Special Issue of First International Conference on Science, Technology & Management (ICSTM-2020)

Small and Medium Enterprises and Cloud Technology–Challenges and Opportunities during COVID19

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Abstract

The cloud technology has proven its benefits during the lockdown situation. Small and Medium scale industries are severely impacted during pandemic due to multi fold reasons. This paper depicts the situation of SMEs who were prepared for digital journey using cloud technologies verses underprepared SMEs. It covers the cloud basics and usefulness of cloud technology for Small and Medium scale industries. It also provides views for selecting right option to maximize the benefits for SMEs. Software as a Service (SaaS) offering has proved more beneficial for SMEs over Landscape as a Service (LaaS) and Platform as a Service (PaaS). The key benefits of SaaS such as SMEs do not require hardware and software installations at their premises. The Cloud Service Providers (CSPs) extend support for installation and customization for their products. They takes care of maintenance and various upgrades necessary during product life cycle. These distinct advantages of cloud technology became more relevant during Pandemic situation for SMEs.The SMEs being vital part of our economy, the cloud service providers are coming up with various offerings to encourage them for cloud technology adoption. The Pandemic period is also assisted CSPs to improvise their services. The increased cyber-attacks strengthened the security mechanism while the surge in the network usages emphasized the need of optimization code for better user experience. The Covid-19 pandemic has opened up new opportunities for cloud technology in health care sector. The new normal has brought less social contacts and more usages of technology means for daily interaction. Cloud technology has become a part of business continuity planning and brought new perspective during COVID-19 pandemic. The cloud-based workforce collaboration tools and round the clock remote accessibility mitigate the major risks during natural disasters. It is time to adopt cloud technology by those SMEs who have not considered cloud adoption as an option in the first place.

Keywords: SMEs, Cloud Technology, Cloud Adoption, Challenges and Opportunities during COVID19.

1. Introduction

Government of India has announced the lockdown on 23 March 2020 consider the impelling situation of virus spread like the other nations across world. The life comes to stand still, offices were vacated, factories and shops were closed with immediate notice. The economical wheel has slowed down except essential services. Virus continued to be spreading across countries and created fears in mankind. During pandemic time, positive thing also has happened as people realized about their real basic needs. People realized about importance of healthy lifestyle and focused on immunity measures. During lockdown, migrate temporary labors were unrest and started moving toward their native places using non permitted means. The chaotic situation impacted SMEs (Small and medium enterprises) sector heavily.

1.1 SMEs definition

According to government act 2006, the micro, small and medium enterprises are classified predominately into two parts.

- Manufacturing: Enterprises involved into manufacturing or producing good in any of the industry sectors.
- Services: Enterprises offering services as product.

Recently, the Indian government has announced changes in the MSME definition. They have widened the turn-over and investment limits. With this change large number of industries will be added under MSME category and will be eligible for benefits.

- Micro : Investments less than equal to 1 crore and turnover up to 5 crore
- Small: Investments between 1 to 10 crore and turnover up to 50 crore
- Medium: Investments between 10 to 50 crore and turnover up to 250 crore

	Investment (in Crore Rupees)	Turnover up to (in Crore Rupees)
Micro	Up to 1	5
Small	1 to 10	50
Medium	10 to 50	250

Atmanirbhar Bharat Abhiyaan relief package of Rs 20,000 crores announced to accelerate the MSME activities. The industries were going through turmoil which was caused by Covid-19 pandemic lockdown.

2. Typical modus of operandi before COVID-1

SME Industry is heavily relied on building relationships and personal contacts. If someone has to sign new contracts, or update exiting contract then he or she should be approaching the parties in-person. Many of the sales deal and vendor communication were handled through personal visits to customer sites or vendor premises. Even the feedback or service satisfaction survey were managed with courtesy visits. The IT operation has been considered as an on-demand service for selected usages for rendering needs of core business team. IT has been considered as tool for data collection, consolidation, and reporting purpose. Business happens to be focused more on companies USP and human asset

Many of the time, employees rely on trained IT staff for supporting their IT/ERP package related activities and requirements. IT staff use to handle system related operations and support ad-hoc requests coming from individual's in the organization. There are multiple reasons that the companies were not using full potential of software packages as the industry trend itself was relies more on human touch. [1-4]

2.1 Challenges Faced During Lockdown:

Post announcement of lockdown, situation turned chaotic. The team has got locked into their houses. No one has thought of the situation and prepared with any kind of business continuity plan. Complete lockdown is very seldom situation and not into consideration for BCP planning

Our previous understanding about BCP to have safety measures in place, alternate production operation facilities for keep business live. From IT perspective, IT operation were planned by using redundant high availability IT infrastructure to ensure fault tolerance. Some smart companies even planned for disaster recovery by keeping safe custody of system backup at remote places.

No one thought of the situation where they would be asked to work or support remotely. Most of employers and employees were unprepared for situation.

In my acquaintance, I am come across real life experience of my two entrepreneur friends who underwent through different experiences during same situation. To keep anonymity, I will call them Mr. X and Mr Y.

Mr. X and Y are running their factory units in well know industrial belt in Pune.

Mr X has been running his business for last 20 years and isknown for his visionary thinking. He continues enhancing the quality and services of his product. He has always been fascinated with new market trends. His interest in technology keeps him invested into new software usages and upgrading existing systems. He keeps investing in training and encourages all his employees to use the new technologies.

He also has migrated his in-house ERP software on cloud platform last year. He has recently upgraded his Microsoft office suit to office 365. He is using outlook for email communication and Microsoft meetings as collaboration tool.

On the other hand, Mr. Y is renewed industrialist, and he is running his family business as legacy

from his forefathers. His parents imported machinery from foreign countries and have maintaining company unique selling proposition for years. Their customers and vendors have built strong alliance over years. They had very low employee turnover. The process in the organization are followed rigidly. Most of orders and supply deals are closed over phone and later regularized in the software systems.

Looking at early IT trends, he invested into in-house electronic data processing unit in late 90s. He recruited skilled IT experts to cater customized IT requirements.

His core business depends more on relationship hence he feels his IT investment is merely for paperwork. Recently he has started deferring spending over system upgrades and purchasing newer technological products. In changing competitive environments, his decided to spend more funding into retaining people and keeping surplus funds for unforeseen plant maintenance over investing money into advanced IT setup. Funding for IT upgrades seem not a wise decision for him.

Both Mr. X and Y were running their business in profits.

Let us see what has happened with Mr. X and Y during lockdown. After the announcement from state and central government, all shops and factories were asked to suspend the operation. Everyone has been asked to stay at home. Any further movements within towns are only allowed for essential services with prior scrutiny by district police authority. Literary life came to sudden halt.

Mr. X and Mr. Y contacted their core management team to assess the situation over phone calls. The situation was verydisturbing as no one was aware about could be next. The media was pouring news about nature of virus and the damage which is will be caused by COVID-19 pandemic to humans.

Mr. X and Mr Y are equally worried about their business. Initially people thought that the lockdown will be in place for three weeks, but due to extreme conditions government had to extend it for another 3 weeks. In absence of work and wages, it was very difficult for temporary migrant labors to survival. Their attachment towards their loved one made them crazy to walk miles of distance through railway tracks to their native places. On the other side government was busy making all necessary arrangement for food, medical facilities and medicines. Government asked bankers to suspend monthly instalment against loans, bills and rents as people were left with no money in hand.

The worst continued for Mr. Y as he only able to engage with his executive staff over phones calls. His team was clueless about the current situation of sales, inventory, good produced, row material, payables, and receivables. Having no access to plant, warehouse, accounting books made his staff nowhere in terms of information. The judgmental details shared by his staff was not useful for any decision making.

He started engaging in key essential staff by providing them with desktops from factory for book reviews. The data available on servers were not accessible on standalone at PC home. The staff had to manually reconciliation data into excel files. Meanwhile, Mr. X, did not face any such issues. It was quite easy working remotely as he started using his collaboration tools for team meeting and discussions. He continued his daily meeting with sales, operations, warehouse, finance, and HR teams. Most of his key staff having remote access to ERP application from company provided laptops. Most of his employees from sales, finance, payroll sections have started performing routine tasks remotely. The areas impacted were actual production and good movement.

He held brainstorming sessions with his core executives and performed SWAT analysis of current situation. The team assessed current standing of their organization during this pandemic situation.

They evaluated the impact on their business and market dynamics in terms of near line, mid-term and long-term perspective. They were successful in Identifying the key challenges and impediments. Having done all this they had clear priorities and mitigation plans designed to overcome challenges. The execution plan was prepared and assigned to individuals.

The team reallocated resources to different tasks to match the current requirements. Their investment into trainings and people development into cross skills paid off well to company.

The Sales team focused on cash collection. Logistics team was reconciling the inventory of row material, work in progress and finished goods.

Financial team been given task to focus on statutory requirements and taxes. The team also kept busy performing first quarter balance sheet preparation. The entire focus was on cash flow, to reduce working capital, cash return and cost saving.

The IT team was working as enabler to business by up keeping and performing remote maintenance of application. The futuristic view and usages of cloud technology were really paying Mr. X during this difficult situation running light of his business and getting better prepared for forthcoming challenges.

His team was using pandemic situation for preparing their better future by focusing on value chain in the supply, lowering down production and operational cost. The hurdles and challenges were faced by all the business. The team who thinks about future situation and proactively working over the challenges will definitely have edge to make faster turnaround.

Mr. X is well prepared, and he jump started his operation upon the announcement for state and central government to start the factories in restricted manner drive by compliance requirement laid down by industry bodies. I also understood that Mr. X was planning plan to take his product on global platform. The new packages announced for Atmanirbhar Bharat Abhiyaan opened up a new horizon him.

At Mr. Y had left behind in messy place and still assessing the impact of pandemic left over his business. He needed a good amount of time to organize his team and collect the data to make a conclusion on losses. Having debt, he decided to overcome it by using the government machinery

There is no business that operates without vision and a mission but having right futuristic vision on changing needs of world has helped Mr X to get best out of the worst. [5-7].

3. What is the new normal?
3.1 Cloud Basics:

Let us know more about cloud technology. From lemon's perspective, cloud technology has two integral parts. The front-end resides at user end in his devices connected to back-end through internet. The front-end compromise two parts as hardware and software. The hardware is our usual hand hold devices such as mobile, PC or laptops.

The frontend software components refer to the browsers (Internet Explorer, Chrome, Firefox) or application specific thick client which gets delivered alongside application software.

The back-end components comprise cloud infrastructure in the form of large computing machine which has capability to serve multiple application and tenants through virtualization techniques. The computing processing capacity and storage are divided into single isolated computing smaller units. Most of application running over cloud infrastructure come with single or multi tenancy forms. The cloud hosted application holds the functionality and data.
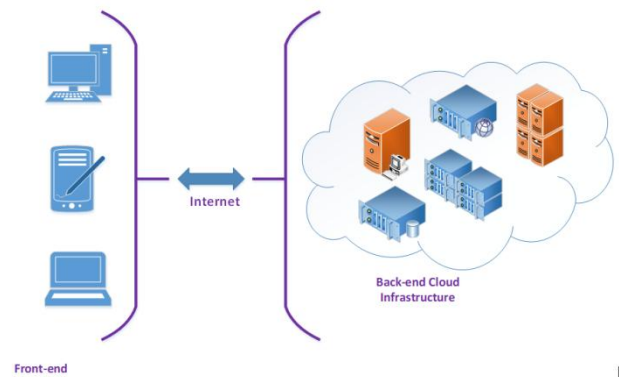

Fig.1. Cloud Technology

Since we cannot go to offices and work remotely during lockdown, the cloud applications have seen huge demand. If you are already on cloud means you can continue your operation seamlessly from anywhere as long as you are well connected to internet.

The cloud technology not only provides remote accessibility advantages but also contribute into various aspects such optimization of hardware resources, quicker scalability based on demands, reducing the operation cost with option of as you pay as you go. Cloud vendor will maintain hardware and software to running state, handle upgrades, ensure security, keeps the backups, and ensure high availability of product.

3.2 Major Advantages of Cloud Technology Adoption:

1. Cost factors and saving:
A) CAPEX cost will be saved as you need to buy expensive hardware, software, and associated infrastructure components to build in-house IT setup.

B) You might need to hire experts for setting up the IT platform or for training your staff in the beginning. Cloud Service provider (CSP) might help you here depending upon services which you purchase from them.

C) The speed of deployment cloud-based IT solution is faster reducing deployment cost

D) The operational and maintenance cost reduced significantly due to charges based on usages and keeping high availability of the platform becomes the sole responsibility of cloud vendor

2. Best in class performance:

A) Cloud vendor to keep on upgrading their infrastructure periodically to reduce maintenance cost and boost the performance

B) Cloud solutions are tried and tested solutions using internet connectivity as backbone so assured performance and easy to adoption for SMEs

3. Uncompromised Reliability:

A) Cloud vendor is committing service levels to their customers by ensures proper backups cycles, redundant infrastructure for fault tolerance, application level high availability using various load distributing mechanisms across multiple sites.

B) Vendor should consider business continuity plan as preparedness for natural calamity such as flood, earthquake and for situation like COVID 19 pandemics.

4. Security and compliance:

A) Data communication happens over internet hence most advance security measures are required to be in place to arrest all kind of vulnerabilities.

B) Cloud vendor should   follow local laws regarding data privacy and compliance regulation mandated by governments of country from where they operate as well for the clients whom they serve.

The businesses who are already on cloud technology are operating seamless even during lockdown situation. The cloud technology has proved as futuristic solution against uncertainties and challenges during COVID-19 pandemic.

4. New Normal and technology options for SMEs

We have been hearing the "new normal" term everywhere. What is new normal from business and technology perspective?

Work from home and keep social distancing is advised to avoid virus infections. The business across industries are finding difficulties to cope up with situation

The economic situation is very bad across the world. Many of the businesses are on verge of closer, the countries have seen highest job losses in the century. People are anxious and depressed due to uncertain situation. Crime rate has been seen increase during lockdown. Phishing and cyber-attacks become threat for teams working from home. Cyber security for data and application should be on upmost priority for business due to decentralized team operating remotely.

The large corporate and business houses invest into newer technologies and remain ahead of curve in digital journey. SMEs can look towards them as leaders and follow them as role model for digital journey to possible extend. SMEs who were not adopted cloud technology earlier should think about cloud adoption now. Thus, they will be able to operate efficiently with the workforce working remotely and ensure their safety during this difficult time.

The companies are making all kind of efforts to bring the business back in life. Cloud adoption is cost saving opportunity but the existing situation to enable employees for working remotely brings unexpected investment.

Some companies are thinking about implementation expense which is needed to invest immediately over the potential saving due cloud technology adoption at later stages.

One of the challenges is to enable remote workforce with relevant tools so that they will start delivering their jobs.

Many of the organizations have physically dispatched desktop/laptops to employees' homes. During pandemic few of the less known service such as Desktop as a service (DaaS) for end user computing has gained momentum.

Amazon Web Servicesoffering Amazon WorkSpaces is one of the best cloud offering example. They are offering quick solution to build

and manage secured virtual desktops by reducing significant cost of desktop operations. The OS patching and upgrades strategy became seamless by adopting AWS Workspaces. This helps companies to extend the secured access of their legacy application to their employees using cloud platform.

Many of the leading technology companies are offering support by providing tailored solution to needy organizations during this difficult time.

Many cloud service providers such as Microsoft and IBM are offering free trial access to their cloud services. The companies are providing bundle of free cloud offering to reduce financial burden on organization. They also provide wide range of SaaS products spanning across artificial intelligence, data security, integration, and remote learning across sectors.

IBM is helping organization for cloud transition through tailored offerings with assured security and speed during emerging business situation.

There are many other ways to reduce the further cost of operation by SMEs who are using cloud platform. SMEs can consult to their cloud partner for the same. Cloud partner will analyse data for greater cost saving opportunity by

1. Shutting down the application during night or during off peak times.
2. Optimizing capacity based on workload. Allocation of excess capacity from oversized machines will be reduced for optimization.

5. Choosing right Cloud offerings for SMEs

Cloud comes in many forms such as Landscape as a service (LaaS), Platform as a Service (PaaS) and Software as a Service (SaaS). SaaS is more popular and proven more beneficial for SMEs. SaaS does not require hardware and software installation at premises. The service providers extend help for installation and customization of their offering. They take care of maintenance and various upgrades necessary during product life cycle. Most common SaaS application for SMEs are accounting software required for core business application.

Some of the listed benefits of SaaS for SMEs are:

1. SaaS application following user authentication, authorization, and data integrity concepts. The data is protected from unauthorized users. The certain level of data been allowed to change depending upon role of the person. Segregation of duties are maintained through roles. The data integrity is being maintained by avoiding duplication or simultaneous changes.

2. The infrastructure and application platform are managed by experts. Due to service level commitments, supplier considers all type of failures and plans mitigation strategy against them. The typical examples are regular backups keeping view of recovery point objective (RPO) and recovery time objective (RTO). The database and application adopt technology advancement to avoid single point of failure.

3. SaaS is accessed over the internet. User can access the application from anywhere at any time. This is greater flexibility for user who are working from home due to COVOD-19 pandemic. Master data and transactional data are maintained centrally at database layer providing extreme reliability.

4. The SaaS provides template of best practices concerning to industry. It covers broad range of functionality and follows regulatory and compliance framework. It saves lot of energy and time handling audits. The vendor performs the customizations depending upon the client requirements and activate needed processes to make application lightweight and portable.

5. SaaS application works in single or multi-tenant instances. The vendor optimizes and tunes application performance to support large user based and multiple concurrent transactions. He has to optimized hardware capacity and software capabilities are for best performance.

6. The SaaS is running on infrastructure using operating system and middleware services. For product life cycle management and making it relevant all the time for different platforms, vendor has to keep the code upgraded and bug free. The responsibility of package maintenance remains with vendor.

This makes SaaS as hassle free options for SMEs.

SaaS automate lots of process related tobilling, along with invoicing and planning through batch processing and reconciliation of transactional data. This provide error free results and get rid of monotonous laborious work.

Take Away from Pandemic (Conclusion):

We used to work in office with formal setting, interacting with colleagues on various touch points. It was helping many ways for collaboration, knowledge sharing and ensuring organization harmony toward collective goals. Things have totally changed now.

Due to lockdown, we are not only able to meet and greet our fellow colleagues but loosing person touch of our client and suppliers. The social distancing and remote working removed opportunity of shaking hands with warmgreetings during face to face interaction. Humanity has survived for years against all odds through centuries. Life goes on. The new virtual collaborations tools such zoom, skype and Microsoft meetings have provided new means for working. More emphasis on facial expression, tone and contents coming out from honest discussion. This has avoided long hours of journey cross miles of distances to join board room discussions.

During COVID-19 pandemic, Cloud technology has been endorsed as an essential service. The remote accessibility of business-critical applications and on demand scalability proved useful. The pandemic has accelerated usages of cloud technology. Cloud technology has seriously considered as part of business continuity plan. The cloud-based workforces collaboration tools and remote accessibility of cloud platform from anywhere at any time mitigate major risks during natural disasters such as COVID-19 pandemic. The Covid-19 pandemic has opened up new opportunities in health sector as remote monitoring of telehealth, video surveillance, handling quarantine and relief support needs to manage the crowd. The current pandemic also helped cloud provider to prepare their services in better way. The unexpected network load, service disruption and power failures added into their learnings for preparing more robust business continuity plan. Hike in cyber-attacks put data security and vulnerability on priority. The cloud providers to use advance technology for faster speed and decrease the latency with lighter code. User experience matters the most in adoption process. On other hands, the companies are having on-premises data centers have gone through multiple challenges at various levels while keeping uptime of their application. Expenses towards maintenance have considerably gone up. They are also thinking about adopting more cloud-based application.

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