it fits perfectly for testing hypotheses and lets results stretch out to a whole group or sample (Sugiyono, 2017). It zeros in on remote folks in Surabaya's Web3 field, gathering data online via digital surveys shared in Web3 hangouts like Discord, Telegram, Twitter (X), and LinkedIn, the main spots where these workers chat and organize.

Data comes in primary and secondary flavors. Primary stuff came straight from folks filling out online forms to capture their take on digital leadership, literacy, competency, and innovative work behavior (Priadana & Sunarsi, 2021). Secondary bits pulled from journals,

books, industry reports, and handy web sources to back the theory and breakdowns (Priadana & Sunarsi, 2021). The full group covers every Web3 remote worker in Surabaya, but we grabbed a sample via non-probability purposive sampling with rules like at least three months of remote gigs in the last year, regular use of cloud tech and collab tools, and ages 18 to 35 (Malhotra, 2017). We aimed for 70 respondents, plenty for solid stats in this kind of work (Sugiyono, 2017).

Four variables are in play here: Digital Leadership (X1), Digital Literacy (X2), Digital Competency (X3) as the independents, and Innovative Work Behavior (Y) as the dependent. We collected data with a 1 to 5 Likert scale questionnaire built from lit review indicators and our own definitions. Analysis ran on SPSS, starting with validity and reliability checks to make sure the tool worked right (Ghozali, 2013), then multiple linear regression to see how the three independents sway the dependent (Rachmawati & Susano, 2024), R squared to gauge how well the model explains things, plus t-tests for partial effects and F-tests for the full picture, all at a 0.05 significance cutoff (Sugiyono, 2019).

Table 1.

Variables	**Questionnaire Items**	**Indicator**	**Source**
Digital Leadership (X1)	DL1: Leaders have a clear understanding of digital transformation.	Digital working environments	Zieke et al. (2020)
	DL2: Leaders are able to establish a vision and direction for a digital-based organization.	Digital working environments	Zieke et al. (2020)
	DL3: Leaders encourage the use of digital technology in the workplace.	Digital working environments	Zieke et al. (2020)
	DL4: Leaders support the development of team members' digital skills.	Digital strategies	Zieke et al. (2020)
	DL5: Leaders are able to motivate employees to adapt to digital changes.	Digital strategies	Zieke et al. (2020)
	DL6: Leaders serve as role models in the use of digital technology.	Digital strategies	Zieke et al. (2020)
Digital Literacy (X2)	DT1: Ability to understand developments in digital technology for career development.	Knowledge	Rahmat et al. (2024)
	DT2: Ability to identify opportunities and threats posed by digital technology to the workplace.	Knowledge	Rahmat et al. (2024)
	DT3: Ability to find relevant and reliable information for career opportunities.	Skills	Rahmat et al. (2024)

Variables	Questionnaire Items	Indicator	Source
	DT4: Ability to leverage digital technology trends to solve career-related problems.	Skills	Rahmat et al. (2024)
	DT5: Ability to use digital applications and features for professional communication.	Skills	Rahmat et al. (2024)
	DT6: Ability to recognize risks associated with the use of digital technology.	Attitude & Values	Rahmat et al. (2024)
	DT7: Ability to understand ethics and regulations regarding the use of digital technology.	Attitude & Values	Rahmat et al. (2024)
Digital Competency (X3)	DC1: Ability to use digital technology to complete work tasks.	Digital Task Execution Competency	Liu et al. (2024)
	DC 2: Ability to integrate digital technology into work processes.	Digital Task Execution Competency	Liu et al. (2024)
	DC3: Ability to operate various digital applications and systems relevant to the job.	Digital Technical & Operational Competency	Liu et al. (2024)
	DC4: Ability to solve work-related problems using digital technology.	Digital Problem Solving & Adaptive Competency	Liu et al. (2024)
	DC 5: Ability to adapt to new digital technologies.	Digital Problem Solving & Adaptive Competency	Liu et al. (2024)
	DC 6: Ability to improve work effectiveness and efficiency through digital technology.	Digital Problem Solving & Adaptive Competency	Liu et al. (2024)
Innovative Work Behavior (Y)	IWB1: Develope new ways to complete tasks more effectively.	Idea Generation	Azis et al. (2022)
	IWB2: Contributing to the development of innovative products/protocols.	Idea Generation	Azis et al. (2022)
	IWB3: Building technical knowledge to solve problems at work.	Idea Generation	Azis et al. (2022)
	IWB4: Sharing innovative technology-related ideas with the team.	Idea Promotion	Azis et al. (2022)

Variables	Questionnaire Items	Indicator	Source
	IWB5: Collaborating with remote colleagues to try innovative work approaches.	Idea Promotion	Azis et al. (2022)
	IWB6: Implementing innovative solutions that have been identified.	Idea Realization	Azis et al. (2022)

RESULTS AND DISCUSSION

Validity and Reliability Test

Table 2. Respondent Description Statistics

a. Digital Leadership (X1)

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
DL1	20,74	8,571	,684	,828
DL2	20,86	8,588	,651	,834
DL3	20,84	8,975	,609	,841
DL4	20,77	8,846	,649	,834
DL5	20,79	8,693	,628	,838
DL6	20,79	8,548	,665	,831

Since the Corrected Item-Total Correlation values were above 0.3, all items measuring Digital Leadership (X1) are valid. An instrument or variable is considered reliable if its Cronbach's Alpha (α) value is above 0.60. The results of the reliability test are presented in Table 3.

Table 3.

Reliability Statistics	
Cronbach's Alpha	N of Items
,858	6

The results showed a Cronbach's Alpha value of 0.858, which is greater than 0.6; therefore, the respondents' responses regarding Digital Leadership (X1) are all reliable. The results of the validity and reliability tests for Digital Literacy (X2) are presented in Table 4.

b. Digital Literacy (X2)

Table 4

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted

DLIT 1	24,37	15,135	,660	,892
DLIT 2	24,36	15,247	,744	,881
DLIT 3	24,36	15,92	,717	,884
DLIT 4	24,33	14,890	,791	,876
DLIT 5	24,31	15,784	,682	,888
DLIT6	24,39	15,690	,682	,888
DLIT7	24,37	15,077	,686	,888

Since the Corrected Item-Total Correlation values obtained were above 0.3, all items measuring Digital Literacy (X2) are valid. The results of the reliability test are presented in Table 5.

Table 5

Reliability Statistics	
Cronbach's Alpha	N of Items
,900	7

The results showed a Cronbach's Alpha value of 0.900 > 0.6; therefore, the respondents' responses regarding Digital Literacy (X2) are all reliable. The results of the validity and reliability tests for Digital Competency (X3) are presented in Table 6.

c. Digital Competency (X3)

Table 6

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
DC1	20,13	8,548	,637	,849
DC2	20,07	8,5212	,717	,835
DC3	20,19	8,443	,636	,849
DC4	20,23	8,440	,649	,847
DC5	20,20	8,191	,669	,843
DC6	20,26	8,368	,670	,843

Since the Corrected Item-Total Correlation values obtained were above 0.3, all items measuring Digital Competency (X3) are valid. The results of the reliability test are presented in Table 7.

Table 7.

Reliability Statistics	
Cronbach's Alpha	N of Items
,867	6

The results showed a Cronbach's Alpha value of 0.867, which is greater than 0.6; therefore, the respondents' responses regarding Digital Competency (X3) are all reliable. The

results of the validity and reliability tests for Innovative Work Behavior (Y) are presented in Table 8.

d. Innovative Work Behavior (Y)

Table 8

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
IWB1	24,70	8,416	,778	,913
IWB2	24,41	8,478	,735	,917
IWB3	24,81	8,095	,792	,911
IWB4	24,29	8,439	,770	,913
IWB5	24,56	8,395	,765	,914
IWB6	25,01	8,014	,737	,917
IWB7	24,93	7,951	,789	,911

Since the Corrected Item-Total Correlation values obtained were above 0.3, all items measuring Innovative Work Behavior (Y) are valid. The results of the reliability test are presented in Table 9.

Table 9

Reliability Statistics	
Cronbach's Alpha	N of Items
,925	7

The results showed a Cronbach's Alpha value of 0.925, which is greater than 0.6; therefore, the respondents' responses regarding Innovative Work Behavior (Y) are all reliable. The results of the multiple linear regression analysis are presented in Table 10.

Table 10. Regression Test

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	,218	,343		,637	,527		
	DL	,330	,060	,404	5,512	,000	,919	1,088
	DLIT	,322	,055	,437	5,837	,000	,879	1,137
	DC	,301	,060	,361	5,012	,000	,952	1,051
a. Dependent Variable: Y								

The multiple linear regression equation is Y = 0.218 + 0.330DL + 0.322DLIT + 0.301DC + e. The intercept is 0.005. The intercept indicates that when Digital Leadership, Digital Literacy, and Digital Competency are all set to zero, the value of Innovative Work Behavior is 0.218. The coefficient for X1 is 0.330. The relationship between Digital Leadership (X1) and Innovative Work Behavior (Y) is positive or direct. This coefficient means that for every 1-unit increase in Digital Leadership (X1), Innovative Work Behavior (Y) increases by 0.330, assuming the Digital Leadership variable remains constant. The coefficient value for X2 is 0.322. The relationship between Digital Literacy (X2) and Innovative Work Behavior (Y) is positive or in the same direction. This coefficient indicates that a 1-unit increase in Digital Literacy (X2) will increase Innovative Work Behavior (Y) by 0.322, assuming the Digital Literacy variable remains

constant.

The coefficient value for X3 is 0.301. The relationship between Digital Competency (X3) and Innovative Work Behavior (Y) is positive or in the same direction. This coefficient indicates that a one-unit increase in Digital Competency (X3) will increase Innovative Work Behavior (Y) by 0.301, assuming the Digital Competency variable remains constant. The results of the Coefficient of Determination (R^2) test are presented in Table 11.

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,821[a]	,675	,660	,27774	1,869
a. Predictors: (Constant), DL, DLIT, DC					
b. Dependent Variable: IWB					

The results of the tests for the coefficient of determination and multiple correlation coefficient indicate an R value of 0.821. This indicates that the relationship or correlation between digital leadership, digital literacy, and digital competency and innovative work behavior is strong. Meanwhile, the R-squared value is 0.675 or 67.5%, indicating that the contribution of the variables digital leadership, digital literacy, and digital competency to innovative work behavior is 67.5%, while the remaining 32.5% is explained by other factors not included in this research model. The results of the F-test are presented in Table 12.

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10,563	3	3,521	45,646	,000[b]
	Residual	5,091	66	,077		
	Total	15,655	69			
a. Dependent Variable: IWB						
b. Predictors: (Constant), DL, DLIT, DC						

The results of the F-test (simultaneous) in the table above show that the calculated F-value of 45.646 is greater than the critical F-value of 3.136, which means that H_0 is rejected and H_1 is accepted. It can be concluded that digital leadership, digital literacy, and digital competency simultaneously have a significant effect on innovative work behavior. Furthermore, the results of the t-test are presented in Table 13.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	,218	,343		,637	,527		
	DL	,330	,060	,404	5,512	,000	,919	1,088
	DLIT	,322	,055	,437	5,837	,000	,879	1,137
	DC	,301	,060	,361	5,012	,000	,952	1,051
a. Dependent Variable: Y								

The following table presents the results of the (partial) t-test in this study, analyzed using SPSS with df = (n-k), where n is the number of respondents and k is the number of independent variables. The result is 67, with a critical t-value of 1.668. The results from the table above show that the calculated t-value for digital leadership is 5.512 > the critical t-value of 1.668, and the

significance level is 0.000 < 0.05; therefore, it can be concluded that H_0 is rejected and H_1 is accepted. These results indicate that digital leadership has a partial and significant effect on innovative work behavior.

Furthermore, the calculated t-value for digital literacy is 5.837 > the critical t-value of 1.668, and the significance level is 0.000 < 0.05; therefore, it can be concluded that H_0 is rejected and H_1 is accepted. These results indicate that digital literacy has a partial and significant effect on innovative work behavior. The t-value for digital competency is 5.012 > the critical t-value of 1.668, and the significance level is 0.000 < 0.05; therefore, it can be concluded that H_0 is rejected and H_1 is accepted. These results indicate that digital competency has a partial and significant effect on innovative work behavior.

The analysis results show that digital leadership, digital literacy, and digital competency all positively and significantly shape innovative work behavior for Web3 remote workers in Surabaya. This points to the idea that sparking innovation in digital workspaces comes from a mix of strong digital leadership, solid grasp of tech, and the hands on skills people bring to the table, not just one thing alone.

Digital leadership stands out with a clear impact on innovative work behavior, boasting a t-value of 5.512 and significance of 0.000. It means the better leaders get at steering, firing up, and running teams in digital setups, the more workers step up their innovation game. For Web3 remote crews relying on platforms like Discord, Telegram, and Google Meet, this kind of leadership builds smooth communication, sparks teamwork, and opens doors for fresh ideas. This matches up with Erhan et al. (2022), who found digital leadership boosts innovative behavior by weaving tech into daily workflows.

Digital literacy also packs a positive punch on innovative work behavior, with a t-value of 5.837 and p-value of 0.000. It highlights how someone's skill in getting and using digital tech drives creative output. In Web3's fast-changing world, workers need to keep up with new tools and systems, and those with sharp digital literacy pick it up quicker while churning out spot on innovative thoughts. These results line up with Renaldi et al. (2025), confirming digital literacy's upbeat role in innovative work behavior.

Digital competency likewise shows a strong effect on innovative work behavior, with a t-value of 5.012 and significance at 0.000. This underscores how skill in handling and making the most of digital tools props up creative efforts. In Web3, it goes beyond just basic tech use to include optimizing those tools for better output and team coordination. Folks with solid digital competency feel right at home trying out new tech, which makes them more willing to experiment and innovate. Liu et al. (2024) back this up, noting digital competency positively influences innovative work behavior.

Taken together, these three elements work hand in hand to build innovative work behavior. Digital leadership sets the direction and crafts a supportive space; digital literacy equips people to make sense of and apply digital info; digital competency delivers the practical tech muscle to bring ideas to life. Blending them proves essential for nurturing innovative behavior in Web3 remote workers facing lightning-fast tech changes.

CONCLUSION

The F-test results come in strong, with a calculated F-value of 45.646 beating out the critical F-value of 3.136, so we toss H_0 and go with H_1. That means digital leadership, digital literacy, and digital competency together make a big, significant splash on innovative work behavior for Web3 remote workers in Surabaya. Breaking it down one by one, digital leadership clocks a t-value of 5.512, way above the 1.668 threshold, at a significance of 0.000 < 0.05, proving it positively and clearly boosts innovative work behavior. Digital literacy follows suit

with a t-value of 5.837 > 1.668 and significance of 0.000 < 0.05, confirming its positive and solid impact on innovative work behavior. Digital competency rounds it out t-value of 5.012 > 1.668, again with 0.000 < 0.05, showing its positive and meaningful role in driving innovative work behavior. From all this, the advice stands clear: Web3 players, both people and companies, should step up adaptive digital leadership, build tougher digital literacy, and keep sharpening digital skills. That way, these pieces fit together perfectly to spark innovative work behavior in digital heavy work worlds.

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