Abstract of Thesis

“A Critical Study of Implication of e-governance Services for effective communication with special reference to Citizens in Pune City”

A Thesis
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ABSTRACT

On

“A Critical Study of Implication of e-governance Services for effective communication with special reference to Citizens in Pune City”

1. Introduction

The revolutionary nature of Information and Communication Technology (ICT) is rapidly changing the society and the mode of governance in the 21st century. Reformers are increasingly eyeing on e-governance as a salvation vehicle to achieve good governance, democracy and transparency. e-governance is the application of ICT for delivering government services, exchange of information communication transactions, integration various stand-one systems and services between G2C, G2B, G2G, G2E as well as back office processes and interactions within the entire government frame work. Through the e-governance, the government services will be made available to the citizens in a convenient, efficient and transparent manner. e-governance is like a giant canvas on which the people can draw a new citizen centered view of their government. Citizen expect a 24/7 convenient user interface for interaction with government with ease of use, in a language that they understand and which is tailored to individual needs. e-governance is being deployed not only to provide citizen services but for public sector efficiency purposes, improving transparency and accountability in government functions and allowing for cost saving in government administration.

In today’s IT environment, e-governance has become the essential part of a citizen’s communication channel. Hence as citizens, they want to interact with the government through this channel thereby saving their time and the cost for availing governance services. This demand forced the government to change from providing services inline to transacting the same service online through implementation of e-governance system.

2. Objectives of the Study

The objectives of the research study are as follows:

1. To study the awareness of citizens about e-governance services implemented by Pune Municipal Corporation (PMC).
2. To find the most widely used e-governance service provided by the Pune Municipal Corporation (PMC).
3. To examine the impact of e-governance services availed by citizens.
4. To do the comparative study of the cost of availing PMC services through e-governance services vs. manual services.
5. To study the level of efficiency of the employees after incorporating e-governance services.
6. To suggest the framework for implementation of e-governance services.

### 3. Hypotheses of the Study

The researcher has tested following hypotheses under this study:

1. Awareness of citizens about e-governance services is very high.
2. ‘Assessment and Payment of property tax’ is most widely used e-governance service implemented by PMC.
3. The services provided in the e-governance system are user friendly.
4. The cost of availing e-governance services is comparatively less to the manual services.

### 4. Review of Literature

Researcher found numerous research studies pertaining to implementation of e-governance services. The researcher has done a literature review on various aspects of e-governance like impact assessment of e-governance services on citizens, e-governance initiatives in Maharashtra and India, a citizens’ perspective of availing e-governance services, comparative study of e-governance vs. manual services and future prospects for e-governance implementation. Researcher has defined 20 aspects, which are further used for designing questionnaires.

#### 20 Aspects of e-governance services

<table>
<thead>
<tr>
<th>Satisfies more citizens</th>
<th>No need of Agents</th>
<th>Helpful attitude of employees</th>
<th>Less time and effort to avail services</th>
<th>Ease of administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Error free transactions</td>
<td>Security of data is high</td>
<td>Good complaint handling</td>
<td>Adherence to citizen’s charter</td>
<td>Paperless office</td>
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<tr>
<td>Less waiting time</td>
<td>Good location</td>
<td>Convenient time schedule</td>
<td>Lower cost to the citizen</td>
<td>Less corruption</td>
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<tr>
<td>Greater transparency</td>
<td>Equal opportunity to all</td>
<td>More predictable outcome</td>
<td>High Clarity and simplicity of processes</td>
<td>Single window system</td>
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Most of the studies reveal citizen’s satisfaction with e-governance service and how they become free from the cumbersome manual system and save their valuable time, effort and money. Some study also considered as per employees’ point of view and how implementation of e-governance helps them to increase their efficiency by delivering quality oriented services to satisfy more citizens.
5. Research Methodology

The researcher has used survey based research methodology to carry out this research. The study is related to the use of e-governance services implemented by PMC in Pune city. The researcher has considered the Pune urban region for the study. This study is primarily focused on awareness and usage of e-governance services implemented by PMC in Pune urban region. Also it focuses on efficiency of PMC employees after incorporating e-governance services. That is why primary data was collected from Pune citizens and PMC Employees. Researcher has used interview and questionnaire data collection method.

<table>
<thead>
<tr>
<th>Research Methodology at a glance</th>
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<tbody>
<tr>
<td>Types of Respondents</td>
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<tr>
<td>Citizens</td>
</tr>
<tr>
<td>Employees</td>
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<tr>
<td>Population</td>
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<tr>
<td>Pune Citizens</td>
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<tr>
<td>PMC employees</td>
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<tr>
<td>Sampling Frame Availability</td>
</tr>
<tr>
<td>144 wards</td>
</tr>
</tbody>
</table>
| PMC Departments who deliver e-
  governance services            |
| Sample Size                    |
| 1021                           |
| 56                             |
| Sampling Method                |
| Purposive - Quota              |
| Purposive - Convenience        |

Various sources like journals, government reports, Ph.D. Thesis, books, magazines, and internet are explored to collect secondary data and same has been used to support the objectives and hypotheses whenever it needed.

Various measures of central tendency (mean, mode, median) and measures of dispersion (standard deviation) are used appropriately. For measuring reliability of the instrument researcher used ‘Cronbach's Alpha Reliability test’. Statistical techniques such as averages, percentages comparison and cross-tabulation were used. Various statistical tests like Z-test, Chi-square test and Z-test for difference between two population means are also used.

Researcher has used statistical package for the social science (SPSS) to test the hypothesis and analysis of the data.

6. Analysis of the Data

The fifth chapter analyzes the data obtained from Pune citizens and PMC employees. The analysis is carried out under various titles after doing pilot survey which is as under:

- Profiling Citizens with respect to gender, education and occupation: The majority of the citizens are male graduates and all of these belong to the service category. It is seen that the response from male respondents is very high as compared to female respondents in each category of gender, education and occupation.
• **Awareness of citizens regarding e-governance Services:** Citizens who are young adult males & graduates from the age group up to 40 years and those who have a service occupation are highly aware about e-governance services. An awareness of e-governance services depends on the parameters of age, education, gender and occupation. It is thus seen that 83.74 percent citizens are highly aware about e-governance service and this information supports the *First Objective* of the study.

• **Usage of e-governance Services by citizens:** Most citizens of Pune city prefer to avail e-governance services for making transactions with the Municipal Corporation. Citizens have ranked the e-governance services by their preference of usage and they gives first rank to ‘assessment and payment of property tax’ followed by grievance redressal, birth certificate registration, water bill, building sanction, e-procurement and lastly death certificate registration. It is thus seen that 94.75 percent citizens used ‘Assessment and Payment of Property tax’ e-governance service implemented by PMC and this information supports the *Second Objective* of the study.

• **Impact of e-governance Services on citizens:** Most of the citizens have given a positive verdict on the user friendliness of delivery channel. Rank of each parameter is used for the assessment of the delivery channel for e-governance services. Citizens prefer to avail e-governance through the PMC web portal and they gives *first* rank to ‘simple to use’ parameter. It is followed by easy to find required information, simple language, high satisfaction, comfortable with system, display clear information, display error message quickly, fast work, quick recovery of mistakes, efficient completion of work, attractive color and confidentiality of data is high.

For assessment of e-governance services, citizen rank each parameter. Citizens gives *first* rank to cost factor and according to them ‘cost of availing PMC services through e-governance is less as compared to the cost of the manual system’. It is followed by less time and effort, easy access from kiosk, less effort for documentation, clarity & simplicity of processes is high, high transparency, predictability of outcome is high, fast speed, simple design, durability of document is long and high security of data. Hence it is clear that citizens are very security conscious about their personal. It is also seen that implementation of e-governance services helps to reduce use of agent to avail civic services. Hence this data supports *Third Objective* of the study that there is high impact of e-governance services on citizens.

• **Comparative Analysis of e-governance System vs. Manual System with respect to three parameters i.e. number of trips, cost of each trip and time required to each trip:** Most of the citizens agreed that, due to the implementation of e-governance services they
can easily avail PMC services at the click of a mouse at home by using the internet without making any trip. For that they have to pay hardly upto ₹ 20 and spend only half an hour to complete transaction. Comparatively it is seen that the total cost for availing e-governance services is less and so is the time taken and effort expended and hence this data supports Fourth Objective of the study.

- **Profiling PMC employees with respect to age, gender, education**: Most of the employees in the PMC office are graduate female young adults from the age group 18 to 30 years. Most of the PMC employees are highly educated and have successfully completed their IT literacy course.

- **Employees training satisfaction**: Most of the employees are in favor of the implementation of e-governance services and according to them e-governance is the better and more efficient way to deliver civic services to citizens. Most of the young employees are not satisfied with the training which is given during the implementation of e-governance services.

- **Efficiency of Employees after incorporating e-governance services**: As per employee’s point of view, implementation of e-governance system helps them to deliver better services to citizens by ‘fast searching of the data’ and they give it the First rank to it. It is followed by increase in clarity of processes, increase in quality of service, increase in transparency, fast document handling, high usability of user interface, increase in problem resolution, reduced paperwork, satisfy more citizens, increase in ease of access, increase in revenue, increase in speed and reduction in stress. Many of employees agree that e-governance helps them to reduce the time of handling, accessing and searching data and finish their work fast. Hence this data supports the Fifth Objective of the study.

- **Cost and Benefit analysis of e-governance of PMC**: Annually traditional system operational cost is very high (4021 lakhs) as compared to e-governance system operational cost (695 lakhs) for delivering governance services. Hence it proves that implementation of e-governance reduced 83% operational cost. When we compare traditional system operational cost (4021 lakhs) with e-governance system operational cost including e-governance application cost (1291 lakhs), still operational cost of traditional system is very high and again it proves that implementation of e-governance reduced 70% operational cost and gives freedom from manual cumbersome processes to citizens and their employees.

Hence it proves that implementation of e-governance services helps to reduce manpower and administrative cost and clear cut indicates increased in the collection of real-time system and delivers better services to the citizens at lower cost.
7. Testing of Hypotheses

Hypotheses were tested using statistical tools.

_Hypothesis I – Awareness of citizens about e-governance services is very high._

Test Statistic: - Z-test statistics used at 5% significance level.

H0 Null Hypothesis: 83% or more citizens have a positive attitude towards awareness of e-governance services. (H0: p = .83)

H1 Alternate Hypothesis: < 83% citizens have a positive attitude towards awareness of e-governance services. (H1= p < .83)

To study the awareness of citizens about e-governance, the parameters such as citizen’s age, gender, education and occupation were considered. This hypothesis has been tested by using the awareness of citizens regarding e-governance services implemented by PMC using percentages. It is seen that 83.74 percent citizens are aware about PMC e-governance services. Z statistics of awareness of e-governance services is 0.6294788 which is less than table value 1.64 at 5% level of significance, hence accept Null hypothesis. It means that “Awareness of citizens about e-governance services is very high” and hence **the hypothesis of the study is accepted.**

_Hypothesis II – ‘Assessment and Payment of property tax’ is most widely used e-governance service implemented by PMC._

Test Statistic: – Chi-square test is applied with 6 degree of freedom at 5% level of significance.

H0 Null Hypothesis: There is no significant difference in the usage of ‘Assessment and Payment of property tax’ and other e-governance services implemented by the PMC

H1 Alternate Hypothesis: ‘Assessment and Payment of property tax’ is most widely used e-governance service implemented by PMC.

This hypothesis has been tested by using the most widely usage of e-governance services implemented by PMC by using Chi-square test. 94.75 percent citizens are prefer to use ‘assessment and payment of property tax’ e-governance services as compared to other e-governance services. Calculated value of Chi-square with 6 degree of freedom at 5% level of significance is 2325.74 which is greater than table value 12.592, hence the null hypothesis is rejected. Hence the hypothesis of the study ‘Assessment and Payment of property tax’ is most widely used e- governance service implemented by PMC is **accepted.**
Hypotheses III – The services provided in the e-governance system are user friendly.

Test Statistic: – Z-test statistics used with 5% significance level.

H0 Null Hypothesis: 97% or more citizens agree that the services provided by the e-governance system are user friendly. (H0: p = .97)

H1 Alternate Hypothesis: < 97% citizens agree that the services provided by the e-governance system are user friendly. (H1= p < .97)

For testing the hypothesis various parameters were considered like user friendliness of delivery channel, assessment of delivery channel, assessment of available e-governance services and the implication of e-governance services and its impact on citizens. This hypothesis has been tested by checking the user friendliness of delivery channel of e-governance services implemented by PMC by using percentages. 97.45 percent citizens gave a positive response regarding user friendliness of delivery channel. Z statistics of user friendliness of delivery channel is 0.6610676 which is less than table value 1.64 at 5% level of significance, hence accept Null hypothesis. This means that more than 97 percent respondents have a positive attitude towards user friendliness of e-governance services and hence the hypothesis of the study is accepted.

Hypothesis IV – The cost of availing e-governance services is comparatively less to the manual services.

Test Statistic: – Z-test statistics for difference between two population means used with 5% significance level.

H0 Null Hypothesis: The cost of availing e-governance services is equal to cost of availing manual service. (H0: X1=X2)

H1 Alternate Hypothesis: The cost of availing e-governance services is comparatively less to the manual services. (H1: X1<X2)

For testing the hypothesis, cost of availing PMC services through e-governance system is compared with cost of availing PMC services through manual system. First, the descriptive statistics for the two groups is observed. It is observed that the mean of cost of availing e-governance services (11.05) is lower than that of the cost of availing services from the manual system (43.56). Z statistics of the comparison of the e-governance system and manual system is 28.44 which is greater than table value 1.64 at 5% level of significance, hence reject the Null hypothesis. This means that “The cost of availing e-governance services is comparatively less to the manual services” and hence the hypothesis of the study is accepted.
8. Findings regarding e-governance system

This research is related to implication of e-governance services in Pune urban region. The researcher has tested positively the hypothesis of this research study, with the help of primary and secondary data. The research findings are related to awareness and usage of e-governance services by the Pune citizens and PMC employees and its impact on them.

8.1 Citizens’ perception

- It is found that 83.74 percent young citizens are highly aware about e-governance services and out of them 60 percent citizens prefer to avail e-governance services through the internet at home instead of cyber café or at office.
- It is observed that 72.38 percent highly educated male citizens from service occupation are highly aware about e-governance services as compared to business occupation.
- 94.75 percent citizens have preferred to use ‘Assessment and Payment of property tax’ e-governance service as compared to other services.
- It is found that 97.45 percent citizens agreed that the services implemented by the PMC through e-governance system are user friendly.
- Citizens are highly satisfied with the corporation website www.punecorporation.org by ranking parameters like 94.74 percent for ‘simple to use’, 92.51 percent for ‘easy to find information’ and 92.03 percent for ‘simple language’.
- 93.54 percent citizens agreed that implementation of e-governance services makes their life very easy because at the click of a mouse they could avail government services with a high predictability of outcome without standing in queues.
- Most of the citizens that are 94.12 percent have strongly agreed that due to the implementation of civic services through the e-governance system they got freedom from manual (traditional) cumbersome process and it is a better mode to avail civic services.
- 92.83 percent citizens agreed that without traveling anywhere they could avail civic services through the e-governance system at their doorstep. Hence they save their travel time and money. And only 6.21 percent citizens require a single trip to complete transactions due to the unavailability of the internet, low speed or a network problem.
- 92.66 percent citizens agreed that the manual system increases travel time and that they required at least two trips to avail civic services and even then the predictability of the outcome is very low. In rare cases, 7.34 percent citizens required 3 to 4 trips to complete the transaction.
• By comparing the number of trips for the e-governance system with the manual system, it is clear that, without any traveling 92.83 percent citizen’s availed e-governance services whereas for the manual system 92.66 percent citizens agreed that they required at least two trips to complete the transaction without any surety of delivery of services.

• 96.02 percent citizens agreed that by spending upto ₹ 20, they can avail civic services through the e-governance system at their doorstep.

• 94.71 percent citizens agreed that in the manual system they required at least two trips and the cost of two trips was about ₹ 150 which is very high as compared to the cost of e-governance system.

• It is found that through the e-governance system, 95.22 percent citizens agreed that within half an hour they can easily avail civic services at their door step and complete the transaction with a high predictability of outcome.

• 95.20 percent citizens agreed that in the manual system, they required at least 2 trips to complete the transaction by spending 2 to 4 hours without any surety of delivery of services.

• By comparing the time taken for the e-governance system with the manual system, it is clear that within half an hour, 95.22 percent citizens avail e-governance services whereas for the manual system 95.20 percent citizens required on an average 4 to 6 hours to complete the transaction without any surety of delivery of services.

• Through the e-governance system, without any travel, citizens can avail civic services at their doorstep within half an hour by saving waiting time, effort and money.

• Comparative cost and benefit analysis of PMC governance system reveal that implementation of e-governance services reduced operational cost of delivering governance services as compared to the traditional system and thus revenues increased in very high proportion.

• It is found that 68.56 percent citizens from Pune city are in favor of touch screen kiosks i.e. they are in favor of implementing unmanned kiosks. So ‘Anytime, Anywhere’ according to their convenience, they could easily avail services by saving their time, cost and effort. Whereas only 31.44 percent citizens are not in favor of implementation of unmanned kiosks due to illiteracy of computer and internet usage.

8.2 Employees’ Perception

• It is found that 83.93 percent PMC employees are highly educated and have successfully completed their IT literacy course.
• It is observed that 51.77 percent young employees from age group 18 years to 30 years are not satisfied with the training given during the implementation of e-governance services.

• 96.40 percent employees agreed that after incorporating e-governance services, their efficiency has increased and they can give quicker services to citizens and easily satisfy them through quality oriented service.

• 85.71 percent employees agreed that due to the implementation of e-governance services they can easily satisfy more citizens. This has been followed by an increase in service quality, increase in clarity of processes and increase in transparencies.

• 89.29 percent employees agreed that due to the implementation of e-governance services more transparency would be maintained in various transactions and accuracy is possible in work. And also 89.28 percent employees agreed that this reduces the time of handling, accessing and searching of data and enables them to finish their work faster.

8.3 Citizens and Employees perceptions

• It is found that 83.60 percent citizens agreed that they can avail e-governance services through the internet at their doorstep at a very fast speed whereas 82.13 percent employees agreed that due to the implementation of e-governance services they can deliver faster services to citizens.

• 80.73 percent citizens and 89.29 percent employees agreed that the implementation of e-governance services maintains transparency between citizens and government and it helps them to reduce corruption.

• 85.83 percent citizens agreed that without doing much documentation, they can avail e-governance services whereas 85.71 percent employees agreed that the paperwork has reduced while delivering services to the citizen.

• 82.16 percent citizens agreed that delivery channel of e-governance system is very user friendly and a quick recovery of mistakes is possible. Due to the implementation of e-governance services, 85.71 percent employees agreed that there is an increase in problem resolution.

• 94.74 percent citizens agreed that services implemented through e-governance system are simple to use where as 85.71 percent employees agree that there is an ease of access while delivering services to citizens through the e-governance system.

• 97.45 percent citizens agreed that PMC web site www.punecorporation.org is the best delivery channel of e-governance services. Whereas 87.50 percent employees have agreed that usability of user interface of PMC website is very high.
• 83.60 percent strongly agreed that clarity and simplicity of e-governance services is very high whereas 91.07 percent employees agreed that there is an increase in the clarity of process after incorporating e-governance services.

• 92.36 percent citizens are highly satisfied with the implementation of e-governance services whereas 85.71 percent employees have strongly agreed that the implementation of e-governance system helps them to satisfy more citizens while delivering services. This has resulted in increased morale and job satisfaction.

9. Designed & Suggested Framework of e-governance
Success of the e-governance applications depends on four important pillars which are technology, service providers, users and their satisfaction. The term e-governance represents the implementation of various government services to citizens by giving them the convenience to avail services ‘Anytime, Anywhere’.

In the course of the study, it occurred to the researcher to devise a layered framework for the successful implementation of e-governance applications. A conscious attempt was therefore made to construct such a model. The researcher therefore presents a “Layered Framework for Implementation of e-governance services” by considering all the positive aspects of Information Technology. It is therefore presented in the following Fig. 6.2. (Pg.No.13). The researcher has combined all the functionalities and operations of the successful implementation of e-governance services and has developed a new framework to serve the need of today’s environment. For designing framework, researcher has refereed several significant initiatives have been taken at the Centre, the State level and District level in this direction. Namely few are Ahmadabad Municipal Corporation (AMC), Kalyan Dombivali Municipal Corporation (KDMC), Pimpari Chinchwad Municipal Corporation (PCMC) at municipal corporation level. Andhra Pradesh, Maharashtra, Madhya Pradesh, Karnataka, Punjab etc at a State level. Pakistan, Jordan, Qatar etc at the international level.

The approach is primarily heuristic through technical and other details. This is because the researcher wanted to construct a framework which is work at various levels by using the unique identity of Indian citizens through UID /Aadhar Card. The current framework followed by the government is not adequate to the unique identity of the Indian citizen. To my knowledge such a layered framework catering to the needs of the implementation of e-governance applications has not been devised so far.

The Layered Framework for implementation of e-governance services consists of various layers, components and a few other factors which work on the unique identity of Indian citizens through UID /Aadhar Card. Each layer of architecture is represented by number and
hence client layer has a number 1 followed by presentation layer has a 2 number and application layer has 3 number. Further Security layer has 4 number and data layer has a 5 number. Following Fig. 6.1 shows the importance of each layer in layered framework.

![Layered Framework for Implementation of e-governance services](image)

**Fig. 6.1 Importance of each Layer in Layered Frameworks**

Researcher has set the priority for each layer according to their importance in the implementation strategy. Presentation layer has a highest priority as compared to other layers. The middle finger shows the highest priority with number 2 of the Presentation layer followed by second priority to the Security layer with number 4 and third priority to the Data Layer with number 5. The fourth priority is for the Client layer with number 1 and fifth priority is for the Application layer with number 3.

This framework is created and presented based on earlier studies, the researcher’s experience and the conclusions arrived at from literature review and analysis of primary data. The researcher has presented this framework knowing full well that it can’t immediately replace the current framework. It requires some extra time as well as basic preparation before implementation. **Designed framework is based on the unique identity of citizens through UID/Aadhar card.** This framework is the best combination of the unique identity of citizens with its high security of data. As per e-governance current status, this framework is the best combination of all the studied frameworks implemented by various local, municipal, state and central governments. The full form of abbreviations which are used in fig 6.2 layered framework for the implementation of e-governance services are as follows

- PC: Personal Computer
- CFC: Citizen Facilitation Center
- UID: Unique Identification Number
- UTM: Unified Threat Management
- XML: Extensible Markup Language
The First layer that is client layer represents the various e-government application delivery channels with operating agents. The operating agents may be an external user or internal user of the system. External users are citizens, business users and vendors whereas internal users are...
administrators, CFC operators, PMC employees and/or government bodies. The user can avail e-governance services through various delivery channels like mobiles, kiosks, CFCs, web ports, personal computers, digital TVs as well as through video conferencing.

For availing any e-governance services, the user has to first validate his/her UID card. The UID card can be validated by using the PMC registrar system, in which the user can send a request through a mobile device/Pos device/biometric scanner for validation purposes. Once the PMC registrar system receives the user’s request, the request is passed/forwarded to the UID authentication server. Requested details will be matched with the UID database and validations will take place.

After validation, by using gateways, the user can avail any services related to e-governance applications through presentation layer. The presentation layer manages the interface proposed for the users interacting with the e-governance application.

The application layer is the core of the e-government application. Implementation of e-governance includes many services and a few of them are birth and death certificate registration, grievance redressal, assessment and payment of property tax, e-procurement, and health department services including food licenses etc., building approval and water bill. It also includes maintenance of the personal information of all PMC employees and their payroll systems with all the account details. The security layer consists of authentication and access & identity management. Authentication is the process of verifying the digital identity of the sender of a communication, such as a request to log in. Identity management is a significant component in providing trusted and reliable online delivery of government services. The data layer ensures the governmental administration data storage and persistence. During the interaction, proper authentication and access management will take place for security purposes and after completion of the transaction the details will be stored in the particular database.

Furthermore this Layered Framework is post implemented with Cloud Computing. It is cost effective and saves implementation and maintenance costs.

This framework is prepared on the basis of my knowledge and actual experience in the light of the present research study. The researcher has also discussed it with a technical and network expert in this area. It can be improvised in the light of actual

10. Conclusion

- Implementation of civic services through e-governance services is a new concept in Pune city and at the initial level; it makes successful transformation from the traditional (manual) system to e-governance system.
• Awareness of the e-governance services depends totally on the citizen’s age, education, occupation and internet literacy parameters. A citizen found that implementation of e-governance system is perceived as more significant than the manual system.

• Implementation of e-governance services help citizens to interact directly with government and understand government policies through which they can easily contribute to the decision making process. Consequently transparency would be maintained between citizens and government and this would help in growth of the nation.

• Implementation of e-governance services help citizens to avail civic services ‘Anywhere, Anytime’ according to their convenience.

• Housewives, relatively, do not seem to be very enthusiastic about the greater significance of implementation of e-governance services.

• Due to implementation of e-governance, citizens don’t feel the need to depend on any intermediaries or agents to avail civic services.

• Before implementation of e-governance services, People were lazy about traveling and going to the corporation office, so their names appear in the default list and they were heavily fined. The implementation of e-governance services will lessen this burden and their mental agony.

• PMC implements a number of e-governance services through its website www.punecorporation.org as well as through Nagari Suvidha Kendra (kiosk). Citizens found that the delivery channel of e-governance services are more user friendly and they are highly satisfied with it. But due to time limit of kiosks and unavailability of operators, they want unmanned kiosks (touch screen kiosks) in future so they can easily avail services according to their convenience.

• There is no proper help desk to guide the process of availing services form Nagari Suvidha Kendra (kiosks). The official working hours of Nagari Suvidha Kendra are causing inconvenience to the working citizens. Hence most of the citizens are in favor of implementation of unmanned touch screen kiosks to avail governance services.

• ‘Pune citizens’ have very positive attitude with this e-governance service. Assessment and payment of property tax is most widely used e-governance services and which will help PMC to increase their revenues but need to create awareness of other e-governance services.

• The implementation of e-governance services helps citizens to access services anytime, anywhere to interact easily with the government. Citizens have strongly agreed that e-governance delivers better services to them. Hence it is clear that there is a high impact of e-governance services on citizens.
- Citizens found that the implementation of the e-governance system is perceived as more significant than the manual system with less travel and without standing in a queue for a long time they can easily avail civic services through e-governance. The cost of availing services depends totally on the number of trips required to complete the transaction, time required for each trip and cost of each trip. Hence, implementation of e-governance services helps them to reduce travel cost, time and effort and hence the total cost of the service.

- PMC e-governance projects are successful, implementable, usable, transparent, time effective, affordable and accurate from a citizen’s point of view.

- PMC employees are in favor of e-governance services and they feel that it reduces their stress level. Implementation of e-governance has helped employees to deliver better services to citizens by saving their time and effort. Hence in a single day they can easily handle a large number of transactions.

- All the employees are educated and have completed the IT literacy course. Most of the young employees are not satisfied with the training which was given during the implementation of e-governance services. They are not satisfied because they expect more from the software companies who train them. Employees training satisfaction ratio is very low and hence need to increase the number of training sessions so that they could be easily satisfied and give better services to the citizens.

- PMC employees have agreed that due to the implementation of e-governance they can efficiently and effectively deliver services to the citizens by reducing the time in handling, accessing and searching for data and it helps them to finish their work faster.

- Implementation of e-governance services help employees to satisfy more citizens, that there is an increase in service quality, increase in clarity of process and increase in transparency.

- Operational cost of traditional system is very high as compared to e-governance system. Whereas revenues are collected in very high proportion in e-governance system as compared to traditional system.

- Due to implementation of e-governance services more transparency is maintained in tendering the process and the saving is approximately ₹ 250 crore per year. Thereby PMC can divert these funds which are saved for the benefit of PMC.

- Implementation of e-governance services helps PMC to detect the frauds in ‘Birth and Death Certificates’ module.

- e-governance has the potential to be dominant alternative delivery channel of all civic services in near future, which cannot be easily challenged by the traditional method.
11. Suggestions
For the success of an e-governance project and superior service delivery, it is imperative that the government agency focuses on the whole citizen experience. Focusing on the citizen is essential for long term success. The government agency needs to integrate information from all points of citizen interaction. The overall architecture for e-governance needs to ensure that the architectural components are extensible and scalable to adapt to the changing environments. The e-governance applications that are emerging as islands of successes have to be interoperable. Following are some suggestions for the successful implementation of e-governance services.

- **From Administration’ Perspective**
  o For effective implementation, the employee, who resists the change, needs psychological counseling. This counseling will clear their doubts and they may realize the importance of implementation of new technology.
  o The implementation of e-governance projects improves the interaction between government and citizens, and increases the administrative effectiveness and efficiency in the government operations.
  o Encourage local software companies for actively participation in development and implementation of e-governance application in minimal cost.
  o The interaction of researchers from the Industry and the Government sectors is also required to make constant improvement for the successful implementation of civic services through e-governance applications.
  o Conduct e-governance audit from the third party.
  o NGO’s or Clubs (Rotary, Lion’s etc.) participation in execution of the e-governance services in slum areas.

- **From Employees’ Perspective**
  o To make employee computer savvy, the government should make financial provision to purchase the computers and encourage them about use of it.
  o Thrust on awareness before Training and Increase number of training sessions
  o Proper training should be arranged for new employees.
  o e-governance projects are mostly developed in English language, majority of citizens do not understand English, so implementation of these projects in local languages is suggested.
  o Make employees aware of their moral responsibility towards citizens who are taxpayers and revenue generators.
• From Citizens’ Perspective
  o Government start the computer literacy program through the authorized training center by charging affordable fee as per their income group.
  o Organize citizen awareness programs on IT & e-governance applications
  o The Nagari Suvidha Kendra (Kiosks) should start the help desk to provide the information about the governance services.
  o Increase the number of Nagari Suvidha Kendra (Kiosks) to citizens depending upon the population.
  o A National ID scheme should be launched for efficient service.
  o The Nagari Suvidha Kendra (Kiosks) should be Unmanned and Touch screen should be provided so then citizens can avail the services on holidays and after Office hours.
  o Government should start the awareness programs for the citizens so that they can trust on the government services. The government can create awareness among the citizens using mass media viz. namely radio, television (documentary), newspapers, handouts on a war footing.
  o Government should provide accurate information and transactions under e-governance by displaying on flex, boards, charts or by using digital media.
  o There should be up gradation of Government website once in a week.
  o There should be forum or feedback system for the citizens on policies and government performance. Committees should be formed for the same who will keep a check on the feedback.

• From Vendors’ Perspective
  o As a social activity local software companies can organize computer and internet literacy program among the citizens to create awareness about e-governance services and also actively participate in development and implementation of e-governance application in minimal cost.
  o During the implementation of e-governance modules, considering the level of the employees the training has to be carried out by designing user manuals accordingly.
  o Vendors can implement e-governance application in local language.
12. Future Scope

The goals and objectives of this study were decided and studied accordingly. Since in depth studies in these areas have long term socio-economic dimensions and repercussions, the scope of the investigations can be further expanded as follows:

- Due to limitation of time in obtaining data from general public the work has been restricted to geographical corners of Pune city only. A study covering all Municipal Corporations (Urban and Rural Local bodies) under each and every state of India would be more useful, informative and illuminating to the Government of India for a successful implementation of e-governance.
- Researcher has studied citizens and employees satisfaction with implementation of e-governance services; further research can be taken to study relationship between Vendors and Employees.
- Due to difficulties in getting authentic statistical data and certain confidential information from different authorities; researcher has included those e-governance services which have been successfully implemented by PMC. Further research is also possible with other services of government which they provide like election voter registration, property registration etc.
- There is a dearth of adequate published research on this subject of study. This is because of the frequent changes in IT. Due to these citizens demand more, on the latest technology used in these services. Also data is not available due to the pathetic response from employees and citizens in this regards, so hurdles in the research. As Government policies for providing the services changes time to time, to implement and incorporate them in the available e-governance system is not immediately possible. And so up gradation in the e-governance services is slow. So to achieve all these targets it requires urgent sponsored individual and institutional research which is wider and more detailed in various areas and aspects of e-governance.

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