

Performance Evaluation of E-Governance Initiatives in Satara District of Maharashtra, India



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Abstract: An attempt was made to evaluate performance of e-governance projects in the Satara district of the Maharashtra state in India. The primary data collected from the stakeholders of the e-governance projects implemented in the Satara district to fulfill this evaluation process. Such an analysis also aims to know the performance of the e-governance projects. In this research article, researcher identified the performance indicators/variables for evaluation of the performance of the e-governance initiatives in the district.

Keywords : Performance Indicators, BPR, CSC

I. INTRODUCTION

ICT plays the crucial role in the providing the e-governance services to the citizens. “Thus e-governance is the application of information and communication technology for bringing government facilities, exchange of data, communication, transactions, integration, and services between government and citizens, government and business as well as back office procedures and communications within the entire government framework” [1]. Performance of the e-governance projects can be checked when the project is implemented. Performance measurement is essential for the assessment of the e-governance projects in terms of the availability of the service, financial benefits to the government as well as to the citizens and user satisfaction. If the performance of the projects is satisfactory, then the project will continue for the delivering the services. If stakeholders are not satisfied with performance of the project, then it under goes in improvements in the project. The primary data is collected through the interview and questionnaire from the stakeholders of the CSC project in Satara district [2].

II. PERFORMANCE EVALUATION

To study the evaluation of performance of the e-governance projects following performance variables/indicators identified to evaluate the e-governance projects in the Satara district.

Performance variables/indicators of e-governance projects

- Comparative analysis of business processes
- User friendliness of e-governance service
- Citizen’s perception about quality of e-governance service
- Service timeliness and responsiveness
- Error in the documents require the correction
- Financial and time saving
- Preference of the service centre

A. Comparative Analysis of Business Process

The manual system service delivery is often not sure or unpredictable for availing the government services due to conventional processes. As a result, citizen may visit several times to the Tahasil Office for availing the service. Sometimes the citizens are lost their hopes of getting the requested service. There is a need of radical rethinking and redesign of new business processes to bring dramatic improvement in performance of the e-government project [3]. Due to the new business processes in the e-governance projects, service delivery is predictable or more reliable as compare with the old or conventional business processes. The e-governance service delivery reduces the cost of service, time of delivery and gives more effective performance than the manual system. Hence the success of e-governance is depends on the business process reengineering. To justify this, researcher tried to know the technical staff’s perception about dependence of BPR on the success of e-governance as shown in table I.

Table- I: Dependence on BPR

Success of e-governance depends on BPR	Respondents	%
Yes	13	100%
No	0	0%
Total	13	100%

All the technical staff agreed on the success of e-governance is depends on the business process reengineering.

Business Processes Aspects

The following business process aspects are considered for dramatic improvements in performance of e-governance projects.

1. Analysis of existing processes and identification of weaknesses and redundancies
2. Redesigning of processes and required changes

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- 3. Quality of internal and external services depends on business processes
- 4. Investments in computerization and automation of business processes

Table- II: Analysis of Business Processes Aspects

Aspects	Agree	Disagree	Total
Analysis of existing processes and identification of weaknesses and redundancies	13 (100%)	0 (0%)	13 (100%)
Redesigning of processes and required changes	13 (100%)	0 (0%)	13 (100%)
Quality of internal and external services depends on business processes	13 (100%)	0 (0%)	13 (100%)
Investments in computerization and automation of business processes	13 (100%)	0 (0%)	13 (100%)

All the technical staff agreed on the four business processes aspects for dramatic improvements in performance of e-governance projects.

B. User friendliness of e-governance services

To evaluate the user friendliness of the e-governance service, there is a need to measure the citizen’s perception about user friendliness of e-governance services. This can be measured by considering the parameters like location of the service centre, convenience working hours, behavior of functionaries, design and layout of interfaces and overall satisfaction of the service. Following table III shows the user friendliness of e-governance service.

Table- III: Analysis of Business Processes Aspects

User Friendly	Respondents	Percentage
Yes	239	91.57
No	22	08.43
Total	261	100

From above table, it is clear that the majority of the citizens strongly agree that the e-governance services are user friendly.

Location of service centre

Satisfaction among the citizens about the present location of CSC or Tahasil Office is shown in following table IV.

Table- IV: Location of Service Centre

Parameters	CSC	Office
Very Dissatisfied	1 (0.38%)	50 (19.16%)
Dissatisfied	18 (6.90%)	47 (18.01%)
Neutral	13 (4.98%)	46 (17.62%)
Satisfied	66 (25.29%)	95 (36.40%)
Very Satisfied	163 (62.45%)	23 (8.81%)
Total	261 (100%)	261 (100%)

Present location wise comparison between CSC and Tahasil Office of government services, it is clear that 87.74% citizens are satisfied with present location of CSC than the Tahasil Office location.

Convenience of working hours

Following table V depicts the convenience of working hours of the CSC and Tahasil Office.

Table- V: Convenience of Working Hours

Parameters	CSC	Office
Very Dissatisfied	7 (2.68%)	54 (20.69%)
Dissatisfied	9 (3.45%)	87 (33.33%)
Neutral	33 (12.65%)	39 (14.95%)
Satisfied	81 (31.03%)	62 (23.75%)
Very Satisfied	131 (50.19%)	19 (7.28%)
Total	261 (100%)	261 (100%)

From above table, it is clear that 81.22% citizens are satisfied with the working hours of CSC because the CSC works according to the convenience of the citizens in the village.

Functionaries/Officers courteous and friendly

Tahasil Office staff and functionaries in CSC, how they react with the citizens is the major factor for knowing the courteous and friendliness. Following table VI shows officers/functionaries courteous and friendly.

Table- VI: Functionaries/officers courteous and friendly

Parameters	CSC	Office
Never	5 (01.92%)	75 (28.74%)
Rarely	12 (04.60%)	79 (30.27%)
Sometimes	39 (14.94%)	61 (23.37%)
Often	51 (19.54%)	36 (13.79%)
Always	154 (59.00%)	10 (03.83%)
Total	261 (100%)	261 (100%)

It is seen that the 78.54% CSC functionaries or operators are courteous and friendly whereas 17.62% Tahasil Office staff or officers are courteous and friendly with the citizens.

Simple and clear design and layout of form

Following table VII depicts the simple and clear design and layout of form.

Table- VII: Simple and clear design and layout of form

Parameters	CSC	Office
Very Poor	3 (1.15%)	35 (13.41%)
Poor	5 (1.92%)	64 (24.52%)
Moderate	22 (8.43%)	93 (35.62%)
High	107 (41.00%)	61 (23.38%)
Very High	124 (47.51%)	8 (3.07%)
Total	261 (100%)	261 (100%)



From above table, it is concluded that 88.51% citizens are given high response on simple and clear design and layout of form of CSC. Form design and layout of Tahasil Office is complicated as compare to form design and layout of CSC.

Perception about the overall satisfaction

Following table VIII depicts the perception about the overall satisfaction.

Table- VIII: Perception about the overall satisfaction

Parameters	CSC	Office
Very Dissatisfied	3 (1.15%)	28 (10.73%)
Dissatisfied	5 (1.92%)	65 (24.90%)
Neutral	10 (3.83%)	86 (32.96%)
Satisfied	83 (31.80%)	65 (24.90%)
Very Satisfied	160 (61.30%)	17 (6.51%)
Total	261 (100%)	261 (100%)

From above interpretation it is concluded that the citizens are overall satisfied about the e-governance services provided by the CSC as compared to the Tahasil Office services.

Weighted average of user friendliness parameters

For understanding the citizen’s perception about e-governance service and its impact, researcher defined a matrix which is based on 5 parameters for checking the user friendliness of e-governance service.

Each parameter is measured on 5 point Likert scale with very dissatisfied, never and very poor is allotted 1 point score, dissatisfied, rarely and poor is allotted 2 point score, neutral, sometimes and moderate is allotted 3 point score, satisfied, often and high is allotted 4 point score and very satisfied, always and very high is allotted 5 point score. The respondents have to rank their opinion on this scale. Point 1 and 2 are very low response while point 4 and 5 in favour of user friendliness of e-governance service. Point 3 indicates the neutrality. From the observation of the respondents, the average value is calculated and based on these observations ranks are allotted. Following table IX represents the weighted averages of user friendliness parameters.

Table- IX: Weighted averages of user friendliness parameters

User Friendliness	Respondents	Weighted Average	Rank
Overall satisfaction	261	4.50	1
Location of service centre	261	4.43	2
Simple & clear design and layout of forms	261	4.32	3
Functionaries/officers courteous and friendly	261	4.29	4
Convenience of working hours	261	4.23	5

It is observed that the highest value is 4.50 for the parameter ‘Overall Satisfaction’ followed by the ‘Location of Service Centre’ which is 4.43 and other values are also above

the 4; it means that with respect to all parameters much in favour is observed.

C. Citizen’s perception about quality of e-governance services

The quality of the e-governance service in CSC is measured by the parameters like processes and procedures, problem resolution and complaint handling, level of confidentiality and security of data, transparency of information and decision, use of IT for better citizen services. Following table X shows the citizen’s perception about quality of e-governance services in the CSC.

Table- X: Distribution of respondents according to quality of services

Quality of Services	Respondents	Percentage
Yes	226	86.59
No	35	13.41
Total	261	100

Above table interprets that the majority of citizens are given the positive response (86.59%) whereas 13.41% citizens are given negative response regarding the quality of the service in CSC.

Simple and clear processes and procedures

The quality of services depends on the processes and procedure adopted in the delivering the service to the citizens. Processes and procedures should be the simple and clear so that the citizens shall easily understand and can get services smoothly. Following table XI shows the citizens perception about the processes and procedures of e-governance services.

Table- XI: Simple and clear processes and procedures

Parameters	CSC	Office
Very Dissatisfied	5 (1.92%)	22 (8.43%)
Dissatisfied	9 (3.45%)	93 (35.63%)
Neutral	30 (11.48%)	71 (27.20%)
Satisfied	104 (39.85%)	63 (24.14%)
Very Satisfied	113 (43.30%)	12 (4.60%)
Total	261 (100%)	261 (100%)

From the above table it is clear that the 83.15% citizens are satisfied with the simple and clear processes and procedures adopted in e-governance services through the CSC whereas 44.06% citizens are dissatisfied with the simple and clear processes and procedures in Tahasil Office.

Problem resolution and complaint handling

Problem resolution and complaint handling is one of the most important parameters to assess the quality of the government service provided to the citizens. Following table XII shows the quality of problem resolution and complaint handling in government service.



Table- XII: Quality of problem resolution and complaint handling

Parameters	CSC	Office
Very Dissatisfied	2 (0.77%)	38 (14.56%)
Dissatisfied	9 (3.45%)	65 (24.90%)
Neutral	21 (8.04%)	88 (33.72%)
Satisfied	109 (41.76%)	63 (24.14%)
Very Satisfied	120 (45.98%)	7 (2.68%)
Total	261 (100%)	261 (100%)

From above table, it is clear that 87.74% citizens are satisfied with quality of problem resolution and complaint handling in CSC and it is far better than the Tahasil Office.

Level of confidentiality and security of data

In the cyber worlds the security and confidentiality of data is the biggest challenge. The government data is not protected or it is published online without any protection to the data. So the protection and securing the government data is essential. In this scenario, researcher tried to check the level of confidentiality and security of data in both system i.e. CSC and Office. Following table XIII shows level of confidentiality and security of data.

Table- XIII: Level of confidentiality and security of data

Parameters	CSC	Office
Very Dissatisfied	3 (1.14%)	30 (11.49%)
Dissatisfied	21 (8.05%)	61 (23.37%)
Neutral	29 (11.11%)	63 (24.14%)
Satisfied	85 (32.57%)	91 (34.87%)
Very Satisfied	123 (47.13%)	16 (6.13%)
Total	261 (100%)	261 (100%)

From above interpretation it is concluded that the citizens are more believed on CSC than the Tahasil Office about the confidentiality and security of data.

Transparency of information and decision

Transparency of information and decision is one of the quality measures of the service provided in government. Following table XIV depicts the level of transparency of information and decision in CSC and Office.

Table- XIV: Transparency of information and decision

Parameters	CSC	Office
Very Dissatisfied	4 (1.53%)	40 (15.32%)
Dissatisfied	7 (2.68%)	75 (28.74%)
Neutral	24 (9.20%)	83 (31.80%)
Satisfied	110 (42.15%)	47 (18.01%)
Very Satisfied	116 (44.44%)	16 (6.13%)
Total	261 (100%)	261 (100%)

Above table reveals that 86.59% citizens are satisfied with transparency of information and decision in CSC whereas 44.06% citizens are dissatisfied in Tahasil Office. It is concluded that the service provided in CSC is more transparent of information and decision than the Tahasil Office services.

Use of IT for better citizen service

Following table XV shows the use of IT for better citizen service.

Table- XV: Use of IT for better citizen service

Parameters	Responses	Percentage
Strongly Disagree	2	0.77
Disagree	2	0.77
Neutral	11	4.21
Agree	103	39.46
Strongly Agree	143	54.79
Total	261	100

From above interpretation it is concluded that 94.25% citizens are agreed on use of information technology can provide the better services to the citizens. It is concluded that without information technology it is not possible to improve the governance services delivery to the citizens.

Weighted average of quality of e-governance services

For understanding citizen’s perception about quality of e-governance services, researcher defined a matrix which is based on 5 parameters for checking the quality of e-governance services. Each parameter is measured on 5 point Likert scale with very dissatisfied and strongly disagree is allotted 1 point score, dissatisfied and disagree is allotted 2 point score, neutral is allotted 3 point score, satisfied and agree is allotted 4 point score and very satisfied and strongly agree is allotted 5 point score. The respondents have to rank their opinion on this scale. Point 1 and 2 are very low response while point 4 and 5 in favour of quality of e-governance services. Point 3 indicates the neutrality. From the observation of the respondents the average value is calculated and based on these observations ranks are allotted. Following table XVI represents the weighted averages of quality of e-governance services.

Table- XVI: Weighted average of quality of services parameters

Quality of Services	Respondents	Weighted Average	Rank
Use of IT for better citizen service	261	4.47	1
Problem resolution and complaint handling	261	4.31	2
Transparency of information and decision	261	4.25	3
Simple & clear processes and procedures	261	4.19	4
Level of confidentiality and security of data	261	4.16	5



It is observed that the highest value is 4.47 for the parameter 'Use of IT for Better Citizen Service' followed by the 'Problem resolution and complaint handling' which is 4.31 and other values are also above the 4; it means that with respect to all parameters much approval is observed.

D. Services timeliness and responsiveness

To check this commitment, researcher considered parameters like time frame for service delivery adhere to the citizen's charter, functionaries/officers respond to service requests/queries in timely and functionaries/officers accountability.

Time frame for service delivery adhere to the citizen's charter

For every government office, it is mandatory to display citizen's charter board in office premises [4]. In CSC premises also it is mandatory to display citizen's charter and stick to the time frame to provide the service within the stimulated time. In this, researcher tried to find out the delay in services within the stipulated time in the citizen's charter. Tahasil Office is delays in providing the services to the citizens it mean the time frame for delivery of service is not adhering to the citizen's charter. Most of the citizens don't know the citizen's charter. Responses were collected from those citizens who know the citizen's charter. In this survey, the researcher found that only 59 (22.60%) respondents out of 261 respondents know the citizen's charter. Following table XVII depicts the time frame for service deliveries adhere to the citizen's charter.

Table- XVII: Time frame for service delivery adhere to citizen's charter

Parameters	CSC	Office
Never	2 (3.39%)	20 (33.90%)
Rarely	2 (3.39%)	12 (20.34%)
Sometimes	10 (16.95%)	18 (30.51%)
Very Offen	13 (22.03%)	5 (8.47%)
Always	32 (54.24%)	4 (6.78%)
Total	59 (100%)	59 (100%)

It is found that 76.27% citizens are replied that the CSC is mostly adhere to the citizen's charter which is displayed in the premises of the CSC than the Tahasil Office.

Functionaries/Officers respond to service requests/queries in timely

Response to the requests and queries in timely by the officers and functionaries is major problem in the government system. Citizens want the quick response from the government officers or functionaries but this is not happens in government service provision. The researcher tried to find out the timeliness of the functionaries response to the service request/queries from the both CSC and Tahasil Office. Following table XVIII shows the functionaries respond to service/queries in timely.

Table- XVIII Functionaries/officers respond to service requests/queries in timely

Parameters	CSC	Office
Never	9 (3.45%)	52 (19.92%)
Rarely	9 (3.45%)	68 (26.05%)
Sometimes	29 (11.11%)	64 (24.52%)
Offen	80 (30.65%)	62 (23.76%)
Always	134 (51.34%)	15 (5.75%)
Total	261 (100%)	261 (100%)

From above interpretation it is clear that the CSC provides the quick response to the service requested than the Tahasil Office.

Functionaries/officers accountability

Following table XIX shows the functionaries or officers accountability.

Table- XIX: Functionaries/officers accountability

Parameters	CSC	Office
Never	7 (2.69%)	28 (10.73%)
Rarely	11 (4.21%)	85 (32.57%)
Sometimes	36 (13.79%)	88 (33.72%)
Offen	98 (37.55%)	53 (20.30%)
Always	109 (41.76%)	7 (2.68%)
Total	261 (100%)	261 (100%)

From above table it is clear that the CSC functionaries are more accountable than the Tahasil Office functionaries.

E. Error in the document require correction

The quality of services is depends on the number of errors in the documents issues to the citizens. The good and perfect system gives the minimum errors in the documents which require the correction in the documents and reissue the documents to the citizens. Following table XX shows the errors in the documents require the corrections.

Table- XX: Error in the documents require correction

Parameters	CSC	Office
Yes	19 (07.28%)	34 (13.03%)
No	242 (92.72%)	227 (86.97%)
Total	261 (100%)	261 (100%)

From above it is concluded that the online system also makes errors in documents, but the manual system makes more errors in documents than the online system.

F. Financial and time saving

Financial and time saving of availing the service is the aim of e-governance initiatives. Here, three aspects are considered i.e. average financial saving for availing the service, average total cost of preparation of the documents and average total elapsed time in availing service.

Average financial saving for availing the service

For calculating the average financial saving for availing the service, three parameters considers i.e. total trips to avail the service, cost of each trip and loss of wages. In this, if any error or correction found in the document, then trips to correct the error in document also considered.

$$\text{Total} = (\text{Trip} * \text{TravelCost}) + (\text{Trip} * \text{WageLoss}) + (\text{TripCorrection} * \text{TravelCost}) + (\text{TripCorrection} * \text{WageLoss})$$

Table- XXI: Average financial saving

Parameters	CSC	Office
Average Saving [In Rs.]	91	733

It is seen that, average cost of availing the service in the CSC is Rs. 91 which is 8 times reduced cost as compared to cost of availing service at Tahasil Office i.e. Rs. 733. Financial saving for availing the service at the CSC is cost effective and it reduces the transactions cost of service.

Average total cost of preparation of the documents

Following table XXII shows average total cost of preparation of the document.

Table- XXII: Average total cost of preparation of the documents

Parameters	CSC	Office
Average Total Cost [Rs.]	147.88	220.89

Average total cost of preparation of the document in CSC is Rs. 147.88 whereas in Office is Rs. 220.89. From this, it is clear that, if citizens avail service from the office, it will cost Rs. 73 more than service availed from CSC.

Average total elapsed time in availing service

Following table XXIII shows average total elapsed time in availing the service.

Table- XXIII: Average total elapsed time in availing service

Parameters	CSC	Office
Average Total Elapsed Time [In Days]	4	8

Average total elapsed time in availing the service from the CSC is 4 days whereas the availing the service from the office is 8 days. It means the availing the service from the CSC is reduced to half of the days than office.

G. Preference of service centre

Finally, researcher is tried to find out the respondent's preference of the service centre from where they prefer for availing the government services. Following table XXIV depict the respondent's preference of service centre.

Table- XXIV: Preference of the service centre

Parameters	CSC	Office	Total
Preference of Service Centre	244 (93.49%)	17 (6.51%)	261 (100%)

Most of the citizens prefer availing the government services from the CSC that is 93.49% whereas the 6.51% citizens given the preference for availing the government service from the Tahasil Office.

From above interpretation it is very clear that the almost all citizens in favour of the online services which are provided by the CSC. Very few citizens are in favour of Tahasil Office.

III. CONCLUSION

For availing government services, citizen has to follow the many redundant processes and procedure in the Tahasil office. All the technical staff agreed on the four business processes aspects for dramatic improvements in performance of e-governance projects. E-governance service delivery reduces the cost of service, time of delivery and gives more effective performance than the manual system. Hence the success of e-governance is depends on the BPR. Use of cloud infrastructure services, open source software, dynamic routing, paper less services and less human intervention will reduce the operating cost of the service. Services must continue to meet the desired levels of efficiency and performance which include saving of cost, time and efforts. This will definitely result into a more effective and outstanding performance of government electronic services. It is concluded that the citizens are overall satisfied about the e-governance services provided by the CSC as compared to the Tahasil Office services.

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