राष्ट्रीय इ-गवर्नेंस योजना
National e-Governance Plan

Impact Assessment of e-Governance Projects

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Ministry of Communications and Information Technology
Government of India

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MESSAGE

The National e-Governance Plan (NeGP) was approved by the Government in the year 2006, comprising of 27 Mission Mode Projects (MMPs) and 8 components. The vision of this enormous programme is to "*Make all Government services accessible to the common man in his locality, through common service delivery outlets and ensure efficiency, transparency and reliability of such services at affordable costs to realise the basic needs of the common man*". The effort has been to demystify and simplify the process of delivering Government services by taking a holistic view of initiatives across the country and providing an enabling ICT based platform. The ultimate objective is to bring Government services to the citizen's doorstep for which a thorough study was required to understand the citizen's perspective and perception about governance.

A concrete step in this direction is the Nation-wide Impact Assessment exercise commissioned by the Department of Information Technology on select e-Governance projects that have achieved a certain level of maturity. The results of this massive exercise are now available and would provide the necessary insights in terms of impact, sustainability and scalability.

I hope that the learning from this report and the enormous depth of the data collected would help to build the pillars on which we can frame the future of our movement towards citizen-centric governance.

(A. RAJA)

ज्योतिरादित्य मा. सिंधिया
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MESSAGE

The National e-Governance Plan (NeGP) aims to alleviate the problems of the common man with which he grapples on a daily basis for obtaining most Government services. Backed by a comprehensive setup of mission mode projects, IT support and infrastructure components, NeGP is a herculean effort to address the citizen's problems.

Projects of such magnitude cannot succeed without an effective feedback mechanism enables mid-course corrections based on views of all stakeholders including citizens. NeGP takes due cognizance of this fact and therefore "Assessment" has been provided for as a key support component.

The recent Nation-wide Impact Assessment exercise undertaken by the Department of Information Technology (DIT) on three National-level projects (MCA21, Passport, Income Tax) and three State-level projects (Land Records, Property Registration, Transport), endeavours to provide insightful and comprehensive analysis of how far we have come with regard to providing electronically enabled services to the common man.

I hope that we will truly benefit from the findings of the assessment exercise and that the voice of the common man will allow us to celebrate what we got right and also enable corrective action in areas where we need improvement.

(JYOTIRADITYA M. SCINDIA)

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K. M. CHANDRASEKHAR

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October 31, 2008

MESSAGE

The National e-Governance Plan has been formulated to improve the quality of basic governance and delivery of key Government services to citizens and businesses. As Chairman of the Apex Committee, responsible for overseeing and driving the implementation of the NeGP, I am glad to see that the Department of Information Technology has embarked on this massive effort to incorporate a suitable feedback mechanism in the monitoring and evaluation of the implementation of MMPs.

I understand that 36 projects implemented under 3 State MMPs and 3 projects under Central MMPs have been assessed in the current phase taking into account the perspectives and perceptions of the end-users, namely, the citizens of our country. The Department of Information Technology has also ensured academic rigour and independent analysis by engaging the Indian Institute of Management, Ahmedabad, as the technical and strategic advisor in the process of impact assessment and use of professional market research agencies for actual field surveys.

e-Governance projects are gaining momentum across the country and as such this study is imperative from all angles. Continued assessment and monitoring is key to the future success of the program and constant updated feedback would enable the Apex Committee to provide more informed and effective direction to the implementation of this vital programme of the Government of India.

(K.M. Chandrasekhar)

राष्ट्रीय इ-गवर्नेंस योजना
National e-Governance Plan

Jainder Singh

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Message

The success of a programme of the magnitude, scale, and complexity of the National e-Governance Plan (NeGP) hinges around a robust assessment strategy that not only provides valuable understanding of individual projects, but also provides for backward integration into the process of project appraisal and capacity building.

The Department of Information Technology, as part of its overall e-Assessment strategy, has undertaken a Nation-wide impact assessment study to build a comprehensive picture of the factors underlying effectiveness of e-Government initiatives. To ensure well-rounded and impartial research, the Indian Institute of Management, Ahmedabad was brought in to create the assessment framework and 11 independent market research agencies were employed to conduct the exercise.

The importance of this exercise is underscored by the fact that historically, very limited credible data has been available on impact of e-Governance projects on citizens. At best, what was available was anecdotal evidence of positive impact reported in some cases and small sample studies of a few projects.

This Impact assessment study has provided a large resource base of authentic and verified data collected at the grassroots level from the target user groups. The learning from this study will help pave the path for future e-Governance initiatives and help us understand the key factors affecting the success of eGovernance.

Singh

(Jainder Singh)

New Delhi
October 23, 2008

राष्ट्रीय इ-गवर्नेंस योजना
National e-Governance Plan

आर. चन्द्रशेखर
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MESSAGE

e-Governance opens up the door to vast opportunity for transforming governance. It goes beyond the computerization of government processes and into the realms of good governance which include issues of efficiency of service delivery, empowerment of citizens, transparency, and accountability.

Individual e-Governance efforts at district, state and individual Ministry level have been going on for many years. However, the National e-Governance Plan (NeGP) in India has provided an important platform to upscale and integrate various initiatives and to aid large scale roll-out of projects.

The key mantra of e-Governance is "Citizen's first". Therefore, it was vital that the existing projects are assessed with the focus on the nature and quantum of impact on users (Citizens and Businesses). This exercise is not to be seen as a one off exercise . Every project, once it reaches a mature stage of service delivery, will be constantly monitored and subjected to assessment such that it can be further improved and evolved to deliver greater benefit. To provide truly impartial data, Indian Institute of Management, Ahmedabad was invited as a technical partner to oversee the research framework and methodology. Further, 11 independent market research agencies were empanelled to carry out the field work to ensure absolute autonomy of data collection and analysis.

Over 12 states, 36 projects were assessed which mostly included the three state level MMPs – Land Records, Road Transport and Property Registration. Of the central MMPs, Income Tax, Passport and MCA21 were the three projects assessed.

I hope that the following report will guide us in not only understanding the factors impacting the effectiveness of e-Governance but also providing insights to be integrated back into the project appraisal and implementation stages.

(R. Chandrashekhar)

राष्ट्रीय इ-गवर्नेंस योजना
National e-Governance Plan

Contents

राष्ट्रीय इ-गवर्नेंस योजना
National e-Governance Plan

Chapter 2 – Impact Assessment of State Level Projects

List of Tables

List of Figures

Preface

In view of the proposed roll out of the ambitious National e-Governance Plan (NeGP), Government of India was keen to understand the nature and quantum of impact created by e-Government projects that had already been implemented by state and national agencies. The Department of Information Technology (DIT), Government of India as the nodal coordinating agency for the NeGP was directed to carry out an impact assessment study of mature state and national projects that have been implemented in India.

As a part of the first phase three state-level e-Government projects – vehicle registration, property registration and land records were selected for assessment in twelve states across India.

Three national-level projects implemented by the Income Tax department, the Ministry of Corporate Affairs (MCA), and the issue of passport by Regional Passport Offices were also assessed during the first phase.

The assessment was to focus on the nature and quantum of impact on users (citizens and businesses). Assessment of impact on other stakeholders such as the department implementing the project was not taken up in the first phase. It was hoped that the study would help in rating the overall success of these projects so that a few projects with varying level of success could be studied in depth in follow up studies to identify key determinants of impact.

The Department of Information Technology (DIT), Ministry of Communication and Information Technology, empanelled eleven agencies for carrying out the field work. Each agency was assigned the task of assessing the impact of the three state-level e-Government projects in one state and prepare an individual report for each project. Three of these agencies were selected to do the field work and prepare a report on one national-level project each.

Indian Institute of Management, Ahmedabad (IIMA) served as a technical advisor for the proposed study. A team from IIMA worked closely with the team from DIT in the implementation of the assessment study. The IIMA team provided feedback to the market research (MR) agencies at key points in the study. The DIT team was responsible for seeing that the MR agencies incorporated the feedback.

This report prepared by IIMA consists of two parts summarizing the key findings from the 3 National level project reports prepared by market research agencies in Chapter I and the 36 state level project reports in Chapter II. The individual reports prepared by the market research agencies are also available in the public domain on the DIT web site.

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राष्ट्रीय इ-गवर्नेंस योजना
National e-Governance Plan

Acknowledgement

The report on "Impact Assessment of e-Governance Projects" has been made possible by the sincere efforts and cooperation of various people and organizations who have contributed immensely.

The Department of Information Technology core team guided by Secretary, Shri Jainder Singh and comprised of Shri R. Chandrasekhar, Special Secretary, Shri S.P. Singh, Senior Director, Smt. Radha Chauhan, IAS, Principal Consultant NeGP-PMU and Ms. Vineeta Dixit, Senior Consultant, NeGP-PMU has put in a great deal of time and effort at various stages of the study.

DIT would like thank all the eleven market research agencies for their excellent efforts in carrying out the challenging field survey as per the frame work designed by Indian Institute of Management, Ahmedabad, analyzing the field data and submitting the individual project reports on time.

We would also like to thank the IIM Ahmedabad team led by Prof. Subhash Bhatnagar, and consisting of Prof. T.P. Rama Rao, Prof. Ankur Sarin, Ms. Nupur Singh, Mr. Ranjan Vaidya and Ms. Anuradha Parekh for their high order of intellectual inputs and continuous guidance provided to all the eleven market research agencies and bringing out this comprehensive Summary Report.

Last but not the least; we would like to express our gratitude to all nodal officers of state & national projects, state IT secretaries and other state and national domain officials who have extended their support to us throughout the life-cycle of this survey.

Finally, we humbly thank all those who have not been explicitly mentioned above but who have directly or indirectly worked to make this report a reality.

Note from IIM, Ahmedabad

Prior to this Department of Information Technology (DIT) study, very limited credible data was available on impact of e-Governance projects on citizens in India or any other developing country. Anecdotal evidence of positive impact had been reported in some cases and small sample studies of a few projects had been conducted. However, results of such studies were difficult to generalize. DIT therefore decided to carry out an impact assessment study of mature state and national projects implemented in India. Indian Institute of Management, Ahmedabad (IIMA) was contracted to serve as a technical advisor for the proposed study.

The study used a common assessment framework which has been validated through two previous studies done on a smaller scale. The sampling methodology used in the assessment ensures that even small impacts could be detected and the variability in demand, efficiency of service center and location of users was captured. Results from the study are reasonably robust and can be projected to the entire population

The team from IIMA has worked closely with the team from DIT and the market research agencies in the implementation of the assessment study. This report prepared by IIMA summarizes the key findings from three state level projects in 12 states and three national projects. The assessment of individual projects and comparison of impact of a project across states presented in this report will help set a bench mark for future projects. We sincerely hope that this report will help the readers in gauging the overall impact of e-Government and will provide some useful lessons for design of future projects.

ABBREVIATIONS AND ACRONYMS

AP	Andhra Pradesh
ARTO	Assistant Regional Transport Office
CA	Chartered Accountant
CFC	Certified Filing Center
CLR	Computerization of Land Records
DIN	Director Identification Number
DIT	Department of Information Technology
FAQ	Frequently Asked Question
G2B	Government to Business
G2C	Government to Citizen
G2G	Government to Government
HP	Himachal Pradesh
IIMA	Indian Institute of Management, Ahmedabad
IT	Information Technology
ITR	Income Tax Return
MCA	Ministry of Corporate Affairs
MP	Madhya Pradesh
MR Agencies	Market Research Agencies
NeGP	National e-Governance Plan
NIC	National Informatics Centre
NSDL	National Securities Depository Limited
OLTAS	Online Tax Accounting System
PAN	Permanent Account Number
PFO	Physical Front Office
PMU	Program Management Unit
PNR	Passenger Name Record
PO	Passport Office
RFP	Request for Proposal
RoC	Registrar of Companies
RoR	Record of Rights
RPO	Regional Passport Office
RTC	Record of Rights, Tenancy and Crop Registration
RTO	Regional Transport Office
SMS	Short Message Service
SRO	Sub Registrar Office
TAN	Tax Deduction and Collection Account Number
TDS	Tax Deducted at Source
TN	Tamil Nadu
UTITSL	UTI Technology Services Limited
VFO	Virtual Front Office
WB	West Bengal

Chapter 1 – Impact Assessment of National Level Projects

EXECUTIVE SUMMARY

This report presents a summary of the key findings from the assessment studies of impact on citizens/businesses of three national projects focusing on collection and processing of Income Tax, registration of new companies (MCA21), and issue of passport. It is based on the individual project reports prepared by three market research agencies, each of which was responsible for carrying out the field level data collection for one of the three projects. Each agency surveyed a sample of nearly 7,000 to 9,000 users in 15-45 cities across the country. The survey captured users' experience with the manual and computerized modes of delivery for each service.

MCA21 users comprise professionals, authorized signatories of corporate bodies and businesses, and citizens and investors across the country. Users of the Income Tax project are primarily individuals and corporations. Users of online passport services comprise residents of India and authorized agents who facilitate passport services on behalf of their clients. In the latter two projects, significant number of individuals avail services with the help of intermediaries.

Among the three projects, MCA21 appears to have had the most positive impact on the users on key dimensions covered in this study. The passport project has had virtually no impact. Results of the Income Tax survey indicate that whereas corporate users have benefited on some aspects, individual filers have not benefited significantly.

In the case of MCA21, even users accessing the services from a public access point reported a saving of nearly one trip. The waiting time at the service delivery center during each trip was reduced to 25 minutes in comparison to 75 minutes in the manual system. The project had a significant positive impact on corruption with the proportion paying bribes having reduced from 20 percent to less than 5 percent in the case of the VFO and CFC users. Users reported a significant improvement in both the quality of service and the quality of governance.

Users of the Income Tax portal have reportedly had to make multiple visits to the Income Tax office to file their returns. Waiting time reduced by about one-thirds and there is a

significant reduction in total elapsed time for corporate users from 10 to 6 days. Chartered Accountants (CAs) filing on behalf of corporations failed to report data on corruption. Individual filers reported a marginal reduction in bribes. Although individual filers perceived very little improvement, corporate users experienced a significant improvement in both the quality of service and the quality of governance.

In case of passport the reduction in number of trips and waiting time is very marginal as only submission of application was partially computerized leaving most of the back end processes in their old inefficient form. Incidence of bribery is high for police verification and small in case of the passport office, but the impact in both cases is not significant. Very little or no improvement in service quality or quality of governance was perceived by respondents.

An overall assessment based on a composite rating suggests that MCA21 has been significantly more successful in terms of the value delivered to the users. In all the three projects users preferred the online service, even though composite scores show hardly any improvement in income tax and passport.

The varying degree of impact of each of the three projects can be explained by the difference in the extent of computerization and reengineering done in each of the projects. All the three projects provide services through a portal unlike the state level projects where the mode of service delivery is mostly through assisted service centers. However, MCA21 is the only project that provides end-to-end online delivery of all its services and involved significant reform in forms and procedures during the process of computerization. Online passport services are limited to partial e-enabling of the application procedure while the rest of the application process has remained more or less similar for both the online and offline applicants. Although the Income Tax website is quite comprehensive in terms of the services delivered, certain steps are still manual. The time required for preparing returns is significantly less in the online system as compared to the manual system but the requirement for depositing paper copies of the acknowledgement forms with the Income Tax department (in case of users who did not have digital signatures) negates the time gained in e-filing. On the other hand, users of MCA21, particularly those located in cities that do not have RoCs benefit by avoiding visits to the RoC office.

One of the objectives of creating a portal is to simplify the process to an extent that individuals can access the service themselves without seeking assistance

from intermediaries. In case of MCA21, although the use of the portal is mandatory, users are satisfied because significant benefits have been delivered. In income tax and passport, users have the choice to use the manual channel or the portal. Both these agencies have not been able to encourage a significant proportion of individual users to use online services because the perceived benefits for individual users of online services are marginal. Also, greater efforts are needed to make large number of users aware about the new mode of delivery and the manner in which it can be used. Awareness can only help to bring users to try the online delivery once but cannot guarantee sustained use. Procedures need to be simplified to deliver concrete benefits and clear guidelines provided on online procedures to reduce users' dependence on middlemen/intermediaries.

1.1 INTRODUCTION

In view of the proposed roll out of the ambitious National e-Governance Plan (NeGP), the Government of India was keen to understand the nature and quantum of impact of existing e-Government projects implemented by national agencies. For this purpose, the Department of IT as the nodal agency for the NeGP decided to undertake an impact assessment study of the following three national projects:

- The Income Tax department which has undertaken a comprehensive deployment of ICT to enable taxpayers and citizens to transact with the department on anywhere anytime basis;
- The Ministry of Corporate Affairs (MCA) which has implemented the MCA21 project to offer all its services through a portal to corporate entities, professionals and the public; and
- Passport offices which are undertaking a modernization programme for speedy resolution of concerns related to issuance and renewal of passports, immigration checks and passenger information.

The three national projects provide online services to beneficiaries through portals unlike the state level projects where the mode of service delivery is mostly through assisted[1] service centers. However, the extent of online service delivery varies from project to project (Annexure 1.1 provides the basic project profile). In the case of MCA21, all services including filing of statutory documents, registration of companies and public access to corporate information are offered through a secure portal. On the other hand, online provisioning of passport services is still at a nascent stage. The application process for issuing and renewal of passport can be completed only partially through the website. While the Income Tax website has facilitated end-to-end online delivery of many services, several taxpayers appear to prefer the 'manual' process. Most services are still accessed manually with the 'online' part primarily being used by institutional users, as mandated by the department.

The field level data collection for the three projects was conducted by market research (MR) agencies operating nationally: ACNielsen ORG-MARG; IMRB International; and Development & Research Services Pvt. Ltd. Each agency surveyed a sample of nearly 7 to 9,000 users being serviced by different types of service delivery points located

[1] Assisted refers to the fact that department/private sector employees use online terminals to process a variety of transactions for citizens/businesses.

across the country. The survey captured users' experience with the manual and computerized modes of delivery for each service. Each agency has submitted a report on the impact of computerization after analyzing the survey data and other inputs collected from the field.

Indian Institute of Management, Ahmedabad (IIMA) was contracted to serve as a technical advisor for the proposed study. The IIMA team worked closely with the DIT team in implementation of this study. It provided feedback at key stages to the market research agencies while the DIT team ensured that the feedback was incorporated in the study.

This report prepared by the IIMA team presents a summary of the key findings from the three national-level projects. It is based on the individual project reports prepared by the market research agencies. Section 1.2 of this report provides a brief description of each project. Section 1.3 explains the research methodology used for the assessment. Sections 1.4, 1.5 and 1.6 focus on the major impacts of the e-Governance projects. Finally, section 1.7 provides some directions for further evolution of these projects based on the qualitative feedback gathered from clients.

1.2 BRIEF DESCRIPTION OF THE PROJECTS

1.2.1 Income Tax Portal

In the past decade, the volume of income tax payers in India has more than doubled from 12.5 million in 1996-97 to 31.9 million in 2006-07. Earlier, tax collection was mainly done through manual counters provided by the department or at the special tax collection drives a week before the tax returns filing deadline. In order to respond to the growing demand for an efficient system of tax collection, the Income Tax Department launched a centralized website in 2002 with the aim to answer broad-based Income Tax queries.

In 2005-06 more substantial electronic transactions were introduced through the Income Tax website. Presently 19 services are offered through the online system including but not limited to: preparation and filing of individual Income Tax returns and TDS[2] returns by tax deductors; filing and tracking of PAN[3]/TAN[4] applications; status enquiry of taxes paid in banks; and

[2] TDS refers to Tax Deducted at Source. All corporate and government deductors are required to file TDS returns.

[3] PAN or Permanent Account Number is an all India, unique number of 10 characters allotted by the Income Tax Department, which is used for filing returns.

[4] TAN or Tax Deduction and Collection Account Number is a 10 digit alpha numeric number that all persons who are responsible for deducting or collecting tax are required to obtain. It is used for filing TDS returns, TDS payment challans and TDS/TCS certificates.

access to taxation rules and taxpayer-specific information. However, end-to-end delivery of these services through the online mode requires users to have Digital Signatures for filing documents and credit cards for making payments. E-filing and e-TDS for corporations are the only two services that have been mandated through the online mode. Besides the Income Tax portal, services are also provided through the websites and offices of NSDL[5] and UTITSL[6], and Income Tax offices across the country.

Users of online services primarily comprise of individuals and corporate bodies. The survey indicates that Income Tax portal was mainly used for e-filing of returns, especially in the northern and eastern zones (about 30 percent of all respondents from these two zones). The portal is regularly used to access information about rules and regulations. It has been noted that a large number of users take the help of professionals, viz. Chartered Accountants (CAs), for filing tax returns, applying for PAN/TAN and submitting TDS returns, either through the website or manually.

1.2.2 MCA21 e-Governance Project

The MCA21 project provides stakeholders - corporate bodies, businesses, professionals (Chartered Accountants and Company Secretaries) who are authorized signatories or employees of companies, citizens and investors across the country - with convenient and secure online access to all services provided by the Ministry of Company Affairs. Key services that can be availed through the MCA21 portal: downloading of e-forms; registration and incorporation of new companies; annual and event-based filings; payment of penalty and fees and tracking the status of payment processing; viewing, creation and modification of index of charges; online registration, tracking and redressal of investor grievance; and viewing and obtaining certified copies of public records pertaining to companies.

The MCA21 e-Governance Project was initially launched as a pilot in Coimbatore on February 18, 2006, followed by the second pilot in Delhi in March 2006. Nationwide roll-out was completed across all twenty Registrars of Companies (RoCs) by September 2006. E-filing of all documents carrying digital signatures of authorized representatives of the companies was made mandatory with effect from September 16, 2006. Services can be availed through

[5] NSDL's Tax Information Network can be accessed at http://tin.nsdl.com/.

[6] Income tax-related services provided by UTITSL or UTI Technology Services Limited can be availed at http://www.utitsl.co.in/

the MCA21 Portal via the Internet from home or office, a mode of delivery termed as the Virtual Front Office (VFO), or from facilitation centers known as Physical Front Offices (PFOs). Fifty three facilitation centers have been set up by the Ministry while professionals have been authorized to set up another 550 Certified Filing Centers (CFCs) across 85 towns and cities. While the PFOs set up by the Ministry provide services without any charge, availing services at CFCs entails payment of a nominal prescribed fee.

Mandatory services such as annual filing of Return, Balance Sheet and Profit and Loss statement form the bulk of transactions done by professionals through the portal. Public users primarily use the services of the RoC office and MCA21 portal for procuring certified copies of company documents. Among the three modes of availing services from the MCA21 portal, VFO is the most preferred with more than 90 percent of the professionals and 88 percent of the public users having accessed the portal from their own office/ home. This preference can be attributed to the increasing penetration of high-speed internet access via broadband in companies and organizations and the convenience of accessing information as and when required. Those who have used physical front offices (set up by the ministry and CFCs) are primarily people whose interaction with MCA is limited and who therefore, do not wish to invest in printers, scanners and software required for electronic filing. These offices also offer the advantage of having trained people who can help users with difficult procedures.

1.2.3 Online Passport Services

Computerization of passport offices was initiated as a pilot project at the Regional Passport Office (RPO) at Delhi in 1989. Subsequently, computerization was extended to all 34 passport offices (POs) across India. Computerization of passport offices was done in phases involving basic computerization of the office, Index card image capturing[7], online Index checking[8] and passport printing. In addition, computerization of passport application collection centers, provision for authenticated e-mail services, communication between the passport offices and district offices through authenticated e-mail, electronic storage and retrieval of documents furnished by the applicants are also being undertaken.

[7] Scanning of Index cards allows simultaneous processing of the applications by different sections of the passport office, thereby making the processing of an application quicker.

[8] This is done to verify if an applicant has applied for a passport before or already possesses one. Checking is done using a phonetic search to match the applicant's details and photograph with existing data in the master table of the online database server.

There was a 75 percent rise in total number of passport applications in five years, from 2.6 million in 2000 to 4.5 million in 2006. As a response to this growth, online services for issue and re-issue of passports under the regular and 'tatkal' categories were launched at four RPOs in 2006. The online services were extended to cover the remaining passport offices in 2007-08. For online registration, an applicant needs to submit required information such as name, address, date of birth etc through an online form. Upon successful registration, the applicant is required to submit the original application, supporting documents and fee at the passport office on a pre-specified date. Other major services offered through the online mode include provisions to check the status of one's application, download application forms, and access information on services and procedures. Passport services offered through the online mode can also be availed through the manual mode.

Users of the online services comprise residents of India and authorized agents who facilitate passport services on behalf of their clients. The use of online services is mainly limited to downloading of application forms and seeking of information on application processes. Only 17 percent of the respondents had used the online services for registration of applications, fixing appointments with the RPO/PO officials, submission of application forms or checking the status of their applications.

1.3 RESEARCH METHODOLOGY AND SAMPLING

The impact of e-Governance projects was assessed by examining the difference between manual and computerized delivery from the point of view of the users - citizens/businesses or their designated agents such as Chartered Accountants. Table 1.1 presents the framework used for the study and lists the dimensions assessed in each project. The cost related dimensions were measured directly while quality and governance related indicators were measured as perceptions on a Likert scale

In addition to the impact of the computerized system, structured feedback was sought on the experience of using the computerized interface with a view to providing some inputs for future evolution of computerized systems. The research involved administering a structured survey to a systematically selected sample of different types of users, and at times, conducting focus group discussions to gain further insights into qualitative aspects of the project. The survey

Table 1.1 - Framework of the Study

Dimension of Impact	Indicator
Cost of Availing Service (Measured Directly)	Number of trips made for the service
	Average travel cost of making each trip
	Average waiting time in each trip
	Estimate of wage loss due to time spent in availing the service
	Total time elapsed in availing service
	Amount paid as bribe to functionaries
	Amount paid to agents to facilitate service
Overall Assessment	Preference for manual versus computerized system
	Composite Score measured on 5-point scale factoring in the key attributes of delivery system seen to be important by users
Quality of Service	Interaction with staff, complaint handling, privacy, accuracy measured on 5-point scale
Quality of Governance	Transparency, participation, accountability, corruption measured on a 5-point scale

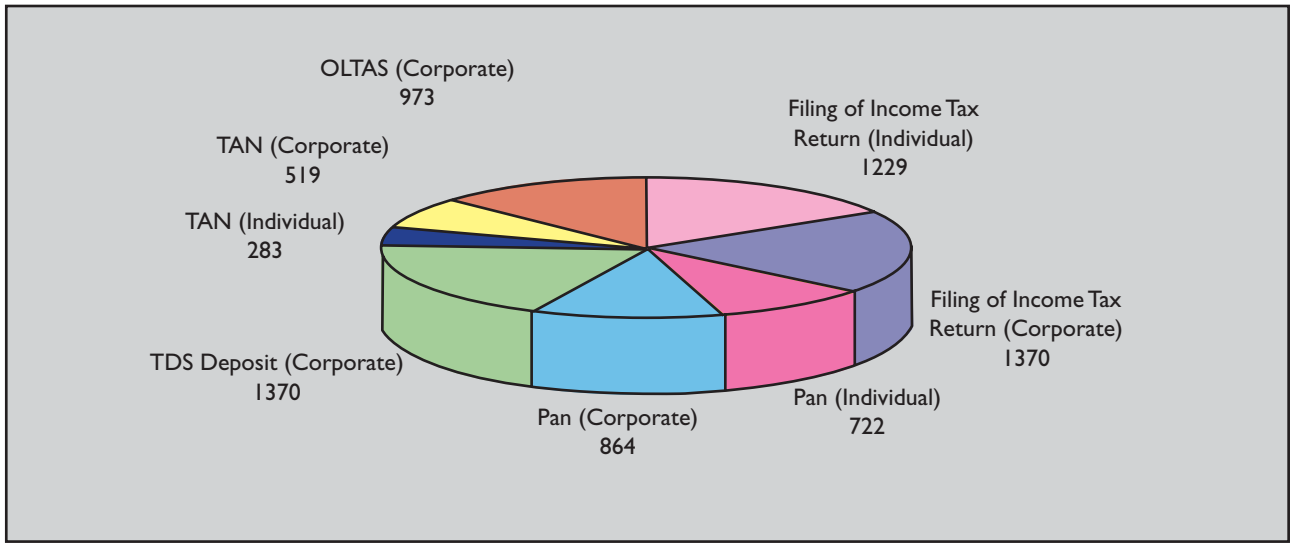
instruments were designed on the basis of the above measurement framework. Unlike the state project, MR agencies had freedom to add questions to the survey and analyze and report the results on any dimensions that seemed important. (Refer to Annexure 1.2 for general sample questionaire).

1.3.1 Sampling Plan, Sample Size and Profile

The sampling plan for the three projects was designed with the intention to ensure that the sampled units would be representative of users across the country. The sample of nearly 7,500 citizens for the Income Tax project was derived by stratifying the entire user population on the basis of region (north, south, east and west), class of city (Metro, Class I and Class II cities) in which the user was located, user category (individual and corporate), and service availed (e-filing, online PAN/TAN application, e-TDS and OLTAS). Nine states, each with five cities - one Metro, two Class I and two Class II cities were thus selected from across the four zones. The distribution of the sample by service availed and user category is shown in the Figure 1.1. Separate groups of online and manual applicants were used to establish counterfactuals in the case of PAN and TAN since these are one-time services.

For the survey of online passport services, a representative sample of 13 RPOs/POs was selected from different regions of the country by adopting

Figure 1.1 Income Tax Portal: Distribution of Sample by Service and User Category

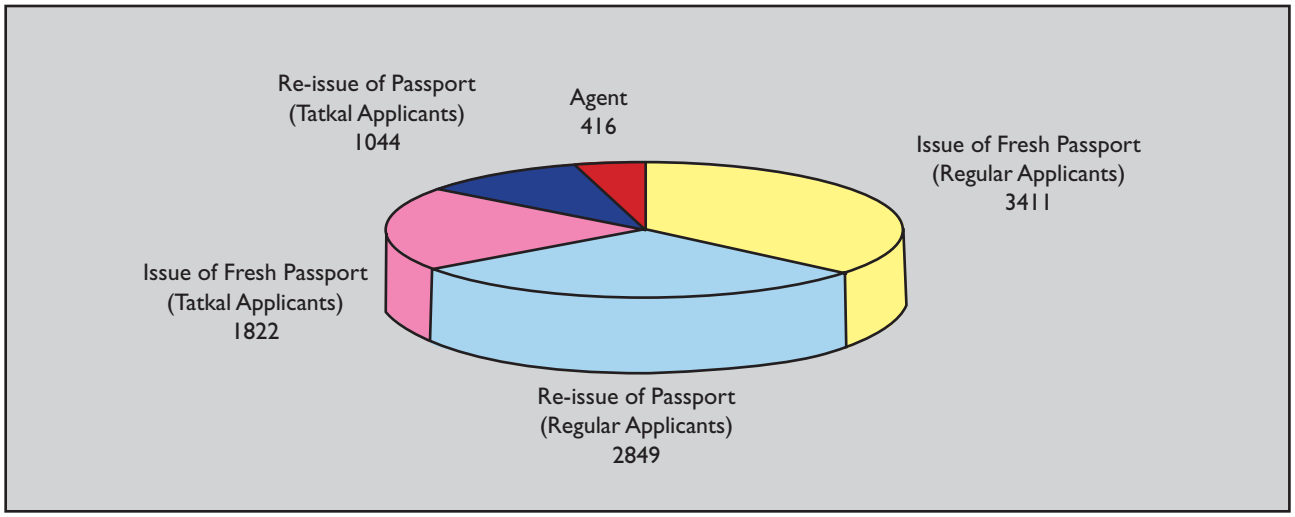


stratified random sampling. The sample of about 9,500 was drawn from users in cities/towns where these selected RPOs/ POs were located and who had availed and received the passport services from them during the period of April 2006 to March 2007. The sample primarily covered 'regular' and 'tatkal' applicants of two major services – issue of fresh passports and reissue of passports. Since use of agents and intermediaries for facilitating passport services is widely prevalent, nearly four hundred agents were also included in the sample. Figure 1.2 depicts the distribution of the sample by service availed and user category – applicant or agent.

Since passport services can currently be availed through both online and offline modes, a quasi-experimental non-equivalent groups design was used to assess the impact of e-Government interventions. Users of online and manual services have been considered the 'treatment' and 'control' (comparison) groups for the purpose of the study. Differences observed in impact variables between the users and non-users of online services were tested for statistical significance. Differences observed are not due to any a-priory difference owing to variations in the demographic profile of the two groups but are a result of their varying experiences of online/offline services.

The sample for the MCA21 survey comprised nearly 7,500 users - authorized signatories of companies, self-

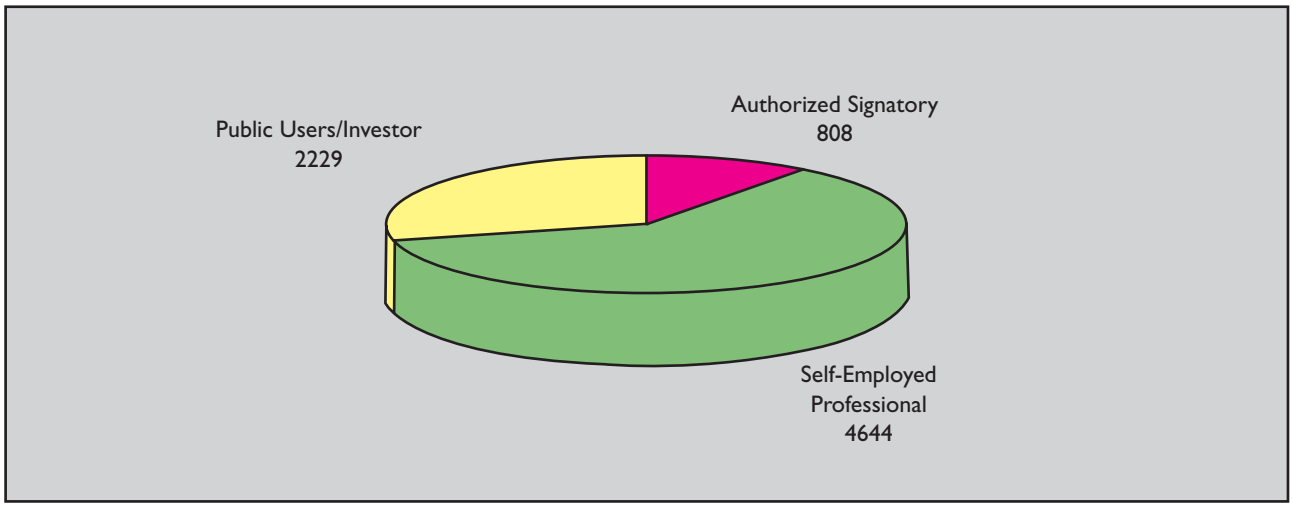
Figure 1.2 Online Passport Services: Distribution of Sample by Service and User Category



employed professionals viz. Chartered Accountants and Company Secretaries, and public users/investors who had availed services in both manual and computerized modes across 31 cities of India. As in the sampling of the other two projects, cities were selected from four zones and the sample size for each city was proportionate to the activity level in that particular city. Majority of the self-employed professionals and authorized signatories interviewed were from small and medium-sized companies with fifty or fewer employees. Since a majority of the businesses covered in the study were incorporated more than ten years ago, more users have experiences of incorporation of companies via the manual mode rather than the computerized mode. Figure 1.3 shows the distribution of the sample by user category.

Multi-disciplinary and well-trained teams comprising of researchers, field investigators and supervisors were deployed to carry out the fieldwork. Mobilization, orientation and training of the field teams were generally carried out at the head offices of agencies followed by further training at the sampled locations. Prior to the survey, the research instruments were translated into the required regional languages and pre-tested to verify the appropriateness and clarity of the questions. The field survey for the Income Tax and passport projects commenced in January 2008 and was undertaken at all sampled locations simultaneously.

Figure 1.3 MCA21 e-Governance Project: Distribution of Sample by User Category



Fieldwork was completed within a time frame of four to five months.

1.4 VALUE DELIVERED BY THE ONLINE APPLICATIONS

Table 1.2 summarizes the estimated impact on key dimensions of economic and qualitative impact in the three projects.

1.4.1 Comparison of the Three Projects across Key Dimensions

Significant reduction in the number of trips was reported only in case of MCA21 project where nearly one trip is saved for even those who use the service from a public access point (PFO or CFC). Improvement in MCA21 is primarily due to the fact that it provides an end to end computerized service whereas in the case of passport and income tax some part of the submission process is still manual, necessitating a trip to the office. Though e-filing should not require any trip as has been seen in other countries that have implemented e-filing, individuals surveyed in this study have reportedly made multiple visits (average of 1.6 trips) to the Income Tax office to file their returns. Primary reasons for this were the long queues at the deposit counters and non-acceptance of paper copies of returns on the pretext of their being incorrectly filled up. Passport agents required 1 to 2 trips to the RPO for completing the application submission process.

Waiting time at the service delivery center during each trip has reduced by

Table 1.2 Impact on Key Dimensions

Project	Income Tax Portal (E-Filing)			MCA21 e-Governance Project (Authorized Signatories/ Professionals			Online Passport Services	
	Manual		Online	Manual	Online		Manual	Online
Number of trips	Individual	1.8	1.6	2.2	PFO	1.6	2.5	2.2
	Corporate	1.0	0.75		CFC	1.5		
Waiting time (Minutes)	Individual	37.8	26.6	75.0	PFO	29	98.0	88.2
	Corporate	26.0	16.7		CFC	25		
Total elapsed time in availing service (Days)	Individual	11	8	N.A.[9]	N.A.		43	41
	Corporate	10	4					
Proportion paying bribes (Percentage)	Individual	4.1	1.9	20.1	VFO	1.4	42.4[10] 4.3[11]	48.1 4.4
	Corporate	N.A.[12]	N.A.[13]		PFO	10.8		
					CFC	4.4		
Proportion using an intermediary (Percentage)	Individual	9.6	10.6	21.2	VFO	10.2	34.8	33.6
					PFO	29.0		
					CFC	52.8		
Overall service quality score (5-point scale)	Individual	3.9	4.1	3.6	4.4		3.5	3.6
	Corporate	3.1	3.9					
Overall governance score (5-point scale)	Individual	3.8	4.0	3.3	4.2		3.3	3.5
	Corporate	3.1	3.9					
Composite score[14] (5-point scale)	3.9		4.0	4.0			3.1	3.2
Preference for computerized system (Percentage)[15]	75.0			92.0			59.4	90.4

[9] Data on total elapsed time was not captured and reported for MCA21.

[10] Proportion paying bribes to the police during the verification process

[11] Proportion paying bribes to the passport office employees

[12] CAs filing on behalf of corporations failed to report data on corruption.

[13] CAs filing on behalf of corporations failed to report data on corruption

[14] Composite score in case of MCA21 represents improvement in the computerized system vis-à-vis the manual system. The improvement was measured on a scale of 1 to 5 where 1 means 'much worsened', 3 means 'no change' and 5 means 'much improved'. Composite scores of the other two projects represent overall assessment of the manual and computerized systems respectively on a scale of 1 to 5, where 1 means 'very poor', 3 means 'neither poor nor good' and 5 means 'very good'.

[15] The percentage reported in MCA21 reflects the preference of users for the computerized system over the manual system based on their experience of having used both. In case of Online Passport Services in which separate samples of manual and online users were interviewed, preference of manual users for the online application system is purely hypothetical since they have no experience of the online system. Similarly, preference of online users for the computerized system over the manual one is hypothetical since they have no experience of the manual system.

about one-thirds in the case of income tax and marginally in the case of passport. Most passport agents spent an hour to reach the RPO and another two hours waiting at the RPO for submission of application forms. Reduction in waiting time is once again the most significant in the case of MCA21 - nearly 50 minutes are shaved off from a wait time of 75 minutes.

Data on total elapsed time was not captured and reported for MCA21. In the case of income tax there is a significant reduction for corporate users from 10 to 6 days, and about 25-30 percent in the case of individual e-filers. In case of passport the reduction is very marginal as only submission of application was partially computerized leaving most of the back end processes in their old inefficient form.

The MCA21 project seems to have had a significant positive impact on corruption with the proportion paying bribes having reduced from 20 percent to less than 5 percent in the case of the VFO and CFC users. This is because the online system accepts electronic documents directly into the system eliminating the need for any interaction with RoC officials or agents. For income tax, CAs filing on behalf of corporations failed to report data on corruption. Individual filers reported a reduction in bribes. In passport, incidence of bribery is high for police verification and small in case of the passport office but the impact in both cases is not significant.

In all the three projects, significant number of users avail the service using an intermediary and there is no difference between manual and computerized service delivery for income tax and passport. Seeking the services of professionals for filing documents is however more prevalent in the computerized mode (through the MCA21 portal) with 53 percent of CFC users and 29 percent of PFO users preferring to take their help, up from 21 percent in the manual mode. This may reflect a level of discomfort with using the electronic system.

MCA21 users reported a significant improvement in both the quality of service and the quality of governance. The scores improved by nearly one point on a five point scale. This is supported by the fact that the rate of errors in documents has nearly been halved from 26 percent to 12 percent in case of VFO and 9 percent in case of CFC. E-filing has apparently made it convenient for users to fill forms and made submission of forms less error-prone due to checks built into them. In the income tax project, the perceived improvement for individual

filers is very small. However, corporate users have experienced a significant improvement from 3.1 to 3.9 in both the quality of service and the quality of governance. Most individuals and CAs (hired by corporations to file returns on their behalf) are highly satisfied with the e-filing facility, though not as comfortable with the e-forms as they are with the manual ITR forms that had clearer instructions and were easier to follow. Very little or no improvement in service quality or quality of governance was perceived by respondents in the case of the passport project.

Public users, whose interaction with MCA is largely limited to procuring certified copies of company documents, also reported significant improvement in the online system on all dimensions of impact. Travel costs have been more than halved for users of PFOs and CFCs due to the availability of a larger number of service delivery centers increasing the proximity to the users. Waiting time reduced from an hour to less than 30 minutes. The total cost of availing services reduced by more than 30-50 percent depending on the mode (VFO, PFO) used for accessing services.

1.4.2 Overall Assessment

An overall assessment based on a composite score and the indicated preference for computerized system over the manual system suggests that MCA21 has been significantly more successful in terms of the value delivered to the users. A rating of 4.0 by MCA21 users on improvement in composite score indicates a significant improvement over the earlier manual system. Even though composite scores show hardly any improvement in income tax and passport, the users still prefer the computerized system.

The degree of impact of each of the three national e-Government projects covered in this study varies greatly because of differences in the extent of computerization and the reengineering done in each of the projects. MCA21 which provides end-to-end online delivery of all its services has done better than the passport project where the online services are limited to partial e-enabling of the application procedure. Other steps in the entire process are similar for applications submitted through both the online and offline modes. Officials from the police department and passport offices continue to enjoy immense discretionary powers since procedures such as police verification and submission of physical documents at the passport office have remained unchanged. Most respondents also felt that the behaviour and working of the counter staff can do with improvement.

In the case of the Income Tax, response by CAs has on the whole been lukewarm with regard to the online services. The reason for this could be that they understand that the online system is meant to make users self sufficient for their filing needs, and that this could eventually make them redundant. However, it was observed that the online experience of CAs in Class I/II cities is distinctly better than that of their counterparts in the metros.

1.5 ANALYSIS OF QUALITATIVE FEEDBACK AND SUGGESTIONS

A number of suggestions were made by the users of each system in discussions with the field investigators. These are summarized below. Not all suggestions may be equally practicable.

1.5.1 Income Tax Portal

The actual users of the Income Tax portal are mainly Chartered Accountants who file tax returns on behalf of their individual and corporate clients. Most individual taxpayers have no inkling of how the online system actually works. They stated lack of time, apprehensions about waiting in long queues at the Income Tax offices, and complex procedures as some of the reasons for availing services through CAs. As many as 68 percent of online corporate filers cited lack of time as the pre-dominant reason for seeking help of middlemen/CAs for filing returns.

The time required for preparing returns is significantly less compared to the manual system. Also, respondents from the southern states reportedly spent less time in preparing returns as compared to those from the rest of India. This could be attributed to the higher computer literacy and greater access to computers in the southern region.

In comparison to other applications, the Income Tax department has run a large awareness programme for successful initiation of its computerization project across the country. Most respondents were aware of online services right from their launch and cited newspaper advertisements as an important source for creating awareness.

1.5.2 MCA21 e-Governance Project

Most users prefer MCA21 due to the increased convenience of a 24X7 access to services from their offices or homes. Time and effort required for filing is saved, leaving them more time to prepare the documents. Ninety seven percent of authorized signatories located in towns/cities that do not have RoCs prefer the online mode vis-à-vis only 76 percent in cities with RoCs. In the manual mode, professionals in

cities without RoC offices had to incur additional expenses in employing a person to submit documents at the RoC. MCA21 has also made the filing process less error-prone due to the checks incorporated in e-forms. Earlier, any error in the documents necessitated 3-4 additional trips to the RoC.

Despite the saving in cost, time and effort, about 25 percent of all authorized signatories interviewed prefer the manual mode of filing over the MCA21 portal. In the case of small organizations, this can be attributed to lower Internet and computer penetration, and less comfort with computer usage. In the case of medium and large organizations, this could be due to the increased effort that authorized signatories have to put in for e-filing as compared to the manual mode where they simply had to send someone to the RoC office with the necessary documents.

A large proportion of users (77 percent) reported that they had experienced a problem with the online interface. Problems arose on account of incompatibility of software versions, limitations on the size of attachments, and the limited and unclear suggestions/explanations offered by the system in case of errors. Users also find it inconvenient to make payments due to the limited number of certified branches of banks and their apprehensions about using credit cards for making online payments. Many users found the website to be slow vis-à-vis other websites and felt that appropriate steps should be taken to improve the performance and speed of the portal, especially during the peak filing season. It was suggested that reducing the size of e-forms could help to reduce the time taken for downloading them.

MCA21 users expressed the need for increasing the awareness about use of online procedures. Availability of an easily accessible helpdesk and FAQs on the website would enable them to solve problems on their own.

1.5.3 Online Passport Services

Most passport applicants, irrespective of the mode of application, prefer to engage an intermediary/agent to help in getting their application processed. The complicated process of passport application and the time required to pursue the application process may be responsible for dissuading applicants from attempting to submit their applications themselves. Agents also play a crucial role in providing reliable information on procedures, cost, etc. in both modes. About 23 percent of the online users and 28 percent of the offline users mentioned agents as the best source

of information. The service charges/ commission charged by agents varies from Rs. 300 to 1000, and at times is even more. Agents admitted that commission charged by them varies depending on the client's ability to pay, urgency to obtain the service and complexity of the service.

About 85 percent of respondents mentioned that a minimum of 2 trips were required to correct errors (mainly related to incorrect spelling of name, address and gender of the applicant) in the applications. It was observed that manual applications were more prone to errors. Respondents felt that the number of visits that they had to make to the passport office on account of errors in application forms could be reduced if a more thorough scrutiny of application forms was undertaken at the time of manual submission.

The large proportion of online and offline passport applicants paying bribe clearly reflects the prevalence of corrupt practices in the system and the ineffectiveness of computerization in reducing it. Bribes were paid during the police verification process to expedite the process as well as to ensure that the report was in the applicant's favour. Payment of bribes to officials at passport offices was under reported. Informal discussions revealed that this proportion is much higher than the 4 percent reported in Table 1.2 - nearly 28 percent of the agents perceived that corruption prevailed in the system.

Passport offices have not been very successful in creating awareness about the online services. It was observed that none of the sampled RPOs had any hoarding/banner or any other way of informing applicants about the website or the availability of online services.

Users of the passport website suggested that guidelines provided on the website should be made clear and specific so that even persons with lower comfort level in using computers could access online services easily. A virtual tour or demo on the application process would help to provide applicants with step-by-step instructions on the procedures.

Respondents also felt that better infrastructure at passport offices in terms of more counters, single-window counters for fee payment and scrutiny of documents, user-friendly touch screen kiosks to check PNR status and provide necessary information, more telephone lines for tele-enquiries, and status reports through SMS would help to reduce the workload on functionaries and clear back log. A customer feedback mechanism could

be instituted to seek applicant's opinion on all aspects of service delivery. Users suggested that passport offices should publish a list of authorized agents, their contact details and applicable service charges, which could reduce ambiguity in service charge payment and prevent illegal touts from posing as authorized agents. Respondents also recommended better coordination between passport offices and police departments to alleviate problems in the police verification process. For instance, the police verification reports could be submitted online to save time or a separate cell set up to handle police verification of passport-related matters within the prescribed time. Officials need to be made accountable for delays and inefficient service delivery, and processes could be made transparent and fair by incorporating a first-come first-serve mechanism for application processing.

1.6 ANALYSIS OF DESIRABLE ATTRIBUTES

In all three surveys, respondents were asked to state the three aspects of service delivery that they considered most important from a list of twenty attributes covering cost of access, convenience, quality of delivery and quality of governance. The next generation of these applications could specifically target improvements in the desired attributes.

Corporate filers of income tax returns perceived the corruption level, accuracy of transactions and cost of availing service as the three most important attributes of service delivery (see Table 1.3 below). A significant difference was seen in the case of individual filers who regarded clarity and simplicity of processes and procedures as also being very important. With regard to MCA21, users felt that accessibility

Table 1.3 Important Service Delivery Attributes for the Three Applications

Project	Attributes (Percentage Weight Assigned)		
Income Tax Portal	Level of corruption (12%)	Accuracy of transaction (10%)	Cost of availing service (10%)
MCA21 e-Governance Project	Accessibility to data (20%)	Speed and efficiency of query handling (11%)	Clarity and simplicity of processes and procedures (8%)
Online Passport Services	Queuing system (27%)	Cost of availing service (24%)	Time and effort required to avail service (22%)

to data, speed and efficiency of query handling, and clarity and simplicity of processes and procedures are the most important attributes. Among those who have selected accessibility to data as the most important factor, 96 percent believe that accessibility to data has improved in the computerized mode. Users of passport services ranked the queuing system as the most important attribute, followed by cost of availing the service, and the total time and effort required for availing the service. Respondents who had applied manually were relatively more affected by the queuing system. The reason could be that they have to wait in the queue for longer durations unlike online applicants who come to the passport office with prior appointments and wait in a separate queue meant exclusively for them.

1.7 LEARNINGS FROM THE STUDY

Among the three projects, MCA21 appears to have had the most positive impact on the users on key dimensions covered in this study. The passport project has had virtually no impact. Results of the Income Tax survey indicate that whereas corporate users have benefited on some aspects, individual filers have not benefited significantly. This varying degree of impact of each of these projects clearly indicates the importance of making service delivery completely online so that it can deliver the expected benefits. For instance, though the time required for preparing Income Tax returns is significantly less in the online system as compared to the manual system, the requirement for depositing paper copies of the acknowledgement forms with the Income Tax department negates the time gained through e-filing. On the other hand, users of MCA21 avoided visits to the RoC office, which is a great benefit for them, particularly for those located in cities that did not have RoCs.

In order for a system to deliver significant value to all its stakeholders, it is important to involve them in the design of the application. In the case of MCA21, design and implementation was done through a consultative approach with internal and external stakeholders participating at every stage. Every change that was proposed was vetted by the various stakeholders, especially practicing professionals. On the whole, MCA21 appears to have a greater client-focus in comparison to the income tax project, which is more agency-focused.

Agencies responsible for service delivery through systems with large

number of users must put in much greater effort for creating awareness about them. However, awareness can only help to bring users to that service delivery channel. It cannot guarantee sustained use of the system unless the system is also designed in such a way as to deliver satisfactory outcome. Procedures need to be simplified and clear guidelines provided on online procedures to encourage their use by the actual end users and reduce users' dependence on middlemen/intermediaries.

Since national project are likely to be unique in terms of services delivered, geographical scale and scope, targeted beneficiaries etc., the attributes of a delivery system that are perceived to be important by the users should be understood prior to the conduct of an assessment.

Chapter II – Impact Assessment of State Level Projects

EXECUTIVE SUMMARY

This report consolidates the results from systematic assessment studies of citizen impact of 36 e-Government projects in twelve states, focusing on three services delivered to citizens: issue of copies of land record, registration of property and issue of driver's license. Eleven market research agencies, each of which was assigned all the three projects in a given state, were engaged for the study. The survey for each project and in each state covered a sample of nearly 800 citizens being serviced by service delivery points located across the state. The survey captured citizens' experience of using the manual and computerized modes of delivery for each service.

Study results indicate an abysmal state of delivery of services in the earlier or in some cases, existing manual system in all the three types of projects. Users need to make 3-4 trips (and up to seven trips in some cases) to government offices on an average, wait for two hours or more (and up to 6 hours in some cases) in each trip, and pay bribes frequently (20 to 50 percent of all transactions) to get services. Even a simple service such as obtaining a copy of land record can take as many as 21 days (although it takes six or less days in seven states), while property registration and issue of a driver's license take an average of 33 and 24 days respectively. In some states, the elapsed time (days elapsed from application to final registration) for the latter two services can be as high as 2-3 months.

Citizens indicated an overwhelming preference for computerized service delivery. Their preference was supported by specific areas where concrete benefits have accrued to them. For instance, in all three services, the number of trips to offices reduced by 1-2 trips after computerization whereas waiting time has been reduced by 20-40 percent. Direct cost savings to citizens averaged rupees 60-110 across all states. Although the outcome in reducing corruption is mixed, e-Government seems to have the potential for significant reduction in corruption. This is indicated by the fact that bribes have either been eliminated or significantly reduced in five out of the ten states after land record computerization. In property registration and transport, there has hardly been any impact on bribery and a large number of users continue to go through agents to get the service.

Amongst the three projects, land record computerization seems to have resulted in the most positive impact. A significant reduction was seen in the number trips and waiting time in all states. However, in most states users reported an increase in travel costs (in spite of a reduction in number of trips) because in the computerized mode, delivery of Record of Rights (RoRs) has been centralized to taluka level from the village level. In the case of property registration, reduction in waiting time is significant as nearly one hour has been shaved off from a two-hour wait in the manual system. Significant gains were also reported in the elapsed time. In transport agencies, computerization reduced the number of trips by one but had a marginal impact on waiting time and elapsed time.

Perception on quality of service and quality of governance showed an improvement in all projects. In overall citizen perception, Himachal Pradesh (HP), Rajasthan, Uttarakhand and Tamil Nadu rank high while Haryana, Orissa and West Bengal rank low based on a composite score (computed on the basis of improvements on twenty dimensions of service delivery) in all three projects.

Computerized service delivery in all the three projects is in the early stages of evolution. For example, in most states land record computerization has been limited to the issue of Record of Rights (RoR). Mutation, which is a more complex process, has been computerized in just five states. No state in India has reached an evolved stage in land record computerization which integrates the functioning of three related agencies - revenue department where land records are maintained; survey department where maps of land parcels are maintained; and registration department where deeds of sale/purchase of land are registered and maintained.

Even basic computerized delivery has not reached the entire population in the states covered by the study. In most of the states, computerized delivery has not reached beyond the taluka level and in half the states, fifty percent of the districts still operate the services in a manual mode. There is a long way to go even in the case of the three services covered by this study - expanding e-services to the remaining states where very little has happened so far, covering all the districts, and taking services to sub-taluka levels.

This study has several implications for future implementation of e-Government initiatives in the country. E-government projects covered in this study have not led to any significant transformation in the working of government organizations and processes which should be the key objective of an e-Government project. For example, in the land records computerization project, emphasis was on digitizing manual

records; in property registration, emphasis was on converting the process of manual copying of registered deeds to scanning them; while computerization in the transport department focused on replacing paper-based licenses by computer-printed plastic cards with digital photos. In many of the projects, even basic process reforms like simplification and rationalizing of forms, and putting in place an appointment and queue management system have not been undertaken. That is why most projects have not been able to harness all the potential benefits that e-Government can offer.

The study reveals that there is a great deal of difference in the performance of the best and the worst state in case of each of the three computerized applications. Given the fact that the processing steps in the delivery of the three services can be very similar across states, there is no explanation for the variation in performance, other than the varying quality of process reform and design of these systems. This indicates that each state has chosen to design its application without learning from best practices elsewhere. Therefore, for new initiatives, it is important to build the required capacity in both, the public and private sectors, for conceptualizing, designing and implementing basic process reforms.

The study underscores the importance of conducting baseline surveys of users of the existing system before conceptualizing a new system to replace it. Client focus can be sharpened by assessing the service delivery performance of an existing system, through dipstick surveys or assessment studies such as this one. Through the baseline surveys, agencies can understand attributes of service delivery that are important to the client. This can enable sharper targeting of benefits that can be delivered, and the required features or process reforms can then be incorporated in the design of the e-Government project. The format for a detailed project report should specifically contain a section on discussing concrete value that is expected to be delivered to different types of users, based on the framework used for the assessment reported here.

The exercise of assessing impact should not be seen as a one-time activity. Every project that has reached a mature state of service delivery must constantly be monitored and subjected to assessment such that it can be further improved and evolved to deliver greater benefit. **Given the fact that even basic computerization delivers perceptible benefits to citizens, speedy implementation of the National e-Governance Plan must receive the highest priority.**

2.1 INTRODUCTION

In view of the proposed roll out of the ambitious National e-Governance Program (NeGP), Government of India was keen to understand the nature and quantum of impact created by e-Government projects that had already been implemented by state agencies. DIT as the nodal agency for the NeGP therefore decided to carry out an impact assessment study of mature state projects that have been implemented in India.

The DIT empanelled eleven agencies for carrying out summary assessment of e-Government projects in twelve states. The empanelled market research agencies were to undertake a field research for data collection, conduct user surveys using professional staff, and analyze the data to report on impacts. As a part of the first phase of the impact assessment schedule, three e-Government projects – vehicle registration, property registration and land records were selected for assessment in thirteen states across India. Selection of the three projects was based on an earlier quick assessment commissioned by DIT in which a list of potential projects that could be assessed was prepared. A list of the empanelled Market Research agencies and the states/projects assigned to them is given in Annexure 2.1. Each agency was assigned all the three projects to be assessed in a state.

In its advisory role, IIMA was involved in providing inputs to the DIT and the Market Research agencies over the entire life cycle of the study. The following inputs were provided in the key stages of the study:

- The two-day workshop on Building Capacity for Impact Assessment of e-Government Projects that was conducted for representatives of the empanelled agencies helped them to get a clear appreciation of the objectives of the study, tasks involved in carrying out impact assessment, and a preliminary understanding of the three types of projects that were taken up.
- IIMA provided a framework for assessment covering the key dimensions on which impact on citizens (users of a service) would be measured. A framework for impact assessment was developed by IIMA and tested in eight projects in 3 states (AP, Karnataka and Gujarat) in a 2006 study sponsored by World Bank and DIT. The same framework was adapted for the proposed study.
- A template of the survey instrument for state projects was provided by IIMA. The template

was an improved version of the survey instrument used in the earlier study. The template specified a minimum set of indicators on which data was to be collected so that impact on the key dimensions set out in the framework could be calculated. Market Research agencies were free to add items to collect additional data.

- IIMA team provided feedback on the survey instrument for each project in all the states to ensure that the survey complied with the proposed common framework. Feedback was also provided on the survey instrument for the 3 national projects. (Refer to Annexure 1.2 for sample survey instrument).

- A member of IIMA team and a member from DIT team participated in the training program for field investigators. For each state these programs were held in a conveniently located city in the state.

- IIMA framed a set of guidelines for the sampling methodology to be used by the MR agencies to determine a sampling plan and the sample size. The guidelines were framed so that:

  - Even small impacts could be detected
  - The variability in demand, efficiency of service center and location of user could be captured
  - Results could be projected to the entire population

- Design of a sampling plan and sample size was reviewed by the IIMA team and feedback was provided on selection of locations from where respondents were to be selected.

- Templates were provided for analysis of data to ensure that for each project the key impacts were reported. Formats for a set of tables were provided for reporting data on impact with the associated levels of significance. Tables were also specified to ascertain adherence to the proposed sampling plan and to assess the response rate. Agencies were asked to report on data quality by performing analysis to check internal consistency of results.

- Every agency was asked to submit a set of tables consisting of preliminary analysis. Feedback was provided on the tables for correctness of computation, and unacceptable levels of accuracy.

- A format was provided for the reports to be submitted by the

agency, outlining different sections that were to be included. Agencies were free to include any additional material that advanced the understanding of the extent of impact or the reasons for a certain kind of impact.

- Feed back has been provided on each report, both at a generalized level (applicable to most of the reports) and specifically for each report.

This report summarizes the key findings from all the state level projects.

2.2 BRIEF DESCRIPTION OF THE PROJECTS

A preliminary survey commissioned by the DIT had reported that land record computerization, property registration, and issue of driver's license and vehicle registration services had been computerized in twelve states in at least a few districts. The three agencies delivering the above services were selected for assessment. In all the three projects, services are delivered at departmental offices where computer terminals connected with backend databases have been installed in designated areas. These terminals are operated by departmental operators. In that sense, the services are delivered in an assisted mode.

2.2.1 Computerization of Land Records

The study revealed that in the case of land record computerization, only ten states had implemented the project at a scale which warranted an assessment. Rajasthan, Gujarat, Tamil Nadu, Uttarakhand, West Bengal, MP and Orissa have covered all talukas of the state. Services are delivered from departmental offices located at taluka headquarters. Only in Rajasthan, other channels such as cyber cafes are used for delivering non-authenticated copies. In HP, 65 percent of taluks have been covered while in Haryana and Delhi, computerization is at a nascent stage. Besides Tamil Nadu, all other states started the implementation after the year 2000. Two basic services have been computerized: issue of Record of Rights (RoR), which has been computerized in all states covered by the assessment; and mutation of land records upon a transfer of land to another owner, which has been implemented in five states.

2.2.2 Computerization of Property Registration

Computerization of property registration has been rolled out in all the sub registrar's offices located at taluka level in five states: Rajasthan, Haryana, Punjab, Gujarat and Delhi. In Tamil Nadu, 25 percent of the smaller offices remain to be covered. In Himachal,

Uttarakhand, West Bengal and Orissa, coverage is partial while in some states the rollout is at an early stage. All the states have computerized the registration of a property transfer deed and issuance of certified copies of the deed. A few states have covered other types of deeds (marriage) and issuance of non-encumbrance certificates.

2.2.3 Computerization in the Transport Department

Computerization in the transport department has been done primarily for issue of driver's license, renewal of license and registration of vehicles. In most states, these services are offered by the RTOs located at the district level. Delhi, Rajasthan, Madhya Pradesh, Orissa, Gujarat, Haryana and Tamil Nadu have implemented computerized delivery in all districts. In some states like Rajasthan, a few centers at sub-district levels have also been computerized. In Himachal, Kerala, Punjab, Uttarakhand and West Bengal the coverage is partial.

Annexure 2.2 provides a brief description of the services offered and the manual and computerized processes of service delivery in each of the three agencies. Annexure 2.3 provides the following details of the projects assessed in each of the twelve states: implementation date or duration for which the project has been operational; geographical coverage; and yearly transactions for the state or the number of people benefited.

2.3 RESEARCH METHODOLOGY

For the purposes of the proposed assessment, DIT had decided that the unit of analysis will be the entire state for state-level projects. The research methodology used for the study is discussed below.

2.3.1 Measurement Framework

A measurement framework identifying key areas of direct and indirect economic impact on citizens, and indicators on which qualitative impact can be measured (see Table 2.1) was used. The framework had been tested in an earlier assessment study of eight projects encompassing service delivery to citizens (G2C), businesses (G2B) and internal staff (G2G) in three states (Andhra Pradesh, Karnataka and Gujarat). The study was carried out by a team from IIMA and was sponsored by the World Bank, DIT, and IIMA. Impact is defined as the difference between the experience of using the manual system and the computerized system that replaced it on all the indicators defined in the framework. In discussing the impact, the statistical significance of the difference has been tested and presented in the report.

Table 2.1 Framework of the Study

Cost of Availing Service Measured Directly
1. Number of trips made for the service
2. Average travel cost of making each trip
3. Average waiting time in each trip
4. Estimate of wage loss due to time spent in availing the service
5. Total time elapsed in availing service
6. Amount paid as bribe to functionaries
7. Amount paid to agents to facilitate service
Overall Assessment
1. Preference for manual versus computerized systems
2. Composite score: Measured on a 5-point scale factoring in the key attributes of a delivery system that are seen as being important by users
Quality of Service: Interaction with staff, complaint handling, privacy, accuracy measured on a 5-point scale
1. Satisfaction level with the present location of the center
2. Level of convenience in terms of working hours of the center/office
3. Overall attitude of the functionaries being courteous and friendly
4. Whether timely response is given to queries put up by clients
5. Degree of satisfaction with the overall quality of problem resolution and complaint handling
6. Perception of the overall confidentiality of the data
7. Perception/satisfaction level with the quality of service
Quality of Governance: Transparency, participation, accountability, corruption measured on a 5-point scale
1. Level of corruption in the current working system
2. Awareness about the citizens charter
3. Adherence of delivery time with the time frame mentioned in the citizens charter
4. Financial loss due to delay in availing the service
5. Type/kind of financial loss incurred due to delay in availing the service
6. Estimation of the degree to which government officials can be held accountable for their actions
7. Whether the rules and procedure are stated clearly and data regarding the service readily available
8. Whether the agency takes responsibility for the information shared
9. Does the agency provide any suggestions or feedback and what is the kind of response given on queries?
10. Perception about the overall quality of governance

A structured survey instrument that incorporated the key dimensions in the measurement framework was prepared for each project in the local language of the state. Field investigators were trained in each state in a workshop to understand the meaning of each data item. Data was collected through structured survey of users of both the manual and computerized system between August 2007 and March 2008.

2.3.2 Sampling Methodology and Sample Size

It was the primary responsibility of the MR agency to design a sampling methodology that would produce accurate estimates of impact on the dimensions that were outlined in the framework. As discussed in Section 2.1, sampling guidelines (see Annexure 2.4) were provided to each MR agency to ensure that even small impacts could be detected. The variability in demand and efficiency of service centers and variation in the location of user in terms of the distance from a service center were to be captured. A sample size was specified so that accurate estimates of impact could be calculated and the results could be projected to the entire population.

The sample size was determined in terms of

1. Number of service delivery centers to be selected

2. Number of locations (cities/towns/villages from which users are selected) within the catchment of each service center

3. Number of users (and non-users in case of voluntary use) within each location.

Analysis presented in Annexure 2.5 suggests that for a given total sample size, increasing the number of delivery centers provides the most power. On the other hand, increasing the number of interviews (respondents) per sampling unit does not improve power. Also, for a given number of sampling units that can be visited, it is better to include a larger number of service centers rather than more locations (within the catchment of each service center) from which respondents are chosen.

Firstly, all districts were to be ranked on the basis of activity levels. Four districts, one from each of the four quartiles, were then to be selected. The selected districts should also reflect different levels of overall development (i.e. on development index) and regional categorization. Within each district the delivery centers were to be selected on the basis of activity level handled by each center. The delivery centers were

to be categorized into quartiles and one delivery center was to be selected from each quartile.

Selection of the villages/locations from where the respondents were to be interviewed was to be done on the basis of distance of the location from the delivery center. One location (city/town/village) was to be chosen which was near the service center and one which was remote. The number of respondents from 'far' or 'near' location could be proportionate to the number of respondents visiting the delivery center from that location. From the above stratification each project would have total 32 sampling units for the selection of the respondents. For state level estimates, sample size was assumed to be around 800 respondents. These respondents were to be distributed over the 32 sampling units in proportion to the activity levels experienced by these units.

A list of users for each of the selected sampling units was to be compiled from which the desired number of respondents could be chosen on a random basis. Ideally, the agencies were to provide such a list of users for a given month/days which were representative of the typical activity in the center. A list which was 5-10 times the size of the desired number was to be selected from a sampling unit to satisfy the randomness criterion.

2.3.3 Field Work and Data Quality

Table 2.2 provides the actual number of users surveyed in each project for the manual and computerized modes of delivery and the number of sampling units from which these were drawn. In most cases it was possible to find respondents who had experienced both the manual delivery as well as the computerized delivery. However in three states/projects (land record in Haryana, property registration in Punjab and transport in Rajasthan), respondents that had had experience with manual delivery were difficult to find.

About 16 service delivery points were chosen on the basis of activity levels, geographical spread and development index of catchments. Respondents were selected randomly from 20 to 30 locations stratified by activity levels and remoteness

Overall quality of data is reasonably good. Large samples were used for each project in every state and the respondents were randomly picked from many different locations in the state, thus ensuring that variability on account of service delivery center and distance of respondents from the delivery center was captured. Most of

Table 2.2 Sample Size for each State in all Three Applications

S. No.	State	Land Record			Property			Transport		
		Manual	Computerized	Sampling Units	Manual	Computerized	Sampling Units	Manual	Computerized	Sampling Units
1.	Delhi	361	396	4 districts	804	804	9	819	819	8
2.	Gujarat	RTC: 807 Mutation: 42	RTC: 807 Mutation: 187	42 locations across 16 talukas	798	798	24 locations across 15 talukas	394	724	20 locations across 14 talukas
3.	Haryana	208	208	12 locations	204	204	16 locations	422	422	9
4.	HP	598	598	4 locations	600	600	4 locations	607	607	4 locations
5.	Kerala	N.A.	N.A.	N.A.	800	800	4	808	808	32 locations covered by 16 RTOs and SRTOs in 4 districts
6.	MP	800	800	32 villages	N.A.	N.A.	N.A.	731	801	4 districts
7.	Orissa	RTC: 229 Mutation: 607	RTC: 229 Mutation: 607	32 locations across 16 tehsils and 4 districts	681	681	32 locations in 4 districts	698	698	32 Locations covered by 4 RTOs (at District HQ)
7.	Punjab	N.A.	N.A.	N.A.	195	735	6	605	605	7
8.	Rajasthan	810	810	15 delivery centers across 4 districts	803	803	17 service centers across 5 districts	802	802	4 DTOs and 1 sub-office across 4 districts
9.	Tamil Nadu	RTC: 449 Mutation: 464 Both: 112	RTC: 449 Mutation: 464 Both: 112	45 villages across 15 talukas and 4 districts	840	840	30 SROs in 4 districts	600	600	20 RTOs
10.	Uttarakhand	800	800	32 locations covered by 16 delivery centers	650	650	6 SROs	650	650	34 locations served by 6 RTOs and ARTOs
11.	West Bengal	794	794	5	799	799	4	813	813	4

the measured impacts are statistically significant at 95 percent and/or 99 percent level. For every indicator, 1-2 states where the impact was not found to be statistically significant are highlighted. Results are internally consistent and are consistent with the results of earlier studies where similar projects were assessed in a different sample of states. Overall number of users for the 36 projects is about 20 million. With a total sample of 25,000, a reasonably accurate generalization about impact can be made.

2.4 ANALYSIS OF FINDINGS FROM THE PROJECTS

Each MR agency submitted a report on each of the three projects assigned to them in a given state. Every report provided an assessment of the citizen impact on the following dimensions:

- Factors contributing to cost of access (number of trips needed, waiting time, travel costs, payment of bribes)
- Elapsed time (total time taken for receipt of final document)
- Quality of service was assessed along attributes such as responsiveness of staff, convenience of location of office and work timings, and facilities at the service center.
- Quality of governance was assessed on attributes such as transparency, reduced corruption, fairness of treatment, quality of feedback and level of accountability.
- Overall impact measure (preference between manual and computerized systems)
- A single composite rating on a five point scale of improvements perceived after computerization. Respondents were asked to rate the improvements on a common set of twenty attributes covering cost of access, convenience, quality of delivery, and quality of governance. For each project the respondents were also asked to select the three most desirable attributes. Based on the responses on desirability, a weighting scheme was generated for each of the twenty attributes reflecting the importance of the attribute. Using the weighting scheme and the responses on a 5-point scale, a single composite score for improvement was generated.
- An attempt has been made to monetize the cost of access by adding travel cost, wage loss and bribe payments.

This section analyzes the results of individual studies in two ways:

1. **Dimension-wise impact**: An aggregate picture of the impact on each of the above dimensions for a given project on the basis of the variation in impact across all states. The aggregate picture for different types of projects is also compared.

2. **Project-wise impact**: An aggregate picture of overall impact for a given project covering all dimensions across all states.

Since the impact of computerization is measured against the service levels achieved in the existing manual system, it may be useful to note that the study results indicate an abysmal state of delivery of services in the existing manual system in all the three types of projects. Users needed to make 3-4 trips to government offices on an average (up to seven trips in some cases), wait for two hours or more (up to six hours in some cases) in each trip and pay frequent bribes (20 to 50 percent of all transactions) to get services. Even in a simple service such as issue of a copy of land record, the elapsed time (submission of application to receipt of document) averaged 21 days (although it takes six or less days in seven states). For property registration and driver's license, the average time (over twelve states) was 33 and 24 days respectively. In some states the elapsed time was as high as 2-3 months.

2.4.1 Dimension-wise Impact

2.4.1.1 *Number of Trips*

Table 2.3 indicates that in all three projects, at least one trip was saved through computerization. In the delivery of Record of Rights (RoR), the average number of trips across ten states was 2.8 in the manual mode of delivery. After computerization, the number of trips has been cut down by 1.0 on average. In fact, in four out of the ten states the number of trips after computerization averages 1.2 (see Figure 2.1 for state-wise details). Considering that at least one trip to the service center is necessary, in these four states an ideal condition has been reached. The cost of each trip averages about Rs 20. This cost can be further saved if the RoRs can be issued at internet kiosks located close to the villages where the users reside. Therefore issue of RoRs from Common Service Centres being established under the National e-Governance Plan (NeGP) should be taken up as early as possible.

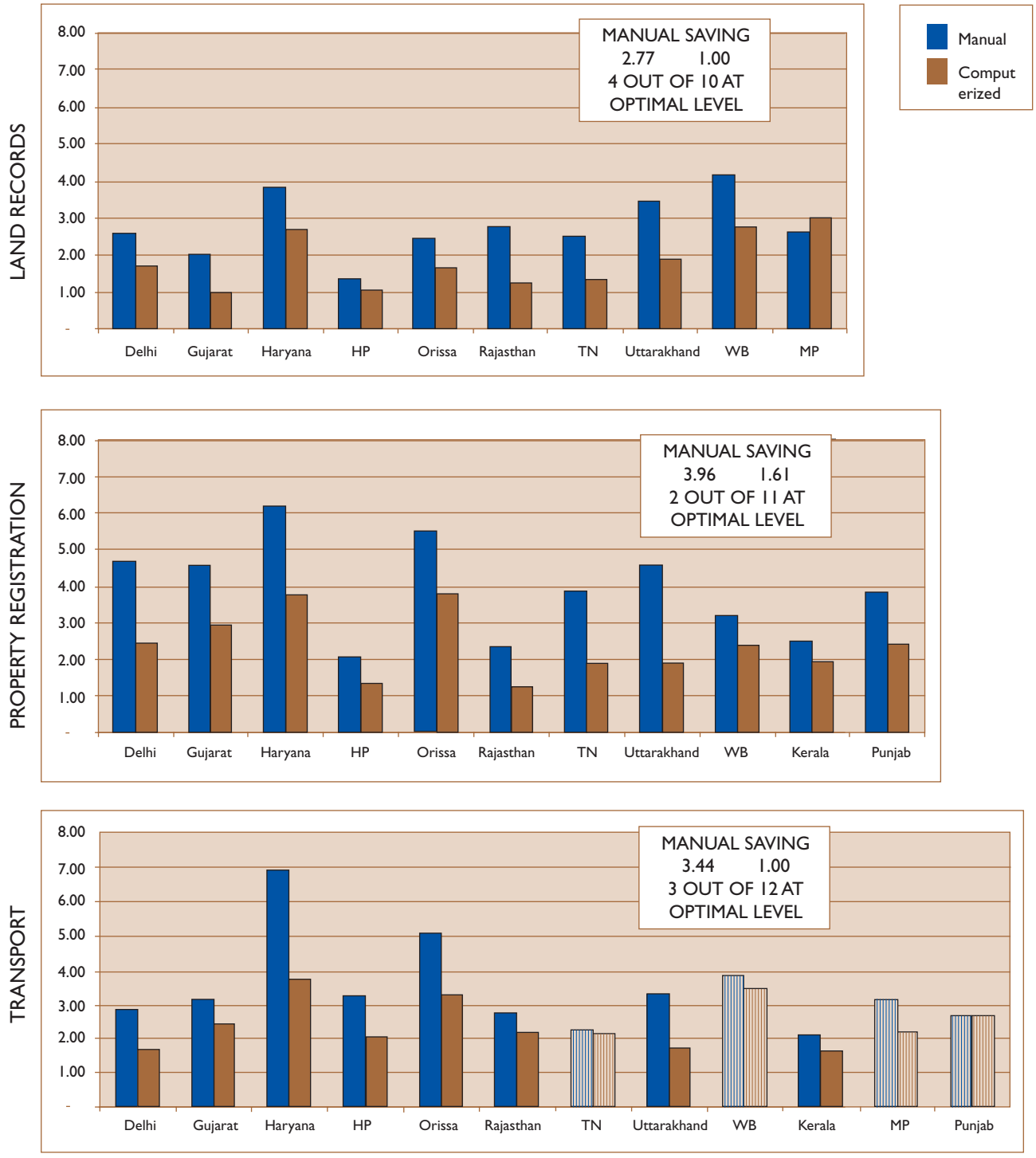
On the other hand, in MP the average number of trips has gone up after computerization. The reason for this needs to be investigated and effort made to reduce the number of trips to around one.

Table 2.3 Impact on Key Dimensions Averaged over all States

	Land Record			Property			Transport		
	Manual	Computerized	Change[1]	Manual	Computerized	Change	Manual	Computerized	Change
Number of trips	2.77	1.84	1.00	3.96	2.37	1.61	3.44	2.43	1.00
Travel cost	20.59	24.23	(7.83)	26.82	27.81	(1.97)	54.75	50.05	6.48
Waiting time (Minutes)	142.28	98.54	39.95	147.66	87.49	62.01	130.62	98.17	36.40
Wage loss (Rs)	157.24	122.68	27.25	308.72	263.28	51.28	206.71	208.21	9.80
Service charge paid (Rs)	44.20	46.12	0.42	6,643.35	7,554.06	(945.46)	404.15	518.56	(122.77)
Cost of preparation of documents (Rs)	102.74	124.39	(17.67)	3,820.39	3,430.30	413.59	252.42	296.55	(60.75)
Total payment made (Rs)	207.32	231.22	(35.55)	13,872.77	15,351.32	(1,403.46)	774.58	990.30	(193.45)
Total elapsed time in availing service (Days)	21.29	15.43	5.35	32.66	12.87	20.32	23.47	15.61	7.99
Error rate (Percentage)	4.28	4.50	(0.16)	6.61	3.82	2.76	4.57	3.62	0.81
Overall service quality score (5-point scale)	2.98	3.81	0.93	3.03	3.99	1.11	2.84	3.72	0.94
Proportion paying bribes (Percentage)	38.80	22.99	15.84	23.18	17.06	6.13	16.93	12.79	4.18
Amount of bribe paid (Rs)	128.69	89.03	32.71	1,069.17	1,081.97	(376.62)	195.87	183.45	22.79
Overall governance score (5-point scale)	2.86	3.72	0.76	2.83	3.82	0.97	2.80	3.53	0.54
Composite score (5-point scale)			3.56			3.67			3.45
Preference for computerized system (Percentage)		91.46			96.38			88.49	
Proportion using an intermediary (Percentage)	17.92	21.35	(3.44)	49.81	46.74	3.07	55.82	54.04	1.78
Service charge paid to intermediaries (Rs)	141.00	115.72	18.96	2,010.74	2,556.11	639.47	317.13	383.85	(56.91)

[1] Average values for manual and computerized systems are computed for all respondents who had used the two systems respectively. However, change is computed as the difference between computerized system and the manual system (Computerized – Manual) averaged over all respondents who had used both the systems. Therefore change is not simply the difference between the means of the computerized and manual systems reported in the table above. Numbers in parentheses indicate that the change was negative.

Figure 2.1 Number of Trips Required for Availing Service across all Three Applications[2]



[2] Striped columns indicate that the difference between the manual and computerized systems is not significant at confidence levels of 99 and 95 percent whereas solid columns indicate that the difference is significant at confidence levels of 95 and/or 99 percent.

At least two trips are needed for services from transport department and sub registrar's office even after computerization. Ideally it should not require more than one trip to get the service in case of sub registrar's office and at best two trips for obtaining a driver's license if some of the activities can be done through a portal. At least three states need to revisit the computerized system to reduce the number of trips.

It can be seen that it is usually the same 3-4 states which perform poorly on number of trips across all the three types of projects.

2.4.1.2 *Waiting Time*

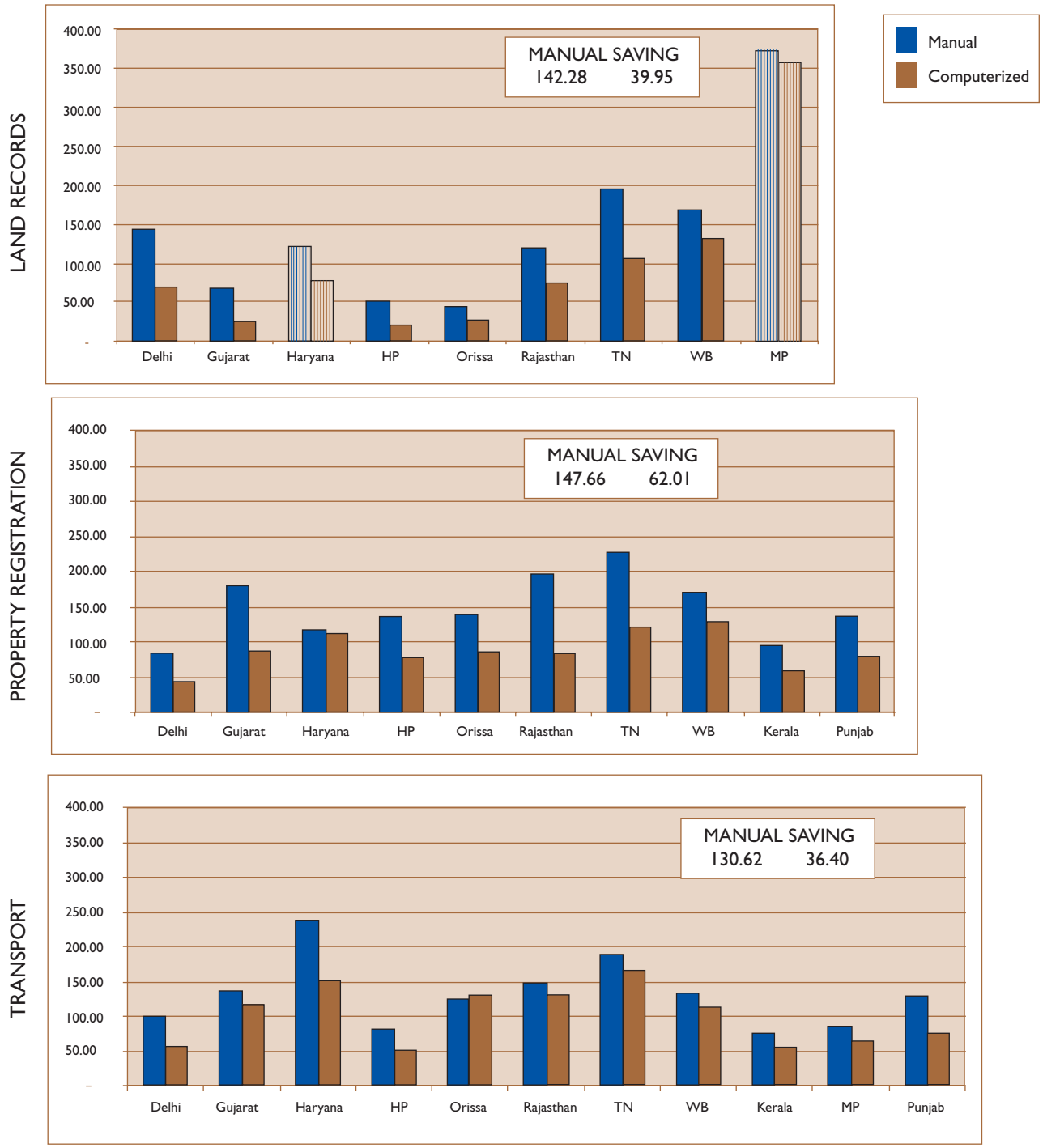
Figure 2.2 indicates that the average reduction in waiting time for the three types of projects ranged from 20 to 40 percent after computerization. In the delivery of Record of Rights (RoR), the average waiting time across ten states was 142 minutes in the manual mode of delivery. After computerization the waiting time has been cut down by 40 minutes. However, in two states the wait is close to 120 minutes and needs to be reduced. The average reduction in waiting time in the registration of property deed was nearly 62 minutes and was uniform across states. A significant reduction was possible because the manual process was quite tedious and automation helped save a lot of process time.

The transport agencies show the least and barely perceptible impact on waiting time and also the largest variability in wait times even after computerization. A system of seeking appointment through a call center or web portal can even out demand for service over different days and time zones. The inability to automate some of the steps in issue of a license reduces the opportunity for significant improvement in wait time.

2.4.1.3 *Elapsed Time*

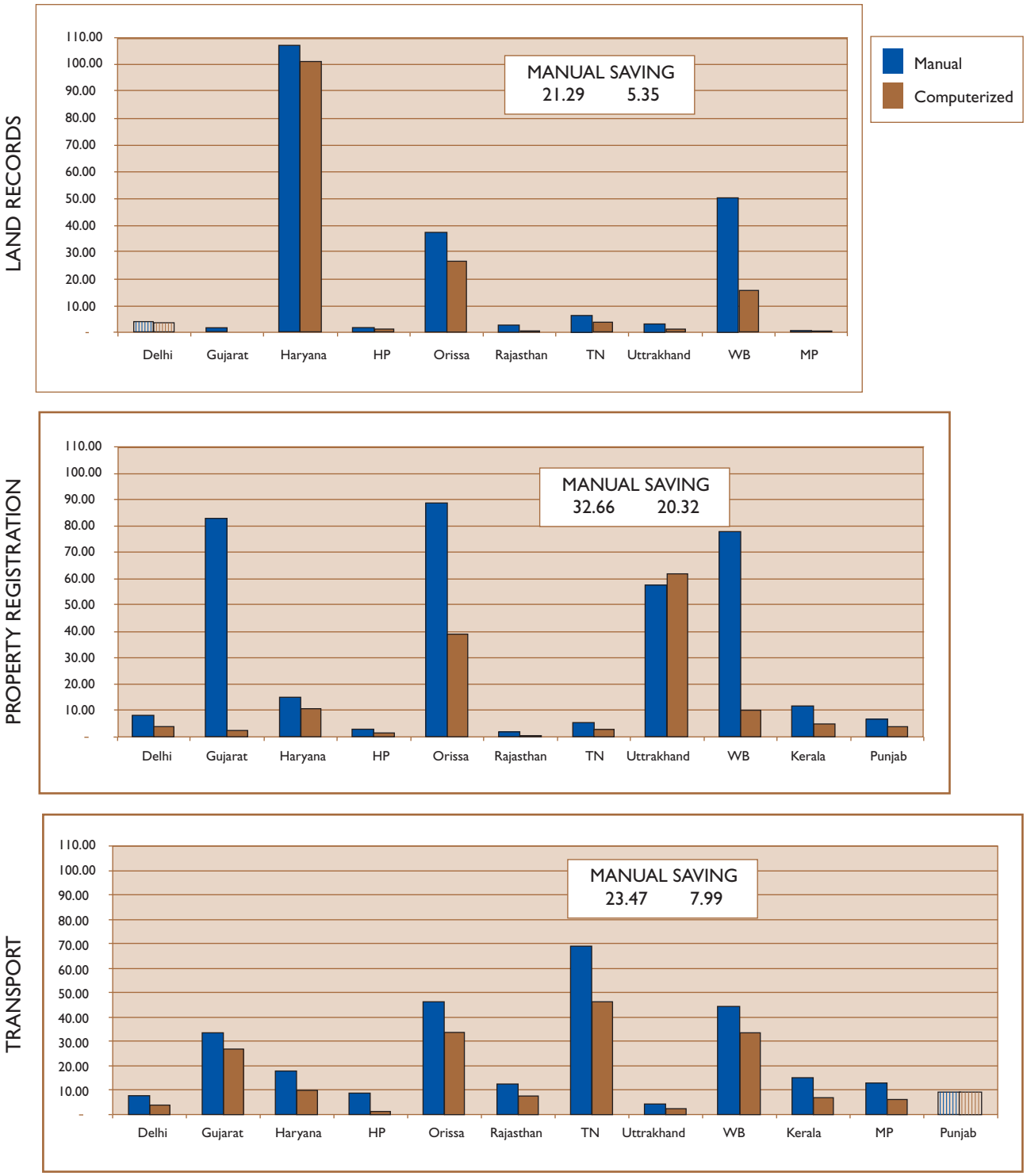
Reduction in time elapsed between an application for a service and its final delivery (e.g. a document being delivered) is important from the point of view of the clients. RoR delivery is immediate in most of the states but in Orissa and West Bengal the elapsed time is unacceptably high even after some reduction through computerization. However, in case of property registration computerization has significantly reduced the elapsed time from an average (across all states) of 33 days to 13 days, which is a 60 percent reduction (see Figure 2.3). In fact, in two states where the elapsed time was very large (2-3 months), it has come down to less than ten days. In a few states where it was large, it continues to be high. In transport, the impact is much smaller and in three states the elapsed time is one month or more even after computerization.

Figure 2.2 Time Spent Waiting at the Delivery Center during each Trip across all Three Applications (Minutes)[3]



[3] Striped columns indicate that the difference between the manual and computerized systems is not significant at confidence levels of 99 and 95 percent whereas solid columns indicate that the difference is significant at confidence levels of 95 and/or 99 percent.

Figure 2.3 Time Elapsed in Obtaining Service across all Three Applications (Days)[4]



[4] Striped columns indicate that the difference between the manual and computerized systems is not significant at confidence levels of 99 and 95 percent whereas solid columns indicate that the difference is significant at confidence levels of 95 and/or 99 percent.

2.4.1.4 *Impact on Bribes and Use of Agents*

Figure 2.4 indicates the proportion of users paying bribes for the three applications in all the states. Impact on bribes is not uniform across projects or across states. In some projects, reduction in proportion paying bribes is significant. In the issue of RoR, bribes have been eliminated or significantly reduced in five states. Among those who paid bribes, the average amount of bribes paid in manual system was Rs 129 and in computerized system, it was about Rs 89. However, in case of property registration and transport the impact on payment of bribes has been negligible. In fact there is a marginal increase in proportion of users paying bribes after computerization in transport in Gujarat and in transport and land records in Orissa. The amount of bribes in transport is around Rs 184 and in the case of property registration it is about Rs. 1,082. In a few states bribes were not reported in manual or the computerized system in the three types of agencies. Reports from MR agencies indicated that in such states citizens were not easily forthcoming when questioned on bribery.

Figure 2.5 reports the proportion of clients using agents/intermediaries for getting a service. Agents are present in almost all states in property registration (average of 50 percent of all transactions are done through agents) and transport (average of 55 percent of all transactions) and occurrence of bribery is high when agents are used by a large proportion of users. Computerization has not been able to reduce the use of agents in most cases and the impact on bribes in these two projects is also marginal. The case of Gujarat in processing mutation is a solitary example where agents were eliminated after computerization. It is interesting to note that bribery has also been eliminated. Further studies may be needed to establish the relationship between presence of agents and bribery.

2.4.1.5 *Perception of Quality of Service and Quality of Governance*

Perception of quality-of-service and governance shows all-round improvement. As seen in Figure 2.6, in all the three applications the overall perception of service quality has improved with computerization by about one point on a five-point scale. This represents a significant improvement of one notch-from "satisfactory" to "good" or from "good" to "very good". An important component of service quality is the error rate which can be measured directly. All the three projects reported a reduction in error rate with property registration halving the proportion of errors from 6 percent to 3 percent.

Figure 2.4 Proportion Paying Bribes (Percentage)

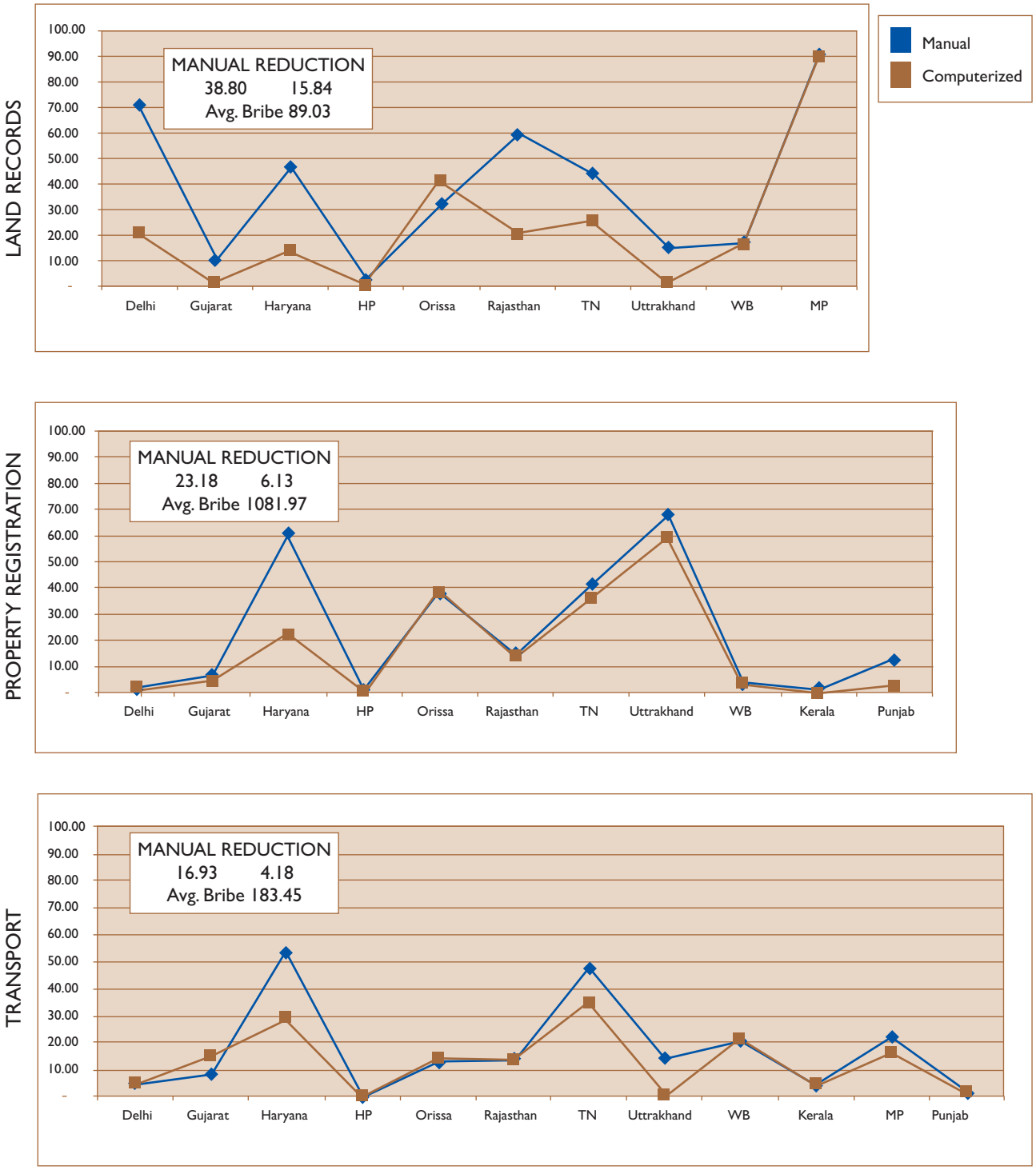


Figure 2.5 Proportion using Agents / Intermediaries (Percentage)

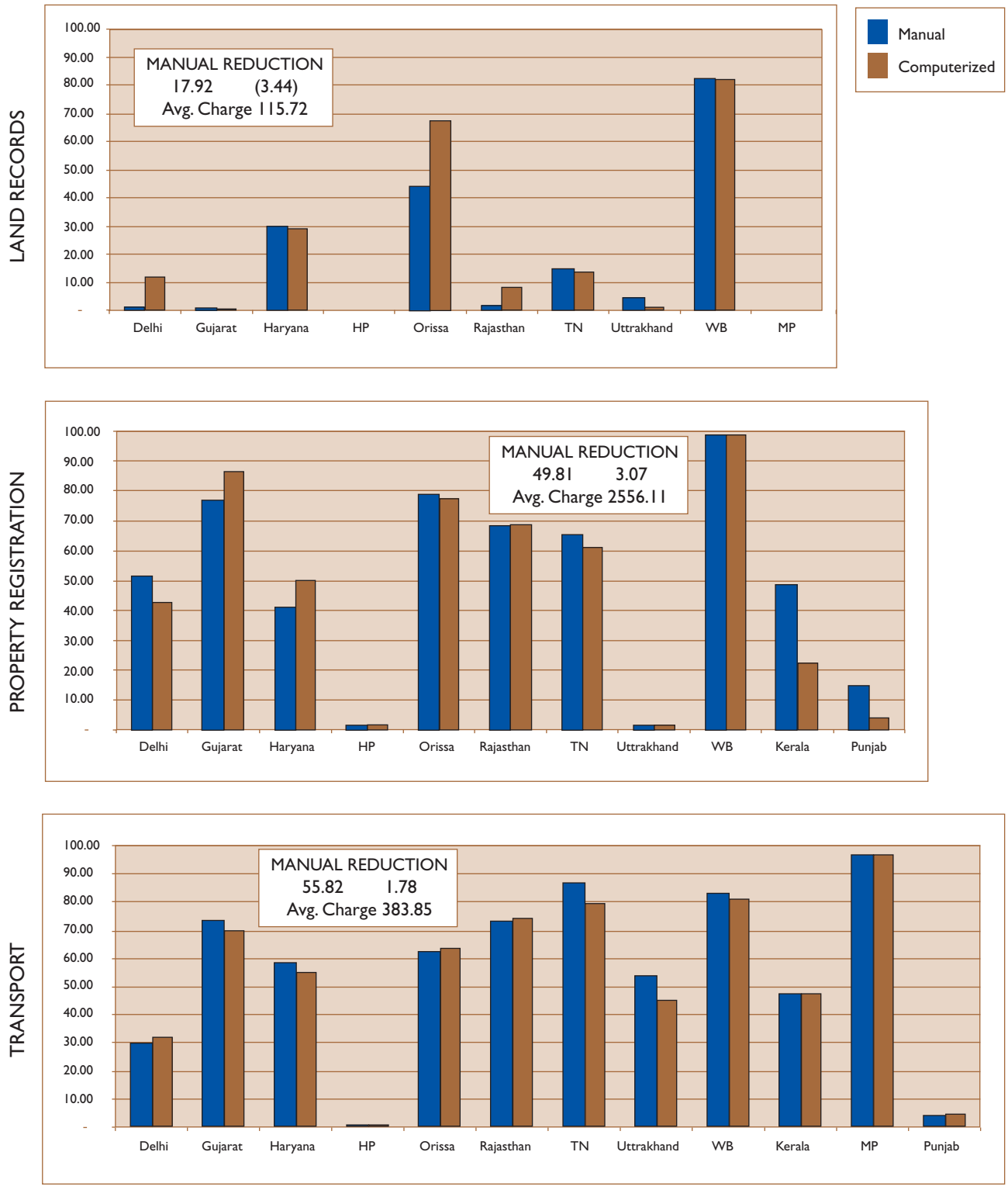
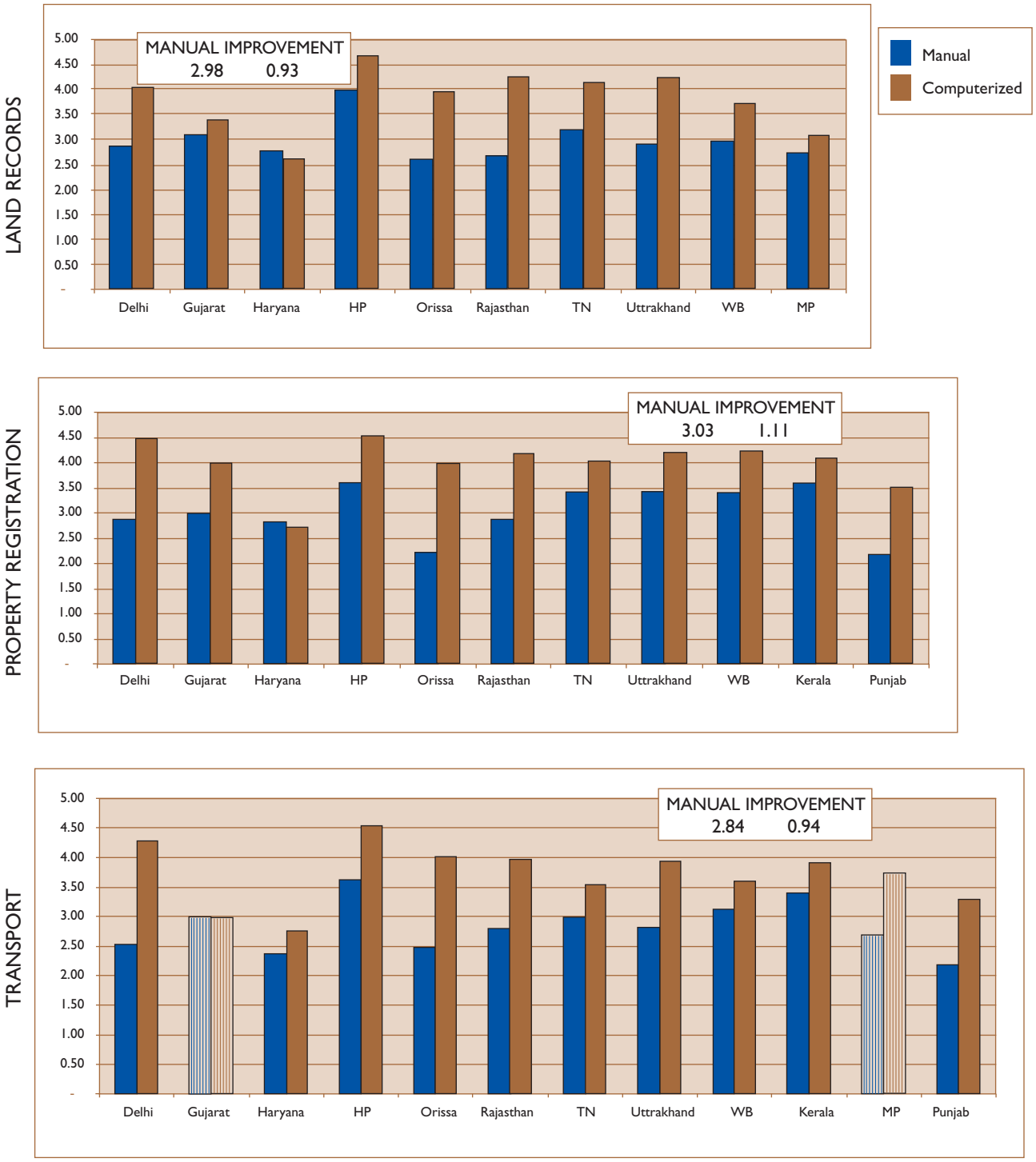


Figure 2.6 Perception of Quality of Service (on a 5-point Scale)[5]



[5] Striped columns indicate that the difference between the manual and computerized systems is not significant at confidence levels of 99 and 95 percent whereas solid columns indicate that the difference is significant at confidence levels of 95 and/or 99 percent.

Table 2.4 Overall Assessment of Change (on a 5-point Scale) across all Three Applications

Land Record	
Himachal Pradesh	4.40
Rajasthan	4.17
Tamil Nadu	4.00
Uttarakhand	3.88
Gujarat	3.68
West Bengal	3.30
Delhi	3.13
Orissa	3.02
Madhya Pradesh	3.01
Haryana	2.98

Property	
Himachal Pradesh	4.22
Uttarakhand	4.04
Tamil Nadu	4.01
Rajasthan	3.91
Kerala	3.90
Gujarat	3.65
Delhi	3.52
Punjab	3.47
West Bengal	3.42
Orissa	3.31
Haryana	2.94

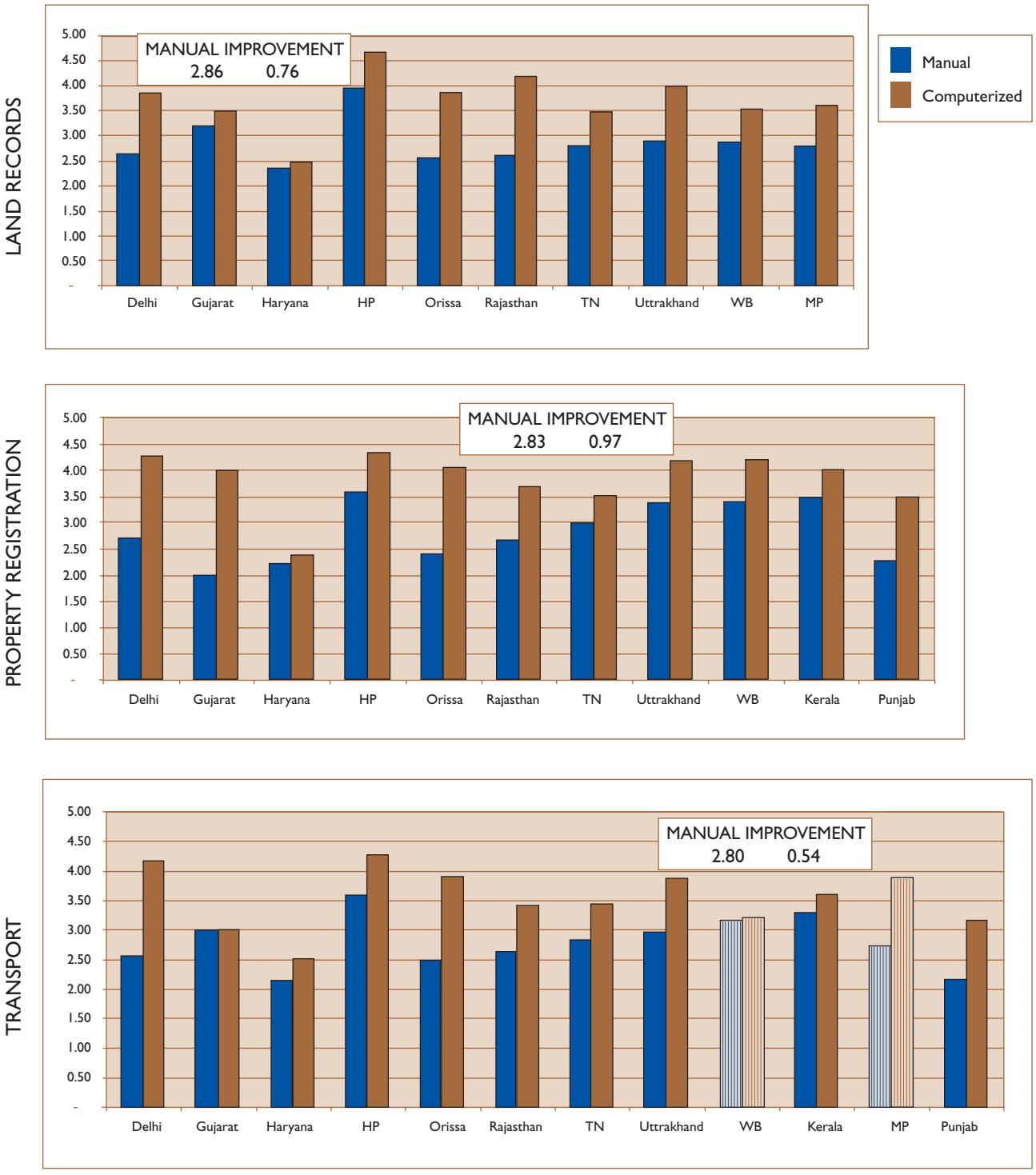
Transport	
Himachal Pradesh	4.20
Rajasthan	3.92
Uttarakhand	3.62
Kerala	3.61
Delhi	3.60
Tamil Nadu	3.49
Orissa	3.49
Punjab	3.24
West Bengal	3.20
Haryana	3.14
Gujarat	3.00
Madhya Pradesh	2.89

In case of quality of governance the improvement is 0.8 in RoRs and 0.5 (half a notch) in transport (see Figure 2.7). Even though the impact on bribes in the property registration was marginal, overall governance score has improved by 1.0. Perhaps other components of governance such as transparency and accountability have improved. Property registration has shown a very significant reduction in service charges paid to agents of nearly Rs 640 whereas in other two applications there is barely any reduction in payment to agents.

2.4.1.6 *Composite Rating of Improvement through Computerization*

An overall assessment of change was assessed for all the three types of projects (see Table 2.4). First each user was asked to select the three most important attributes from a list of 20 attributes of a service delivery system. These attributes covered cost of access, convenience, quality of service and quality of governance. Users were also asked to assess the degree of change on a five-point scale where a score of 1 indicated very negative change, 3 indicated no change and 5 indicated very positive change. The user-specific reported importance of different attributes was then used as weight to compute a weighted score of improvement on a five-point scale. These weighted scores suggest that users in only 2 of the 12 states perceived any

Figure 2.7 Perception of Quality of Governance (on a 5-point Scale)[6]



[6] Striped columns indicate that the difference between the manual and computerized systems is not significant at confidence levels of 99 and 95 percent whereas solid columns indicate that the difference is significant at confidence levels of 95 and/or 99 percent.

significant improvement after computerization in the transport department. However, in land record and property registration, users in 4-5 states have perceived an overall improvement in services. In 5 states in land computerization, 9 states in transport, and 5 states in property registration the change was seen to be marginally positive. In one state the change was seen as marginally negative for all the 3 applications.

In overall citizen perception, HP, Rajasthan, Uttarakhand and Tamil Nadu rank high while Haryana, Orissa and West Bengal rank low in terms of positive benefits from computerization in all the three types of projects. Average overall improvement across all states was about half a notch on a five-point scale.

2.4.1.7 *Direct Cost Savings to Citizens*

The cost of access for a user is the cost of travel (over a number of trips), opportunity cost of total time spent in travel and in waiting in offices, and the direct cost of bribe and a service charge for the intermediary. The cost of travel depends on the number of trips as well as the cost per trip. While the number of trips has been cut down in all cases, the cost per trip has remained more or less constant for transport and property registration (Rs 50 and Rs. 28 respectively). The location of the offices (RTO and sub registrar's office) where the services are delivered has not changed after computerization. The computerized delivery centers are the same as the manual delivery centers. In case of issue of RoRs, service delivery has been centralized in most cases increasing the distance traveled per trip. Earlier, RoRs were issued at the village level. In the computerized system RoRs are issued from an office at the taluka level. This has pushed up the total cost of travel by Rs 8 when averaged over the ten states.

It is possible to monetize the cost of time spent in travel and waiting by using an estimate of wage loss. In case of RoRs the wage loss could be real and in case of other two projects it would be notional (opportunity cost due to time spent in transaction). For most states, the reported wage loss in RoR ranges from Rs 50 to Rs 200. An average saving of Rs 27 was reported from the ten states. Haryana reported a wage loss of around Rs 395. Seven states report a marginal reduction in wage loss after computerization whereas three states indicate an increase. The estimates of wage loss are however not as accurate

[7] The response rate for wage loss question was low (25 percent) in some states making the sample small. Also wage loss for manual and computerized delivery may not be comparable because of the 5-7 year time gap between availing services in the two modes by a user. It is also inherently difficult to estimate wage loss for short periods of absence from work.

as the other indicators[7]. In case of property registration the wage loss in manual delivery averaged over states was Rs 309 and a reduction of Rs 51 was reported. In transport the average wage loss reported was Rs 207 and the reduction was very marginal.

On average across all states the savings per transaction amount to Rs. 79 in the case of land records, Rs 112 for property registration and Rs 66 for transport (see Table 2.5).

In addition to the above savings, on an average for every client, there are savings in service charges paid to agents (in case an agent was used). For example, average savings in case of property registration is Rs 640. The use

Table 2.5 Direct Cost Savings[8] to Citizens

State	Land Record			Property			Transport		
	Manual	Computerized	Change	Manual	Computerized	Change	Manual	Computerized	Change
Delhi	397.06	291.98	105.08	376.92	389.47	(12.55)	297.28	252.57	44.71
Gujarat	57.70	92.44	(34.74)	500.81	323.31	177.50	231.94	289.73	(57.78)
Haryana	683.93	324.71	359.21	1,455.17	915.19	539.98	994.87	674.28	320.59
HP	28.86	28.10	0.77	119.47	57.27	62.20	85.31	163.52	(78.21)
Kerala	N.A.	N.A.	N.A.	222.80	199.94	22.85	211.86	206.08	5.78
MP	272.29	399.02	(126.73)	N.A.	N.A.	N.A.	1,031.82	700.02	331.80
Orissa	86.15	104.58	(18.43)	587.22	609.64	(22.41)	264.40	251.41	13.00
Punjab	N.A.	N.A.	N.A.	552.54	378.15	174.39	350.84	376.59	(25.75)
Rajasthan	316.14	163.49	152.65	621.51	799.13	(177.61)	446.27	354.68	91.58
Tamil Nadu	246.62	160.40	86.21	693.06	562.73	130.33	296.55	376.63	(80.08)
Uttarakhand	397.22	190.97	206.25	1,781.47	1,443.43	338.04	484.20	274.49	209.71
West Bengal	278.79	216.69	62.11	232.65	235.82	(3.17)	360.54	340.50	20.05
Average	276.48	197.24	79.24	649.42	537.64	111.78	421.32	355.04	66.28

[8] The components of total savings are: travel cost per trip multiplied by number of trips plus wage loss plus proportion paying bribe multiplied by average bribe amount

of agents is low in RoR and the saving is also very small.

2.4.2 Project-wise Impact

2.4.2.1 *Land Records: Issue of RoRs*

In most states, land record computerization has been limited to the issue of Record of Rights. Mutation, which is a more complex process, has been computerized in just five states. Computerization did reduce the number trips in almost all states by one. Average number of trips over all users in all the ten states was 2.8 in the manual mode, which was reduced to 2 in the computerized mode. Waiting time has been reduced by 30 percent from an average of 142 minutes in the manual mode. Bribes had to be paid in nine out of the ten states in the manual system. Percentage of users paying bribes declined from an average of 39 percent to 23 percent over the ten states. It is noteworthy that in five states there is significant reduction in bribes. Bribes have either been eliminated or significantly reduced. However, in most states users reported an increase in travel costs (in spite of a reduction in number of trips) because the delivery of RoRs in the computerized mode has been centralized to taluka level from the village level.

2.4.2.2 *Land Records: Mutation*

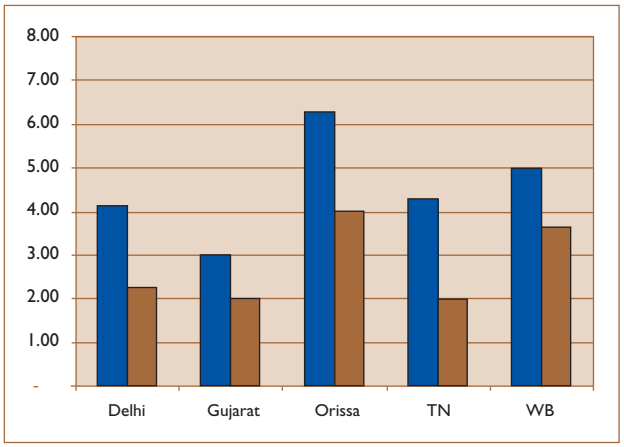
For the five states where mutation has been computerized, Figure 2.8 shows charts depicting the impact of computerization on key dimensions calculated separately for the mutation service. Number of trips was reduced from nearly 4 in manual system to 2.8 in computerized delivery (average reduction of 1.8). In states other than West Bengal and Orissa, only 2 trips were required which is almost an optimal level. The waiting time has been reduced by almost an hour from nearly 3 hours to 2 hours. In four states there are very significant gains in elapsed time which has come down from 80-110 days to less than 30-60 days after computerization. Unlike RoRs, 50-80 percent of all users across the five states used agents in the manual system. Even after computerization agents continue to be used by a large proportion of users in four states. Gujarat has been able to eliminate the use of agents. In Delhi and Gujarat corruption has been impacted significantly, with corruption having been virtually eliminated in Gujarat.

2.4.2.3 *Property Registration*

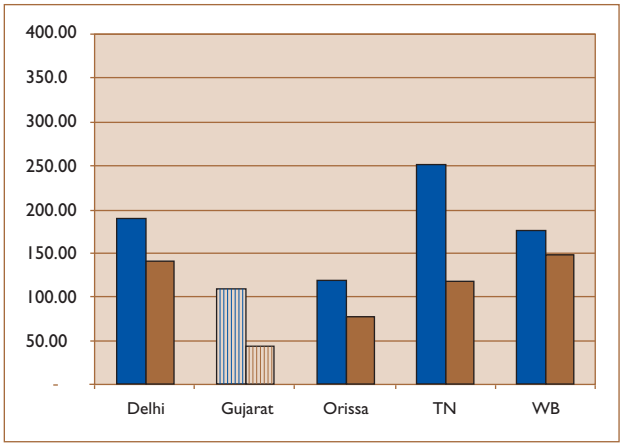
In the case of property registration computerization has reduced the number of trips from an average of 3.9 to 2.3. Reduction in waiting time is more significant as nearly one hour has been shaved off from a 2 hour wait in the manual system. Whereas 23 percent of all transactions in the eleven states reported payment of bribes, the

Figure 2.8 Impact on Key Dimensions across Five States in Mutation[9]

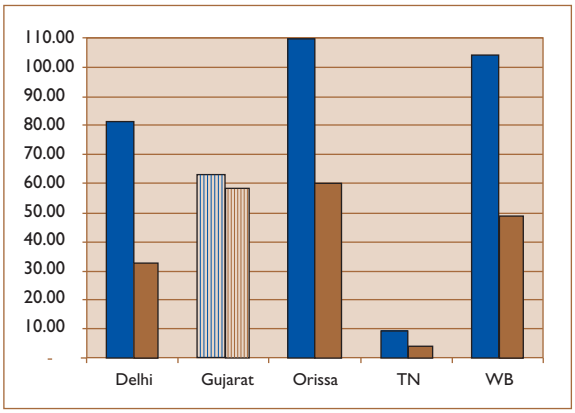
Number of Trips Required for Availing Service



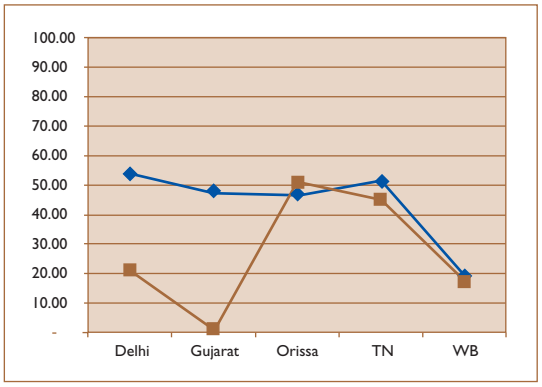
Time Spent Waiting at Delivery Centre during each Trip (Minutes)



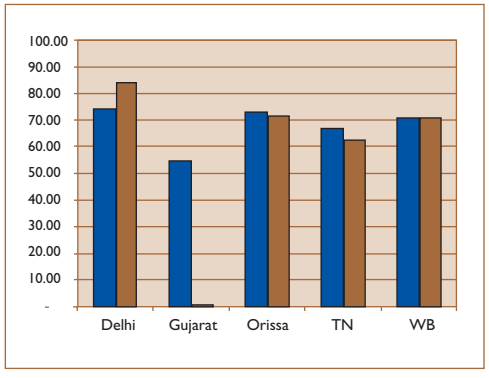
Time Elapsed in Obtaining Service (Days)



Proporation Paying Bribes (Percentage)



Proportion using Agents (Percentage)



Manual Computerized

[9] Striped columns indicate that the difference between the manual and computerized systems is not significant at confidence levels of 99 and 95 percent whereas solid columns indicate that the difference is significant at confidence levels of 95 and/or 99 percent.

impact of computerization on bribes was very marginal. However, significant gains were reported in the elapsed time (days elapsed from application to final registration). Property registration was the only project where a reasonable reduction was reported in the cost of preparing documentation for the service.

2.4.2.4 *Transport*

In transport agencies computerization reduced the number of trips by 1 on an average across all twelve states. There was a marginal impact on waiting time. Just about half hour was shaved off from a wait of 2 hours in the manual system. Only one of the twelve states reported a significant impact on bribes. Impact on elapsed time was also marginal.

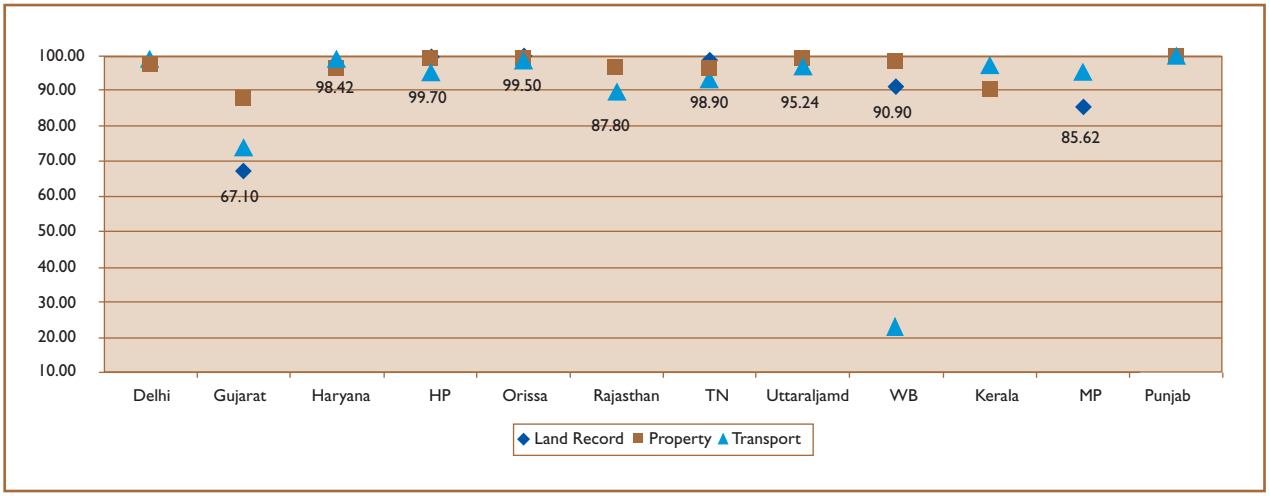
In addition to the above three projects implemented in almost all the states covered in the study, three projects - computerization of agriculture mandis in Madhya Pradesh, Suwidha centers offering multiple services under one roof in Punjab and FRIENDS centers facilitating the collection of payments to multiple agencies, each implemented in only one state, were also assessed. A brief summary of the impact of the two projects is presented in Annexure 2.6.

2.5 LEARNING FOR FUTURE IMPLEMENTATION OF E-GOVERNANCE

Results of the study indicate the need to expand the coverage and expedite the implementation of eGovenment. Overall, in all three types of services, the number of trips to offices reduced significantly (by 1-2 trips) after computerization. Waiting time has been reduced by 20-40 percent by computerization. Although the impact on bribes is uneven across projects, in land record computerization reduction in proportion paying bribes is significant. Perception of quality of service and quality of governance show an improvement in all projects. Direct cost savings to citizens averaged from rupees 60 to 110 in the three projects across all states. The results of this study can be used as a bench mark for future projects to target benefits that will at least equal the best amongst the surveyed projects.

Even though the degree of improvement reported in the three projects varies considerably across the twelve states, users showed a very strong preference for computerized systems (91 percent in land records; 96 percent in property registration; and 88 percent in transport) when asked to choose between computerized and manual modes of delivery (see Figure 2.9). Only in case of transport in West Bengal, an

Figure 2.9 Preference for the Computerized System (Percentage)



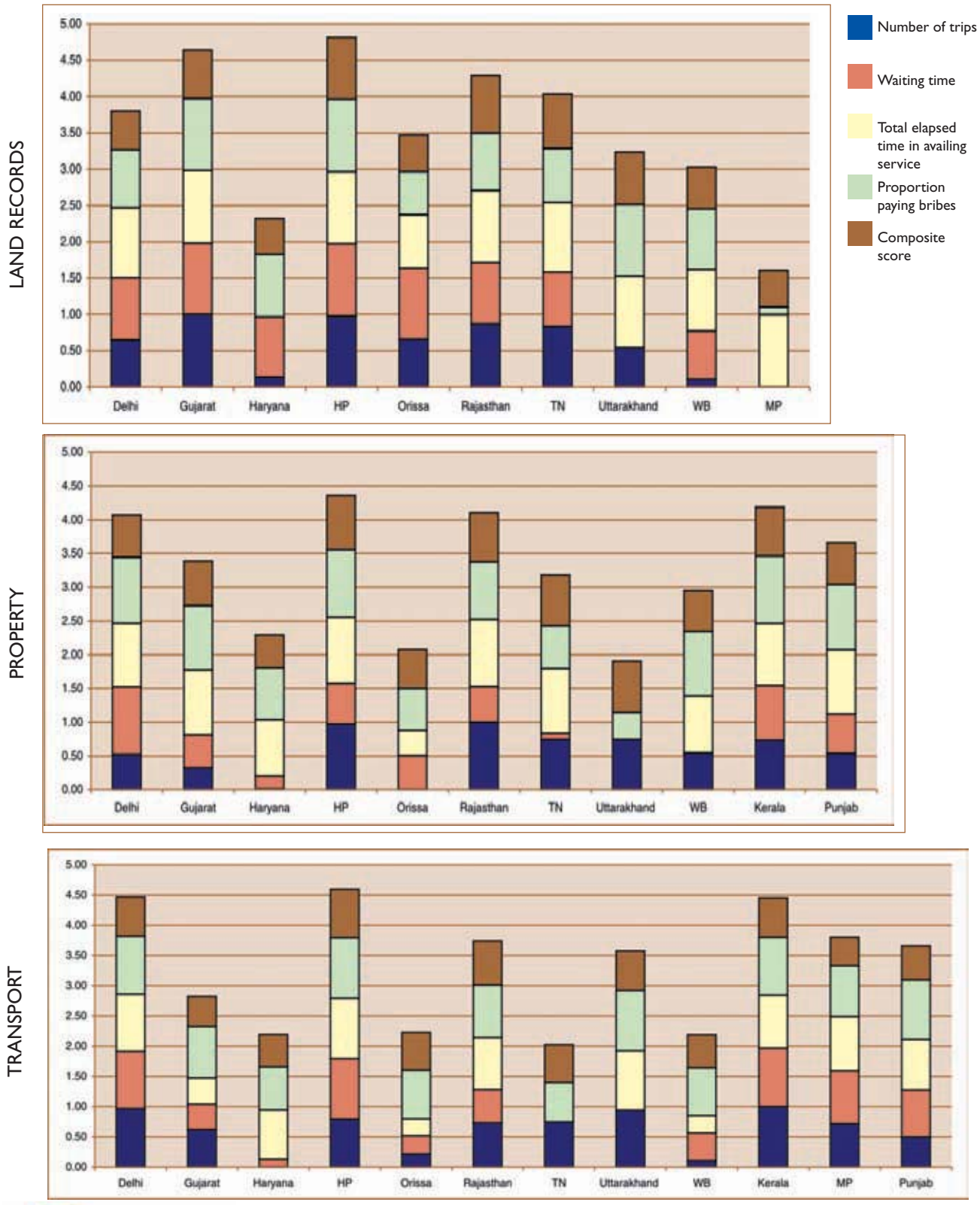
overwhelming majority preferred the manual system.

Figure 2.10 presents a comparison of the overall rating of the three computerized applications across all states. The scores plotted on a 5-point scale sum up the individual ratings on five key attributes (number of trips, waiting time, elapsed time, proportion paying bribery and quality of service) for each project after normalizing the ratings to a value ranging between zero and one[10]. A rating of zero is the worst rating and a rating of one is the best rating. The upper and lower limits of the five measures, which have been used to generate the charts, are presented in Table 2.6. There is a great deal of difference in the performance of the best and the worst state in case of each of the three computerized applications. Given the fact that the processing steps in the delivery of the three services can be very similar across states, there is no explanation for the variation in performance, other than the varying quality of process reform and design of these systems. Each state has chosen to design its application without learning from best practices elsewhere.

One of the important information gathered in the survey was user's response on which three of the twenty attributes of service delivery (read out from the survey instrument) were considered important by the users of each

[10] Since the indicators under consideration have been measured differently (some using a five-point perception rating and others as actual measurements), a methodology of predetermined "goalposts" was used to normalize them. Goalposts (see annexure for actual values used) reflect the feasible upper and lower limits to the measures, and performance on each dimension is expressed as a value between 0 and 1 by applying the formula: Dimension index = (actual value – minimum value) / (maximum value – minimum value). Source: Human Development Report 2006, United Nations.

Figure 2.10 Composite Rating of Computerized Delivery on Five Key Attributes



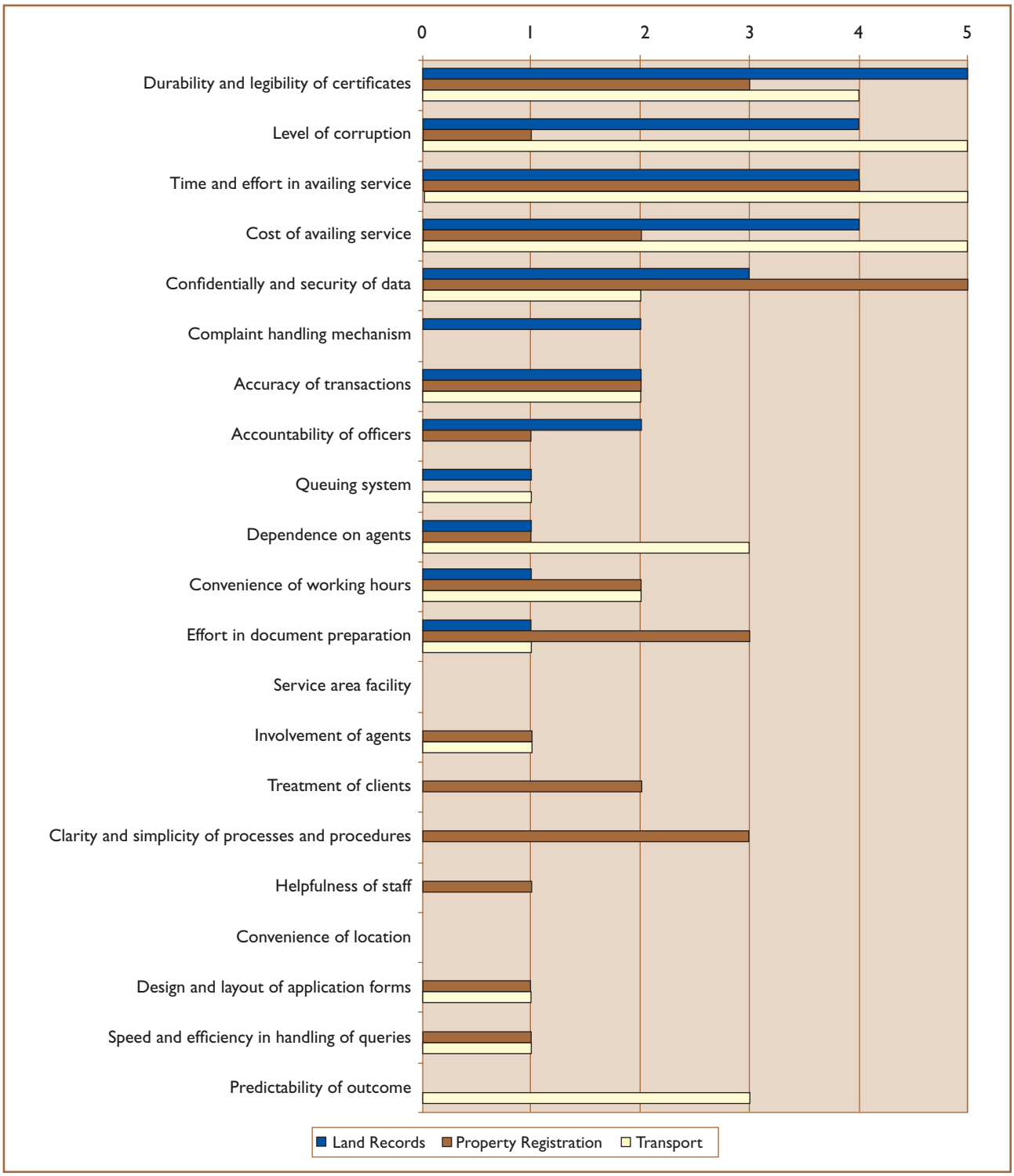
राष्ट्रीय इ-गवर्नेंस योजना
National e-Governance Plan

project in different states. Figure 2.11 depicts the data from these responses in terms of the attributes that were found to be more important for each type of project across states. The first learning is that user's perception of what is important varies with the projects and states. Therefore, user participation in the design of the delivery system prior to its implementation is extremely important.

Table 2.6 Key Indicators for Assessing Impact on Client

Indicator	Manual		Computerized	
	Lower Limit	Upper Limit	Lower Limit	Upper Limit
Land Record				
Number of trips	4.18	1.35	2.98	1.00
Waiting time (Minutes)	372.85	43.47	355.74	20.22
Total elapsed time in availing service (Days)	106.95	0.43	101.39	0.04
Proportion paying bribes (Percentage)	100.00	0.00	100.00	0.00
Composite score (5-point scale)	1.00	5.00	1.00	5.00
Property				
Number of trips	6.23	2.07	3.80	1.23
Waiting time (Minutes)	225.59	83.47	128.44	43.15
Total elapsed time in availing service (Days)	88.57	2.06	61.73	0.51
Proportion paying bribes (Percentage)	100.00	0.00	100.00	0.00
Composite score (5-point scale)	1.00	5.00	1.00	5.00
Transport				
Number of trips	6.95	2.10	3.73	1.60
Waiting time (Minutes)	237.15	76.10	165.75	50.19
Total elapsed time in availing service (Days)	69.14	4.47	46.17	1.52
Proportion paying bribes (Percentage)	100.00	0.00	100.00	0.00
Composite score (5-point scale)	1.00	5.00	1.00	5.00

Figure 2.11 Importance of Service Delivery Attributes for the Three Applications[11]



[11] Rating on importance is derived from the number of states whose respondents cited the attribute as being among the three most important ones to the application.

Consultation with the users is seldom done. There are five attributes which are considered important in 4-5 states by users of two of the three services. These are:

1. Level of corruption
2. Time and effort in availing service
3. Cost of availing services
4. Durability and legibility of certificates/documents that are issued
5. Confidentiality and security of data

The analysis reported earlier presents the impact on items 1, 2 and 3 in detail. Item 5 was an important component of the quality of service. However, analysis on impact on item 4 was not measured in detail. Future surveys need to incorporate a more detailed assessment on this item. There are project-wise differences in attributes that are considered important. Cost is considered as most important by users of land record system, and not considered too important by users of the other two projects. This is perhaps because the users of land record system are less affluent in comparison with users of other two projects. Level of corruption is not considered important by users of property registration although the users of other two projects find it to be very important.

The study commissioned by the DIT focused on understanding the impact on all users. Understanding the reasons for the impact was not a part of the study design. However, MR agencies were asked to report observations made by employees and users during the field work. Based on the qualitative feedback collected by the MR agencies and the IIMA team's discussion with some of the managers of agencies delivering similar services, it is possible to explain some of the impacts.

A possible reason for the number of trips being abnormally high in a few states is that such states have not cut down on the number of supporting documents that are required to avail a service. For example, in the case of property registration in Orissa, several documents are required as proof of ownership of a property that is being transferred whereas in other states this requirement has been trimmed. There has to be a balance between ensuring that a system prevents fraudulent transactions and the burden that extensive checks can place on people who are honest. Often information about the required documents for registration of property or issue of license is not publicized well. Users need to make a trip to the agency just to determine the requirements. Alternatively users prefer to go through agents as agents

know the requirements. Some times users make unnecessary trips as they find that on a given day their work will not get done because of long queues. This is because the capacity to process a service request and the demand for service may not match on many days. Some states like Gujarat have adopted the practice of building an appointment system through a web portal or phone to take care of such a problem.

Whenever there is a mismatch in demand for service and capacity to handle the service request, the system of orderly queues breaks down. This can also happen because of equipment breakdown. Such opportunities are used by touts to get work done by paying speed money. In other cases, functionaries have unnecessary discretion to delay or deny a service without assigning a reason. Very often, there is no specified order in which service requests should be processed. Functionaries abuse their discretion in all these cases to seek rent[12].

In some cases a particular step in the work flow of processing a service becomes a bottle neck. For example, requirement of inspection of property before registration can often delay the registration and provide opportunity for rent-seeking. Some states like AP and Karnataka have done away with prior inspection. A selective post-inspection may be done to spot malpractice and punish the guilty through cancellation or fines.

This study has important implications for future implementation of e-Government initiatives in the country. E-government projects covered in this study have not led to any significant transformation in the working of government organizations and processes which should be the key objective of an e-Government project. For example, in the land records computerization project, emphasis was on digitizing manual records; in property registration, emphasis was on converting the process of manual copying of registered deeds to scanning them; while computerization in the transport department focused on replacing paper-based licenses by computer-printed plastic cards with digital photos. Most of the simple reengineering principles like simplification and rationalizing of forms, putting in place an appointment and queue management system, post-inspection instead of pre-inspection, automated workflow enforcing a first-come first-serve discipline, and documenting the submission of

[12] Bhatnagar Subhash, Impact assessment study of computerized delivery projects from India and Chile, IT @ WB Staff Working Papers, World Bank, 2, November, 2007 discusses the issue of discretion and breakdown in the context of property registration and land records computerization in Karnataka.

an application and reasons in case the application is rejected, do impact number of trips, waiting time, and bribes significantly. Yet in many of the projects such a simple process reform is not undertaken.

None of the 36 projects had made any kind of baseline assessment of the existing manual system before replacing it with a computerized system. The study underscores the importance of conducting baseline surveys of users of the existing system before conceptualizing a new system to replace it. Client focus can be sharpened by assessing the service delivery performance of an existing system, through dipstick surveys or assessment studies such as this one. Through the baseline surveys, agencies can understand attributes of service delivery that are important to the client. This can enable sharper targeting of benefits that can be delivered, and the required features or process reforms can then be incorporated in the design of the e-Government project. The format for a detailed project report should specifically contain a section on discussing concrete value that is expected to be delivered to different types of users, based on the framework used for the assessment reported here.

The exercise of assessing impact should not be seen as a one-time activity. Every project that has reached a mature state of service delivery must constantly be monitored and subjected to assessment such that it can be further improved and evolved to deliver greater benefit . Given the fact that even basic computerization delivers perceptible benefits to citizens, speedy implementation of the National e-Governance Plan must receive the highest priority.

6. LIMITATIONS OF THE STUDY

The survey involved eleven market research agencies that gathered data from 26,000 respondents spread over nearly 800 locations in twelve states from the north, south, east and west of India. While there are bound to be problems in the field, the study proceeded smoothly in general. MR agencies were asked to document and report such problems and an inventory is listed in Table 2.7. The agencies were in constant touch with the DIT and IIMA to resolve operational issues. Originally thirteen states were to be covered but one state had to be dropped in the early stages because the projects had not achieved any kind of stability. In three cases the projects were substituted by other projects involving delivery of services to citizens.

A few limitations of the study should be recognized while interpreting the results. First, in the absence of any

Table 2.7 A List of Field Problems Documented by the MR Agencies

- The respondents are sometimes are not aware of the services under the new computerised system. Thus they pay a huge amount to the tout or the village accountant. Therefore the respondent cannot recall how they became aware of the services and recall on other parameters is also very low.
- Lack of willingness or inefficiency on part of the field staff in conducting the survey
- In few states wherein women do not go out of the house frequently hence the sample consists more of male users. The responses given by females may be different. Thus there is inadequacy in terms of selection of respondents.
- In few states under sample selection only 1 district is selected from each stratum, though for proper weightage atleast 2 districts needed to be selected. Thus sufficient variability in data could not be ensured.
- In Gujarat under property registration nearly all projects serve urban clients, which is reflected in the sample size. Therefore projects serving rural clients could have a different cost structure and demand pattern. Thus it would be hasty to generalize the overall impact.
- Recall error on part of the respondents
- Problem in getting the list of respondents at district levels – officials being busy in their work schedules
- Sometimes the respondents do not fit into the eligibility criteria
- Lack of data /Delay in getting data as the respondents who were primarily wage workers left for work
- Inconsistency in responses
- Exclusion of respondents using intermediaries , amongst those who use agents – certain questions can be answered by the respondent himself but due to inability to comprehend a large number of questions relating to assessment of e-Governance on numerical scales they are excluded (In Tamil Nadu a number of responses of the users surveyed were discarded due to gaps and inconsistencies)
- Some of the delivery centres chosen did not have a proper list of users.
- Many users who are registered with the old system have not got their registration renewed under the new system. Thus such users could not be included as a part of the survey since it covered the users who have used both the systems

benchmark surveys of the existing manual system, the study relied on recall for eliciting experience with manual delivery of the service. In some cases, manual systems were completely replaced by the current computerized system about 8-10 years back and in other cases the frequency with which users avail a service might be very low. This might make recalling experience with the manual system challenging for users. However, it is not clear in which direction, if any, this might bias the results. For instance, if users are nostalgic about the past, then the estimated impacts might be conservative i.e. the estimated impacts might be lower than they actually are. Second, although all effort was made to ensure that the sampled users were representative of the broader population, a complete list of users was not always available from delivery centers that were selected in the sample. Getting a list of users that had used services in the manual system was even more difficult.

Therefore, a sampling frame could not always be drawn for randomly selecting respondents. In such cases respondents were picked up randomly by using a house to house survey. Third, because of the sensitivity of certain questions, it was difficult to get respondents to answer some questions. In particular, eliciting data on bribery was difficult in some states, particularly if agents were used. In a few cases sample is smaller than planned and for some questions response rate was poor. If users of a certain kind – either those more likely to pay bribes or those less likely to pay bribes – were more likely to respond to the question, then this might bias the results. But again, we do not have any *a priori* information on which kind of users were more likely to respond to the question.

Annexure 1.1 Basic Project Profile

Project	Income Tax Portal	MCA21 e-Governance Project	Online Passport Services
Service Delivery Launch Date	2005-06	2006	2006
Targeted Beneficiaries/ Users	Individuals, Corporates, Chartered Accountants	Businesses, Professionals (Chartered Accountants and Company Secretaries), Public users and Investors, Financial Institutions, Employees	Residents of India, Agents authorized to facilitate passport services
Online Services Offered	E-filing by Individuals and Corporates PAN/TAN application by Individuals and Corporates e-TDS filing by Corporates OLTAS for Corporates	Registration and incorporation of new companies Annual and event-based filings Download of e-forms Application for Director Identification Number (DIN) Payment of penalty and fees and tracking the status of payment processing Viewing and obtaining certified copies of public documents Online registration, tracking and redressal of investor grievance Viewing, creation and modification of index of charges	Download of passport application forms Obtaining information on services and procedures Online applicant registration and confirmation of appointment for interview Verification of PNR status
Extent of Computerization in Service Delivery	End-to-end delivery of online services requires that users obtain Digital Signatures and Credit Cards. Use of the online mode for e-filing and e-TDS is mandatory for Corporates.	End-to-end delivery of all services is online. E-filing of all documents is mandatory.	Only the process of applying for issue or reissue of passport is online. Online services are also provided through the offline mode.
Service Delivery Channels	Income Tax Website (www.incometaxindia.gov.in), Income Tax offices, NSDL Website, NSDL and UTISL offices	Virtual Front Office/MCA21 Portal (www.mca.gov.in), Physical Front Offices (53), Certified Filing Centers (550)	Regional Passport Offices and Passport Offices (34), Websites of Passport Offices

Annexure 1.2 Generic Sample Questionnaire

Part 1. IDENTIFICATION DETAILS		
SL NO ☐☐ ☐☐		CENTER WHERE SERVICE IS AVAILED ☐☐
NAME OF RESPONDENT _____		RURAL-1; SEMI-URBAN-2; URBAN-3 ☐☐
DISTRICT ☐☐	TALUKA ☐☐	VILLAGE[1] ☐☐☐☐
ADDRESS _____ _____ _____		STATUS OF RESPONDENT HEAD 1 SPOUSE 2 FAMILY MEMBER 3 SERVANT 4 OTHERS 5
DATE OF VISIT (DD/MM) ☐☐ ☐☐		NAME OF INTERVIEWER _____
SIGNATURE OF INTERVIEWER _____		

Part 2 . RESPONDENT PROFILE		
I would like to know some information about you and your household		
1	What is your age in completed years?	
2	Record the gender of the respondent?	Male 1 Female 2
3	What is the level of education that you have completed?	Illiterate 1 Literate without Education 2 Below Primary 3 Primary 4 Middle 5 Matric/Secondary 6 Higher Secondary/Intermediate/Pre-University 7 Non-technical Diploma/Certificate Not Equal to Degree 8 Technical Diploma/Certificate Not Equal to Degree 9 Graduate & Above 10 Others (SPECIFY) 11

[1] Please use a standard national code (Permanent Location Code Number of Village as given in Census of India 2001.)

4	What is your main occupation? SINGLE CODE	Cultivators 1 Agricultural Labourer 2 Household Industry Worker 3 Executive/Managerial Level 4 Supervisory Level 5 Clerical/Salesperson 6 Businessman/Industrialist with 1-9 employees 7 Businessman/Industrialist with 10+ employees 8 Self-employed/Professional 9 Student 10 Household Duties 11 Dependent 12 Pensioner 13 Others (SPECIFY) 14
5	Type of House RECORD BY OBSERVATION	Permanent 1 Semi-permanent 2 Temporary 3 Unclassified 4
6	Please tell me the monthly household income from all sources? IN RUPEES ☐☐☐☐☐☐	<500 1 500-999 2 1000-2999 3 3000-4999 4 5000-6999 5 7000-9999 6 >=10,000 7

Part 3. AWARENESS AND USAGE		
1	How long have you been aware of the computerised service delivery office? SPECIFY IN MONTHS	
2	Please specify the source of awareness of the computerised services MULTIPLE RESPONSE	Newspaper 1 Television 2 Neighbours/Relatives 3 Other govt. employees 4 Other department pay counters 5 Others (SPECIFY) 6
3	How many people in your neighbourhood are aware of the computerised?	All 5 Most 4 Some 3 Few 2 Very Few 1
4	Who usually goes to avail the computerised services?	Self 1 Family member 2 Friend 3 Agent 4 Servant 5 Others (SPECIFY) 6

5	How often do you or your family members avail the computerised services?	Once in 6 Months 1 Once in a year 2 Once in 2 years 3
6	What services are available at the computerised of center? (PLEASE DO NOT READ OUT THE SERVICES TO THE RESPONDENT. PLEASE TICK MARK THE SERVICES BASED ON USER RECALL)	List of services specific to each project

Part 4 SERVICE AVAILED

Please give details of the services that you have ever availed from CARD Center / MANUAL SRO

Part 5 COSTS OF AVAILING SERVICES
Please provide following details for one of the services that you have availed from SRO

	Code of the Service for which answers are given (Codes from Part 4 above):		
	Please tell me how far is the center from your residence? SPECIFY THE DISTANCE IN KILOMETERS		
		Computerised	**Manual**
1	Please tell me the number of trips made for the service[2]?		
2	Usually what is your mode of travel to the counters? Walk-1; Cycle-2; Two wheeler-3; Four wheeler-4; Auto- 5; Bus-6; Others-7		
3	Please specify the typical or the usual travel cost of making each trip? (SPECIFY AMOUNT IN RUPEES)		
4	Please specify the typical or usual travel time of making each trip? (SPECIFY TIME IN MINUTES)		
5	On an average, how long do you wait for availing the service after reaching at the center/ office? (SPECIFY TIME IN MINUTES)		
6	Please estimate the wage loss, if any, due to time spent in availing the service[3]? (SPECIFY AMOUNT IN RUPEES)		
7	What is the total service charge you paid (for which a receipt was given to you)? (SPECIFY AMOUNT IN RUPEES)		
8	Please tell me have you come across any errors in the documents, which required correction? Yes-1; No-2 ➡ Q10		

[2] This refers to the total number of trips that the respondent neded to make right from the point of applying for the service to the actual delivery of the service i.e. end to end service delivery.

9	How many trips were required for correction to be done?		
10	Did you pay a bribe (directly/ indirectly) to the center staff / department officials[4]? Yes-1; No-2 ➡ Q13		
11	How much money paid as bribe to the center staff / department officials? (SPECIFY AMOUNT IN RUPEES)		
12	For what purpose did you pay a bribe? MULTIPLE RESPONSE To expedite the process 1 To enable service to be provided to you out of turn 2 To enfluence functionaries to act in your favour 3 To reduce the fee to be paid by you 4 Others (SPECIFY) 5	 1 2 3 4 5	 1 2 3 4 5
13	Did you require an intermediary for availing the services? Yes-1; No-2		
14	How much service charge did you pay to the intermediary/ agent for availing the service? (SPECIFY AMOUNT IN RUPEES)		
15	Please telll me, the total cost of preparation of the documents? (SPECIFY AMOUNT IN RUPEES)		
16	What was the total payment made by you for availing the service? (SPECIFY AMOUNT IN RUPEES)		
17	Please telll me the total elapsed time for getting the service from the date of application to receiving the document? (SPECIFY TIME IN HRS/ DAYS.)	HRS DAYS	HRS DAYS
18	Please estimate the level of anxiety or stress caused due to the delay in the service delivery[5] A lot-1; Somewhat-2; Neutral-3; Little-4; Not at all-5		

Part 6 QUALITY OF GOVERNANCE			
		Computerised	**Manual**
1	Please estimate the level of corruption in the working of the system. Very corrupt-1; Somewhat corrupt-2; Neutral-3; Somewhat less corrupt-4; Not at all corrupt-5		
2	Are you aware of the citizen's charter[6]? Yes-1; No-2 ➡ 4		
3	Does the time frame for service delivery adhere to the citizen's charter? Never-1; Rarely-2; Sometimes-3; Very often-4; Always-5		

[3] This refers to the total wage loss that the respondent has incurred from the the point of applying for the service to the actual delivery of the service i.e. end to end service delivery. This needs to be explined to the respondent clearly.

[4] 'Bribe' refers to the payment made to functionaries which is not required to be paid to the government department/ agency and for which no recipt is issued.

[5] Service delay may yield direct/ indirect economic losses. A separate question may be inserted to capture this economic loss. Also different services have different values for the customers and hence the need for expediating them is different.

4	Please estimate the degree to which Government functionaries can be held accountable for their actions Never-1; Rarely-2; Sometimes-3;Very often-4;Always-5		
5	Are the rules and procedures stated clearly without ambiguity and mistakes? Not at all clear-1; Somewhat unclear-2; Neutral-3; Somewhat clear-4;Very clear-5		
6	Is data pertaining to service availed easily available and accessible to you? Never-1; Rarely-2; Sometimes-3;Very often-4;Always-5		
7	Please rate your understanding and awareness of the basis on which decisions affecting you / other users are taken by officials? Not at all understandable-1; Not understandable-2; Neutral-3; Understandable-4;Very understandable-5		
8	Do you think the agency takes responsibility for the accuracy of information shared? Yes-1; No-2		
9	Has any suggestion or feedback ever been provided by you to officials? Yes-1; No-2 ➡ 11		
10	If yes, have you received any response to your queries from the officials? Yes-1; No-2		
11	Do you feel that you have the ability to influence policies, rules and procedures through feedback? Never-1; Rarely-2; Sometimes-3;Very often-4;Always-5		
12	Please indicate your perception about the overall quality of governance. Very poor-1; poor-2; moderate-3; high-4; very high-5		

Part 7 QUALITY OF SERVICES			
		Computerised	**Manual**
1	How satisfied are you with the present location of the center? Very dissatisfied -1; somewhat dissatisfied-2; Neutral-3; Somewhat satisfied-4;Very Satisfied-5		
2	Are the working hours of the center/office convenient? Not at all Convinient-1; somewhat inconvenient-2; Neither convenient nor inconvenient-3; Somewhat convenient-4;Very convenient-5		
3	Are the functionaries courteous and friendly? Never-1; Rarely-2; Sometimes-3; Often-4;Always-5		
4	Do functionaries respond to your service requests/queries in timely manner (with a sense of urgency)? Never-1; Rarely-2; Sometimes-3; Often-4;Always-5		
5	How satisfied are you with the quality of problem resolution and complaint handling? Very dissatisfied-1; Somewhat dissatisfied-2; neutral-3; Somewhat satisfied-4; ery satisfied-5		
6	How satisfied are you with the level of confidentiality of data? Very dissatisfied-1; Somewhat dissatisfied-2; Neutral-3; Somewhat satisfied-4; very satisfied-5		

[6] Citizen's Charter refers to an information sheet/ blackboard that is usually placed outside government offices/ service delivery points. It mentions the details of the cost, time, etc for the delivery of a government service.

7	How satisfied are you with the level of security of data (unathorised manipulation of data?)		
8	How satisfied are you with the overall quality of service? Very dissatisfied-1; Somewhat dissatisfied-2; Neutral-3; Somewhat satisfied-4; Very satisfied-5		

Part 8 OVERALL ASSESSMENT

Please indicate your perception about improvement on the following attributes in the computerized system vis-à-vis the manual system: Much worsened-1; Somewhat worsened-2; No change-3; Somewhat improved-4; Much improved-5

1	Cost of availing service[7]		2	Time and effort in availing service	
3	Accuracy of transactions		4	Level of corruption	
5	Involvement of agents		6	Accountability of officers	
7	Clarity & simplicity of processes and procedures		8	Predictability of outcome	
9	Speed and efficiency of query handling		10	Courtesy and knowledge of staff	
11	Complaint handling mechanism		12	Convenience of location	
13	Convenience of working hours		14	Service area facilities	
15	Queuing system		16	Design and layout of application forms	
17	Durability and legibility of documents (certificates)		18	Treatment of clients	
19	Confidentiality and security of data		20	Effort in document prepration	

21	Among the above 20 factors, please list the three factors that you consider the most important attributes of the application. RECORD THE S.NO. OF THE FACTOR	☐☐ ☐☐ ☐☐
22	Do you prefer the computerised or the Manual systems?	Computerised 1 Manual 2
23	To what extent do you agree that Information Technology / computerization can be used to give better citizen service?	Strongly disagree 1 disagree 2 Neither agree nor disagree 3 Agree 4 Strongly agree 5

[7] The items marked in italics (1, 2 & 20) should be rated on the following 5-point scale: Much increased-1; Somewhat increased-2; No change-3; Somewhat worsened-4; Much worsened-5.

Part 9 USER PERCEPTION ON E-GOVERNANCE						
1	Have you used any other e-Governance application? Yes-1; No-2					
2	If yes, please name two other e-Governance applications	Application 1: Application 2:				
Please indicate the extent to which you agree or disagree with the following statements:						
		Strongly disagree	Disagree	Neither agree not disagree	Agree	Strongly agree
3	Implementation of e-governance applications has helped to improve the image of the government.					
4	Computerization of public service delivery has led to an impersonalisation of services.					
5	Government should make more investments on e-governance.					
6	More government departments/public agencies should be computerized.					
7	Computerisation of Government Departments is a waste of resources for a country like India.					
8	Money spent in e-governance should be used for other government activities.					
9	Building of schools, dispensaries and roads is more beneficial than investing in e-governance projects.					
10	Computerisation of Government services benefits only the rich and influential.					
11	Rural citizens benefit greatly from computerization of Government services.					

ADDITIONAL INFORMATION: PLEASE ASK THE RESPONDENT IF HE WOULD LIKE TO MAKE ADDITIONAL COMMENTS ON THE CENTER, (MANUAL SYSTEM OR COMPUTERISATION IN GENERAL). RECORD VERBATIM.

Annexure 2.1 Agency-wise Projects

S. No.	Agency	Projects	State(s)
1.	ACNielsen ORG-MARG	Land Records, Property Registration, Transport	Delhi, West Bengal
2.	ASCI	Land Records, Property Registration, Transport	Orissa
3.	Centre for Science, Development and Media Studies	Land Records, Property Registration, Transport	Uttarakhand
4.	Development & Research Services Pvt. Ltd.	Land Records, Property Registration, Transport	Gujarat
5.	Development Management Group Consulting Pvt. Ltd. (DMT)	Land Records, Transport, Mandi Computerization	Madhya Pradesh
6.	Evalueserve	Land Records, Property Registration, Transport	Himachal Pradesh
7.	IMRB International	Land Records, Property Registration, Transport	Tamil Nadu
8.	Infrastructure Professionals Enterprise Pvt. Ltd.	Land Records, Property Registration, Transport	Haryana
9.	Management Development Institute	Land Records, Property Registration, Suwidha	Punjab
10.	Research & Development Initiative Pvt. Ltd.	Land Records, Property Registration, Transport	Rajasthan
11.	TNS India	Property Registration, Transport, FRIENDS	Kerala

Annexure 2.2 Profile of the Three Projects

Computerization of Land Records

Land records of the farmers have traditionally been maintained in manual registers by a junior functionary of the revenue department known as the village accountant or patwari. Two types of records were maintained: 1) Registers, which indicated the current ownership of each parcel of land, its area and cropping pattern, and 2) village maps that reflected the boundaries of each parcel Farmers need a copy of the Record of Rights (certifying that a piece of land with specific survey numbers measuring a certain amount is owned by the named person as per the records) for many reasons like obtaining a bank loan or for availing some benefits. RoRs are issued by the village accountant upon receiving an application/request from the owner. The total number of farm lands can vary from about 15 to 20 million in a state.

In case a land transaction (sale or inheritance) takes place, the records need to be modified. The process is known as mutation. An application needs to be made by the involved parties, a public notice is issued inviting any objections and after a period of 30 days if no objections were received, the change is affected in records. All these tasks were performed manually by a revenue inspector.

In the computerized system, any one can get a copy of the RoR from a counter at the departmental offices located at the Taluka by merely providing information on survey number or the name of the owner. For the 5 states that have computerized mutation, owners can file for a mutation of the land record. Each request is assigned a number by the computer. The number can be used to check the status of the application on a touch screen provided on a pilot basis in three of the computerised kiosks. The computer automatically generates notices, which are then handed over to the village accountant stationed in the field who is responsible for servicing the particular village. Most village accountants stationed in the field visit the central taluka office once in two to three days to pick these papers.

The process of issuing notices by village accountants to the interested parties remains the same. And as before, the revenue inspector who is stationed in the field approves changes to the land record thirty days after the notices are served, provided that there are no objections. A significant change in the process makes it mandatory to stick to a firstcome-first-serve discipline. It takes a few days for the approval to reach the taluka office, where it is scanned on the day of its arrival. An inward and outward register is maintained. The updated RoR is printed and handed over to the village accountant for her record. The new owner receives a copy on demand. Taluka offices create scanned copies of the original mutation orders and notices to avoid unnecessary litigation due to claims that the notices were not served.

Computerization of Property Registration

In most states offices of the sub registrars located at the taluka level provide services related to registration of deeds, which is a process of recording a copy of a deed document to give it a legal sanctity. Often, a stamp duty needs to be paid for the registration process. Issue of encumbrance certificate indicating if there are claims on the property is another important service which requires a search through a large number of registers going back in time for several years. The targeted beneficiaries include all buyers and sellers of a land or building.

A number of actors are involved in the registration process. Stamp vendors (licensed by the Registration and Stamps Department) sell stamp paper to the public at stamp counters located at the offices of the sub-registrars. Document writers have been given official recognition in several states of India through a system of licensing. Document writers prepared the maps and location sketches to describe the property, filled in various forms and assisted citizens in procuring certificates from various authorities. Registration agents are self-employed individuals and firms who, for a lump sum payment, get a document registered, covering the whole range of services.

Since the stamp duty is linked to property values, valuation procedures are vital. A system of market value guidelines was introduced in 1975, whereby the rate per unit of rural/urban lands is assessed for all villages/towns and incorporated in a register for public guidance. However, the basic value registers usually were not accessible to the public, and even if they were, it was difficult for a common citizen to read them and calculate the amount of stamp duty, transfer duty, registration fee and miscellaneous fee. All this created an impression that the valuation of property was 'flexible' and 'negotiable', prompting a host of corrupt practices and a flourishing business of brokers and middlemen who exploit the confusion surrounding the registration process.

Tedious back-office functions are carried out such as conventional manual methods of copying, indexing and retrieving documents. These were laborious, time consuming, and prone to errors and manipulations. Also there are difficulties in preserving documents. The registers occupy a lot of physical space, usually in dusty back rooms. These records also deteriorate with age and repeated handling.

In the computerized systems, document registration and copying is completed with the aid of electronic devices like computers, scanners and CDs; and copies are preserved and retrieved with the same tools. Copies of documents registered and stored electronically, retrieved, printed and certified by the sub-registrar are received as legal documents. Photographs of the concerned parties are taken by a web camera and affixed electronically on the document. Few states have stream lined the publication of rated value in web sites.

Computerization in the Transport Department

Services like issue/ renewal of a driving license, registration of vehicles, issue of fitness certificates for vehicles are delivered by the offices of the Regional Transport Authority in a State. The services are generally available at the district head quarters. The target beneficiaries include common citizens who either own vehicles or those for whom driving is a profession. In the manual system, citizens needed to move from window to window to file an application, provide documents for verification, pay a fee. For most services some form of physical inspection is involved such as inspecting a vehicle or conducting a driving test. Since a number of steps were involved and the final document (license/registration) had to be manually prepared (such as pasting photographs on a paper license), the time elapsed between application and final delivery of the document was long. Most users prefer to use agents through which such services are obtained. Users need to accompany agents for tasks which require the user's presence such as a driving test. Users need to pay a service charge to the agent, a fee to the department and often a bribe through the agent to speed up the process.

Post computerization some of the steps in the delivery of these services have been IT enabled and other steps continue to be manually done. Plastic card (with or without a chip) based licenses are prepared where web camera photos taken on the spot can be pasted electronically. However, payment of fee is still largely by cash at a counter and of course the driving test must be taken physically. The use of agents has not been diminished after computerization.

Annexure 2.3 Basic Project Profile
Computerization of Land Records

State	Electronic service delivery launch date	Scale of electronic service delivery	Scale of operations (Annual volume of transactions or beneficiaries/ users)
Delhi	Launched in 2007. Rollout across other centers is still going on.	One center of each of the 4 districts – South West, West, North and North West Delhi	The total number of RoRs issued since launch is 4,235 and beneficiaries include close to 20,000 land owners across 226 villages in Delhi.
Gujarat	Pilot project was launched in Gandhinagar in 1989. Rollout to all other talukas began in 1995-96.	All land records have been computerized. Services are available from e-Dhara Kendras only.	Annual transaction volume is about 3.3 million[8]. Revenue collection from issue of RTCs and forms during 2006-07 was Rs. 16,684,278.
Haryana	2003	Operational at 40 delivery centers in 40 tehsils across 20 districts. Though service delivery is primarily through computerised service centers, a large proportion of rural people still take copies from the village Patwaris.	Number of beneficiaries across all delivery centers was approximately 20,000 in 2005-06 and about 50,000 in 2006-07.
Himachal Pradesh	Implementation of the software began in 2003. Most of the computerized delivery centers have been operational since the last three years.	The computerized system is available in 83 tehsils (65 percent of all tehsils and sub-divisions) covering all 12 districts of Himachal Pradesh.	In 2006, the total volume of Nakals issued, mutations attested, Jamabandis generated and Khasras[9] printed was 145,741. The project covers 2200 Patwar circles and 914,856 agricultural land holdings.
Madhya Pradesh	Most of the CLR offices started functioning between 1998 and 2004.	Currently operational in all 265 tehsil headquarters spread over 48 districts.	About 1.33 million copies of RoR and Khatauni were issued in 2006-07. 35 million Khasras of 11 million landowners have been computerized.
Orissa	September 2005	Operational across all 171 tehsils of the state.	

[8] Calculated as 16,684,278 (revenue collection) / 5 where Rs. 5 is the charge per copy of RTC

[9] Field book or 'Khasra' is an index to the map, in which changes in the field boundaries, their area, particulars of tenure-holders, methods of Irrigation, cropped area, other use of land etc are recorded in detail.

State	Electronic service delivery launch date	Scale of electronic service delivery	Scale of operations (Annual volume of transactions or beneficiaries/ users)
Rajasthan	Most centers have been delivering service since the last seven years.	Service delivery through district NIC centres (32), Apna Khata Kendras (247) and authorized private kiosks / cyber cafés (900) is currently operational in all 32 districts and 247 Tehsils. RoRs can also be obtained from the website (http://apnakhata.nic.in)	In 2006-07, the number of RoRs issued by all delivery centers was 1,045,526.
Tamil Nadu	Started as a pilot programme in one district in 1991.	Operational in all 206 taluka offices while 127 rural taluks also have touch screen kiosks for viewing land record details.	2,325,275 copies of land record extracts were issued in 2005-06.
Uttarakhand	November 2004	At present, all 84 tehsil centers covering the 13 districts of Uttarakhand are computerized.	In the two years since the project was launched[10], about 840,000 transactions have taken place across all delivery centers.
West Bengal	April 2001	It is currently operational in all 18 districts and 341 blocks of the state covering 40782 mouzas.	Close to 100 thousand users have availed services between 2005-06 and 2006-07.

Computerization of Property Registration

State	Electronic service delivery launch date	Scale of electronic service delivery	Scale of operations (Annual volume of transactions or beneficiaries/ users)
Delhi	May 2002	Operational at 10 delivery centers in 8 districts.	
Gujarat	25 sub-registrar offices were computerized in May 2005 while the remaining 125 offices were computerized in April 2007.	Operational at all 150 sub-registrar offices of the state.	
Haryana	Computerized service delivery was launched in September 2001 but not statewide at one go.	112 delivery centers across 20 districts covering 67 tehsils and 45 sub-tehsils.	The number of beneficiaries across all delivery centers was approximately 175,000 in 2005-06 and about 200,000 in 2006-07.

[10] As on 19/4/2007, the number of transactions that had taken place was 836,964.

State	Electronic service delivery launch date	Scale of electronic service delivery	Scale of operations (Annual volume of transactions or beneficiaries/ users)
Himachal Pradesh	Implementation of the project began in 2005 and the software was successfully implemented in 10 out of the 12 districts by April 2007.	The computerized system is available only in 40 out of the 129 tehsils (31 percent of all tehsils and sub divisions).	21,937 registrations were done through computerized offices in 2006.
Kerala	The pilot was launched in 2000.	There are 268 computerized registries covering 14 districts, 63 tehsils and 548 villages. The remaining 41 are yet to be computerized.	1,289,176 documents were registered during 2006-07 while revenue collection during 2006-07 was Rs 139,933,000.
Orissa	May 2006	Computerized centers are operational at district headquarters of 14 (out of 30) districts.	The total collection of stamp duty and registration fee in computerized SROs during 2006-07 was Rs 1,297,581,000.
Punjab	Rollout of project began from Sangrur district in April 2005 while the state-wide rollout was done over the next two years.	The project has been implemented in more than 130 SRO offices until now. During the first phase that ended in October 2004, District Administrations were responsible for preparing the environment for actual implementation of project (first stage computerization and changing mindset) at 110 out of 153 registration offices.	About 60,000 deeds are registered annually through the SROs.
Rajasthan	The project was launched in March 2003 while anywhere-registration became functional in Jaipur in April 2006.	It is currently operational at 67 SROs and 132 Ex-officio[11] centers located at the tehsils.	The number of documents registered in 2003-04, 2004-05 and 2005-06 was 503,309, 755,177 and 762,355 respectively while the income for SROs across all 32 districts was 11,742,680,000 in 2006-07.
Tamil Nadu	February 2000	450 out of the 558 offices have been computerized until now.	The total number of documents registered during 2006-07 was 2,491,340 while revenue during the same period was Rs 32,973,107,000.
Uttarakhand	The project was first launched in 2003 and became operational in most computerized centers by July 2006.	6 SROs across 3 districts.	Annual number of registrations taking place across the computerized SROs is about 62,760.
West Bengal	5 delivery centres in Hooghly district have been operational since 2005-06 while 12 others across three other districts started in 2006-07. Market value digitization was launched in early 2007.	Operational in 19 delivery centres across 4 districts. Market value digitization has been done in 3 districts - Burdwan, Malda and Purba Midnapur.	32,000 citizens had availed property related services across 9 centres in 2006-07.

[11] Ex-officio centers are at the tehsil level. They are headed by Tehsildars instead of Sub-registrars. Tehsildar holds additional responsibility of property registration apart from his responsibilities related to the Revenue Department.

Computerization in the Transport Department

State	Electronic service delivery launch date	Scale of electronic service delivery	Scale of operations (Annual volume of transactions or beneficiaries/ users)
Delhi	2001	Computerized services are operational in 11 RTOs across all 9 districts and 2 sub-divisional offices of Delhi.	566,154 citizens availed services in 2005-06, of which the number of drivers licences issued was 404,616 while 67,452 vehicles were registered.
Gujarat	Issue of the 'Smart' card driving licences with computer chip came into effect in 1998.	Permanent driving licences and Optical Registration books are issued by all RTOs.	The number of smart card driving licences issued in 2005-06 (as on 30/9/2005) was 439,442.
Haryana	Computerized service was launched in Gurgaon in December 2004 and in other centers since. Most of the centers have been delivering service for 1-3 years.	41 delivery centers across 20 districts and 40 tehsils.	The number of beneficiaries across all delivery centers was approximately 80,000 in 2005-06 and about 95,000 in 2006-07.
Himachal Pradesh	October 2003	40 computerized centers across all tehsils and sub-divisions of Kangra, Bilaspur and Mandi districts.	23,231 driving licences (4,525 professional and 18,706 non-professional driving licences) were issued in 2007.
Kerala	2000	Operational in 18 RTOs and 42 sub-RTOs across all districts.	The number of vehicles registered annually is around 462 thousand.
Madhya Pradesh	2002-03	All 45 RTOs are computerized.	The total number of registered vehicles during 2006-07 was 447,477 while an estimated number of 1,990,000 people have received services from the RTOs between June 2006 and May 2007.
Orissa	Launched in November 2006. Most computerized RTOs have been delivering service since the last one year.	26 RTOs located at district headquarters across the state have been computerized.	
Punjab	June 2005	Computerized services are delivered through 9 centers - District Transport offices and e-Suwidha centers.	

State	Electronic service delivery launch date	Scale of electronic service delivery	Scale of operations (Annual volume of transactions or beneficiaries/ users)
Rajasthan	April 1998	Issue of driving licences has been computerized in all 37 DTOs across the state while a few sub-district offices also deliver computerized services. Registration of vehicles and cash receipts has been computerized in 33 DTOs whereas only 4 offices - Sikar, Churu, Jhunjhunu and Bharatpur - are doing it manually.	The number of licences issued and vehicles registered during 2005-06 was 1,170,177
Tamil Nadu	Computerization was done in 3 phases - February 2000, October 2005 and April 2007.	71 transport offices, including 32 RTOs.	The total number of registered vehicles in the state as on 1/4/2006 was 8,221,730.
Uttarakhand	November 2003	8 in the 5 districts of Almora, Dehradun, Haridwar, Nainital, Pauri Garhwal.	Annual volume of transactions through computerized delivery centers is about 100,000.
West Bengal	2001	4 RTOs - Howrah, North 24 Parganas, South 24 Parganas and Kolkata – across three districts.	About 55,000 transactions have taken place through these RTOs in last two years.

Annexure 2.4 Guidelines for Selecting Sample Design and Size for State Level Projects

Unit of Analysis

Unit of analysis could either be the entire state or at the disaggregated level of a district for state projects. For the purposes of the proposed assessment, it was decided that the unit of analysis will be the entire state for state projects. It is the primary responsibility of the MR agency to design a sampling methodology that will produce accurate estimates of impact on the dimensions that have been outlined in the framework.

Sample Size

Based on the power analysis described in Annexure 2.5, the sample size needs to be determined in terms of

1. Number of service delivery centers to be selected
2. Number of locations (cities/towns/villages) within the catchment of each service center
3. Number of users (and non-users in case of voluntary use) within each location.

Analysis in the annexure suggests that for a given total sample size, increasing the number of delivery centers provides the most power. On the other hand, increasing the number of interviews (respondents) per sampling unit does not improve power. Also, for a given number of sampling units that can be visited, it is better to include larger number of service centers rather than more locations per service center. The guidelines provided below incorporate the learning from Annexure 2.5. We need to select service delivery centers which will capture as much of the variation across these centers, as possible. It may be useful to select 4 districts first so that detailed data on activity level of all centers within these districts can be collected. State governments may find it difficult to provide data on all the service centers in the state.

Selection of Districts

The districts should be selected on the basis of the activity levels. Instead of selecting the districts on the basis of median, the selection should be done on the basis of quartiles i.e. four districts should be selected from each of the quartiles. Also the selected districts should reflect different levels of overall development (i.e. on development index) and regional categorization.

District Activity Level (Quartile 1)	District Activity Level (Quartile 2)	District Activity Level (Quartile 3)	District Activity Level (Quartile 4)
District 1	District 2	District 3	District 4

Selection of Delivery Centers within each District

Within each district the delivery centers should be selected on the basis of activity level handled by each center. The delivery centers should be thus categorized into quartiles and one delivery center should be selected from each quartile[12].

Delivery Center Activity Level (Quartile 1)	Delivery Center Activity Level (Quartile 2)	Delivery Center Activity Level (Quartile 3)	Delivery Center Activity Level (Quartile 4)
Delivery Center 1	Delivery Center 2	Delivery Center 3	Delivery Center 4

Selection of Locations (Cities/Towns/Villages) within the Catchments of Delivery Center

The village/locations from where the respondents will be interviewed should be done on the basis of distance of the location from the delivery center. One location (city/town/village) should be chosen which is near the service center and one which is remote. The number of respondents from 'far' or 'near' location could be proportionate to the number of respondents visiting the delivery center from that location. For example, if in a delivery center about 70 percent of the total respondents are from a near village, the total sample (for that delivery center) may have a 70 percent representation from that village. Discussions with the operators at the delivery center may provide an estimate of proportion of users that come from different locations.

In case of non-mandatory self-use application the towns and villages from which respondents would be surveyed can be selected on the basis of a classification according to size of the town. The size will generally determine the penetration of public access points of Internet and the quality of connection. The profile of respondents availing services online, through the service portal, can be matched to those not opting for it on the basis of:

- Education level
- Income range
- Convenience of access to the internet
- Quality of connectivity to internet

Selection of Respondents for each Location

From the above stratification we have total 32 sampling units for the selection of the respondents:

(4 Districts) x (4 Delivery Centers) x (2 Locations) = 32

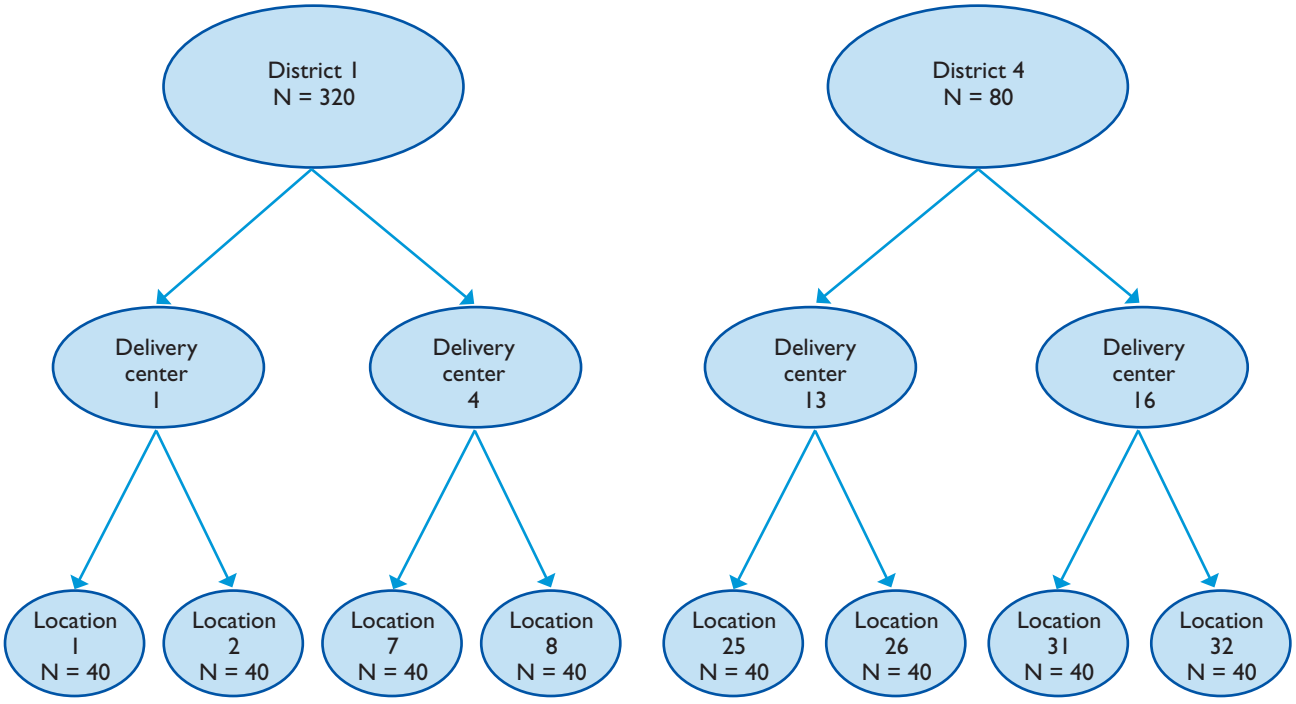
[12] Incases where the activity centers are highly concentrated in some districts (for example in hilly regions) the delivery centers for all the selected four districts could be combined. Appropriate number of centers could be selected on the basis of categorization into quartiles.

For state level estimates, sample size has been assumed to be around 800 respondents. These respondents should be distributed over the 32 sampling units in proportion to the activity levels experienced by these units.

Illustration: The following example illustrates the required sample size for each sampling unit in the case where an agency decides to sample 800 respondents in a state.

District	Proportion of Activity Level	Total Respondents to be Sampled	Total Sampling Units	Sample Size per Sampling Unit[13]
District 1 (High Activity)	40%	0.40 x 800 = 320	8	320 / 8 = 40 respondents
District 2 (Upper Middle Activity)	30%	0.30 x 800 = 240	8	240 / 8 = 30 respondents
District 3 (Lower Middle Activity)	20%	0.20 x 800 = 160	8	160 / 8 = 20 respondents
District 4 (Low Activity)	10%	0.10 x 800 = 80	8	80 / 8 = 10 respondents
Total		800	32	

The diagram below describes the sampling procedure for districts from the above table.



[13] Incases where the number of respondents is very few (for example in hilly regions the sampling unit from the least active district may have very few respondents), the sample may be appropriately increased to have some more respondents from the sampling unit.

Selecting Actual Respondents from each Location

A list of users for each of the selected sampling units will have to be compiled from which the desired number of respondents can be chosen on a random basis. Ideally, the agencies will be able to provide such a list for a given month/days which are representative of the typical activity in the center. A list which is 5-10 times the size of the actual number to be selected from a sampling unit should be sufficient to satisfy the randomness criterion.

Issues in Establishing Counterfactuals in Sample Selection

The key issue in establishing a counter factual is that the impact estimates be driven by experiences in using the computerized and manual system and not "who" the users are or when the different systems were used. In other words, the impact estimates should not change if the group of users and non-users was flipped or the most recent experience had been the manual and not the computerized system. In practice, this is very difficult to achieve. Therefore, in comparing users with non-users we should try to select a group of non-users who are most similar (in terms of characteristics like education, income, age, geographical proximity) to the user group and understand the reasons for non-usage. One strategy that can be adopted is to first do a pilot study to develop a profile for users. Based on the profile, screening questions can then be developed to screen out non-users that do not match the profile of users. The detailed survey would then only be conducted from the matched non-users. Similarly, when asking users to compare their experience of both systems, we should make sure the results are not sensitive to recall bias.

Classification of Projects by Type of Counterfactual

<table>
<tr><th></th><th colspan="2">Self-use: Through a portal</th><th colspan="2">Assisted: Service center</th></tr>
<tr><th></th><th>Frequent</th><th>Infrequent</th><th>Frequent</th><th>Infrequent</th></tr>
<tr><td>Mandatory</td><td>E.g. Annual filing of company reports in MCA21

A common user group with experience of both the manual and computerized systems.</td><td>E.g. Registration of New Company in MCA21

Different user groups for manual and computerized system with matching profiles.</td><td>E.g. Issue of RTC in Bhoomi

A common user group with experience of both the manual and computerized systems.</td><td>E.g. Registering property

Different user groups for manual and computerized system with matching profiles.</td></tr>
<tr><td>Voluntary</td><td colspan="2">E.g. Passport application

Difficult to match the profile of those who opt for self-use and those who do not. As part of assessing impact, reasons for use and non use by the two groups will have to be understood.</td><td colspan="2">E.g. Payment of bills in eSeva

Different user groups for manual and computerized system with matching profiles.</td></tr>
</table>

Annexure 2.5 Factors to be Considered for Determining the Sample Size

Effect Size: Effect size is used to measure the magnitude of impact (of computerization, in this case) and can be computed as the standardized difference between two means. Effect sizes[14] can be defined as small (between 0 and 0.2), medium (> 0.2 and <= 0.5), and large (>= 0.8). Sample size is determined by the desired effect size that we would like to be able to statistically detect with the desired precision (power) needed for the study.

The primary criterion for determining sample size in an impact analysis is the ability to "detect" an impact of a desired magnitude with a high degree of confidence – the Minimum Detectable Effect (MDE). In other words if we believe an impact of a certain magnitude has policy relevance, then we should have the statistical power to test whether or not it is statistically different from zero. The smaller the MDE, the more likely we will be able to detect smaller impacts. The MDE depends on

- The expected variance of the impact estimate
- The assumed significance level (selected to reduce Type 1 error), typically assumed to be 95 percent)
- The assumed power level (selected to reduce Type 2 error). The typical level chosen is 80 percent. At this level we would have a 80 percent chance of detecting an effect as big as the MDE.

These three factors determine the minimum detectable effect size i.e. the smallest program effect that we have a reasonable chance of detecting. The MDE can be expressed as[15]

MDE= Factor (α,β, df) *$\sqrt{}$(Var(Impact) /σ where

Var(Impact): Variance of Impact Estimate

σ: Standard Deviation of the Outcome Measure

df: Degrees of Freedom for test.

This depends on the total sample size and sample design. Generally this is equally to:

= Total Number of Individuals- Number of Strata -1

Factor: Is a constant that is a function of the significance level (σ), statistical power (β) and the number of degrees of freedom. For two-tailed tests with greater than 100 degrees of freedom, a 5 percent significance level and 80 percent power, factor is equal to 2.80.

[14] Cohen, Jacob (1988). Statistical Power Analysis for the Behavioral Sciences (2nd Edition). Hillsdale, New Jersey: Lawrence Erlbaum.

[15] Schochet, Peter (2005). Statistical Power for Random Assignment Evaluations of Education Programs. Mathematica Policy Research Inc.

The impacts found in the IIMA studies conducted so far average around 0.22 and 4.60 with an average of 0.83. Since many of the projects are being evaluated for the first time, targeting an MDE of 0.5 would be a conservative benchmark i.e. given our sample size we should have a reasonable chance of detecting an impact of half a standard deviation. Cohen (1998) labels this as a medium effect size.

Taking Account of Clustering

The sample size of the number of respondents depends not only on the desired statistical power and accuracy but also on how the sample is distributed between different clusters e.g. service delivery centers and locations (cities/towns /villages) within the catchment area of a center. An important parameter here will be the intra-class correlation (ICC)[16] which measures the extent to which user experiences differ between clusters. For instance, if the clusters are very dissimilar to each other (large ICC), then we would want more clusters and smaller number of respondents within a cluster. However if the clusters are alike each other, then it might be more cost effective to pick a few clusters and sample a higher percentage of respondents within each cluster.

In the IIMA study, an analysis of ICCs on each of the dimensions (Governance, Service Quality, Trips Saved, Wait Time, and Travel Cost) suggests that the ICCs range from 0.005 to 0.65 and the average ICC is 0.22. In coming up with sample designs, agencies should be cognizant of

- The level of clustering: ICCs are likely to be higher for higher levels of clustering. For instance, ICCs were lowest when the clusters were civic centers in Ahmedabad.
- The nature of the service being provided and service users: For services like eProcurement where users are likely to be more homogenous, the ICC was relatively low. But the ICC was high for Khajane Payee since pensioners could come from a broad spectrum of the society.
- Attributes like governance and service quality are likely to vary most across clusters

Table below provides illustrative sample sizes and corresponding MDEs. Level 1 refers to the first level of clustering (e.g. service delivery centers) and Level 2 refers to the second level of clustering (e.g. locations in the catchment area of each delivery center). For purposes of illustration, we made the following assumptions for power calculations:

There are 200 service centers in the entire state.

ICC at first level of clustering: 0.25

ICC at second level of clustering: 0.15

Variance of outcome: 0.25

[16] Formally, the ICC is the ratio of the variance between clusters to variance within the cluster.

Illustrative Power Calculations to Determine Sample Size and Design[22]

Cluster 1(No. of Centers)	Cluster 2(No. of Locations per Center)	No. of Interviews in each City	Total Sample	Variance of Impact Estimate	MDE
40	2	10	800	0.004	0.448
25	2	16	800	0.007	0.565
20	4	10	800	0.008	0.584
20	2	20	800	0.009	0.631
18	2	20	720	0.010	0.667
16	3	16	768	0.010	0.672
16	2	25	800	0.011	0.705
10	5	16	800	0.015	0.811
10	4	20	800	0.015	0.825
10	2	40	800	0.018	0.891
8	4	25	800	0.019	0.922
8	2	50	800	0.022	0.995

The above table is meant for illustrative purposes only. Agencies should conduct similar analyses, laying down (and justifying) their assumptions in determining the appropriate sample sizes.

Annexure 2.6 EKVI, SUWIDHA and FRIENDS

EKVI: Computerization of Agriculture Mandis in Madhya Pradesh

E-Krishi Vipanan (EKVI) project was initiated in Madhya Pradesh to computerize operation in the Mandi Board Head Office, 7 regional offices, and 233 mandis and their associated sub-market yards and 'nakas' (inter-state barriers) across the State. The main objective of the project is to assist farmers in making informed decisions about trading their produce in the market. The e-mandis provide a series of services such as latest information on daily arrival of crops, rates at which the crops have been sold, rates prevailing in other mandis, weighing of the crops, auctioning of the crops, details of crops transacted etc.

The impact assessment study reflects the positive results of EKVI initiative. There are improvements in almost all aspects of mandi system: 85 percent of the users said they almost always received their payments on time; 66 percent of respondents reported improvement in accuracy of transactions, and the waiting time to avail services at the mandi reduced to 126 minutes from 192 minutes under the manual system. Only 2 percent of people perceived the overall governance of the computerized system to be poor compared to 50 percent in the manual system. In addition, 97 percent reported satisfaction with the quality of service provided in the new computerized system compared to 43 percent in the manual system. Overall, 98 percent users preferred the computerized system over manual system. However, there were certain issues related power failure, system failure and hardware problems that increased the number of trips made by the user.

SUWIDHA (Single User-friendly Window Disposal Help-line for Applicants) Centers in Punjab

Suwidha was launched at Fatehgarh Sahib in Punjab in October 2002 and rolled out to all districts of Punjab by January 2004 on the basis of a self-sustaining revenue model wherein the operational cost of running the centers is recovered from citizens in the form of facilitation charges. Eighteen Suwidha centers (covering all 17 districts) serve as the one-stop shop for delivery of more than 150 citizen services offered by the central, state and local governments. Frequently used services relate to attestation of documents and issue of affidavits, issue of driving licences, services to pensioners, issue of birth and death certificates, and payment of bills. The annual volume of transactions in each center is about 500 to 700 thousand.

The survey was conducted at 6 locations and covered a sample of 610 respondents. Users of Suwidha have reported a positive improvement of 3.48 over the manual system that required dealing with individual departments. However, analysis with respect to improvement across locations reveals that there is significant difference among the six districts, with composite scores varying between 2.64 and 4.17. Results also indicate that more than 97 percent of the

respondents prefer Suwidha centers over the departments. Waiting time in Suwidha centers has reduced significantly in comparison to agency counters from 145.4 minutes to 80.8 minutes. There has been a significant improvement of 1.05 points on a 5 point scale in the quality of governance. There has been a significant improvement of 0.91 points in service quality on a 5 point scale. With respect to attitude of citizens towards e-Government, the results indicate a highly positive perception on all eight parameters.

FRIENDS Multi-agency Payment Centers in Kerala

FRIENDS was launched in 2000 by the Department of Information Technology, Government of Kerala to facilitate bill payment service to various payees such as municipality, corporation etc. at a single center. The software used at FRIENDS centers is programmed to specific rules and regulations of the partnered agencies, and payments are accepted accordingly. People can make payment for: water charges, telephone bills, electricity charges, civil supplies rationing fees, property tax, traders' license, professional tax, motor vehicle tax, university examinations fees, etc. At present, each of the 14 districts of Kerala has a FRIENDS center located at the respective district headquarter.

To study the impact of FRIENDS initiative, a total of 807 respondents across four districts were surveyed. The mean waiting time at FRIENDS counters is nearly half an hour less than that at departmental counters (reduction from 33.4 minutes to 7.0 minutes). There has been a significant improvement of 1.3 points on a 5 point scale in the quality of governance. Incidence of paying bribe was not reported in either system. The quality of service, in terms of accuracy of transactions, cost of availing services and efficiency of handling queries, has improved. The overall service quality score for the computerized system was 4.62 compared to 3.29 on a 5 point scale for the manual system. Overall, the survey reveals that there is a high preference for computerized system with 99 percent of respondents favoring FRIENDS counter over the manual operations. The composite score of 4.0 on a 5 point scale also indicates an overall perception of improvement in the computerized system vis-à-vis the manual system. However, respondents felt that better helpdesk facilities to guide customers, and power backup systems to tackle frequent breakdown in electricity would help to improve service delivery through the FRIENDS centers.