# FACTORS TOWARDS INFLUENCE ON ESPOUSAL OF CLOUD COMPUTING IN FAVOR OF SMEs IN COIMBATORE CITY

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*Abstract :* The attractiveness of Cloud computing keeps emergent and everyday more businesses are starting to use Cloud services for their applications, software or infrastructure. Small and medium enterprises (SMEs) with low budget and human resources are one of the major groups that tend to use cloud computing for achieving the benefit of this technology. A large number of factors influence the adoption of cloud computing for SMEs. These important factors must be analytically evaluated prior to making the decision to adopt cloud-based solutions statistical tool such as percentage analysis, one way anova and neural net work analysis have been used for analyzing the data. The research concludes that Small and medium enterprises (SMEs) are extremely satisfaction of cloud computing.

*IndexTerms-* SME, cloud computing, application, software and infrastructure.

## I. INTRODUCTION

The small and medium enterprise (SME) sector is the backbone of the Indian economy as it employs around 40 percent of the Indian workforce. With the sector growing at a rate of 8 per cent per year, India has the largest number of SMEs in the world at 48 million, second only to china. Ironically, the contribution of this workforce is a huge mismatch of numbers as it contributes approximately only 17 per cent to the GDP. At the same time, the sector has the potential to contribute to overall economic growth, modernization of infrastructure and employment generation. That brings us to the wonder called cloud computing, which holds great potential in the Indian ecosystem. A robust and scalable IT infrastructure to that host major applications, provide 24×7 email connectivity, web meetings, file sharing, is essential for the smooth functioning of any business with guaranteed level of service. And cloud can be the way forward. The total addressable market is expected to grow to $88 billion by 2017 and hence Indian small and medium enterprises (SMEs) look for cloud, analytics and mobile solutions to improve operations and become more efficient.

## II MEANING OF CLOUD COMPUTING

It is essentially a network of remote servers, which enables companies to store, manage and process data and use programs using a web-based interface. Data and programs stored in the cloud can be accessed from anywhere through different devices with web connectivity, which is advantageous for small firms without a heavy IT budget.

## III REVIEW OF LITERATURE

**Imran khan (2015)** the researcher concluded that important factors which lead SMEs towards adoption of cloud computing includes, cost effectiveness, flexibility and scalability in resource utilization, lower technology risk, data security and effective IT support. Some other factors related to service providers have also been identified in this study as well, for example trust on service providers are measured an important factor while making decision about cloud adoption. Trial-ability of cloud services makes it more convenient for SMEs to implement best suitable services as per their business environment.

**Karlis Kreslins, Darya Novik and Tatjana Vasiljeva (2018)** in their study indicates that Summarizing analysis based on TOE model, it can be concluded that the technological context is partly applicable for the adoption of cloud technology. The majority of clients understands the relative advantage of this solution and can deal with complexity issues. on the other hand, uncertainty and lack of trust exist even among experienced users of the cloud, and therefore form significant impediment for dissemination of cloud computing. Among other revealed drawbacks there were problems with compatibility and customization of the cloud as well as poor trial ability possibilities for it.

## IV OBJECTIVE OF THE STUDY

➔ To know gender, age, educational qualification and how many years have been working in (SMEs) cloud computing company in Coimbatore City.

➔ To analyze the cloud computing attributes satisfaction level of the respondents.

➔ To analyze the department of work and overall satisfaction on cloud computing attributes.

➔ To find out the neural network analysis fit the statements such relative advantages, compatibility, security concern, cost saving, technology readiness and management support.

## V PREPARATION OF QUESTIONNAIRE

The primary data are those which are collected fresh and for the first time and thus happen to be original in character. There are several methods of collecting primary data in surveys and descriptive researches. In this study, the researcher has taken the effort to frame a questionnaire after discussion with few experts and business concern. Finally, the questionnaire was designed which comprises of 26 questions, out of this 4 questions are based on the demographic profile and the rest are related to various other aspects of cloud computing SMEs.

## VI SAMPLING AND COLLECTION OF DATA

It refers to the number of respondents selected from the universe to constitute a sample. The researchers have circulated 105 questionnaires to selected sample respondents and received back 95 filled questionnaires. But 9 questionnaires were unusable due to missing of complete information. Hence the sample size is 86. Since the researcher has taken only one city called Coimbatore

## VII DATA ANALYSIS

The researcher used three important tools to analyze the data after entering, coding and grouping data. Simple percentage for multiple responses, one way anova and neural network analysis in SPSS are used for in this research work.

**TABLE - 1**
**DEMOGRAPHIC PROFILE OF RESPONDENTS IN COIMBATORE CITY**

| S.No | Gender | No. of respondents | Percent |
|---|---|---|---|
| 1 | Male | 59 | 68.6 |
| 2 | Female | 27 | 31.4 |
| | Total | 86 | 100.0 |
| S.No | Age | No. of respondents | Percent |
| 1 | Below 30 years old | 14 | 16.3 |
| 2 | Between 31 and 40 years old | 37 | 43.0 |
| 3 | Between 41 and 50 years old | 17 | 19.8 |
| 4 | Over 50 years old | 18 | 20.9 |
| | Total | 86 | 100.0 |
| S.No | Educational qualification | No. of respondents | Percent |
| 1 | Diploma | 15 | 17.4 |
| 2 | Undergraduate | 44 | 51.2 |
| 3 | Postgraduate | 27 | 31.4 |
| 4 | Total | 86 | 100.0 |
| S.No | How long have you been working for this company | No. of respondents | Percent |
| 1 | less than 5 year | 17 | 19.8 |
| 2 | 5 to 10 years | 55 | 64.0 |
| 3 | More than 10 years | 14 | 16.3 |
| | Total | 86 | 100.0 |

**Source: primary data**

The above table shows that 68.6% of the respondents are male and 31.4% of the respondents are female. Majority comparisons 43.0% respondents are under the age group of 31-40 years, 20.9% of the respondents belong to 50 years and above, 19.8 % of the respondents under the age group of 41-50 years and rest of 16.3% of the respondents belong to below 30 years old. 51.2% of the respondents are under the category of undergraduate, 31.4% of the respondents are postgraduate and rest of 17.4% of the respondents are diploma. 64.0% of the respondents are working in 5 to 10 years, 19.8% of the respondents are less than 5 year and rest of 16.3% of the respondents are working more than 10years.

**TABLE - 2**
**ATTRIBUTES OF CLOUD COMPUTING**

| RELATIVE ADVANTAGE | SA | A | N | DA | SDA |
|---|---|---|---|---|---|
| Cloud Computing allows you to manage business operations in an efficient way. | 31(36.0) | 46(53.5) | 2(2.3) | 5(5.8) | 2(2.3) |
| The use of Cloud Computing services improves the quality of operations. | 2 (2.3) | 66(76.7) | 11(12.8) | 4(4.7) | 3(3.5) |
| Using Cloud Computing allows you to perform specific tasks more quickly. | 2 (2.3) | 66(76.7) | 11(12.8) | 4(4.7) | 3(3.5) |
| The use of Cloud Computing offers new opportunities. | 34(39.5) | 33(38.4) | 15(17.4) | 2(2.3) | 2(2.3) |
| Using Cloud Computing allows you to increase business productivity. | 2(2.3) | 77(89.5) | 4(4.7) | 3(3.5) | 0 |
| **COMPATIBILITY** | | | | | |
| The use of Cloud Computing fits the work style of the company. | 6(7.0) | 52(60.5) | 23(26.7) | 3(3.5) | 2(2.3) |
| The use of Cloud Computing is fully compatible with current business operations. | 6(7.0) | 27(31.4) | 41(47.7) | 10(11.6) | 2(2.3) |
| Using Cloud Computing is compatible with your company's corporate culture and value system. | 10(11.6) | 65(75.6) | 6(7.0) | 2(2.3) | 3(3.5) |
| The use of Cloud Computing will be compatible with existing hardware and software in the company. | 78(90.7) | 5(5.8) | 2(2.3) | 1(1.2) | 0 |
| **SECURITY CONCERNS** | | | | | |
| Degree of company's concern with data security on the Cloud Computing. | 27(31.4) | 49(57.0) | 4(4.7) | 4(4.7) | 2(2.3) |
| Degree of concern for customers with data security in Cloud Computing. | 39(45.3) | 22(25.6) | 19(22.1) | 4(4.7) | 2(2.3) |
| Degree of concern about privacy in Cloud Computing. | 21(24.4) | 58(67.4) | 3(3.5) | 3(3.5) | 1(1.2) |

| COST SAVING | | | | | |
|---|---|---|---|---|---|
| The benefits of Cloud Computing are greater than the costs of this adoption. | 14(16.3) | 56(65.1) | 14(16.3) | 2(2.3) | 0 |
| With Cloud Computing there is a reduction of energy costs and environmental costs. | 12(14.0) | 41(47.7) | 31(36.0) | 2(2.3) | 0 |
| Maintenance costs of Cloud Computing are very low. | 3(3.5) | 53(61.6) | 28(32.6) | 2 (2.3) | 0 |
| TECHNOLOGY READINESS | | | | | |
| The company knows how IT can be used to support operations. | 10(11.6) | 54(62.8) | 18(20.9) | 1(1.2) | 3(3.5) |
| There are within the company the necessary skills to implement Cloud Computing. | 7(8.1) | 57(86.0) | 3(3.5) | 0 | 1(1.2) |
| TOP MANAGEMENT SUPPORT | | | | | |
| The company's management supports the implementation of Cloud Computing. | 5(5.8) | 74(86.0) | 3(3.5) | 1(1.2) | 3(3.5) |
| The company's top management provides strong leadership and engages in the process when it comes to information systems company. | 17(19.8) | 50(58.1) | 15(17.4) | 4(4.7) | 0 |
| The company management is willing to take risks (financial and organizational) involved in the adoption of Cloud Computing. | 6(7.0) | 61(70.9) | 17(19.8) | 1(1.2) | 1(1.2) |

**Source: primary  data**

The above table inferred that majority of the respondents said strongly agree and agree for factors influencing cloud computing in SMEs.

## RESULTS OF ONE WAY ANOVA (F TEST):

**TABLE 3**
**DEPARTMENT OF WORK AND OVERALL SATISFACTION ON CLOUD COMPUTING**

$H_0$ =   There is significant relationship between department of work and overall satisfaction on cloud computing in Coimbatore city.

| Department | Mean | SD | F Value | P Value |
|---|---|---|---|---|
| Financial | 51.8571 | 6.41427 | | |
| Human Resource | 50.0000 | .00000 | | |
| Information Technology | 47.5652 | 4.24078 | | |
| Manufacturing | 80.0000 | .00000 | | |
| Procurement | 57.0000 | .00000 | 61.113 | .000 |
| Sales | 47.0000 | .00000 | | |
| Store | 46.0000 | .00000 | | |
| Marketing | 57.0000 | .00000 | | |
| Service | 43.0000 | .00000 | | |
| Total | 52.1047 | 7.45343 | | |

**Note:  P denotes significant @ 5% level.**

One way Anova (F test) is used here, and the P value is 0.000, the alternative hypothesis is accepted at 5% level of significance. Therefore, it is concluded that there is significant relationship between the department of work and overall satisfaction on cloud computing in Coimbatore city.

## NEURAL NETWORK ANALYSIS WITH SPSS – INTERPRETATION WITH SPSS OUTPUT

**TABLE 4**
**CASE PROCESSING SUMMARY**

| | | N | Percent |
|---|---|---|---|
| Sample | Training | 68 | 79.1% |
| | Testing | 18 | 20.9% |
| Valid | | 86 | 100.0% |
| Excluded | | 0 | |
| Total | | 86 | |

**TABLE 5**
**INDEPENDENT VARIABLE IMPORTANCE**

| | Importance | Normalized Importance |
|---|---|---|
| Relative advantages | .186 | 76.7% |
| Compatibility | .131 | 54.0% |
| Security concern | .181 | 74.9% |
| Cost saving | .242 | 100.0% |
| Technology readiness | .150 | 62.0% |
| Management support | .110 | 45.7% |
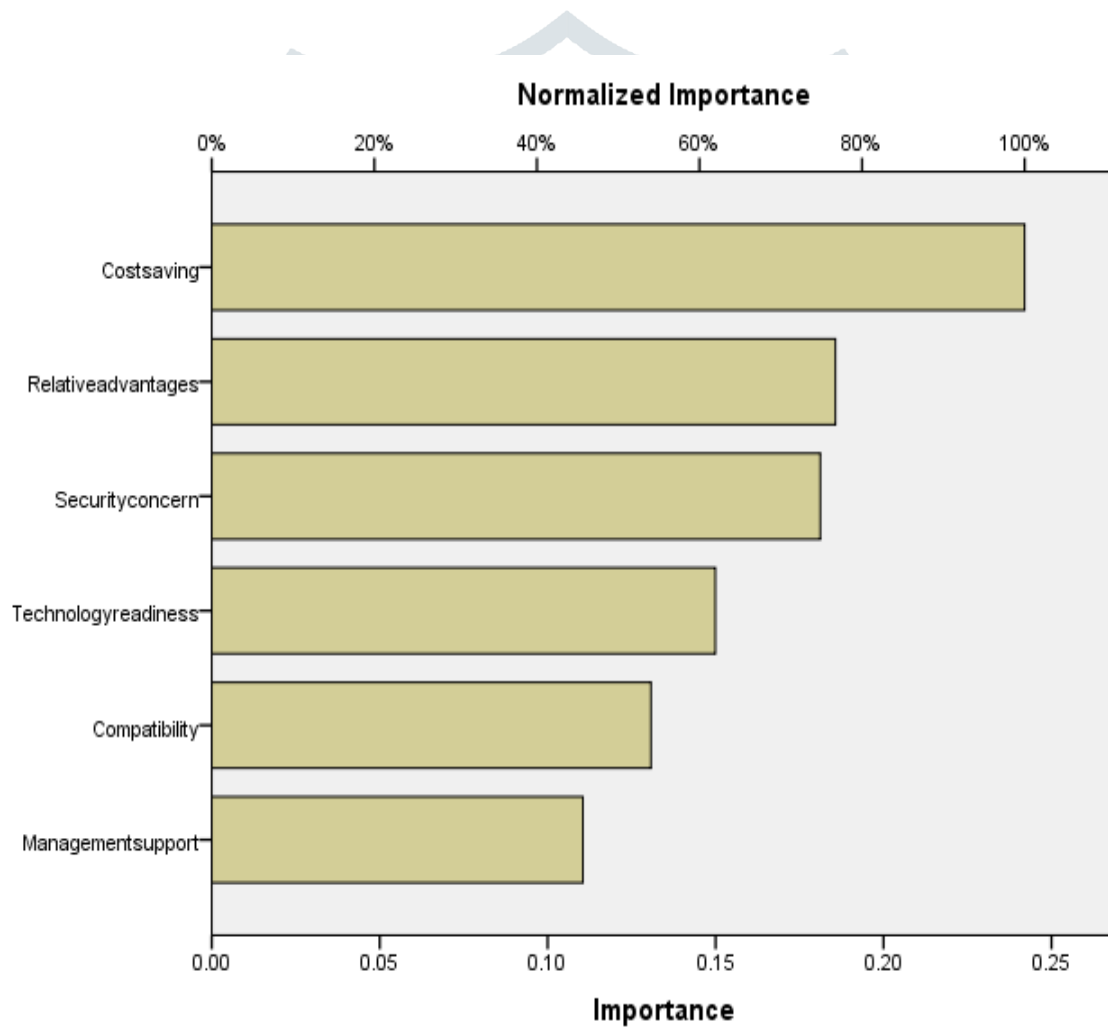
**CHART 1**
**SATISFACTION LEVEL OF CLOUD COMPUTING**



Hidden layer activation function: Hyperbolic tangent
Output layer activation function: Identity
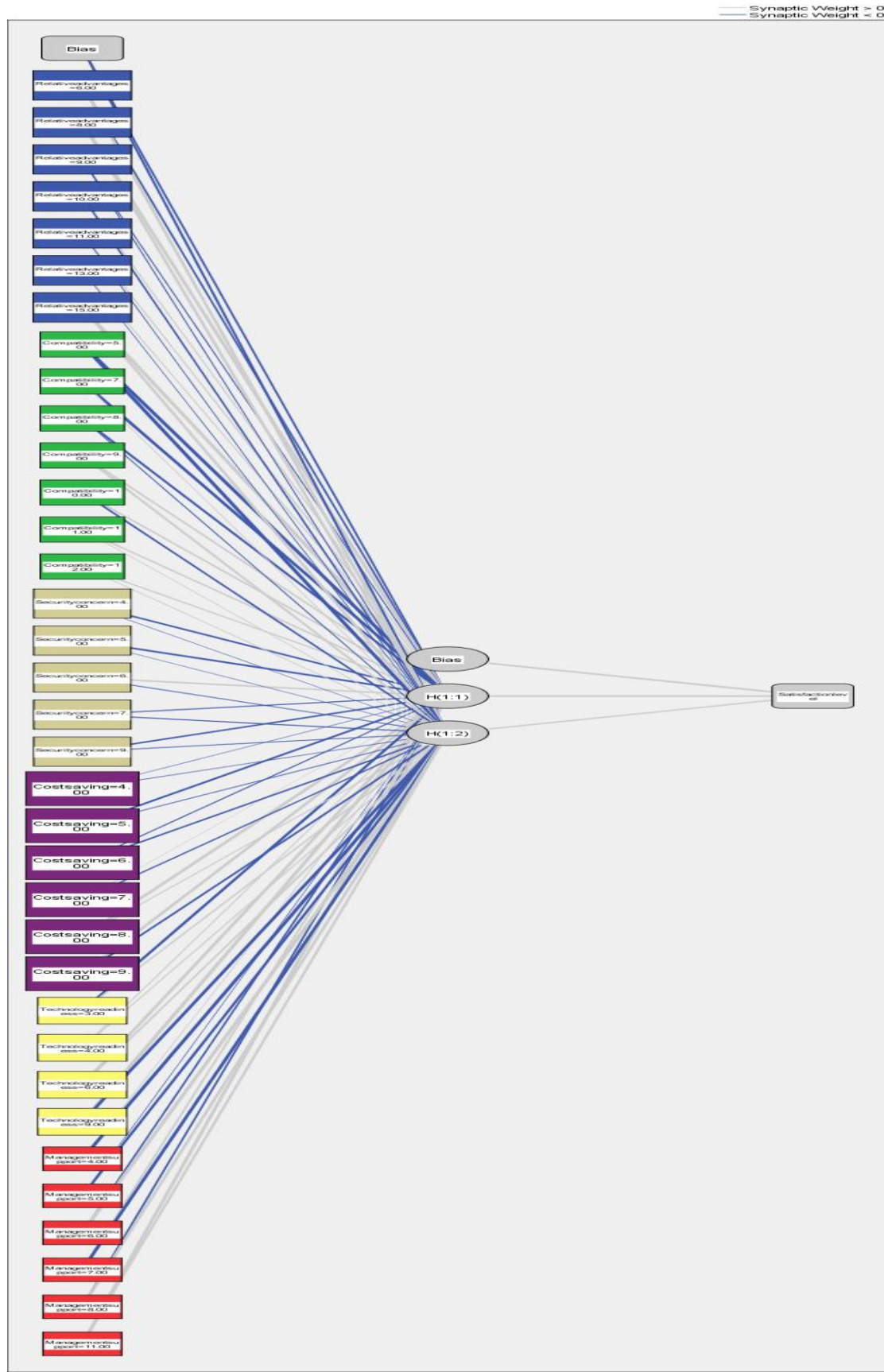
**TABLE 5**
**STATISTICS**

|  |  | Overall satisfaction level of cloud computing | Predicted value for satisfaction level |
|---|---|---|---|
| N | Valid | 86 | 86 |
|  | Missing | 0 | 0 |
|  | Mean | 52.1047 | 52.1047 |

The analysis states the percentage of expectation and prediction by the service providers on the selected variables and the model is also fit because the actual mean and predicted mean of satisfaction level is not having any difference.

## VIII RESULT AND DISCUSSION

This study was conducted to factors towards influence on espousal of cloud computing in favor of SMEs in Coimbatore city. This researcher approached nearly 86 respondents for this survey with structured questionnaire as mentioned in the methodology. The results were given with necessary interpretation in an orderly manner. Now the researchers give their final views about the study.
- ➔ A majority of 68.9 percent respondents were male category
- ➔ A highest of 43.0 percent respondents belongs to the age category of 31-40 years.
- ➔ A majority of 51.2 percent respondents belongs to undergraduate.
- ➔ A majority of 64.0 percent respondents have been working 5 to 10 years.
- ➔ Majority of the respondents are said strongly agree and agree for factors influencing cloud computing in SMEs.
- ➔ There is significant relationship between department of work and overall satisfaction on cloud computing in Coimbatore city.
- ➔ The analysis states the percentage of expectation and prediction by the service providers on the selected variables and the model is also fit because the actual mean and predicted mean of satisfaction level is not having any difference.

## IX CONCLUSION

This study examined the factors that influence cloud computing adoption in favor of SMEs in Coimbatore city . Our results reveal a significant and strong positive relationship between awareness working department and cloud computing adoption, with both quality of service and cloud relative advantage, compatibility, security concern, cost saving, technology readiness and management support also having significant positive influences and fit for the neural network analysis. At the same time cloud computing there is a reduction of energy and environmental cost.

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