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Cloud Computing Technology Adoption: Challenges for SMEs, A Case of Selected SMEs in Tanzania

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ABSTRACT

The study aims to explore the challenges faced by SMEs during the implementation of cloud computing technologies and propose potential solutions. The primary objectives include identifying critical barriers, understanding their impact on small and medium-sized enterprises, and suggesting viable strategies to promote cloud adoption. The research employs a mixed-methods strategy that blends quantitative and qualitative techniques. Surveys are circulated among SMEs to acquire quantitative data, while interviews with IT professionals, industry experts, and SME owners are used to collect qualitative data. Statistical techniques and thematic analysis are employed for the study of qualitative and quantitative data, respectively. The study identifies several obstacles preventing SMEs from adopting cloud computing, such as concerns about data security and privacy, a lack of technological know-how, interoperability problems, an ambiguous return on investment, and difficulties with regulatory compliance. The importance of these obstacles is supported by quantitative analysis, which also emphasizes their frequency and effect on SMEs' adoption of cloud computing. The results highlight the need for focused interventions to address the issues raised and encourage SMEs to embrace cloud computing. Specific training programs, incentives to offset start-up expenses, partnerships with service providers, legislative clarity, and knowledge-sharing activities among SMEs are examples of practical ideas. By removing these obstacles, SMEs will be better equipped to harness cloud computing's revolutionary potential, fostering innovation and increasing their competitiveness in the digital age.

1. Introduction

Cloud computing technologies have transformed how businesses and individuals interact with data and applications, providing a seamless flow and modern touch to accessing, storing, and managing information (Yaseen et al., 2023). Unlike conventional computing setups dependent on local hardware and software, cloud computing utilizes the internet to deliver computing resources instantly as needed. Cloud computing encompasses different deployment models, including public clouds, private clouds, hybrid clouds, and multi-cloud environments (Zhang et al., 2020). Public clouds are managed by third-party providers, delivering resources to numerous users online. In contrast, private clouds are exclusive to one organization and can be hosted on-site or by an external provider. Hybrid clouds blend public and private cloud features, offering organizations a balance

between scalability and control. Multi-cloud setups involve utilizing various cloud providers to enhance performance, redundancy, and cost efficiency (Majengo et al., 2022).

Cloud computing has revolutionized IT infrastructure, empowering organizations to gain increased agility, flexibility, and cost-effectiveness. It has facilitated groundbreaking innovations like software as a service (SaaS), platform as a service (PaaS), infrastructure as a service (IaaS), and containerization technologies. These paces have empowered businesses to advance digital transformation, foster better collaboration, bolster security measures, and spur innovation across diverse industries (Mshana, 2020).

Cloud services such as Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS) are becoming increasingly popular among SMEs aiming to streamline operations, enhance collaboration, and expand their business scalability (Mshana, 2020). Cloud technology has made significant strides, but ongoing challenges like infrastructure, limited internet connectivity and power supply disruptions can hinder its smooth implementation (Abdul et al., 2023). Many SMEs may not fully comprehend the capabilities of cloud solutions for integrating them efficiently into their operations. Security remains a major focus in the context of cloud computing (Mshana, 2020). SMEs are attentive about preserving the privacy, integrity, and confidentiality of their data while utilizing cloud service providers for storage. Adherence to local and international regulations is a significant challenge for SMEs in regulated sectors like finance, healthcare, and government due to its added complexity.

In Tanzania, there has been a steady transition among SMEs towards adopting cloud computing (Majengo et al., 2022). This transition is fueled by the goal of modernizing IT infrastructure, improving operational efficiency, and harnessing advanced technologies without substantial initial investments. This article aims to explore the unique difficulties faced by Tanzanian SMEs during the integration of cloud computing technologies. Its goal is to equip SMEs with crucial insights and actionable strategies to overcome the obstacles associated with cloud adoption by examining these barriers in detail. The study intends to catalyze a change in how SMEs perceive and harness the transformative capabilities of cloud computing technology by amalgamating international best practices with customized solutions tailored to the Tanzanian environment.

2. Literature Review

Research on the adoption of cloud computing by SMEs highlights several key obstacles. These challenges encompass concerns regarding privacy and data security, limited technical expertise and resources, compatibility issues with existing systems, unclear return on investment (ROI) prospects, and regulatory compliance complexities. Studies indicate that while SMEs recognize the potential benefits of cloud computing, they often encounter hurdles due to resource constraints and a limited understanding of the technology.

Data security and privacy concerns are major barriers hindering SMEs from embracing cloud computing. SMEs often lack confidence in the ability of cloud service providers to adequately secure their sensitive data. Albelaihi and Khan (2020) conducted a qualitative study in Saud Arabia to evaluate the benefits and hindrances of cloud computing among SMEs. The use of cloud computing and organizational quality performances were discovered to be significantly positively correlated by the study. They found that the greatest challenge in adopting cloud computing among companies is privacy and security which made access to cloud computing below average scale. To address these concerns, studies by Raj et al., (2018), Al-Rahayfeh et al. (2019) and Abdul et al. (2023) underscore the importance of robust security measures and transparency from cloud providers. Moreover,

research conducted by Brown (2022) and Abdul et al. (2023) has highlighted the challenges encountered by SMEs due to insufficient and substandard technological infrastructure, which impedes the adoption of cloud services, especially in many developing nations like Tanzania.

Small and Medium-sized Enterprises (SMEs) often encounter difficulties arising from a lack of technical know-how and IT resources, which adds complexity to their adoption of cloud computing. Alghamdi et al.,(2019) highlighted main obstacles to SMEs' adoption of cloud computing were infrastructure and culture. As highlighted in Murigi and Mutuku's (2022) study, providing SMEs with assistance and training is crucial for them to effectively manage cloud solutions. Moreover, the integration of cloud solutions with existing IT infrastructure presents challenges on a global scale, including within Tanzanian SMEs. Concerns such as interoperability and compatibility can create obstacles to the seamless implementation of cloud computing technology. Research by Abdul et al. (2023) and Brown (2022) emphasizes the significance of addressing compatibility issues through close collaboration with cloud service providers and thorough preparation beforehand.

According to the study by Alsafi and Fan (2020), SMEs in Saudi face several challenges with cloud computing. These challenges include: provider lock-in, lack of government support, lack of top management support, security concerns, privacy concerns, service costs, data control, inadequate bandwidth, and a lack of cloud expertise and training are the most frequent obstacles. These obstacles are crucial because cloud computing can open doors to new business prospects. Another study by Alshahrani (2021) found that organizational, technological, and environmental aspects influence the adoption of Cloud Computing by SMEs in Saudi Arabia. The resource-based view and the technology-organization environmental framework served as the foundation for this.

Skafi et al.(2020) conducted a study in Lebanon to investigate factors that are likely to influence the adoption of Cloud Computing. According to their results, the use of cloud computing services is positively correlated with organizational (top management support and prior IT experience) and technological (complexity and security) aspects. Furthermore, one area of possible interest is how contextual or country-specific factors affect cloud computing adoption. The analysis reveals a negative relationship between the adoption decision and context-specific characteristics, such as inadequate infrastructure and a lack of government support.

The literature also recognizes the challenge SMEs encounter in demonstrating the value of their investments in cloud computing, particularly regarding the uncertainty surrounding return on investment (ROI). Khayer et al. (2020) point out that Tanzanian SMEs may encounter additional financial constraints or risk aversion, highlighting the need for tailored approaches to ROI assessment and more precise guidance. Additionally, adhering to industry standards and data protection regulations presents a hurdle for small and medium-sized enterprises (SMEs) considering cloud adoption. Balancing the use of cloud services with regulatory compliance requires careful consideration and the application of risk management strategies. Studies worldwide, such as Majengo et al. (2022), stress the importance of aligning cloud initiatives with local data protection laws and industry standards. This underscores the necessity for comprehensive risk management plans tailored to Tanzania's legal landscape.

In Jordan Rababah and Al-Nassar (2020), conducted a study to investigate factors for the adoption of Cloud Computing. Results from 92 respondents confirmed that six factors—compatibility, security, top management support, technological preparedness, prior IT expertise, and competitive pressure—had an impact on Jordanian

manufacturing SMEs' adoption of Cloud Computing. The only thing lacking support is the perceived benefit (ROI).

In India Shetty and Panda (2023), conducted a study to investigate what determines the adoption of Cloud Computing among SMEs. The findings showed that the factors impacting cloud adoption in Indian SMEs were perceived benefit, perceived ease of use, technological preparedness, top management support, and trust. It is the lack of all these that challenges SMEs in using Cloud Computing.

Despite facing these challenges, the future of cloud computing in Tanzania's SME sector looks promising (Abdul et al., 2023). Government initiatives that promote digital transformation, partnerships with technology providers, and heightened awareness efforts are fueling progress (Majengo et al., 2022). Cloud service providers are customizing their solutions to meet the specific needs of SMEs, offering scalable options, strong security features, privacy and localized support.

3. Methodology

This study employs a mixed-method approach that combines quantitative and qualitative methodologies to investigate the difficulties faced by SMEs in implementing cloud computing solutions. Qualitative data, obtained through case studies and interviews with SME owners, IT specialists, and industry experts, were utilized to explore their experiences and perspectives on the challenges of cloud computing adoption. Additionally, quantitative data were collected through surveys distributed to a sample of SMEs, focusing on the frequency and significance of various obstacles to adopting cloud technology.

3.1 Qualitative Data Collection

The selection of participants for qualitative data collection followed purposive sampling, encompassing three primary categories: SME owners, IT specialists, and industry experts. This approach aimed to achieve a diverse representation of backgrounds and experiences pertinent to cloud adoption. During the qualitative phase of the study, interviews were conducted with 50 respondents, comprising 25 SME owners, 15 IT professionals, and 10 industry experts. The study employed semi-structured interviews and case studies with the chosen participants to investigate their perceptions, experiences, and challenges regarding the implementation of cloud computing technology in SMEs. These methods facilitated a thorough exploration of their viewpoints and insights. The study identified key informants within the SME community through industry groups, professional networks, and referrals. Additionally, snowball sampling techniques were utilized to encompass individuals with significant expertise and hands-on experience in cloud adoption.

3.2 Quantitative Data Collection

The study utilized a stratified random sampling method for collecting quantitative data. This approach involved dividing SMEs into strata based on company size, industry sectors, and geographic locations to guarantee a sample that is representative of the population. Furthermore, the study gathered data through surveys distributed to a representative sample of SMEs. These surveys were designed to evaluate the prevalence and importance of different obstacles to cloud adoption, along with understanding SMEs' attitudes and viewpoints regarding cloud computing technology. In the quantitative phase, 200 SMEs were surveyed using random sampling methods

within each stratum to select participants for the survey. This method aimed to reduce sample bias and improve the study's findings' applicability across various segments of the SME community.

3.3 Data Analysis

Thematic analysis was employed to analyze qualitative data from interviews, aiming to reveal recurring themes and patterns concerning challenges in cloud adoption. On the other hand, statistical techniques were utilized to analyze the quantitative survey data, evaluating the frequency and importance of obstacles and factors influencing SMEs' adoption of cloud computing.

3.4 Integration of Findings

To gain a thorough understanding of the difficulties encountered by SMEs when adopting cloud computing technologies, the study employs an integrated approach that combines both qualitative and quantitative data. This merging of qualitative insights with quantitative data will enable SMEs and stakeholders to develop more detailed and impactful recommendations. In essence, using a mixed-method approach would facilitate a comprehensive exploration of the study's themes, thereby providing valuable insights to enhance the existing knowledge base on SMEs' adoption of cloud computing technology.

3.5 Data Validation and Presentation

Validation of the data involved peer debriefing and member checking. Key informants were provided with preliminary findings to verify the accuracy and interpretation of the data. This member-checking process enhances the credibility of the study. To bolster the reliability of the findings, the researcher sought input and feedback from colleagues and experts in the relevant field. To reinforce the identified themes and patterns, the findings are presented narratively, incorporating quotes and examples from qualitative interviews. For quantitative data, tables and charts are used to illustrate the findings effectively.

3.6 Ethical Considerations

The study adhered to ethical standards by obtaining participants' informed consent, ensuring confidentiality and anonymity through the use of pseudonyms and secure storage of interview transcripts and recordings, minimizing harm and discomfort, and ensuring the safety of individuals involved.

4. Findings and Discussions

The findings indicate that data security and privacy concerns remain the primary obstacles hindering SMEs from adopting cloud computing. These concerns are closely followed by worries regarding costs, technical expertise, and regulatory compliance. SMEs express apprehensions about entrusting sensitive data to external cloud providers, fearing potential security breaches or data loss. Additionally, their challenge lies in effectively integrating and managing cloud solutions due to a lack of internal IT skills and resources.

4.1 Respondents Characteristics

The study used 50 respondents comprising 25 SME owners, 15 IT professionals, and 10 industry experts to collect qualitative data while 200 respondents were involved in collecting quantitative data. The table 1 and 2 below present respondents’ characteristics for qualitative data and quantitative data respectively.

Table 1: Respondents Characteristics: Interviews

Sample category for Interviews		Education Level			Gender	
		Primary to Secondary Education	Certificate to Diploma	Degree and Above	Female	Male
SMEs Owners	25	5	13	7	9	16
IT Professionals	15	0	5	10	5	10
Industry Experts	10	0	2	8	4	6
Total	50	5	20	25	18	32

Table 2: Respondents Characteristics: Questionnaire

COMPANY SIZE(Small or Medium)		INDUSTRY		LOCATION	
Small	91	Food Processing	39	Dar es Salaam	64
Medium	109	Brewing	21	Arusha	24
Total	200	Clothing and Footwear	31	Mwanza	31
N.B Small Enterprises are those with 5-49 employees and capital between 5 mil to 200 mil while Medium are those with 50-99 employees and capital Above 200 mil and not more than 800mil (Tanzania SMEs Policy, 2003)		Transportation	19	Tabora	12
		Tires	4	Tanga	10
		Entertainment	29	Dodoma	19
		Construction	26	Morogoro	21
		Beauty	31	Iringa	19
		Total	200	Total	200

4.2 Quantitative Results

A survey was conducted with a sample of 200 SMEs to identify the challenges in adopting cloud computing technologies. Respondents were asked to rate the significance of different obstacles to cloud adoption on a scale from 1 to 5, where 1 denoted "Not Significant" and 5 denoted "Highly Significant." The resulting quantitative findings are as follows:

Table 3: Descriptive results for Cloud Computing Challenges

CHALLENGE	MEAN	STANDARD DEVIATION
Data Security and Privacy Concerns	4.2	0.8
Limited Technical Expertise and Resources	3.8	0.9
Compatibility Issues and Integration Challenges	3.6	0.7
Uncertain Return on Investment (Roi)	3.4	0.6
Regulatory Compliance	4.0	0.7

4.2.1 Data Security and Privacy Concerns

Data security and privacy concerns emerge as significant barriers to cloud adoption, a consensus underscored by the statistical data. The data reveal a collective acknowledgment of these concerns, reflected in a mean value of 4.2 and a standard deviation of 0.8, indicating their widespread impact. This pervasive unease mirrors broader trends observed globally and within Tanzania, as enterprises across sectors grapple with the intricate landscape of privacy and data protection regulations (Albelaihi and Khan (2020) Raj et al.,(2018), Brown (2022) Abdul et al. (2023)). Fostering cloud adoption among SMEs necessitates a strategic focus on addressing privacy and data security challenges. Without robust security measures ensuring the confidentiality of information and adherence to privacy laws, many businesses may struggle to fully leverage the benefits of cloud computing. Thus, stakeholders involved in promoting cloud adoption must meticulously address data security and privacy issues to facilitate SMEs' successful transition to cloud technologies.

4.2.2 Limited Technical Expertise and Resources

Based on the statistical data provided, respondents perceive a limited technological expertise and resources as a significant hindrance to cloud adoption. The data, which indicate a mean rating of 3.8 and a standard deviation of 0.9, suggest a widespread acknowledgment among respondents regarding the importance of this challenge. The mean score of 3.8 highlights the majority's belief that a notable barrier to adopting cloud computing technology is the scarcity of technical know-how and resources. This underscores the necessity of addressing this issue proactively with targeted initiatives. The standard deviation of 0.9 indicates a moderate degree of variation in respondents' perceptions, revealing some dissent despite the overall consensus on the significance of limited technical resources and expertise as deterrents to cloud adoption. This divergence may stem from differences in SMEs' unique circumstances and challenges, such as industry sector variations, organizational

size, or geographic location. The findings are in line with the studies by Alghamdi et al.,(2019), Mutuku's (2022), Abdul et al. (2023), and Brown (2022). By prioritizing skills development and resource allocation, stakeholders can empower small and medium-sized enterprises (SMEs) to adopt cloud computing technology more effectively, unlocking its transformative potential for business growth and innovation.

4.2.3 Compatibility Issues and Integration Challenges

Based on the statistical data provided, respondents identify compatibility issues and integration challenges as major hurdles in cloud adoption. These statistics, reflecting a consensus among respondents regarding the importance of this issue with minimal diversity in viewpoints, reveal a mean rating of 3.6 and a standard deviation of 0.7. The mean rating of 3.6 indicates that respondents perceive compatibility problems and integration difficulties as significant barriers to adopting cloud computing technology. This underscores the widespread recognition among respondents that these issues require attention and proactive resolution. The low standard deviation of 0.7 suggests a high level of agreement among respondents regarding the importance of compatibility problems and integration challenges as impediments to cloud adoption, demonstrating consistency in their perceptions across various segments of the SME community.

4.2.4 Uncertain Return on Investment (ROI)

Based on the statistical data provided, respondents identify uncertainty about return on investment (ROI) as a significant obstacle to cloud adoption. The data indicates a relatively low level of diversity in respondents' assessments regarding the relevance of this challenge, with a mean value of 3.4 and a standard deviation of 0.6. This mean rating of 3.4 highlights respondents' belief that unclear ROI poses a substantial deterrent to adopting cloud computing technologies. The data suggests that a significant portion of participants consider this issue noteworthy, emphasizing the need for targeted attention and proactive measures to address it effectively. In terms of the importance of uncertain ROI as a barrier to cloud adoption, respondents largely agree, as evidenced by the relatively low standard deviation of 0.6. This indicates a consistent perception among respondents and previous studies of Al-Nassar (2020), Panda (2023), across various segments of the SME community regarding the significance of this issue.

4.2.5 Regulatory Compliance

Based on the statistical data provided, respondents identify regulatory compliance as a major impediment to cloud adoption. The data reveals a relatively low level of variability in respondents' assessments concerning the significance of this challenge, with a mean value of 4.0 and a standard deviation of 0.7. A mean rating of 4.0 indicates that the majority of respondents view regulatory compliance as a significant obstacle to adopting cloud computing technologies. This underscores widespread concern among respondents, highlighting the need for proactive measures to address this issue effectively. In terms of the importance of regulatory compliance as a barrier to cloud adoption, respondents exhibit a high level of consensus, as indicated by the comparatively low standard deviation of 0.7. This indicates a consistent perception among respondents across various segments of the SME community regarding the significance of this challenge. Notably, regulatory compliance was identified by a significant proportion of respondents (68%) as a major barrier to the adoption of cloud computing

technology. This is also supported by the study of Alsafi and Fan (2020) who also found regulatory compliance and government support as a major challenge to Cloud Computing among SMEs.

4.3 Qualitative Results

A total of 50 respondents took part in semi-structured interviews, including 25 SME owners, 15 IT professionals, and 10 industry experts. Their insights were gathered to understand the challenges related to cloud adoption. The qualitative findings were derived from a thematic analysis of the interview data.

4.3.1 Data Security and Privacy Concerns

Many respondents expressed concerns about the security of sensitive data stored in the cloud, highlighting significant hurdles to cloud adoption such as potential risks of data breaches, unauthorized access, and data loss.

"(...) ...We deal with a considerable amount of confidential client information, and the prospect of storing it in the cloud makes me apprehensive. How would we manage a security breach? We cannot afford to take that risk."

4.3.2 Limited Technical Expertise and Resources

Interviewees highlighted the limited numbers of internal cloud computing expertise and resources as a primary barrier to cloud adoption. They discussed the challenges in effectively managing cloud solutions and understanding complex cloud technology.

"(...) ...We just don't have the adequate number of cloud computing expertise to implement and manage cloud services internally," said a cloud computing specialist. The thought of moving our whole infrastructure to the cloud without the necessary assistance is intimidating."

4.3.3 Compatibility Issues and Integration Challenges

An industry expert remarked, *"(...) ...Our legacy systems are not optimized for seamless integration with cloud platforms. Ensuring compatibility and maintaining operational continuity is challenging."* Participants elaborated on the difficulties of integrating cloud solutions with current IT systems and applications, highlighting compatibility issues, data migration challenges, and concerns about disrupting established workflows as significant barriers to adoption.

4.3.4 Uncertain Return on Investment (ROI)

Interviewees voiced concerns about the uncertainty surrounding the potential return on investment (ROI) from adopting cloud services. They highlighted issues related to initial costs, ongoing expenses, and the difficulty of accurately assessing the benefits of cloud computing.

"(...) ...We are cautious about investing in cloud services without a clear grasp of the long-term benefits. When ROI is uncertain, justifying the expense becomes challenging."

4.3.5 Regulatory Compliance

The interviewees highlighted challenges associated with ensuring regulatory compliance when utilizing cloud services. They discussed concerns related to data sovereignty, legal implications, and adherence to industry-specific regulations.

"(...) ...As a healthcare provider, we are bound by stringent regulatory standards regarding data protection. We need assurance that our cloud provider adheres to regulatory requirements and industry norms."

4.4 Integration of Findings

The quantitative results corroborate the qualitative findings, providing a comprehensive understanding of the challenges faced by small and medium-sized businesses during the implementation of cloud computing technology. The primary obstacle identified was data security and privacy concerns, followed by challenges related to regulatory compliance, interoperability, limited technological expertise and resources, and uncertain returns on investment. Integrating qualitative and quantitative data enhances the credibility and reliability of the research findings, guiding the development of targeted strategies to address these challenges and accelerate cloud adoption by small and medium-sized enterprises.

5. Conclusion

In conclusion, while cloud computing offers significant opportunities for SMEs to enhance their agility and competitiveness, substantial barriers hinder its widespread adoption. Collaboration among SMEs, policymakers, and service providers is essential to address these challenges effectively. SMEs may easily overcome challenges and utilize cloud computing in their organizations if they are well prepared. Furthermore, SMEs can overcome adoption barriers to cloud computing and fully leverage this transformative technology by investing in cybersecurity measures, providing training and support, and fostering an innovative legislative environment.

6. Recommendations

The study suggests the following improvements to better meet the requirements of cloud computing adoption by SMEs:

- i. **Conduct Thorough Regulatory Impact Assessments:** SMEs must conduct comprehensive analyses to understand the regulatory landscape governing cloud computing in their specific sectors and regions. This involves identifying relevant industry standards, data protection laws, and compliance requirements that may impact their cloud initiatives. By doing so, SMEs can proactively identify any compliance gaps and develop tailored strategies to address them through thorough assessments.
- ii. **Establish Robust Compliance Frameworks:** To ensure compliance with regulatory standards throughout the cloud adoption process, SMEs should establish strong compliance frameworks. This includes developing guidelines, protocols, and safeguards for encryption, access control, data management, and audit trails. By implementing a systematic framework, SMEs can mitigate compliance risks and demonstrate their commitment to regulatory compliance to stakeholders.
- iii. **Engage Legal Experts and Regulatory Authorities:** SMEs should seek guidance from legal experts and regulatory authorities to navigate the complex regulatory environment surrounding cloud adoption. This involves interpreting regulatory requirements, assessing compliance obligations, and consulting with legal counsel specializing in data protection and privacy laws. Additionally, SMEs should engage with

- regulatory bodies to gain insights into industry-specific compliance best practices and clarifications on regulatory requirements.
- iv. Utilize Certified Cloud Service Providers: It is crucial for SMEs to partner with cloud service providers that adhere to industry-standard security and compliance guidelines. This includes selecting vendors with certifications such as SOC 2 for data privacy and security and ISO 27001 for information security management. By working with accredited providers, SMEs gain access to integrated regulatory compliance controls and assurance mechanisms.
 - v. Enhance Data Governance and Risk Management Procedures: SMEs should strengthen their data governance and risk management practices to ensure secure and lawful data processing in the cloud. This entails putting strong access controls, encryption methods, and data classification guidelines into place to guard against sensitive data being exposed or accessed without authorization. To remain compliant with regulatory requirements, SMEs should regularly assess and mitigate risks related to data residency, cross-border data transfers, and vendor dependencies.
 - vi. Provide Ongoing Training and Awareness Programs: SMEs should invest in continuous training and awareness initiatives to educate staff members about their roles in upholding regulatory compliance in the cloud. This includes disseminating information on compliance standards, best practices for managing data securely in cloud environments, and principles of data protection. By fostering a culture of compliance awareness and accountability, SMEs empower staff members to effectively mitigate compliance risks and uphold regulatory requirements.
 - vii. Monitor Regulatory Developments and Evolving Threat Landscape: SMEs must stay vigilant to changes in regulations and emerging risks that may impact their cloud compliance posture. This involves staying updated on revisions to data protection laws, industry-specific regulatory frameworks, and enforcement trends. To effectively address new cybersecurity threats, SMEs should regularly assess the evolving threat landscape and update their compliance plans and procedures accordingly.

7. Areas for Further Studies

Future studies can investigate into numerous areas to deepen understanding regarding Small and Medium-Sized Enterprises (SMEs) and their adoption of cloud technologies. These areas encompass investigating the impact of long-term cloud adoption on SME performance and competitiveness, assessing the influence of government policies and initiatives on SMEs' adoption of cloud computing, conducting comparative analyses across diverse industries and regions to identify sector-specific challenges and best practices, examining how emerging technologies such as edge computing and serverless architecture shape SMEs' strategies for cloud adoption, and exploring how organizational traits and cultural nuances influence SMEs' perceptions and utilization of cloud computing technology.

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