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A Study on Cloud Technology Usage by Small Business in IT Industry

Prof. Vipul Kushwaha[1], Dipesh B Gangurde[2]

[1]Asst. Professor, Department of Master of Management Studies, Alamuri Ratnamala Institute of Engineering and Technology
[2]Student, Department of Master of Management Studies, Alamuri Ratnamala Institute of Engineering and Technology
[1] vipulkushwaha@gmail.com, [2]dipeshgangurde399@gmail.com

A B S T R A C T

Cloud services characterize all variety of IT capability that is offered by the cloud service hosting to cloud service consumers. Cloud Computing networks access to a shared pool of configurable networks, servers, storage, applications, services, and other computing resources that can be rapidly provisioned and released with least management effort or service provider interaction. In modern era of Information Technology, the accesses to all information related to a business activity in large scale manufacturing units can be made available at threshold, by certain checks and balances. The maximum population of Indian manufacturing not only comes from small and medium scale industry but also such companies contributes maximum share to Indian GDP.

Large scale industries and O.E.Ms are in a position to spend as well are spending the required budget on IT(Information Technology) and control various costs and inventories on day– to-day basis by incorporating latest system software (For example ERP's ,SAP, Sales Force)etc. The small and medium scale industries lacks in using such software because it's of high fixed, operating costs and its privacy. Cloud computing is an emerging technology where serve is maintained by parent software company and domains are to be shared. In case parent host company charges reasonably affordable cost and encrypts the confidential data and stores it such that only authenticated users can access the data and ensures the security, safety and confidentiality of data, it can revolutionize the Medium and small scale industry users in enhancing the overall business performance. This research paper has been aimed at exploring the possibilities for implementing the cloud computing technology for improving the overall business performance for medium and small scale industries in India.

Keywords: AAS, PAAS, SAAS, BI, AWS

1. Introduction

Industry experts have long known that, once information technology got to be fast and reliable enough; the world's computing infrastructure would come to resemble the electricity infrastructure. In organizational terms, the requirement for IT is now predominantly driven by business advantage rather than technical novelty. The process of skirting unwanted expenses form business for improving the bottom-line has been the main agenda of companies but not at the cost of quality. Many business managers are always occupied in cost reduction programs for improving the efficiency in operation more efficiently. The Information Technology sector contributed 7.5 percent to the Indian GDP in 2012 and remained underutilized. Indian manufacturing Industry, maximum population comes from medium and small scale industries. Thought, O.E.M's and Tier-1 companies, being financially sound, have adopted ICT to a considerable extent yet it is not predominant in Medium and small scale industries due to lack of resources for its implementation and subsequent maintenance.

The revolution in information systems are redefining the business strategies and redesigning the new scientific methods contributing in improving the organizational performance by fast transfer of decisive information. Having being played a significant role in enhancing the bottom-line, still there exist big gaps between IT and its usage for better economics in manufacturing industry. Till recent past, IT was in the hands of vertically integrated firm using microprocessor for provisioning the solutions like IBM. In present era post 2000, many smaller firms have positioned itself for providing IT solutions to manufacturing industries which not only lessen the workloads but also contributes to cost reduction and enhancing business performance. The prime benefits are being realized by large scale industries and the IT is yet to enter the densely populated medium and small scale manufacturing units. Cloud computing where server is at host company can be used by small scale manufacturing units the performance of MSI(Medium Scale Industries)and SSI(Small Scale Industries), has to play a pivotal role in improvement. It (cloud computing) represents a shift away from computing as a product that is purchased, to computing as a service that is Delivered Faced with one of the worst economic downturns in recent times, MSI's and SSI's are concentrating on cost reductions for being into the market. The Credit Crunch is also affecting day today working for some time now. Organizational budgets are being frozen and for making the liquidity available which is still a problem. units in MSI and SSI.

2. Types of Cloud

1**. Private Cloud:**

This type of cloud is maintained within an organization and used solely for their internal purpose. So the utility model is not a big term in this scenario. Many companies are moving towards this setting and experts consider this is the 1st step for an organization to move into cloud.

2.Public Cloud:

In this type an organization rents cloud services from cloud providers ondemand basis. Services provided to the users using utility computing model

3. Hybrid Cloud:

This type of cloud is composed of multiple internal or external cloud. This is the scenario when an organization moves to public cloud computing domain from its internal private cloud.

Types of services:

These services are broadly divided into three categories:

- Infrastructure-as-a-Service (IaaS)
- Platform-as-a-Service (PaaS)
- Software-as-a-Service (SaaS)

Definitions of Micro, Small & Medium Enterprises

In accordance with the provision of Micro, Small & Medium Enterprises Development (MSMED) Act, 2006 the Micro, Small and Medium Enterprises (MSME) are classified in two Classes:

(a) Manufacturing Enterprises- The enterprises engaged in the manufacture or production of goods pertaining to any industry specified in the first schedule to the industries (Development and regulation) Act, 1951). The Manufacturing Enterprise are defined in terms of investment in Plant & Machinery.

(b) Service Enterprises: The enterprises engaged in providing or rendering of services and are defined in terms of investment in equipment. The limit for investment in plant and machinery / equipment for manufacturing / service enterprises, as notified, vide S.O. 1642(E) dtd.29-09-2006 are as under:

Manufacturing Sector	
Enterprises	**Investment in plant & machinery**
Micro Enterprises	Does not exceed twenty five lakh rupees
Small Enterprises	More than twenty five lakh rupees but does not exceed five crore rupees
Medium Enterprises	More than five crore rupees but does not exceed ten crore rupees
Service Sector	
Enterprises	**Investment in equipments**
Micro Enterprises	Does not exceed ten lakh rupees:
Small Enterprises	More than ten lakh rupees but does not exceed two crore rupees
Medium Enterprises	More than two crore rupees but does not exceed five core rupees

REVIEW OF LITERATURE

For business decisions, availability of prompt and relevant information has always been the most desirable. In this context, Jensen (1992), informational variables are pivotal for the structure of organizations because the quality of decisions is determined by the quality of information available to the decision maker Lewis (1996) argues: “professional and personal survival in modern society clearly depends on our ability to take on board vast amounts of new information. Yet that information is growing at an exponential rate”. Following Brynjyolfsson et al. (1994), coordination costs can be further differentiated in to internal and external coordination costs. The former is generated by the need to support the coordination mechanism in the hierarchical structure. Cloud computing predominantly provides information economically.

Cloud computing, as concluded by (Zhang, 2010) has recently emerged as a new paradigm for hosting and delivering services over the Internet. Cloud computing is attractive to business owners as it eliminates the requirement for users to plan ahead for provisioning, and allows enterprises to start from the small and increase resources only when there is a rise in service demand.

STATISTICALTOOLS / TECHNIQUES TO BE USED FOR DATA ANALYSIS:

I. Percentage, Mean: Percentage refers to special kind of ratio. This method is used as making comparison between two or more services of data. Percentage is used to decidable relationship. Percentage can also be used to compare the relative terries, the distribution of two or more services of data

II. Charts and graphs: Bar charts and pie charts are used to get a clear look at the tabulated data.

DATA ANALYSIS AND INTERPRETATION:

PERCENTAGE ANALYSIS:

This table shows the customer opinion concerning the Quality of SSI's Products.

OPINION	NO. Of RESPONDENTS	PERCENTAGE
Excellent	19	64%
Good	8	26%
Fair	3	10%
Poor	-	-
Total No. of Respondents	30	100%

Analysis:

From the above it can be observed that

64% of the customers are feeling that the quality is Excellent,

26% of the customers feel that the quality is good,

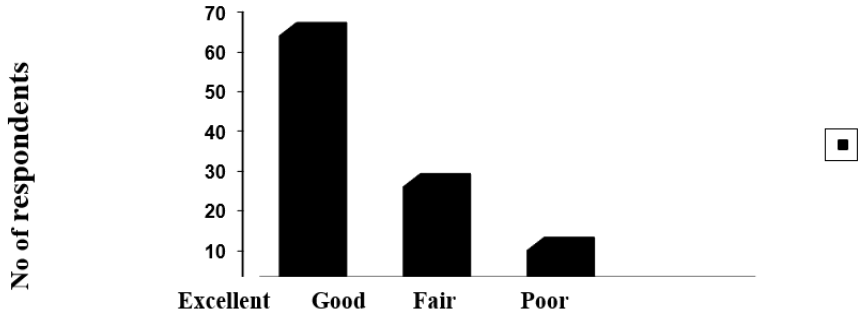
10% of the customers feel that the quality is fair,

None of them are there to say Quality is not good.

Inference:

The above analysis depicts that the majority of the customers feel that the quality of SSI's Products is Excellent.

CHART ANALYSIS:



Opinion of the respondents

In the above graph, X-axis represents opinion and Y-axis represents

No' of respondents.

Inference:

The above analysis depicts that the majority of the customers feel that the quality of SSI's Products is Excellent.

Conclusion:

As most of the customers of the firm perceive the quality of the products to be excellent, the firm should ensure to maintain the same standards. This action will increase the loyalty of the customers towards the firm and its products

TABULAR PRESENTATION

Table-1, describes the sample of manufacturing unit in medium and small scale industry. Twenty six respondent companies have been classified as per its business activity like Engineering units, Forging units, Metal Casting units and sheet metal units.

TABLE-1: SAMPLE OF MANUFACTURING UNITS

S.No.	MANUFACTURING ACTIVITY OF UNIT	MSI	SSI	TOTAL
1	**Engineering Units**	**2**	**5**	**7(30)†**
2	**Forging Shops**	**3**	**2**	**5(21) †**
3	**Metal Casting Units and Foundries**	**5**	**3**	**8(33) †**
4	**Sheet Metal Units**	**2**	**2**	**4(6) †**
	TOTAL	**12**	**12**	**24(100)†**

Table-1 shows that 30% units are engineering goods manufacture, 21% are forged component manufacturers, 33% are metal component castings manufacturers and six percent population belongs to sheet metal component manufacturing units.

Table-2, highlights the comments given by the respondent companies regarding understanding the concept of cloud computing for benefit of the company.

TABLE-2: UNDERSTANDING OF CLOUD COMPUTING BY RESPONDANTS

S.No.	UNDERSTANDING OF CLOUD COMPUTING	MSI		SSI		TOTAL	
		Y (%)	N (%)	Y(%)	N (%)	Y (%)	N(%)
1	Familiarity with cloud computing	20	80	0	100	10	90
2	Company uses cloud computing	0	100	0	100	0	10
3	Familiarity with ERP software	80	20	50	50	65	35
4	Usage of ERP only	40	60	15	85	22	88
5	Cost of in-house ERP is more than Cloud computing	70	30	10	0	90	10
6	IT Companies visit you for product selling	80	20	40	60	60	40
7	Does your customer press you for IT-Usage	90	10	40	60	65	35
8	Are you connected with customer online	15	85	0	100	8	92
9	Your customer is a large scale industry	60	40	30	70	45	55
10	IT can improve your company's performance	80	20	30	70	55	45
11	Fixed cost of IT solutions is more	70	30	90	10	80	20
	OVERALL(PERCENTAGE)	55	45	36	64	45	55

The above Table-2 exhibits that usage and familiarity to cloud computing is very low in both types of industries. 80% of MSI respondents are familiar with ERPs and 40% really use it compared to that of 50% familiarity in case of SSI's and 15% are using it.90% of MSI customers asks the suppliers to go for IT-Solution as 60% customers are large scale industries while in case of SSI, the asking rate is 40% and 30% customers are large scale industries. 80% of MSI believes that usage of IT-Solution increases performance but this concept is 30% effective in case of SSI's. Regarding the fixed investment, both types of companies have similar opinion but 20% of SSI assess this cost still higher.

Overall, it can be said that sum total of all respondents is favourable by 55% which is slightly above the mean while in case of MSI, it is falling very short of simple average by 14%.

An attempt was made to check what the users think about the confidentiality of their data being stored beyond the physical boundaries of the manufacturing company. The responses on this have been summarized in Table-3.

TABLE-3: RESPONSES REGARDING COFIDENTIALITY AND SECURITY

S.No.	UNDERSTANDING OF CLOUD COMPUTING	MSI		SSI		TOTAL	
		Y	N	Y	N	Y	N

1	Familiarity with cloud computing	20	80	0	100	10	90
2	Company uses cloud computing	0	100	0	100	0	100
3	Familiarity with ERP software	80	20	50	50	65	35
4	Usage of ERP only	40	60	15	85	22	88
5	Cost of in-house ERP is more than Cloud computing	70	30	100	0	90	10
6	IT Companies visit you for product selling	80	20	40	60	60	40
7	Does your customer press you for IT-Usage	90	10	40	60	65	35
8	Are you connected with customer online	15	85	0	100	8	92
9	Your customer is a large scale industry	60	40	30	70	45	55
10	IT can improve your company's performance	80	20	30	70	55	45
11	Fixed cost of IT solutions is more	70	30	90	10	80	20
	OVERALL(PERCENTAGE)	55	45	36	64	45	55

It is surprising to note that both types of industries resemble in thinking negative about the confidentiality of data in server at a distant place. Comparatively, SSI's are more afraid of data storage at different location. Overall, 59% of MSI doubts the confidentiality of data stored in cloud computing while this negative faith is of the tune up to 64% in case of SSI's. Average negative voting about confidentiality and security of data has been reported at 59% by both types of industries. Further investigation was done on type of IT-Solution used and its preferred brand and its method of its implementation. Views about legality of cloud computing was also explored.

TABLE-4: RESPONSES WITH REGARD TO BRAND OF IT-SOLUTIONS

S.No.	PARAMETERS	MSI		SSI		TOTAL	
		Y (%)	N (%)	Y (%)	N (%)	Y (%)	N (%)
1	Branded ERP Solutions are preferred over local	40	60	20	80	30	70
2	You hire consultant for selective use of ERP	60	40	80	20	70	30
3	Legal Contracts will improve cloud computing	90	10	100	0	95	5
4	Companywide IT-Solution is preferred over selective one	50	50	30	70	40	60
5	Cloud computing and ERP increases cost	50	50	80	20	65	55
6	Economics of cloud computing is undisputed	70	30	70	30	70	30
7	Cloud computing Service is qualitative than in-house IT	70	30	70	30	70	30
	OVERALL PERCENTAGE	61	39	64	36	62	48

Table-4 summarises that 40% MSI preferred branded ERP's compared to cloud computing while this concept has been negatively reported at 20% by SSI.The aspect of legality in implementing cloud computing has been demanded at very high rate by both companies, almost cent percent.50% of MSI respondents feel that ERP and cloud computing increase cost while 80% of SSIs have opined the same. Both types of industries identically resembles in thinking that cloud computing is preferred v type of quality service at better economics. Overall, both companies' views cloud computing superior at 62%.

Suggestions And Recommendations

Cloud computing being low cost revolutionary concept for enriching the business performances of medium and small scale industry; its introduction, penetration, implementation need to be strengthened for growth of National GDP. Following suggestions may further act in positive direction for increasing the effectiveness of Cloister-IT

- Companies in cloud computing need to make the concept properly understood by medium and small scale industries. Formal training sessions to industry clusters will popularize the plurality of this concept.
- Host companies have to guarantee all types of safety, security and legality about misuse of client company's data.
- Government and Industrial Departments need to float certain incentive schemes for making Information Technology within the reach of small scale industry.
- Large scale companies to whom Medium and small scale industries are linked, need to bargain the cloud hosts for its clients as well arrange certain training sessions by experts for its implementation.

Future Scope of The Study

Present study was limited to a small geographical region and further sample was also limited to manufacturing units. Wider scope, especially for smaller businesses, can bring about amazing potential in enhancing the performance of small scale industries. In parallel studies on cloud computing providers may also be done for removing barriers and making a bridge between service providers and end-users for mutual growth and benefit.

Findings And Conclusions

Based upon the discussion of responses received by respondent companies, following conclusions can be drawn as under

- It can be inferred that the companies are not well aware of usage of cloud computing but some of the companies do use local and branded ERP's .The concept of cloud computing being new for India has not gained momentum so far.
- Server of Cloud Company being at different location, confidentiality and securities of data are taken as big threat by both types of manufacturing industries.
- Legal action on leakages of data by host Company and its uninterrupted accesses are grey areas to be addressed by the cloud steers.
- It has been accepted by manufacturing companies that cloud applications are cheaper than ERP's installed at works and quality of service by cloud steers are understood superior. Surprisingly, SSI have interpreted that the implementation of IT-Solutions increases the cost.
- Majority of Medium scale industry has voted in favour of Clousteer-IT does improve the overall business performance and enrich the bottom-line while Small scale industry respondents have opposed this revolutionary step.

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