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The Impact of Technical Feasibility and Operational Feasibility on IT Startup Sustainability: The Mediating Role of Innovation Capability

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Abstract - **This study investigates the impact of technical feasibility and operational feasibility on IT startup sustainability, with innovation capability serving as a mediating variable. As digital transformation accelerates, IT startups face intense market competition and high failure rates, making sustainability a critical strategic priority. Technical feasibility reflects the readiness of technological infrastructure, system reliability, and technical expertise, whereas operational feasibility represents the effectiveness of workflows, resource utilization, and organizational processes. Using a quantitative approach and SEM-PLS analysis of data collected from 330 employees working in IT startups across major Indonesian cities, this study examines both the direct and indirect relationships among the variables. The results indicate that technical feasibility significantly enhances innovation capability and directly contributes to startup sustainability. Operational feasibility also exerts a significant influence, primarily by improving organizational efficiency that supports innovation activities. Innovation capability demonstrates the strongest effect on sustainability, highlighting its role as a key driver of long-term competitive advantage. The mediation analysis confirms that innovation capability effectively transmits the effects of both feasibility dimensions to sustainability, thereby strengthening their overall impact. These findings contribute to the theoretical understanding of entrepreneurship and information systems while providing practical implications for founders, incubators, and policymakers seeking to enhance the long-term survival and competitiveness of IT startups.**

Keywords— **Technical Feasibility, Operational Feasibility, Innovation Capability, Startup Sustainability, SEM-PLS.**

I. INTRODUCTION

The rapid acceleration of digital transformation has led to a significant rise in the number of technology-based startups across the world. IT startups, in particular, have become important drivers of economic growth, job creation, and technological advancement. Their ability to introduce new digital products, automate processes, and offer innovative solutions positions them as key players in shaping future industries [1], [2]. However, despite their growing presence, IT startups face notoriously high failure rates. Various global reports indicate that more than 70% of startups fail within their first five years, often due to inadequate preparation, poor execution, and an inability to scale operations sustainably. This makes the concept of startup sustainability a crucial area of inquiry, especially in understanding how early strategic decisions influence long-term organizational survival [3].

One of the fundamental determinants of IT startup success lies in the evaluation of technical feasibility. Since IT startups heavily depend on digital platforms, software architectures, and technological infrastructure, technical feasibility acts as the foundation that determines whether an idea can be translated into a workable technological solution [4], [5]. Technical feasibility assesses the availability of skilled human resources, compatibility of software and hardware, system reliability, technological readiness, and long-term scalability. If a startup lacks robust technical feasibility, the development process often encounters obstacles such as system failures, delays in deployment, and technical debt. These issues not only hamper product quality but also reduce user trust and increase operational costs. Consequently, a strong technical feasibility assessment plays an essential role in ensuring that the technology underpinning a startup's offerings is viable, scalable, and sustainable over time [6], [7].

In parallel, operational feasibility is another critical factor that influences IT startup sustainability. While technical feasibility focuses on the technological dimension, operational feasibility refers to the ability of the startup to execute its business processes effectively. This includes workflow

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efficiency, organizational structure, human resource readiness, cost management, and day-to-day operational procedures [8], [9].

Many IT startups fail not because their technology is inadequate, but because their operational systems are not aligned with growth demands. Poor operational feasibility leads to resource misallocation, inefficient project management, low team productivity, and an inability to respond to market changes. When operational processes are weak, even the most innovative technological solution struggles to penetrate the market or deliver value to customers consistently. Therefore, operational feasibility is a backbone that ensures the organization functions cohesively and is capable of sustaining its growth trajectory [10].

Although technical feasibility and operational feasibility are important, research indicates that their influence on sustainability may not always be direct. The dynamic and competitive nature of the IT startup environment requires more than just having feasible technology and sound operations. What differentiates successful startups from those that fail is often their innovation capability. Innovation capability refers to the organization's capacity to generate new ideas, adopt emerging technologies, continuously improve products, and respond creatively to changing market demands. In the context of IT startups, innovation capability becomes the strategic mediator that connects feasibility aspects to long-term sustainability [11].

Technical feasibility enables innovation capability by providing a strong technological foundation for experimentation, prototyping, and implementation of innovative features. When a startup has reliable technological infrastructure and competent technical teams, it becomes easier for the organization to innovate quickly and efficiently. Technical feasibility allows startups to adopt agile development methods, integrate modern tools, and maintain technological flexibility all of which strengthen innovation capability. Conversely, low technical feasibility constrains the startup's ability to innovate, as the team spends more time solving technical issues rather than developing new ideas or enhancing product features [12].

Similarly, operational feasibility influences innovation capability by shaping how efficiently innovation activities are managed within the organization. Startups with strong operational feasibility tend to have well structured workflows, collaborative cultures, efficient decision-making processes, and supportive resource allocation mechanisms [4], [13]. These elements foster an internal environment that enables continuous innovation. Effective operations allow teams to focus on strategic development rather than being overwhelmed by administrative bottlenecks or inefficient coordination. In contrast, weak operational feasibility reduces innovation speed, increases conflict, and diminishes the startup's ability to compete in fast-changing markets. Innovation capability ensures that startups can maintain product relevance, meet evolving customer expectations, and remain resilient amid competitive pressures [11], [14].

Existing literature highlights the importance of feasibility studies in startup development, but relatively few studies explore how these feasibility dimensions interact with innovation capability to affect long-term sustainability, especially within IT startups. Most prior research focuses on financial feasibility, market feasibility, or general entrepreneurial factors such as leadership, networking, and access to funding. However, the unique characteristics of IT startups complex technological dependencies, rapid development cycles, and intense global competition require more nuanced models that incorporate technical and operational dimensions. Additionally, many studies address innovation capability as an independent factor, but its mediating function between feasibility assessments and sustainability outcomes remains underexplored [1], [7].

Therefore, this research aims to fill the gap by examining how technical feasibility and operational feasibility influence IT startup sustainability, with innovation capability serving as a mediating variable. Understanding this relationship is crucial for entrepreneurs, investors, policymakers, and startup incubators who wish to improve the success rate of IT startups. By identifying how feasibility assessments can be leveraged to enhance innovation capability and ultimately strengthen sustainability, this study offers practical and theoretical contributions to the fields of entrepreneurship, information systems, and innovation management.

Based on the research background and identified gaps in the literature, this study is to investigate the connections between technical feasibility, operational feasibility, innovation capability, and IT startup sustainability based on the research background and gaps found in the literature. The following research questions are specifically addressed in this work.

1. How do technical feasibility and operational feasibility influence innovation capability in IT startups?
2. How do technical feasibility and operational feasibility influence IT startup sustainability?
3. Does innovation capability mediate the relationship between feasibility factors and IT startup sustainability?

II. RESEARCH METHOD

This study employs a quantitative research approach with the objective of examining and analyzing the impact of technical feasibility and operational feasibility on IT startup sustainability, with innovation capability serving as a mediating variable. A quantitative approach is selected because it provides objective results through numerical measurement and standardized statistical analysis. This method is suitable for testing complex relationships between latent variables and understanding how feasibility factors influence long-term sustainability in the startup ecosystem.

The data in this research were collected using a structured questionnaire distributed to respondents who are founders, co-founders, technical managers, operational managers, and key employees working in IT startups across various digital sectors, including software development, mobile applications, digital platforms, and technology-based services. Data collection was conducted both online and offline depending on respondent accessibility.

The analytical method used in this study is Structural Equation Modeling–Partial Least Squares (SEM-PLS). SEM-PLS is considered appropriate for analyzing complex relationships among latent variables, including mediation effects, and is suitable for samples that may not follow a normal distribution. The analysis was conducted using the latest version of SmartPLS software. This study was carried out among IT startups located in major Indonesian cities such

as Jakarta, Bandung, Surabaya, Yogyakarta, and Medan. Respondents were selected based on specific criteria, namely:

a. Having worked in an IT startup for at least one year.
b. Having sufficient understanding of technological and operational processes within the startup.
c. Being involved in decision-making or strategic activities.
d. Being willing to complete the research questionnaire in full.

The sample size determination refers to Sugiyono's (2022) recommendation stating that an appropriate sample size ranges from 30 to 500 respondents. Considering the total number of research indicators 32 indicators this study uses 330 respondents (ten times the number of indicators), consistent with Hair et al. (2019), who recommend sample sizes of 5–10 times the number of indicators when using SEM-PLS. This number ensures adequate statistical power and supports reliable and valid analysis.

A non-probability sampling technique with purposive sampling was employed, as the researcher needed respondents who met specific criteria relevant to the research objectives. Purposive sampling ensures that only individuals with adequate experience and knowledge of IT startup operations are included.

Primary data were collected using a questionnaire consisting of statements representing each research variable: Technical Feasibility (X_1), Operational Feasibility (X_2), Innovation Capability (Z) as the mediating variable, and IT Startup Sustainability (Y) as the dependent variable. Each variable was measured using indicators adapted from established theories and previous studies. A five-point Likert scale was used for all statements, with categories:

1 = Strongly Disagree,
2 = Disagree,
3 = Neutral,
4 = Agree,
5 = Strongly Agree.

The data analysis procedure consisted of several steps. First, instrument validity and reliability tests were conducted to ensure that each questionnaire item measured its intended construct consistently. Convergent and discriminant validity were assessed using loading factors, Average Variance Extracted (AVE), and Composite Reliability (CR). Afterward, structural model (inner model) analysis was performed to identify direct and indirect relationships among variables, including the mediating role of innovation capability.

Path analysis in SEM-PLS was used to test the direct effects of technical feasibility and operational feasibility on IT startup sustainability, as well as the indirect effects mediated by innovation capability. Significance levels were assessed using t-statistics and p-values with a significance threshold of 0.05. The model was evaluated based on R^2 (coefficient of determination) and Q^2 (predictive relevance) to determine the explanatory power and predictive accuracy of the structural model.

To operationalize the research variables, each construct was measured using multiple indicators adapted from established theories and prior studies. These indicators reflect the dimensions of Technical Feasibility, Operational Feasibility, Innovation Capability, and IT Startup Sustainability. The complete list of indicators and their theoretical sources is presented in Table 1.

Table 1
Variable Indicators

No.	Variable	Code	Indicator	Source Code
1	Technical Feasibility (X1)	TF1	IT infrastructure availability	S1
		TF2	System reliability	S2
		TF3	Technology compatibility	S3
		TF4	System integration capability	S2
		TF5	Technical skill adequacy	S1
		TF6	Technology scalability	S3
		TF7	System performance efficiency	S2
2	Operational Feasibility (X2)	OF1	Human resource readiness	S4
		OF2	Operational efficiency	S5
		OF3	User acceptance	S6
		OF4	Organizational support	S4
		OF5	Resource utilization effectiveness	S5
3	Innovation Capability (Z)	IC1	Idea generation capability	S7
		IC2	Technology adoption ability	S8
		IC3	Product/service innovation	S9
		IC4	Process innovation	S9
		IC5	Innovation speed	S7
		IC6	Continuous improvement	S8
4	Startup Sustainability (Y)	SS1	Business growth	S10
		SS2	Market competitiveness	S11
		SS3	Operational sustainability	S12
		SS4	Financial sustainability	S10

Source : S1 = Laudon & Laudon (2018), S2 = Pressman (2014), S3 = Turban et al. (2015), S4 = Robbins & Coulter (2016), S5 = Heizer & Render (2014), S6 = Davis (1989), S7 = Hurley & Hult (1998), S8 = Rogers (2003), S9 = OECD (2018), S10 = Porter (1985), S11 = Barney (1991), S12 = Elkington (1997)

Through the use of SEM-PLS, this study is expected to provide a comprehensive understanding of how technical and operational feasibility contribute to IT startup sustainability, and how innovation capability strengthens or mediates these relationships. The findings are anticipated to offer practical insights for startup founders, incubators, investors, and policymakers in designing strategies that enhance

technological readiness, operational effectiveness, and sustainable innovation within IT startups.

III. RESULT AND DISCUSSION

A. Research Results

1. Validity Test (measurement model)
   The validity test was conducted on each question item for each variable. This test consisted of several stages, including convergent validity, discriminant validity, and average variance extracted (AVE).
2. Convergent Validity Test and AVE Value

Table 2
Convergent Validity Test Results and AVE Value

Variabel	Indikator	Loading Factor	AVE	Keterangan
Technical Feasibility (X1)	TF1	0.761	0.644	Valid
	TF2	0.793		Valid
	TF3	0.766		Valid
	TF4	0.796		Valid
	TF5	0.821		Valid
	TF6	0.856		Valid
	TF7	0.820		Valid
Operational Feasibility (X2)	OF1	0.838	0.648	Valid
	OF2	0.837		Valid
	OF3	0.753		Valid
	OF4	0.784		Valid
	OF5	0.811		Valid
Startup Sustainability (z)	SS1	0.844	0.715	Valid
	SS2	0.878		Valid
	SS3	0.853		Valid
	SS4	0.805		Valid
Innovation Capability (Y)	IC1	0.799	0.667	Valid
	IC2	0.834		Valid
	IC3	0.836		Valid
	IC4	0.782		Valid
	IC5	0.830		Valid
	IC6	0.818		Valid

Table 2 presents the results of the convergent validity test and AVE values for all research variables Technical Feasibility, Operational Feasibility, Startup Sustainability, and Innovation Capability. All indicators show loading factor values above the recommended threshold of 0.70, indicating that each item contributes strongly to measuring its respective construct. The AVE values for all variables also exceed the minimum requirement of 0.50, demonstrating that the constructs are capable of explaining more than half of the variance of their indicators. The consistently high loading factors found in the Technical Feasibility and Innovation Capability constructs illustrate strong conceptual coherence among the items. Similarly, Operational Feasibility and Startup Sustainability indicators demonstrate adequate convergent validity, confirming that the measurement model is valid and reliable. Overall, these results provide solid evidence that all indicators used to measure the latent constructs meet the standards of convergent validity and can be used confidently in the structural analysis.

3. Discriminant Validity
   Discriminant validity is conducted to ensure that each concept of each construct or latent variable is distinct from other constructs or variables.

Table 3
Discriminant Validity Test Results (cross loading)

	IC (z)	OF (X2)	SS (Y)	TF(X1)
IC1	**0.799**	0.647	0.719	0.709
IC2	**0.834**	0.657	0.694	0.734
IC3	**0.836**	0.681	0.684	0.715
IC4	**0.782**	0.605	0.661	0.661
IC5	**0.830**	0.676	0.698	0.717
IC6	**0.818**	0.683	0.698	0.661
OF1	0.629	**0.838**	0.591	0.632
OF2	0.625	**0.837**	0.587	0.630
OF3	0.577	**0.753**	0.585	0.591
OF4	0.668	**0.784**	0.680	0.692
OF5	0.726	**0.811**	0.714	0.678
SS1	0.671	0.634	**0.844**	0.664
SS2	0.739	0.665	**0.878**	0.702
SS3	0.708	0.650	**0.853**	0.729
SS4	0.743	0.716	**0.805**	0.681
TF1	0.708	0.685	0.650	**0.761**
TF2	0.659	0.591	0.682	**0.793**
TF3	0.603	0.548	0.607	**0.766**
TF4	0.674	0.650	0.639	**0.796**
TF5	0.705	0.694	0.658	**0.821**
TF6	0.744	0.680	0.690	**0.856**
TF7	0.709	0.661	0.686	**0.820**

Table 3 shows the discriminant validity test results using the cross-loading approach. Discriminant validity aims to ensure that each indicator has a stronger relationship with its own construct than with other constructs in the model. The results demonstrate that every indicator loads highest on its intended variable compared to other variables, confirming clear differentiation among Technical Feasibility, Operational Feasibility, Innovation Capability, and Startup Sustainability. For example, indicators under Innovation Capability consistently show higher loading values with the IC construct than with Operational Feasibility or Technical Feasibility. Likewise, Technical Feasibility indicators such as TF5, TF6, and TF7 exhibit significantly stronger correlations with TF than with the other constructs. The separation between constructs is therefore well-maintained, fulfilling the discriminant validity requirement. This suggests that each construct represents a unique concept within the research

model and that no conceptual overlap exists between variables, ensuring accurate structural model interpretation.

4. Reliability Test

Table 4
Reliability Test Results

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
IC (z)	0.900	0.901	0.923	0.667
OF (X2)	0.864	0.867	0.902	0.648
SS (Y)	0.867	0.867	0.909	0.715
TF(X1)	0.908	0.909	0.927	0.644

Table 4 presents the reliability analysis results using Cronbach's Alpha, rho_A, Composite Reliability, and AVE. All constructs show Cronbach's Alpha values above 0.86, far beyond the minimum acceptable threshold of 0.70. This indicates high internal consistency among the indicators measuring each variable. Composite Reliability values for all constructs also exceed 0.90, further confirming that the measurement model is highly reliable. The rho_A coefficients, which offer a more accurate reliability estimate, also demonstrate strong reliability for each variable. Additionally, all AVE values are above the 0.50 threshold, indicating adequate convergent validity alongside strong reliability. Among the constructs, Technical Feasibility and Innovation Capability show the highest reliability values, reflecting the stability and consistency of their measurement items. Overall, the results confirm that the instruments used to measure the four variables Technical Feasibility, Operational Feasibility, Innovation Capability, and Startup Sustainability are reliable and suitable for further hypothesis testing within the SEM-PLS framework.

5. Inner Model Test Analysis

R Square

Table 5
R Square Test Results

	R Square	R Square Adjusted
IC (z)	0.773	0.771
SS (Y)	0.767	0.765

Table 5 presents the R-square values that depict the predictive power of the structural model. Innovation Capability (Z) shows an R-square value of 0.773, meaning that Technical Feasibility and Operational Feasibility collectively explain 77.3% of its variance. This indicates a strong predictive relationship, suggesting that feasibility factors are essential drivers of innovation capacity within IT startups. Startup Sustainability (Y) has an R-square value of 0.767, showing that Innovation Capability, Technical Feasibility, and Operational Feasibility together explain 76.7% of the variance in sustainability outcomes. These values fall into the "substantial" category according to Hair et al. (2019), demonstrating that the model has excellent explanatory power. The adjusted R-square values remain only slightly lower, implying model stability. Overall, the R-square findings confirm that both feasibility dimensions, strengthened by Innovation Capability, play a major role in shaping IT startup sustainability, validating the conceptual framework of this study.

6. Hypothesis Testing

Table 6
Results of Direct Hypothesis Testing

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics [O/STDEV]	P Values
IC (z) -> SS (Y)	0.444	0.438	0.070	6.380	**0.000**
OF (X2) -> IC (z)	0.331	0.331	0.060	5.511	**0.000**
OF (X2) -> SS (Y)	0.218	0.218	0.052	4.191	**0.000**
TF(X1) -> IC (z)	0.591	0.590	0.059	9.979	**0.000**
TF(X1) -> SS (Y)	0.266	0.271	0.077	3.442	**0.001**

Table 7
Results of Indirect Hypothesis Testing

	Original Sample (O)	M	STDEV	T Statistics [O/STDEV]	P Values
IC (z) -> SS (Y)					
OF (X2) -> IC (z)					
OF (X2) -> SS (Y)	0.147	0.147	0.041	3.587	**0.000**
TF(X1) -> IC (z)					
TF(X1) -> SS (Y)	0.262	0.257	0.040	6.488	**0.000**

Table 8
Results of Specific Indirect Hypothesis Tests

	Original Sample (O)	M	STDEV	T Statistics (|O/STDEV|)	P Values
OF (X2) -> IC (z) -> SS (Y)	0.147	0.147	0.041	3.587	0.000
TF(X1) -> IC (z) -> SS (Y)	0.262	0.257	0.040	6.488	0.000

The visual model further strengthens the interpretation of the statistical results by clearly illustrating the magnitude and direction of relationships among constructs. To provide a clearer representation of the relationships among variables, the structural model along with the hypothesis testing results is presented in Figure 1.

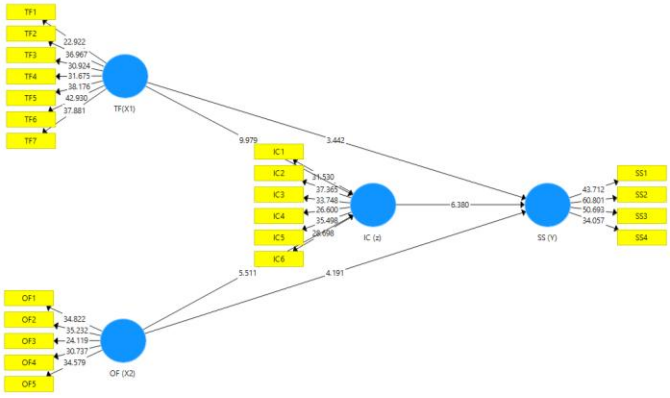


Fig. 1 Hypothesis Test Results

Figure 1 depicts the framework of this research, highlighting the connections between Technical Feasibility, Operational Feasibility, Innovation Capability, and Startup Sustainability. The path coefficients represented in the framework suggest that Technical Feasibility exerts the most significant influence on Innovation Capability, followed closely by Operational Feasibility. In addition, Innovation Capability has a considerable impact on Startup Sustainability, emphasizing its crucial position in the framework.

Moreover, both Technical Feasibility and Operational Feasibility demonstrate both direct and indirect influences on Startup Sustainability through Innovation Capability. The intensity of the indirect effects seems to be more pronounced for Technical Feasibility, indicating that innovation serves as a vital mechanism for converting technical resources into sustainable outcomes. In summary, the structural model visually reinforces the statistical findings outlined in the hypothesis testing tables.

variables in the study. Table 6 shows the direct effects, where all relationships are statistically significant with p-values below 0.05. Technical Feasibility demonstrates a strong direct influence on Innovation Capability ($\beta = 0.591$, $t = 9.979$), indicating that technological readiness and infrastructure significantly enhance the ability of IT startups to innovate. Operational Feasibility also shows a positive and significant effect on Innovation Capability ($\beta = 0.331$, $t = 5.511$), suggesting that efficient processes and resource utilization contribute meaningfully to a startup's innovative performance.

Both Technical Feasibility and Operational Feasibility also exert significant direct effects on Startup Sustainability, with coefficients of 0.266 and 0.218, respectively. These results indicate that feasibility dimensions play a crucial role in shaping long-term sustainability, although their direct effects are smaller than their indirect effects through Innovation Capability. This underscores the importance of innovation as a strategic pathway through which feasibility factors translate into sustainable outcomes.

Innovation Capability itself demonstrates a strong direct effect on Startup Sustainability ($\beta = 0.444$, $t = 6.380$), confirming its central role as a key driver of long-term survival and growth in IT startups. The mediation results further strengthen this conclusion. Table 6 highlights the indirect effects, showing that both Technical Feasibility and Operational Feasibility significantly influence Startup Sustainability via Innovation Capability. The indirect effect of Technical Feasibility on Sustainability is substantial ($\beta = 0.262$, $t = 6.488$), suggesting that strong technical foundations enable innovative actions that support sustainability. Operational Feasibility also shows a significant mediated effect ($\beta = 0.147$, $t = 3.587$), reinforcing that operational readiness enhances sustainability primarily through innovation-driven pathways.

Table 7 confirms the significance of these specific indirect effects, providing additional evidence for the mediating role of Innovation Capability. Overall, the hypothesis testing results validate the theoretical model, demonstrating that both feasibility dimensions strongly contribute to IT startup sustainability, with Innovation Capability serving as a powerful and essential mediator.

B. Discussion

1. Effect of Technical Feasibility on Innovation Capability

The results indicate that technical feasibility has a strong and significant influence on innovation capability, with a path coefficient of $\beta = 0.591$ and a t-value of 9.979. This finding highlights that technological readiness reflected in system reliability, platform compatibility, technical expertise, and infrastructure adequacy serves as a fundamental enabler of innovation within IT startups. According to the Resource-Based View (RBV), firms that possess valuable, rare, inimitable, and well-organized technological resources are able to develop superior innovation capabilities [15]. In digital-based startups, the ability to innovate rapidly depends heavily on the availability of robust technical support, development tools, and high-performing systems.

Technological proficiency significantly boosts a company's ability to create new concepts, produce prototypes, and speed up the processes of developing products, which in turn improves its overall innovation effectiveness. Therefore, the significant relationship found in this study reinforces the theoretical argument that technical feasibility acts as a core strategic resource that empowers startups to innovate consistently in highly competitive digital markets [16].

2. Effect of Operational Feasibility on Innovation Capability

Operational feasibility also shows a significant positive effect on innovation capability ($\beta = 0.331$; $t = 5.511$). This result demonstrates that effective operational processes such as workflow efficiency, organizational coordination, resource allocation, and managerial support play an important role in facilitating innovation. The relationship aligns with Dynamic Capabilities Theory, which explains that firms must be able to integrate, build, and reconfigure internal competencies to achieve innovative outcomes [17].

Efficient and well-structured operations help startups minimize bottlenecks, reduce downtime, and maintain flexibility, enabling teams to focus on creative tasks and strategic experimentation. Further argue that operational routines such as process standardization, cross-functional collaboration, and agile decision-making enhance a firm's ability to sense opportunities and execute innovations effectively [18]. The empirical findings of this study reaffirm that startups with strong operational feasibility are better positioned to develop and sustain high levels of innovation capability.

3. Direct Effects of Technical and Operational Feasibility on Startup Sustainability

The hypothesis testing reveals that technical feasibility ($\beta = 0.266$; $t = 3.442$) and operational feasibility ($\beta = 0.218$; $t = 4.191$) both have positive and significant direct impacts on startup sustainability. These findings suggest that both technical and operational readiness contribute directly to long-term sustainability in IT startups. Technically feasible startups are better able to maintain product reliability, system stability, and technological scalability factors that enhance customer satisfaction and market continuity. This aligns with the view of Schilling (2017), who states that technological robustness is essential for sustaining competitive advantage in technology-intensive industries.

Operational feasibility, meanwhile, contributes to sustainability by ensuring that internal processes support scalable growth, consistent service delivery, and effective

resource utilization. As Startup Sustainability Theory suggests, firms that can maintain operational stability and adaptability are more resilient to market uncertainty and competitive pressures [19]. The results confirm that operational excellence acts as a structural foundation for sustainable organizational performance.

4. Effect of Innovation Capability on Startup Sustainability

The results also demonstrate that innovation capability significantly affects startup sustainability ($\beta = 0.444$; $t = 6.380$). This is consistent with the Schumpeterian theory of innovation, which argues that innovation serves as a key driver of competitive advantage and long-term survival [20]. In IT startups, innovation capability enables continuous improvement of products, adaptation to technological change, and rapid response to market needs.

Studies by Lawson and Samson further support the notion that firms with strong innovation capability are more likely to sustain growth, differentiate themselves from competitors, and maintain resilience in dynamic environments. Thus, the significant effect observed in this study confirms that innovation capability is central to achieving long-term sustainability in the fast-evolving digital startup ecosystem [21].

5. Mediating Role of Innovation Capability

The mediation analysis shows that innovation capability significantly mediates the relationship between technical feasibility and startup sustainability ($\beta = 0.262$; $t = 6.488$), as well as between operational feasibility and startup sustainability ($\beta = 0.147$; $t = 3.587$). This indicates that feasibility factors enhance sustainability not only directly but also indirectly through innovation capability.

This finding is consistent with the framework proposed by Teece (2007), which argues that dynamic capabilities such as innovation serve as mechanisms through which organizational resources and processes contribute to long-term performance. The results clearly show that innovation capability acts as a transformational pathway that amplifies the benefits of both technical and operational feasibility, ultimately improving startup sustainability.

IV. CONCLUSION

The hypothesis testing confirms that technical feasibility and operational feasibility significantly enhance IT startup sustainability, both directly and through the strong mediating role of innovation capability. Technical feasibility shows the greatest overall influence, indicating that solid technological readiness drives innovation and long-term survival. Operational feasibility also contributes meaningfully, primarily through innovation pathways. Overall, the findings validate that innovation capability is a central mechanism linking feasibility factors to sustained startup performance.

This study is subject to several limitations. First, the use of a cross-sectional design restricts the ability to capture dynamic changes in startup development over time. Second, the reliance on self-reported data may introduce potential bias in respondents' perceptions. Future research is recommended to employ longitudinal approaches to better understand causal relationships and to incorporate additional variables such as market dynamics, organizational culture, and external environmental factors to enrich the research model.

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