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# Cloud Technology in Business

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***Abstract***

The focus of the entire globe is on online data storage, where data is accessible at any time via a network. This concept is called as Cloud Computing. Many firms have chosen the flexibility and benefits of cloud computing over the traditional technique of local software hosting and storage. In recent years, the value of cloud-based public services surged in billions. Its expansion is exacerbated by the overuse of social media, e-commerce, and mobiles. This study focuses on the significance of implementing Cloud Technology in business organisations [micro, Small Medium Companies [SMBs], and Small Medium Businesses [SMEs] and by what means it influences development in business, based on a review of the relevant research literature.

***Index Terms-***Cloud Technology, Business Organization, Cloud Deployment Models, Cloud Service Models, SMB, SME, SaaS, PaaS, IaaS are the key terms of this article.

## I. INTRODUCTION

Cloud Technology is a sophisticated company management technology that has revolutionised how firms' function. Rather than installing and implementing software or applications on a computer, cloud technology functions on a multitenant shared server. It is self-service oriented technology since the user may access these services by signing in and configuring them to their requirements. Customers that use cloud computing have various advantages, including enhanced scalability, dependability, and security. The monthly over-the-air updates provided by cloud service providers include new functionality, security and performance improvements. In addition, cloud technologies conform to the pay for resources utilized model, allowing users to pay only for the services used. It finally frees up vital IT resources, enabling the user to focus on the deployment of more applications, software, and new initiatives, as well as innovation. The new notion of cloud computing may have a tremendous effect on any organisation. Cloud technology intends to improve the next generation data center by building it as network of hardware and software-based virtual services. This allows users to ingress and deploy applications from any location in the globe, making the system very versatile and adaptable. Primary advantages of cloud computing are that it frees organisations from the time-consuming chore of installing software, hardware,

and infrastructures, allowing them to concentrate on delivering commercial value. In addition, the cloud sector has generated multiple trillions of dollars in business opportunities, and cloud technology has the capability to deliver required services, infrastructure, and skills necessary to manage business opportunities. Cloud technology has been game changing technology, it provides various advantages to organisations, including enhanced scalability, dependability, and security. Cloud technology liberates a company's vital IT resources and enables users to focus on producing business value. It is a dynamic and adaptable technology that has the capacity to deliver the services, infrastructure, and capabilities necessary to manage company potential. As the cloud market continues to expand, firms who use cloud technology are likely to profit and acquire a competitive advantage.

## II. FEATURES PERTAINING TO CLOUD TECHNOLOGY

1 Desired Self Service: Because Cloud Technology does not require humans as administrators, a user can ingress any resources needed for computing namely storage, app programs, power from providers of cloud service unaccompanied by human intervention.

2 Wide Network Access: The computer resources will be accessible at any location, at any time, using any standard web-capable device.

3 Elasticity: Resources can be acquired by consumer when required. If supplementary resources needed, user may demand, set free if no longer required. From client's perspective, resources are boundless. Customer pays only for the reources utilized.

4 Resource Pooling: The resources of cloud providers are aggregated to generate the restricted service. Furthermore, the combined resources could be geographically dispersed across several data centres. Resources are shared by several clients. Users are dynamically allotted resources as per demand.

5 Adaptability: They mechanically counterbalance loads, enhance resource use. It is permissible for a user to view and manage resource utilisation, enabling bill transparency.

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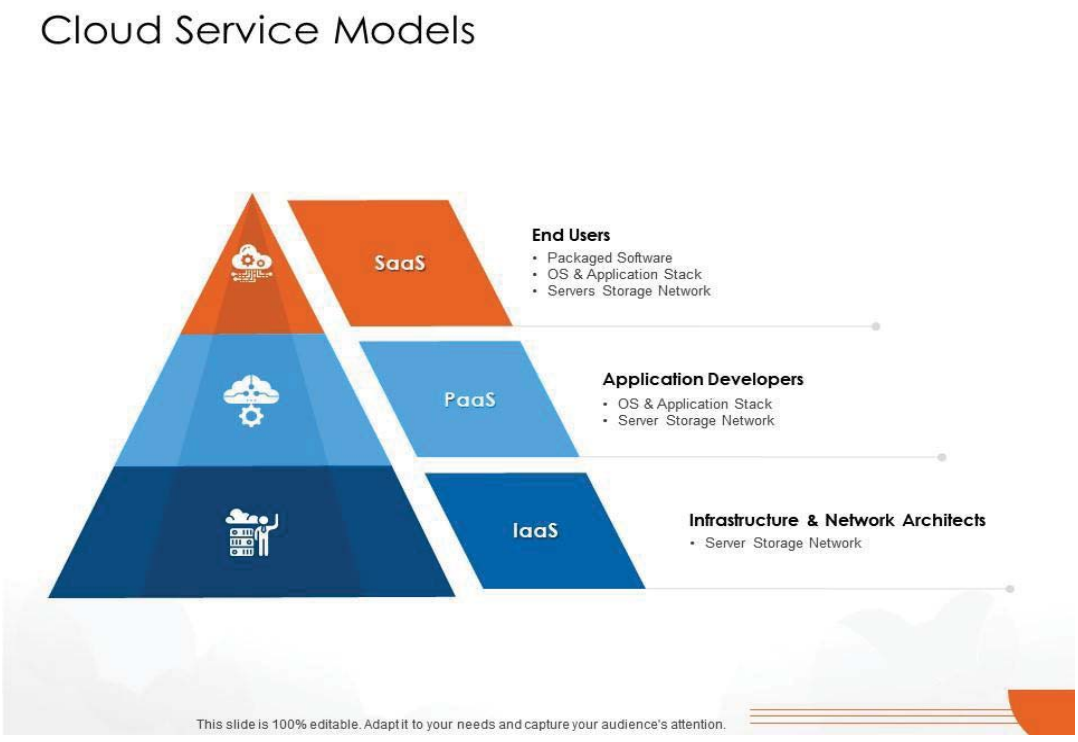
## III. CLOUD SERVICE MODELS

Types of cloud service models:

1 Software as a Service [SaaS]: It is a mode of delivering software globally via internet. Hosted software, Web-based software are other terminology used for SaaSapplications.Rather than installing software on the user's workstation, software is delivered as a service to the user, and updates are delivered in the form of periodical patches.

2 Platform as a Service [PaaS]: It offers a scalable, flexible platform to develop, deploy, run apps. Rather than paying or purchasing software licences for platforms, these platforms, as well as software related development kits and tools, are offered online.

3 Infrastructure as a service [IaaS]: It provides required infrastructure measures, like storage, compute, networking, and virtualization, to individuals and businesses by means of cloud.




(Source:https://www.slideteam.net/cloud-service-models-cloud-computing-ppt-background.html)

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## IV. CLOUD DEPLOYMENT MODELS

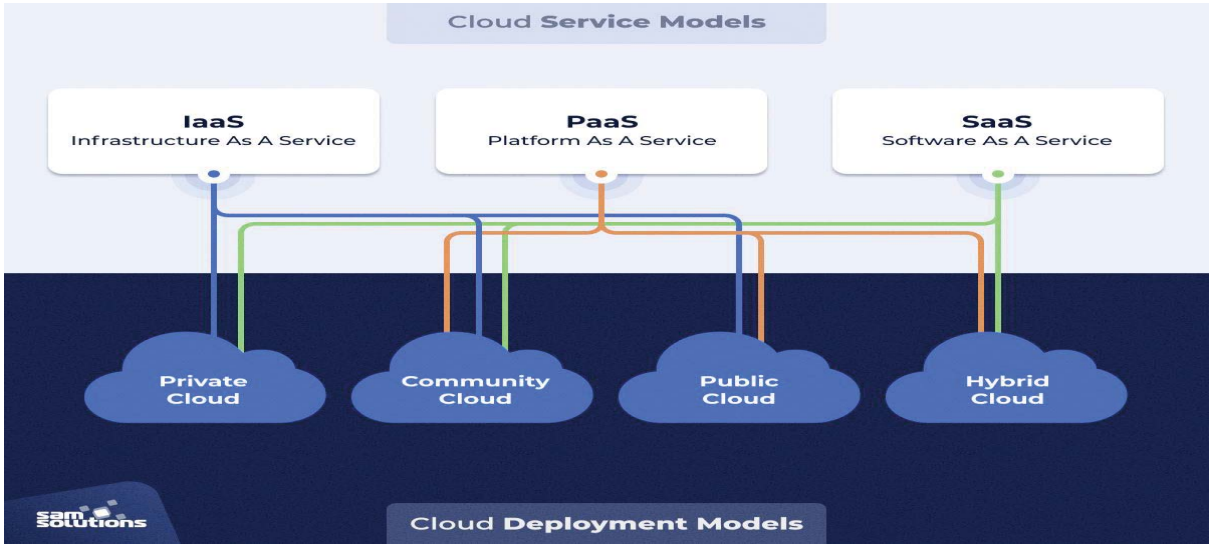
Cloud Deployment Model operate as a virtual computing environment that provides a alternative of deployment model in accord with how much data users want to store and who will have access to the infrastructure.

1 Public Cloud Model: The Public Cloud Model permits the general public to ingress all the services supplied by the cloud. Cloud based on this model are cost-effective, highly scalable and consisting of a huge amount of space. E.g., Google AppEngine, Amazon EC2.

2 Private Cloud Model: The Private Cloud let authorized people within the organization to ingress all the amenity provided by the cloud. Private Cloud is managed only within a single organization.

3 Community Cloud Model: The Community Cloud permits congregation of organizations sharing the identical interest to ingress services provided by the cloud. Perhaps it is operated either internally or by a third party.

4 Hybrid Cloud Model: It is a coalition of both public and private clouds. Uncritical activities are done through the public cloud, whereas essential activities are done through the private cloud.




(Source: https://sam-solutions.us/wp-content/uploads/What-Is-a-Cloud-Deployment-Model_-1024x767.png)

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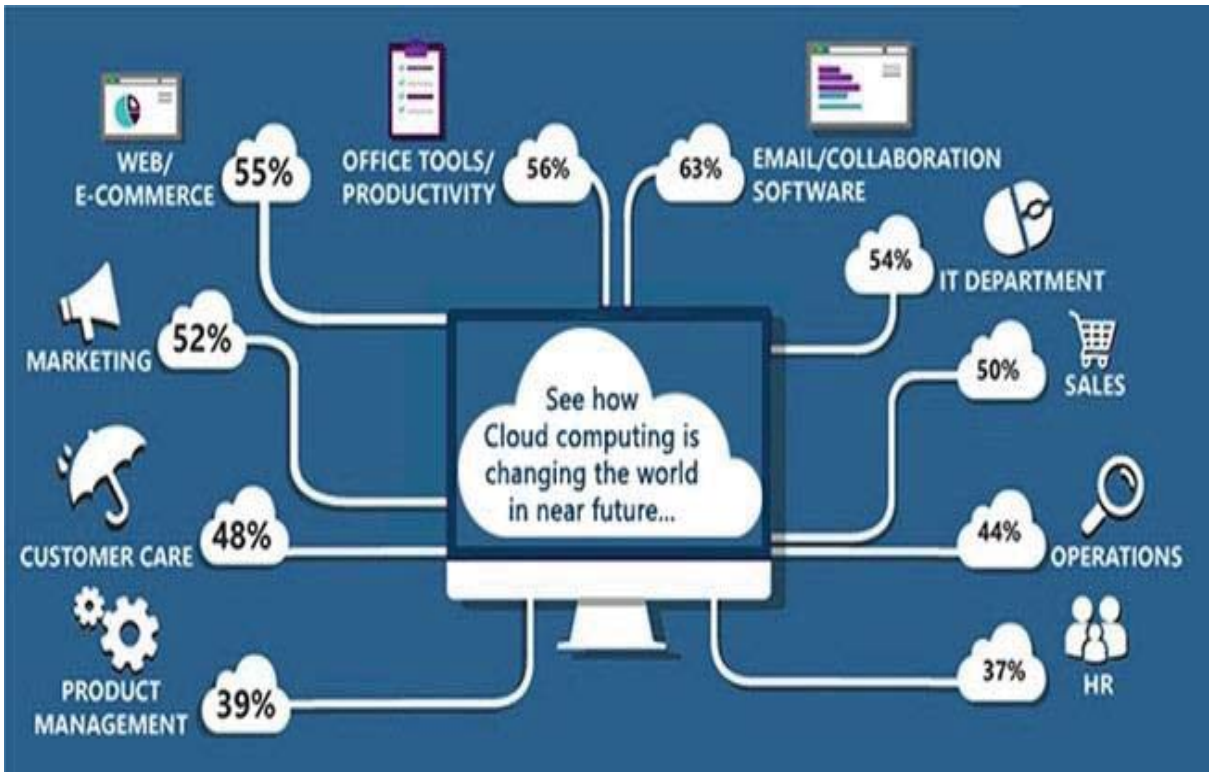
## V. RAPID GROWTH

Causes of Cloud Computing's Rapid Growth While the technical advancements that have led to the development of cloud computing are numerous, the most important ones are.

One major factor in cloud computing's meteoric rise is the rapid development of both the processing and communication infrastructures upon which it depends.

Second, a shift in management thinking: in the past, most businesses preferred to maintain their records on paper or in an on-site server farm. Nevertheless, in order to reach all inclusive capabilities, majority of organisations choose to concentrate their attention to company growth thus keen to outsource their IT requirements.

The fast rise in computer power and the introduction of the internet in the 1990s enabled significant advances in cloud computing. Early adopters such as Google and Amazon have shown that cloud computing may deliver processing power without the requirement for specialised hardware or locally installed applications.




(Source: https://www.cognixia.com/wp-content/uploads/2015/10/cloud-2.jpg)

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## VI. BENEFITS

Cloud computing has several benefits. There are more advantages to cloud computing for SMEs, SMBs, and even micro-businesses (SMEs)

Here are some examples:

- Adaptability: Cloud services can rapidly adapt to the unique need of any business by provisioning a wide range of options. Due to the pay as you use significnce of cloud computing, there is no need to invest heavily in initial infrastructure costs. It helps [SMEs] to start new projects with lower upfront costs and lower ongoing operational costs than ever before.
- Enhanced teamwork: With cloud computing, everyone on the team can collaborate more effectively by accessing and updating shared files and programmes in real time regardless of their physical location. It also lets them keep tabs on related colleagues and data to get instant notifications of any relevant changes. Cloud service providers manage server maintenance, security updates, software upgrades automatically, saving customers' time and resources.
- Management: Without cloud storage, firms must depend on email for internal file sharing. Because single person may operate on a file at a time, this implies that there will be an infinite number of versions of the same document with various names and formats. By storing data in the cloud, businesses may still access it even if their server fails.
- You can operate from anywhere. This physical trait has a significant influence on the data worker's productivity, work-life balance. Organisation’s that use cloud computing helps in reducing their carbon footprint, help conserve the environment by using just the server space they currently have.
- Disaster recovery: When organisations begin utilising the cloud, they may avoid comprehensive disaster recovery plans, considering the cloud provider will supervise most concerns instantly.

- Ambitious: It provides a broad range of ERP solutions, allowing SMEs to access the same technology as major enterprises. It also empowers medium-sized businesses to be more responsive to bigger competitors.

## VII. RESTRICTIONS OF CLOUD COMPUTING

Using the adage "every coin has two sides," we'll talk about the disadvantages of cloud computing.

1 Cloud services could be hampered by a lack of communication.

2 Data theft can occur through both online and offline channels if the information is transmitted.

3 A decline in service quality as a result of dwindling resources at the service providers' end.

4 Information theft can occur when a company offers cloud services to users in many countries by hosting their servers in a third country. One solution is to apply international regulations to data protection.

5 For reasons of security, it may be counterproductive to store sensitive information in the cloud.

## VIII. JUSTIFICATION FOR USING CLOUD SERVICES IN COMPANY

There are significant ramifications for organisations that move to the cloud. Such factors include portability and affordability, dependability, safety and privacy, and cooperation and information sharing. The following is a summary of the research that supports these outcomes.

**1. Due to the subscription model**, there is a huge cost savings for small firms Ankeny, J. (2011, March). The high-computing-power applications of business intelligence and analytics are now more affordable to use for even the smallest of companies. A 70% cost reduction has been observed since adopting AWS (Amazon Web Services) as the cloud vendor. AWS has also reduced their prices a couple of times, in the past three years, in spite of the absence of competitive forces McAfee, A. (2011, November). The lower cost of IT assets and the lower cost of IT asset maintenance are valued by SMEs, which are less risk-averse and result in a

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lower barrier to entry. With so many new players on the scene offering computing power at such low costs, it is now considered a commodity. Application related to business are now within reach of even the small busniness due to low cost. Businesses can lower their IT budgets and treat IT more like a running cost than an investment since no equipment or software needs to be purchased in advance. IaaS helps to decreases both capital expenditures and IT costs. Cloud computing allows for rapid expansion (scalable infrastructure) and spare capacity to be quickly and cheaply provisioned [Durkee, D.]. (2010, May)]. The flexibility of the resources provided by cloud service providers turns into a significant competitive advantage in high-risk business models when demands impale.

The low total cost of ownership (TCO) is a major benefit of the Cloud model. The cloud helps businesses to pay for acquired resources. This method helps companies control the costs of non-essential tasks like IT and marketing. Cloud solutions decrease the need for physical servers and the associated human labour needed to run day-to-day operations. Costs that were once absorbed by IT can now be redistributed elsewhere. Cloud Business Intelligence refers to the use of Cloud Infrastructure to host BI products that can subsequently be accessed via Internet-based or other virtualized networks. They are put to use to provide businesses with Business Analytics in the form of dashboards, key performance indicators, and the like.

There are many benefits to using a cloud-based BI solution instead of an on-premises one. The following are a few examples:

| Parameters | Cloud Business Intelligence | On-Premise business Intelligence |
|---|---|---|
| Initial Cost | Low | High |
| Additional Hardware/ IT Cost | Low | High |
| Implementation | Short | Significantly longer |
| Customization | Less | High |
| Control of Data Security Standards | Vendor | Organization |
| All-time Costs | Predictable | Non-predictable |

(Source:https://www.sigmainfo.net/blog/5-reasons-consider-cloud-business-intelligence/)

**2. Easy to Use:** Many employees of small businesses today work away from the workplace, making it crucial that they have quick and effortless access to their data (via their mobile devices). (2011, March)]. Small business executives can now devote more time to operational and strategic tasks thanks to cloud-based accounting and finance solutions [Krell, E. (2011)]. Cloud services are used by accountants for their [ SMEs] clients for a low monthly price [Kevany, K. (September 2011)].

Cloud computing model aids in reduction of administrative costs and provides accessibility from anywhere, on any device, within any enterprise [McAfee, A. [(Nov., 2011)]. Less powerful devices (smartphones, netbooks) are able to make the most of the company's backend IT systems via a simple web-based interface like AWS Management console Marston, S., Li, Z., Bandyopadhyay, S., Zhang, J., & Ghalsasi, A. (2011, April).

**3.Security and privacy:** Organizations talking about cloud security are actually more concerned about having their own control (something like a private cloud) than any other serious issue Payton, S. (2010). Authentication and encryption help keep data safe in the cloud [ Mahesh, S., Landry, B. J. L., Sridhar, T., and Walsh, K. R.]. (July-September, 2011)] and [Jain, V. (October, 2011)]. Activity monitoring, transaction tracking, user-level access control, and strong passwords are all examples of measures that improve security Sultan, N. A. (2011, June). Therefore, storing data in the cloud is safer. You'll save a tonne of time by not having to apply security updates. Some cloud solutions are more flexible than others; for example, e, Google Apps lets some users choose where their data is stored in order to meet federal regulations [Mahesh, S., Landry, B. J. L., Sridhar, T., and Walsh, K. R.]. (July-September, 2011)].

**4.The fourth benefit is increased reliability due to the cloud's around-the-clock accessibility**: Instead of relying on in-house IT support, workers can contact the cloud centre directly [Ankeny, J. (2011, March)]. Cloud storage systems provide built-in data redundancy, so files are accessible at all times, even if network or power failure occurs. [Devaki, S. (August 2011)]. This built-in redundancy helped Netflix to stay buoyant online, regardless of AWS failure in 2011 McAfee, A. (2011, November). Even in 2010, Gmail had an uptime of 99.984%, which is 32 times more reliable than a typical widely used email system. On the

contrary, for SMEs, the reliability of cloud services is definitely important, but not as crucial as for large companies Sultan, N. A. (2011, June). It is also crucial that users can easily transfer their data to a new cloud service provider if their current one goes down. There is a widespread issue with cloud computing's lack of compatibility [Rath, A. (2012)].

Failsafe cloud systems have been developed in response to the growing concern over the dependability of popular business cloud platforms such as Amazon, Salesforce.com, Gmail, Google Documents. The requisite reliability should be considered notwithstanding the low prices of cloud services. [Durkee, D. (2010, May)]. Commercial businesses that offer automatic disaster recovery and trustworthy backups should have access to fast phone help under SLA, as stated in [Durkee, D. (2010, May)].

**5.Share and collaborate:** Since the rise of social media and mobile devices (smartphones), new firms have found it easier to work together within [Krell, E.]. (2011)]. According to [Jain, V. (2011, October)] and [Devaki, S. (2011, October)], cloud storage enables several SMEs to share data (through email, shared web links, instant messaging), store information, and access information.] [August 2011]. Google Apps, Box, and Jive are excellent platforms for stakeholder engagement and information exchange [McAfee, A.]. (November 2011) and [Sultan, N. A. (2011, June)]. Researchers in the field of CSE (Computational Science and Engineering) are able to share and analyse massive datasets in tandem with one another [ Truong, H.-L., & Dustdar, S. (2011, Jane)]. Cloud-based IM and video conferencing make it simpler for teams to work together [Payton, S.]. (2010)]. Users are enticed to switch to cloud computing by the ease with which they can share and collaborate on documents (through Google Documents) and communicate (with Skype and Google Chat). cloud computing [Marston, S. Li, Bandyopadhyay, S. Zhang, J., and Ghalsasi, A. (2011, April)].

**6. Formerly,** only the largest companies could afford to employ the business analytics software that was made available to them. With expansion of cloud computing and the savings it provides have facilitated the entry of [SMEs] into the market. Cloud levels the playing field by making it accessible to businesses of all sizes within the same market segment.

**7. The cloud computing technique is scalable**, which is the sixth benefit. Its exponential expansion can be directly attributed to the vast quantities of IT resources at its disposal. To

accommodate more users or data, your infrastructure must be able to scale up. The use of the cloud facilitates this process. It's a boon for developers looking to expand their clientele. It's crucial for keeping up with the ever-evolving need for computers and development. As a result, you can see why cloud computing is crucial for modern enterprises.

**8. In the case of a catastrophe,** recovery may be achieved by using a third-party that provides cloud computing environment and the Disaster Recovery as a Service (DRaaS) model. It provides DR orchestration as a SaaS solution to restore IT infrastructure functioning. It allows remote access to critical systems and assists in disaster recovery, making it beneficial for enterprises of all sizes. This protects the safety of the online environment. The cloud's security is critical for assuring the protection of sensitive data.

**9. Availability of automated updates is one of the most intriguing elements of cloud computing.** SaaS, is a popular cloud service paradigm established by cloud providers. Developers are responsible for ensuring that users always have the most current version of the software installed under this configuration. This allows for efficient and trouble-free servicing. It saves time by reducing the quantity of pollution produced by computers.

**10.Cloud computing's basic business strategy** is to offer flexibility in the workplace, allowing employees greater freedom to focus on their primary responsibilities. In addition, it simplifies an otherwise complex IT system. Primary goal of cloud computing is to collaborate with a cloud partner to advance an organisation, to deliver the essential building blocks of IaaS, SaaS, PaaS, and BaaS. These are the primary concerns of the cloud computing method, which places a premium on secure data storage.

## IX. CONCLUSIONS

The impacts of cloud computing are being felt by small and medium-sized businesses (SMEs), which is steadily changing the way they function both now and in the future. Notwithstanding the few difficulties that business professionals have found, SMEs and SMBs are not scared to use cloud technology into their company plans. This literature review suggests that espouse cloud's intuitive interface and low learning curve have contributed to its adoption by SMEs. To employ, and so strengthen, the secondary effect. The cloud's security and privacy have increased. The third benefit of learning to utilise the cloud is a cost

savings. As a result, cloud computing is not only accessible to small and medium-sized organisations (SMEs), but also achieve their demands in terms of convenience and security. Finally, Cloud has enabled SMEs to significantly deposit their value. The cloud's security and privacy have increased. The fourth effect is that when adopting cloud-based solutions, small and medium-sized organisations (SMEs) do not always have to be concerned about security. (SMEs) are apprehensive of cloud outages and prefer to have backup, storage, and other equipment close to hand. The fifth and final result is that SMEs demand more sharing and cooperation than big firms, which may be addressed by substituting cloud for their requirements rather than spending as much on in-person meetings, teleconferences, travelling for business, gadgets, and so on. Researchers discovered that using cloud computing has a considerable beneficial impression on firm growth.

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