

# INTERNATIONAL JOURNAL OF RESEARCH IN COMMERCE, IT & MANAGEMENT

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- Hunker, H.L. and A.J. Wright (1963), "Factors of Industrial Location in Ohio" Ohio State University, Nigeria.

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- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

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- Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

**CONFERENCE PAPERS**

- Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19-22 June.

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**USE OF CLOUD COMPUTING IN MANUFACTURING COMPANIES**

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**ABSTRACT**

Cloud Computing is the next revolution and will have as much impact on your life as the introduction of the PC. Using websites including Facebook, Flickr and Gmail, many people already store some information out in the Internet cloud. However, within a few years most computing applications will be accessed online with the web at the heart of everything we do. Cloud computing is a type of computing that relies on sharing computing resources rather than having local servers or personal devices to handle applications. In cloud computing, the word cloud (also phrased as "the cloud") is used as a metaphor for "the Internet," so the phrase cloud computing means "a type of Internet-based computing," where different services -- such as servers, storage and applications -- are delivered to an organization's computers and devices through the Internet. Cloud computing is a systems architecture model for Internet-based computing. It is a style of computing in which IT-related capabilities are provided "as a service", allowing users to access technology-enabled services from the Internet ("in the cloud") without knowledge of, or control over the technologies behind these servers. Cloud computing improves not only the speed, but also the quantity and quality of resources available to your organization. In this paper we have done a study to see how cloud computing affects manufacturing sector.

**KEYWORDS**

cloud computing, facebook, flickr, internet.

**INTRODUCTION**

**SOFTWARE AS A SERVICE (SAAS)**

SaaS comprises end-user applications delivered as a service rather than as traditional, on-premises software. The most commonly referenced example of SaaS is Salesforce.com, which provides a customer relationship management (CRM) system accessible via the Internet.

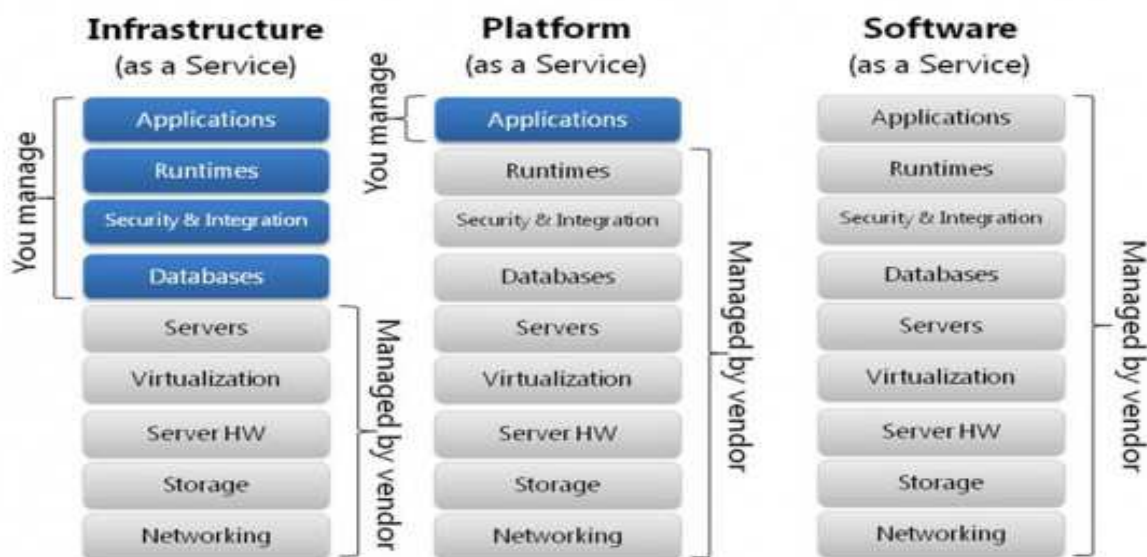
**PLATFORM AS A SERVICE (PAAS)**

PaaS provides an application platform, or middleware, as a service on which developers can build and deploy custom applications. Common solutions provided in this tier range from APIs and tools to database and business process management systems to security integration, allowing developers to build applications and run them on the infrastructure that the cloud vendor owns and maintains. Microsoft's Windows Azure platform services are often referenced as PaaS solutions at this middleware tier.

**INFRASTRUCTURE AS A SERVICE (IAAS)**

IaaS primarily encompasses the hardware and technology for computing power, storage, operating systems, or other infrastructure, delivered as off-premise, on-demand services rather than as dedicated, on-site resources such as the Amazon Elastic Compute Cloud (Amazon EC2).

**CLOUD COMPUTING SERVICE MODEL**



**DEPLOYMENT MODELS**

**COMMUNITY CLOUD**

A community cloud may be established where several organizations have similar requirements and seek to share infrastructure so as to realize some of the benefits of cloud computing. With the costs spread over fewer users than a public cloud, this option is more expensive but may offer a higher level of privacy, security and/or policy compliance.

Examples of community cloud include Google's "Gov Cloud".

**HYBRID CLOUD**

A hybrid cloud environment consists of multiple internal and/or external providers "will be typical for most enterprises". By integrating multiple cloud services, users may be able to ease the transition to public cloud services.

**PRIVATE CLOUD**

Private cloud and Internal cloud are expressions that some vendors have recently used to describe offerings that emulate cloud computing on private networks. These products claim to "deliver some benefits of cloud computing without the pitfalls", capitalizing on data security, corporate governance, and reliability concerns. They have been criticized on the basis that users "still have to buy, build, and manage them" and as such do not benefit from lower up-front capital costs and less hands-on management .

**CRITICISM**

- Cloud computing is a trap aimed at forcing more people to buy into locked, proprietary systems that would cost them more and more over time.
- The main drawback behind the concept of Cloud Computing is, companies can't completely rely on third party when they are transmitting sensitive data.

**ISSUES**

**PRIVACY**

The Cloud model has been criticized by privacy advocates for the greater ease in which the companies hosting the Cloud services control and can monitor lawfully or unlawfully, the communication and data stored between the user and the host company. Instances such as the secret NSA program, working with AT&T, and Verizon, which recorded over 10 million phone calls between American citizens, causes uncertainty among privacy advocates, and the greater powers it gives to telecommunication companies to monitor user activity.

**LEGAL**

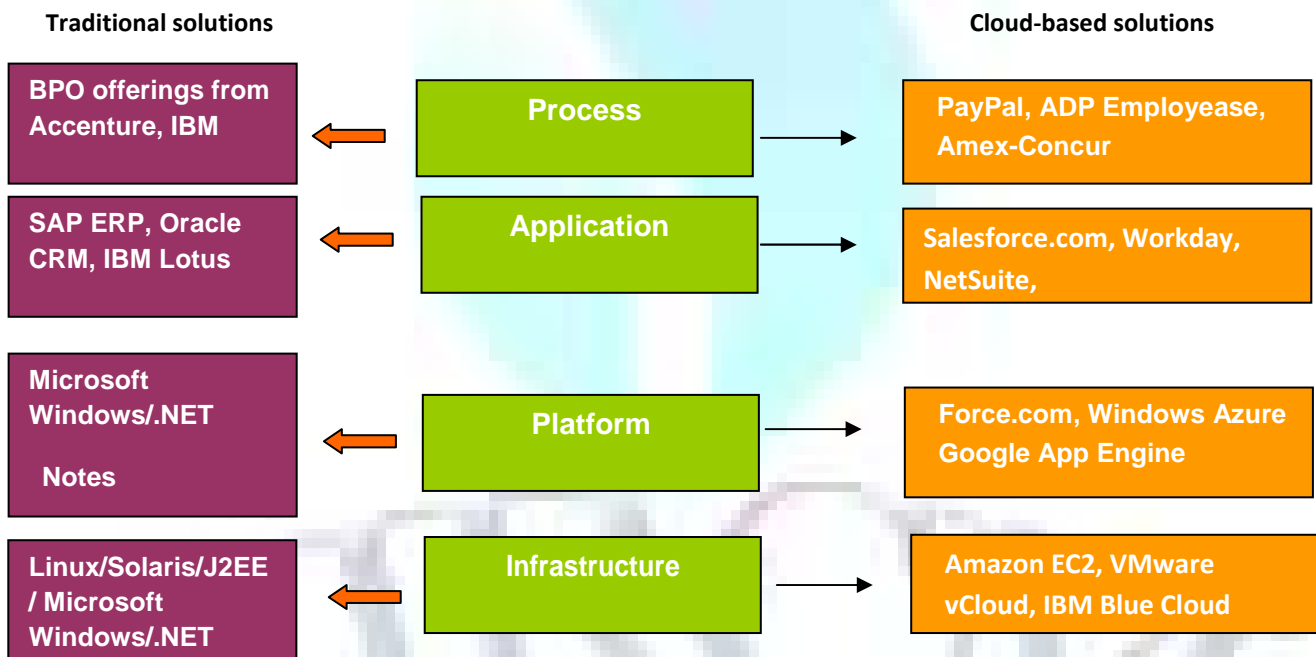
- In March 2007, Dell applied to trademark the term "cloud computing" (U.S. Trademark 77,139,082) in the United States. The "Notice of Allowance" the company received in July 2008 was cancelled in August, resulting in a formal rejection of the trademark application less than a week later.
- Since 2007, the number of trademark filings covering cloud computing brands, goods and services has increased at an almost exponential rate. As companies sought to better position themselves for cloud computing branding and marketing efforts, "cloud computing trademark filings increased by 483% between 2008 and 2009." In 2009, 116 cloud computing trademarks were filed, and trademark analysts predict that over "500 such marks could be filed during 2010."

**SECURITY**

The relative security of cloud computing services is a contentious issue which may be delaying its adoption. Some argue that customer data is more secure when managed internally, while others argue that cloud providers have a strong incentive to maintain trust and as such employ a higher level of security.

**THE ENTERPRISE IT STACK: TRADITIONAL SOLUTIONS VERSUS CLOUD-BASED SOLUTIONS**

THE ENTERPRISE IT STACK: TRADITIONAL SOLUTIONS VERSUS CLOUD-BASED SOLUTIONS



**REVIEW OF LITERATURE**

A study on the methods to reason and model cloud computing as a step toward identifying fundamental research questions in this paradigm. In the paper, they compare cloud computing with service computing and pervasive computing. Both the industry and research community have actively examined these three computing paradigms. They drew a qualitative comparison among them based on the classic model of computer architecture. Finally evaluated the comparison results and draw up a series of research questions in cloud computing for future exploration.<sup>5</sup>

Cloud computing is changing the way industries and enterprises do their businesses in that dynamically scalable and virtualized resources are provided as a service over the Internet. This model creates a brand new opportunity for enterprises. This paper highlights that Cloud computing is emerging as a major enabler for the manufacturing industry. Cloud computing technologies can be adopted in manufacturing. Cloud manufacturing is a pay-as-you-go business model. Distributed resources are encapsulated into cloud services and managed centrally.<sup>6</sup>

Cloud computing is a new general purpose Internet-based technology through which information is stored in servers and provided as a service and on-demand to clients. Adopting the endogenous market structures approach to macroeconomics, they analyze the economic impact of the gradual introduction of cloud computing and we emphasize its role in foster-ing business creation and competition thanks to the reduction of the fixed costs of entry in ICT capital. Their calculations based on a DSGE model show a significant impact for the European Union with the creation of a few hundred thousands new SMEs and a significant contribution to growth. Governments could enhance these benefits by subsidizing the adoption of cloud computing solutions.



**IMPORTANCE OF STUDY**

- The effectiveness of the operations of manufacturing companies can be analyzed.
- The problems of manufacturing organization can be studied and Effective measures can be taken as soon as possible in order to increase the efficiency of the organizations.
- The Ways of benefiting the organization by cloud computing can be studied.
- To investigate the practical issues which affect data migration in the cloud and data management system.

**OBJECTIVES OF THE STUDY**

1. To understand the structure and functioning of manufacturing companies.
2. To find out what are the areas of concerns of manufacturing companies.
3. To analyze what key challenges affect the operations of manufacturing companies.
4. To understand how cloud computing can help address the concerns of manufacturing companies.
5. To investigate how underused computing resources within an enterprise may be harvested and harnessed to improve return on IT investment.

**RESEARCH METHODOLOGY**

**Type of Research:** The study was exploratory in nature.

Sampling plan

- Sampling Unit : Manufacturing organization
- Sampling Size : 100
- Sampling Procedure : questionnaire method and telephonic interview
- Sampling Method : simple random sampling

**DATA COLLECTION**

Introspecting into the objective of the survey the questionnaire was prepared in a scientific and systematic manner. The survey was based upon primary data collection; hence both consumers and prospective consumers were surveyed.

Data is collected from this research are primary and secondary data.

Primary & Secondary Data

**Primary Data:** The primary data has been collected fresh and for the first time. In the research the researcher has used questionnaire method and telephonic interview to collect primary data. The respondents were given questionnaire containing twenty questions and they were asked to fill it up.

**Secondary Data:** The secondary data on the other hand were collected from published and unpublished materials available in New Wave like Documents

Journals

Manual

**INSTRUMENTATION TECHNIQUE**

Based on descriptive research design method for achieving the objectives the study, the researcher was adopting instrument or tool for the questionnaire according to the objectives.

Software Used for the Data Analysis: Data is collected using the questionnaire and analysis the data by using the Window Excel and SPSS for analyzing the hypothesis.

**RESULTS AND DISCUSSION**

Table showing industry sector

|                    | Frequency | Percent | Valid Percent | Cumulative Percent |
|--------------------|-----------|---------|---------------|--------------------|
| Valid ICT          | 1         | 1.0     | 1.0           | 1.0                |
| MANUFACTURING      | 91        | 91.0    | 91.0          | 92.0               |
| TRADE              | 2         | 2.0     | 2.0           | 94.0               |
| FINANCIAL SERVICES | 1         | 1.0     | 1.0           | 95.0               |
| GOVERNMENT         | 5         | 5.0     | 5.0           | 100.0              |
| Total              | 100       | 100.0   | 100.0         |                    |

**ANALYSIS**

In the above pie chart 91 % respondents are from the manufacturing industry. 5% are government firms, 1% are Trading firms,1% are ICT and Financial companies .

**FREQUENCIES**

| <b>BQ4</b>  |           |         |               |                    |
|---|-----------|---------|---------------|--------------------|
|   | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid ISSUES IN HAVING CLEAR PICTURE OF INVENTORY | 28        | 28.0    | 28.0          | 28.0               |
| ISSUES IN ONTIME DELIVERY                         | 41        | 41.0    | 41.0          | 69.0               |
| ISSUES IN IDENTIFYING PENDING ORDERS              | 31        | 31.0    | 31.0          | 100.0              |
| Total   | 100       | 100.0   | 100.0         |                    |

**Analysis**

In the above SPSS analysis 41% of respondents face on-time delivery problems, 28% face problems in having clear picture of Inventory and the rest 31% have Issues in identifying pending orders.

To test Organization does not require Upfront Capital Expenditure and IT hardware to be procured to support this solution:

Null hypothesis

H<sub>0</sub> = they require upfront capital expenditure and IT hardware.

Alternate hypothesis

H<sub>a</sub> = they don't require upfront capital expenditure and IT hardware.

T-TEST PAIRS=CQ1 WITH CQ2 (PAIRED)

/CRITERIA=CI(.9500)

/MISSING=ANALYSIS.

T-Test

| PAIRED SAMPLES STATISTICS   |           |      |             |                |                 |
|-----------------------------|-----------|------|-------------|----------------|-----------------|
|                             |           | Mean | N           | Std. Deviation | Std. Error Mean |
| Pair 1                      | CQ1       | 3.91 | 100         | 1.415          | .141            |
|                             | CQ2       | 3.59 | 100         | 1.198          | .120            |
| PAIRED SAMPLES CORRELATIONS |           |      |             |                |                 |
|                             |           | N    | Correlation | Sig.           |                 |
| Pair 1                      | CQ1 & CQ2 | 100  | .312        | .002           |                 |

| PAIRED SAMPLES TEST |                    |                |                 |   |       |      |       |                 |
|---------------------|--------------------|----------------|-----------------|---|-------|------|-------|-----------------|
|                     | Paired Differences |                |                 |   |       | t    | df    | Sig. (2-tailed) |
|                     | Mean               | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference |       |      |       |                 |
|                     |                    |                |                 | Lower                                     | Upper |      |       |                 |
| Pair 1              | CQ1 - CQ2          | .320           | 1.543           | .154                                      | -.014 | .626 | 2.074 | .041            |

Analysis

In the above SPSS analysis the significance value is less than 0.5, so we reject the null hypothesis and accept that companies don't require upfront capital expenditure and IT hardware.

Test to rate the level of satisfaction for inventory management :

H<sub>0</sub> = companies are satisfied with the inventory management

H<sub>a</sub> = companies are not satisfied with the inventory management.

T-Test

| ONE-SAMPLE STATISTICS |    |      |                |                 |
|-----------------------|----|------|----------------|-----------------|
|                       | N  | Mean | Std. Deviation | Std. Error Mean |
| BQ8                   | 96 | 3.63 | .997           | .102            |

| ONE-SAMPLE TEST |        |    |                 |                 |   |       |
|-----------------|--------|----|-----------------|-----------------|---|-------|
| Test Value = 0  |        |    |                 |                 |   |       |
|                 | T      | df | Sig. (2-tailed) | Mean Difference | 95% Confidence Interval of the Difference |       |
|                 |        |    |                 |                 | Lower                                     | Upper |
| BQ8             | 35.611 | 95 | .000            | 3.625           | 3.42                                      | 3.83  |

Analysis

In the above SPSS analysis the significance value is less than 0.5, so we reject the null hypothesis and accept the alternative hypothesis. We conclude that companies are not satisfied with the inventory management.

The relation between number of employees in Companies using Cloud computing services

Null hypothesis , H<sub>0</sub> = There is a relation between numbers of employees in Companies using Cloud computing services.

Alternate hypothesis

H<sub>a</sub> = There is no relation between numbers of employees in Companies using Cloud computing services.

Crosstabs

| CASE PROCESSING SUMMARY |       |         |         |         |       |         |
|-------------------------|-------|---------|---------|---------|-------|---------|
|                         | Cases |         |         |         |       |         |
|                         | Valid |         | Missing |         | Total |         |
|                         | N     | Percent | N       | Percent | N     | Percent |
| AQ1 * AQ4               | 100   | 100.0%  | 0       | 0.0%    | 100   | 100.0%  |

| CHI-SQUARE TESTS   |                    |    |                       |
|--------------------|--------------------|----|-----------------------|
|                    | Value              | df | Asymp. Sig. (2-sided) |
| Pearson Chi-Square | 2.952 <sup>a</sup> | 3  | .399                  |
| Likelihood Ratio   | 3.257              | 3  | .354                  |
| N of Valid Cases   | 100                |    |                       |

Analysis

In the above SPSS analysis the significance value is more than 0.5, so we accept the null hypothesis and reject the alternative hypothesis. We conclude that companies with more employees use cloud computing services.

FINDINGS

- We collected data about the company and its functionality. The structure dictates the relationship of various roles in an organization, and how people function.
- The specific product line would help us to assume the problems and fulfill their expectations and perceptions.
- The companies have problem with inventory management, identifying the pending orders and maintaining the database.
- Cloud computing is a way to increase capacity or add capabilities and work without investigating new infrastructure, training new personnel, or licensing new software.

SUGGESTIONS

- Complete overview of the company profile to analyze key manufacturing structure and management issues.
- To adopt dynamic high technology strategy to improve their productivity with subsidized price
- Proper data management system should be created for easy movement of data and proper assessment of data should be done.
- To compare your company's operations and management structure against competitor.

**SCOPE FOR FURTHER RESEARCH**

Further study can be done to compare the amount of resources saved by using cloud in comparison to other techniques.

**CONCLUSION**

Cloud computing is a better way to run your business. Instead of running your apps yourself, they run on a shared data center. When you use any app that runs in the cloud, you just log in, customize it, and start using it. That's the power of cloud computing. Finally, cloud apps don't eat up your valuable IT resources. This lets you focus on deploying more apps, new projects, and innovation.

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