

Chapter 5

Towards Linkage between Strategy Formulation and E-governance Performance

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5.1 Introduction

Government organizations across the globe are trying to adopt information and communication technology (ICT) to streamline their internal functioning and strengthen interfaces with citizens. The phenomenon is termed as e-government or e-governance as per the country context. For example, the word “e-government” is more popular in the developed countries from where most of the journals on the subject are being published. However, in India, the popular term is e-governance and accordingly the corresponding national plan is titled as “National e-Governance Plan (NeGP)”. In this chapter, the words “e-government” and “e-governance” are used interchangeably as it is based on learning issues from the literature as well as a few Indian e-governance projects. The inspiration for this study has come from the pursuit for effective e-governance by many countries on one hand and the dismal performance of several e-governance projects on the other as discussed by many authors.

In India, e-governance is being perceived as a solution for effective service delivery to the citizens. The seriousness of the government is reflected in the formulation of NeGP, which was launched in May, 2006 with an initial budgetary outlay of INR 230,000 million. The NeGP presently comprises 31 Mission Mode Projects (MMPs). These projects are broadly categorized under 11 central MMPs, 13 state MMPs and 7 integrated MMPs. NeGP was jointly formulated by Department of Electronics and Information Technology and Department of Administrative Reforms and Public Grievances. The MMPs, which form the core of the NeGP, are expected to be executed through respective central level line ministries or the state

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governments as per the subject matter of the project (mit.gov.in). Each of the MMP has to deal with a number of complexities due to the inherent dependence of the NeGP on a large number of actors in government and non government domains, and the associated country-specific peculiarities in terms of a large population, low literacy rates, poor infrastructure—particularly at the grassroots, multiple languages, diverse local expectations, etc. It, therefore, appears logical that NeGP was predicted as an ambitious but highly risky initiative (Harris 2007).

The risks are more when an MMP conceptualized by central government is to be implemented through state governments. For example, India has adopted a federal system of government where agriculture is a state subject. At the central level, the union government is responsible for formulating plans and policies for overall development of agriculture in the country by involving the state governments. The central government is also responsible for ensuring adequate supply of quality inputs like seeds, fertilizers, pesticide, etc., with the help of state governments by enforcing specific central legal acts. The large span of stakeholders of this sector include farmers, domestic traders, exporting firms, fertilizer and pesticides manufacturing companies, employees, state agriculture departments, etc.

E-governance in agriculture has been identified as a project to be executed in mission mode by the National e-Governance Plan (NeGP) keeping into view its significance in the Indian economy. The complexities involved, however, pose a big hurdle for Agriculture MMP to sail through smoothly. Even though the technological challenges involved may be of lesser significance (ARC 2008, p. 81; Rose and Grant 2010), resolving of non technological issues is likely to emerge as a bigger challenge.

It is observed that even before launching of Agriculture MMP, concerted efforts were already being made, particularly by the central government, to improve service delivery at the grassroots through large-scale e-governance projects. It is, therefore, of utmost importance that lessons are drawn from such projects and empirical measures are brought out, which can serve as guiding tools for the practitioners. Such measures can be helpful in taking corrective steps for effective implementation of Agriculture MMP in particular and other MMPs in general.

The conventional framework generally being followed for the planning and implementation of a majority of e-governance projects in India is characterized by several strategic gaps due to which the expected benefits are not reaching the grassroots (Bhaya 1997, pp. 91, 114–115, Planning Commission 2012, pp. 286–287, 291, Suri and Sushil 2012). This chapter attempts to analyze comprehensiveness of strategy formulation and performance of e-governance from the perspective of government officials involved in the planning of agriculture-related e-governance projects. The chapter is based on the main study (Suri 2009), which involved cross-case analysis of planning and implementation aspects in select agriculture-related e-governance projects in India. The main study brought out a strategic framework for improving the performance of e-governance projects using situation-actor-process-learning-action-performance (SAP-LAP) framework (Sushil 2001). The objectives of this chapter, having a limited scope in the study context, are as follows:

- To propose validated constructs for measuring comprehensiveness of strategy formulation and performance of e-governance.
- To analyze comprehensiveness of strategy formulation and performance of e-governance.

The chapter is organized into eight sections comprising the introductory remarks, a brief review of the relevant literature, the methodology adopted, conceptualization of research variables, a summary of the opinion survey conducted for empirical support, a discussion on results of the analysis, research contribution, implications and limitations of the study followed by concluding remarks.

5.2 Literature Review

There is a need to understand the strategy formulation-related variables at play for studying their influence on project performance in e-governance context. The area of information systems/information technology (IS/IT) strategic planning and implementation has been extensively researched from the perspective of organizational mechanisms in the context of organizations belonging to corporate sector. In view of the limited availability of the relevant direct literature on e-governance, an attempt has been made here to develop insights about these aspects based on a review of strategic management, IS/IT management and e-governance literature as summarized below under subsections significance of environmental analysis, strategic importance of stakeholders, need for refining organizational structure and processes, significance of feedback system, and e-governance assessment.

5.2.1 *Significance of Environmental Analysis in E-Governance*

The existing strategic planning framework needs to address the evolving character of e-governance projects (Suri and Sushil 2006). A reflective, participatory and emergent process of planning and strategy formulation is expected to be better than the traditional analytic, directive and planned process (Mintzberg 1994; Upton and Staats 2008; Planning Commission 2012, pp. 270–71). Strategy formulation is a learning process for the management (Lee and Bai 2003). It begins with situation analysis, which involves study of internal and external environment. The analysis throws light on an organization's ability to take advantage of opportunities while avoiding threats (Wheelen and Hunger 2004, p. 109). For a strategic information system planning process to be comprehensive, it is necessary to have sufficient information input from within the organization as well as from external environment. Environmental changes have, therefore, to be quickly sensed and responded by promptly shifting the strategy rather than sticking to an outdated plan (Pietersen 2002, pp. 46–47).

The relevance and applicability of e-government plans fade rapidly with time due to changes in environment (Heeks 2006, p. 62). A number of projects in India have failed to achieve their stated original goals (Weerakkody et al. 2011). It is important that e-governance plans achieve a balance between internal needs and external requirements to keep pace with changing expectations of the beneficiaries (Heeks 2006, p. 64). Even if initial needs of stakeholders are met, it is required to remain alert and responsive to their continuing demands to avoid eroding of early advantages by the environmental changes (Malhotra et al. 2008, pp. 216–226). Regular and structured deliberations with a diverse set of stakeholders including internal cross-functional teams encourage learning from divergent views and thus facilitate assimilation of new trends (Pietersen 2002, pp. 48–50, 61; Lee and Bai 2003). Such an approach can facilitate rational and periodic assessment of current and future requirements of beneficiaries, which in turn may help in minimizing design–reality gaps.

5.2.2 Strategic Importance of Stakeholders in E-Governance

Stakeholders should be an integral part of any e-government project for its long-term success (Rowley 2011). Axelsson et al. (2013) have argued in favour of a stakeholder-centered analysis of expectations and opinions concerning the e-service for its success. In e-governance projects, a public agency is required to deal with a wide spectrum of stakeholders. The operational level staff as well as other stakeholders need to be adequately involved during information systems/information technology strategic planning (Lee and Bai 2003). The e-government service offerings should create added value and measurable benefits to their stakeholders (Gouscos et al. 2007). Pardo et al. (2000) have emphasized on incorporating stakeholders' requirements in the development as well as maintenance of e-governance initiatives. A participatory approach needs to be adopted for ensuring commitment of stakeholders. Kumar et al. (2004, pp. 256–264) have identified 'stakeholders participation' as one of the eight factors of effectiveness of e-governance programmes. Past empirical studies based on organizational information systems in the context of corporate entities also throw light on importance of adopting a participatory approach in system development (Palanisamy 2000). A project is expected to have measurable goals in terms of the benefits that would be delivered to specific stakeholders depending on the application context (Bhatnagar 2004, pp. 61–62).

The low success rates of e-governance programmes could well be due to the assumption of default involvement of internal and external actors with such programmes. There are examples in the literature that illustrate achievement of better results through methodical management of stakeholders' concerns (Scott et al. 2011; Tan et al. 2005). A review of evaluation reports of some of the popular Indian e-governance projects has also revealed that due importance was given to involve key stakeholders while designing the BHOOMI, CARD, e-Procurement Exchange and Lokvani projects by the project authorities (DIT 2003, 2004, 2005).

5.2.3 Need for Refining Structure and Processes

Government system comprises several independent organizations with specific mandates and stakeholders to deal with. The traditional organizational structures and work processes in government need to be redesigned to facilitate many-to-many interactions and better exploitation of ICT (ARC 2008, pp. 71–79; Weerakody et al. 2011; Cordella and Bonina 2012; www.knowledgecommission.gov.in). Efforts to infuse ICT in government functioning are primarily directed at existing procedures and processes. The organizational structure continues to remain hierarchical and command/control based due to which decision-making is largely a top-down, reactive and crisis-driven process. For government organizations to be client oriented and employee centered, the basis of decision-making is supposed to be bottom-up and supported by a culture that encourages employee learning and creativity (Heimler 1996). With growing infusion of e-governance at every level, the multilayered government structure requires redefining of roles and responsibilities (Farooq et al. 2006). Changes in organizational structures are forced as e-governance progresses to higher levels. According to Kawalek and Wastell (2005), the complexity and institutional inertia associated with public sector organizations need to be methodically handled through incremental process changes over time even though information technology can facilitate business process redesign (Davenport and Short 1990).

In the corporate sector, there are ample examples which demonstrate that smart business entities have been able to use IT effectively by redesigning core business process before applying IT (Suri 2009, pp. 40–41, 2015). Adoption of similar practices by the project authorities is clearly visible in the popular Indian e-governance projects. IT-induced changes in roles and responsibilities have been one of the features of most of these projects. In a few projects (BHOO MI, CARD, e-Procurement exchange, e-Seva and KAVERI), government authorities have taken special efforts for process re-engineering before applying ICT for accruing better value from the systems (Suri and Sushil 2012).

5.2.4 Significance of Feedback System

Learning based on feedback is essential for improving a system. For ensuring that intended benefits are reaching the deserved, it is required to strengthen the government planning process through real time data from grassroots (Bhaya 1997, pp. 114–115; Planning Commission 2012, p. 291). ICT systems are effective only when they deliver relevant and meaningful information to the end users (UNDP 2001). Relying solely on internal consistency checks does not serve the purpose of maintaining data quality. The quality of data content maintained by an information system can be improved through its constant use. Information systems are therefore expected to have a feedback control system in place (Orr 1998). Customer feedback should form the basis for re-engineering public service delivery (Chadwick 2003).

Inclusive mode of governance demands equal access to opportunities by citizens. Continuous improvement of a system is possible only through committed involvement of users. This is expected to happen only when users feel that their inputs matter. It is required to have a sound feedback system to achieve this (UN 2008, p. 66; Upton and Staats 2008; Planning Commission 2012, p. 291). An effective feedback system helps in creating a cohesive culture in an organization, which contributes in achieving higher performance (Feld and Stoddard 2004). For change and adaptation to happen constantly as part of execution process, organizations are expected to get timely and regular feedback from all levels (Hrebiniak 2005, pp. 53–54). Projects like BHOOMI, GYANDOOT, e-Procurement Exchange, e-Seva and Nagrpalika are characterized by effective feedback-based learning systems. Field units were encouraged to point out shortcomings for further improvement. Some of the project authorities have given thrust on learning from pilots before rolling out (DIT 2003, 2004).

5.2.5 *E-Governance Assessment*

The traditional financial measures are unsuitable for analyzing performance of e-governance; therefore, researchers have been trying to address this gap. A few examples are: IT value in public administration in terms of timeliness, accuracy and convenience to citizens; strengthening of interfaces with stakeholders, etc. (Bannister 2002); e-government impact in terms of capabilities, interactions, orientations and value distributions (Andersen et al. 2010); a framework based on hard, soft and a hierarchy of measures applicable for mature e-governance projects (Gupta and Jana 2003); application of balanced scorecard (Lawson-Body et al. 2008); application of information system success model proposed by DeLone and McLean (2003) for assessing success of e-tax service (Wang and Liao 2008); conceptual frameworks such as a framework based on investment decisions, evaluation methods, culture, structure and post-hoc evaluation (Irani et al. 2005); and a framework based on maturity levels, stakeholders and assessment levels (Esteves and Joseph 2008). Most of such frameworks are, however, conceptual or based on single case studies and limited segment of citizens or are yet to be tested in real-life situations (Karunasena and Deng 2012).

A few recent studies in Indian context have emphasized on taking into account governance aspects in the performance measures (Mitra and Gupta 2008); predefining effectiveness parameters of e-governance programmes and cautiously managing factors of change for giving real benefits to stakeholders (Kumar 2009); controlling gaps in planning and implementation for better performance (Suri 2009), simultaneously dealing with continuity and change forces for better outcomes of e-governance initiatives (Nasim and Sushil 2010). It is observed that empirical studies which analyze performance from governance reforms perspective are lacking. Published evaluation reports (DIT 2003, 2004; Bhatnagar 2004) of a few well-executed e-governance projects (AKSHYA, BHOOMI, CARD, e-Procurement Exchange, e-Seva, FRIENDS, GYANDOOT, KAVERI, Lokvani, Nagarpalika) in different states of India reflect governance reforms-related benefits accruing from these projects.

Performance of these projects has been adjudged better in terms of ensuring easier access to service, offering comprehensive and reliable service, time and cost savings, improved transparency in government functioning, improved interactions with government, faster processing of requests, improved monitoring and control, improved decision-making, etc. (Suri and Sushil 2011). However, such studies could not be traced in the literature, which have analyzed strategy formulation and performance of e-governance based on governance reforms-related outcomes from the viewpoint of government officials.

5.3 Methodology

A focused review of the literature was undertaken to develop an understanding about the strategy formulation and performance aspects in the context of large-scale agriculture-related e-governance projects in India. For this, relevant project documents and published evaluation reports of successfully implemented popular e-governance projects were studied besides reviewing scholarly articles on the subject. While selecting projects for the study, care was taken to ensure that only such large ongoing projects are chosen where the intended services are operational for at least 1 year. A summary of six shortlisted projects, which qualified the criteria when the main study was initiated in the year 2005, is presented in Table 5.1. The

Table 5.1 Shortlisted agriculture-related projects. (Source: Suri and Sushil 2011)

Project and owner organization	URL and value proposition
AGMARKNET Directorate of Marketing and Inspection (DMI)	www.agmarknet.nic.in Collection and dissemination of daily all India commodity prices and arrivals information for the use of farming community
Kisan Call Centre Directorate of Extension (DoE)	http://agricoop.nic.in/PolicyIncentives/kisan-Callfirst.htm Agricultural extension support for the farming community
DACNET IT Division, Department of Agriculture and Co-operation (DAC)	www.dacnet.nic.in Intranet for messaging, collaboration and implementing e-governance applications
GrapeNet Agricultural and Processed Food Products Export Development Authority (APEDA)	www.apeda.com Integrating various stakeholders involved in the export of grapes
Computerized Registration of Pesticides (CROP) Central Insecticides Board and Registration Committee (CIB and RC)	www.cibrc.nic.in Streamlining of procedures involved in registration of pesticides as per Insecticides Act, 1968
Integrated Fertilizers Management Information System (IFMIS) Department of Fertilizers (DoF)	www.fert.nic.in Ensuring adequate supply of good quality fertilizers to farmers at affordable price

knowledge developed about strategy formulation and governance reforms-related expected outcomes of the identified projects provided the necessary ground for conceptualizing the research variables. To reduce design and Implementation related complexities in the study, only such performance aspects were considered which had relevance across the six projects.

A questionnaire was developed to capture strategy formulation and performance-related feedback. Key senior level project officials, who were responsible for planning and strategy formulation, were identified with the help of respective project nodal officers. It was observed that generally in each project, there are five to eight senior level officials who are involved in the planning and strategy formulation. These officials could be surveyed with census approach as their number was found to be small in each project. The observed mean values of the data collected have been used for analyzing comprehensiveness of strategy formulation and performance in the study context.

5.4 Research Variables

The variables for the study are based on a review of the literature presented above, a pilot study of an ongoing e-governance project (Suri 2005) and practical experience of executing projects. These are defined in terms of macro and micro variables in the following sections.

5.4.1 *Macro and Micro Variables*

The macro research variables for the study, viz. 'Performance of e-governance' and 'Comprehensiveness of strategy formulation' and the respective constituting micro variables are defined as follows.

Performance of e-governance This performance macro variable is conceived as fulfillment of the project objectives in terms of realization of expected benefits of e-governance. The common benefits that are applicable across the e-governance projects under study are identified as achieving efficiency in government operations, bringing transparency, facilitating interactivity among internal and external actors and aiding the decision support process. The constituting micro variables are defined as follows. For understanding the linkage of these variables with the literature, readers are referred to a mapping done by Suri and Sushil (2011). The same is not reproduced here due to space constraints.

Efficiency Measures service improvement in terms of fast execution of the core process, simplification of government procedures, reduced paper work and decreased communication cost while transacting with government.

Transparency Measures service improvement in terms of reliability, whether the service is reliable, comprehensive, easily accessible and fairly delivered.

Interactivity Measures service improvement in terms of enhanced internal and external interactions enabled by the e-governance service.

Decision support Measures improved decision support in terms of better planning, decision-making, and monitoring and control enabled by the e-governance service.

Comprehensiveness of strategy formulation This variable is conceived as taking care of internal and external environment and coverage of other strategic elements that are considered necessary for realizing an e-governance project plan. The constituting micro variables include process re-engineering, redefining of roles and responsibilities, involvement of stakeholders in strategy making, and making provision for obtaining feedback on services which are defined as follows:

Environment scanning This micro variable reflects the level of environment scanning undertaken while formulating the project strategy. The related questions are: extent to which SWOT like analysis is conducted before finalizing the project strategy and extent to which expected changes in user needs are projected over time.

Involvement of stakeholders in strategy formulation This micro variable reflects the importance given to stakeholders while formulating strategy before taking up project implementation. A project-specific list of stakeholders is provided in the questionnaire for the respondents to indicate the respective extent to which each stakeholder is involved in strategy formulation.

Provision for stakeholders' concerns Involving stakeholders at planning and strategy formulation stages is not sufficient to keep their interest alive in the project cycle. This micro variable captures the extent to which stakeholders' concerns are taken care in a project. The related questions are: extent to which there is clarity in the project plan about benefits accruing to different stakeholders and extent to which measures for assessing these benefits are reflected in project objectives.

Process re-engineering This micro variable reflects extent to which existing processes are re-engineered before taking-up computerization.

Redefining of roles and responsibilities This micro variable captures extent to which roles and responsibilities have been redefined for better execution of the project.

Provision for obtaining feedback This micro variable captures the extent to which provision has been made for obtaining feedback through regular interaction with internal and external actors.

5.5 Survey of Planners

5.5.1 *Questionnaires Development*

All the six projects identified for the study were studied to develop basic knowledge about the project objectives and expected benefits. Strategy formulation and performance related standardized questions were developed keeping in view the relevance and observed commonalities of corresponding conceptualized variables across the identified projects. Questions were standardized to ensure their applicability across the projects. For better understanding and interpretation, the standard performance-related questions were qualified with project-specific contexts. The questionnaires were subjected to face criteria related and content validity tests (Kerlinger 1983, p. 458) for fine-tuning before launching the survey. The validation of questionnaires was followed by pre-testing of questionnaires. Ambiguity in questions was removed and wording of questions improved based on learning from the field visits. For the purpose of statistical analysis, the observed sample data, collected using five-point Likert scale, was transferred into five contiguous equal-sized classes in the interval [0, 1] with classes labelled as Nil, Small, Medium, Large and Very Large, respectively. Most of the prospective respondents were approached in person. This was feasible as the planners in each project were generally centrally located and their number in each project was also small. In all, 36 valid filled-in questionnaires were received with number of respondents ranging from five to eight in case of each of the six projects.

5.5.2 *Reliability and Validity Analysis*

The Cronbach's Alpha values, measuring internal consistency (Kerlinger 1983, pp. 451–452) of the 'Comprehensiveness of strategy formulation' and 'Performance of e-governance' constructs are found to be 0.89 and 0.94, respectively. These values are above the threshold level of 0.6 that is recommended as acceptable for empirical research of this nature (Hair et al. 2006, p. 118). The macro and micro variables are subjected to factor analysis for validating the constructs (Kerlinger 1983, pp. 659–678; Hair et al. 2006, pp. 90–114). The construct acceptability criteria are based on the values of cumulative extracted squared loading. Hair et al. (2006) have recommended that factor loadings greater than 50% may be considered practically significant. At the macro level, the factor loadings in respect of macro variables 'Comprehensiveness of strategy formulation' and 'Performance of e-governance' are found to be 60.9 and 80.9%, respectively, which are above the threshold value. At the micro level, the factor loadings in respect of the constituting variables of 'Comprehensiveness of strategy formulation', viz. 'environment scanning', 'involvement of stakeholders in strategy formulation', 'provision for stakeholders' concerns', 'provision for obtaining feedback' and 'presence of feedback loop', are found to be 56.9, 58.6, 76.6, 75.4, and 57.6%, respectively, which are

above the threshold value. It was not required to do such analysis for the micro variables ‘process re-engineering’ and ‘redefining of roles and responsibilities’ as these micro variables have only one constituting item. The factor loadings in respect of the constituting variables of ‘Performance of e-governance’, viz. ‘efficiency’, ‘transparency’, ‘interactivity’ and ‘decision support’, are found to be 73.0, 65.2, 82.3, and 68.7%, respectively, which are above the threshold value. Further, it was found that all the items constituting the ‘Comprehensiveness of strategy formulation’ and ‘Performance of e-governance’ are loading on the respective constructs.

Based on factor analysis and reliability analysis conducted above, the constructs are treated as validated and used for further analysis.

5.6 Univariate Analysis and Discussion

The survey data is used to conduct univariate analysis with respect to the macro variables ‘Comprehensiveness of strategy formulation’ and ‘Performance of e-governance’ and the corresponding micro variables. The statistically computed mean, coefficient of variation, range, and quartile percentiles are shown in Table 5.2. The observed values of statistics pertaining to macro and micro variables are discussed below.

5.6.1 *Comprehensiveness of Strategy Formulation*

All the six micro variables have consistent mean values and are contributing to a medium extent only to the comprehensiveness of strategy formulation (COMPSF) with respect to these projects. This clearly reflects that the conceived strategic aspects, viz. ‘environment scanning’, ‘involvement of stakeholders in strategy formulation’, ‘provision for stakeholders concerns’, ‘process re-engineering’, ‘redefining of roles and responsibilities’ and ‘provision for obtaining feedback’, are not adequately addressed in the projects. Among the six micro variables, the contribution of ‘involvement of stakeholders in strategy formulation’ and ‘processes re-engineering’ is still lesser and towards small extent level. The high values of coefficient of variation and the range values of all the micro variables is due to the extreme variation in importance given to these aspects by different organizations while formulating the project strategy. For example, in the CROP project, processes have been re-engineered before computerization whereas in the IFMIS project, processes were computerized as they are. Further, unlike IFMIS project, due importance was given to stakeholders while formulating strategy in the case of CROP project.

E-governance projects require a sound interactive mechanism with users for obtaining feedback to address the gaps in understanding their requirements and constantly improving the service levels. The response of planners to related questions reflects that the projects do have provision for regular interaction with internal actors (field offices/operational staff) to a large extent. However, similar emphasis

Table 5.2 Univariate statistical analysis for micro variables (Base Survey: Planners)

Variable	N Valid	Mean	SE (Mean)	SD	CV (%)	Range	Min	Max	Percentiles		
									25	50	75
<i>Comprehensiveness of strategy formulation (COMPSF)</i>	36	0.47	0.03	0.19	40.42	0.67	0.18	0.85	0.32	0.44	0.64
Environment scanning (ESC)	36	0.46	0.03	0.18	40.19	0.75	0.13	0.88	0.28	0.50	0.50
Involvement of stakeholders in strategy formulation (INSTSF)	36	0.41	0.03	0.19	45.35	0.69	0.12	0.81	0.26	0.39	0.54
Provision for stakeholders' concerns (STC)	36	0.54	0.03	0.20	37.82	0.75	0.25	1.00	0.38	0.50	0.75
Process re-engineering (PRE)	36	0.42	0.06	0.35	82.04	1.00	0.00	1.00	0.00	0.50	0.75
Redefining of roles and responsibilities (ROL)	36	0.51	0.05	0.29	56.91	1.00	0.00	1.00	0.25	0.50	0.75
Provision for obtaining feedback (FDPROV)	36	0.50	0.04	0.24	47.57	0.92	0.08	1.00	0.33	0.50	0.67
<i>Performance of e-governance (PERF)</i>	36	0.70	0.03	0.17	24.28	0.69	0.31	1.00	0.59	0.70	0.82
Efficiency (EFFI)	36	0.73	0.03	0.19	26.16	0.69	0.31	1.00	0.63	0.75	0.86
Transparency (TRANSP)	36	0.73	0.03	0.16	22.41	0.69	0.31	1.00	0.69	0.75	0.81
Interactivity (INTER)	36	0.61	0.04	0.22	35.41	0.92	0.08	1.00	0.50	0.63	0.75
Decision support (DECSP)	36	0.63	0.04	0.22	34.08	0.75	0.25	1.00	0.50	0.63	0.75

is not given on making provision for interacting with intended beneficiaries and other related external actors. The observed values of the constituents of COMPSF construct reveal weaknesses in strategy formulation for e-governance projects in the study context.

5.6.2 Performance of E-Governance

As per the observed values, overall performance of e-governance, as perceived by the planners, is in the large extent range even though the comprehensiveness of strategy being formulated at their level is observed to be just above the small extent category. It may be noted that it is the planners who are responsible for conceptualizing the e-governance projects and arranging for the required resources for project execution. It is, therefore, possible that the planners might have opined in favour of higher project performance in order to justify the investments made or they may be actually drawing more benefits from the e-governance initiatives when compared with officials operating at lower levels and the intended beneficiaries. Further, the planners generally operate from headquarters level and are thus relatively better equipped for using the ICT infrastructure developed under the projects as compared to operational level officials in the field and beneficiaries. At the micro level, their perception levels about performance in terms of 'efficiency', 'transparency', 'interactivity', and 'decision support' are found to be in the large extent range with the observed values of 'interactivity' and 'decision support' marginally qualifying for the large extent range. In other words, planners perceive that e-governance has contributed more to improve efficiency and transparency when compared with interactivity and decision support.

5.7 Contributions, Implications and Limitations of the Study

5.7.1 Study Contributions and Implications

This study may be viewed as an initial attempt for arriving at validated constructs to measure 'Comprehensiveness of strategy formulation' and 'Performance of e-governance' based on cross-case analysis of six agriculture-related projects in India. An opinion survey of select government officials belonging to the six ongoing projects was conducted to populate the constructs and perform univariate analysis. The analysis reflects that there is a need for planners to view performance in terms of governance reforms-linked value created by e-governance projects. For this, performance assessment measures need to be defined in advance and embedded within the project plans. As has emerged from this study, specific measures to assess intended project outcomes such as improvement in transparency, efficiency, interactivity and

decision support should be pre-defined and included in project plans. Post implementation, the progress of e-governance projects may be reviewed based on such predefined measures. Similarly, the construct for measuring ‘Comprehensiveness of strategy formulation’ is expected to sensitize the planners for giving due consideration to environment scanning, involvement of stakeholders and identifying their concerns, redefining roles and responsibilities of involved actors, re-engineering of conventional processes and keeping provision for obtaining feedback while formulating strategy for an e-governance project.

From the viewpoint of researchers, the validated constructs can be further used to explore the relationship between the two by taking ‘Comprehensiveness of strategy formulation’ as independent variable and ‘Performance of e-governance’ as dependent variable. Based on the conceived variables, following macro and micro level hypotheses of association are formulated. These may be statistically tested for examining the relationship between the conceptualized strategy formulation macro/micro variables with the performance macro/micro variables in the context of the study.

The macro level alternate hypothesis, conceptualized on the basis of this study, is:

HAP1: ‘Comprehensiveness of strategy formulation’ (COMPSF) is a predictor of ‘Performance of e-governance’ (PERF).

The corresponding null hypothesis for HAP1 is:

HAP0: COMPSF is not a predictor of PERF.

The generalized alternate hypotheses of association, in terms of micro level variables, are of the form:

HAPij: i th micro variable is a predictor of j th performance micro variable; $i \in \{ESC, INSTSF, STC, PRE, ROL, FDPV\}$; $j \in \{EFFI, TRANSP, INTER, DECS\}$.

The predictive relationships which get revealed from such an analysis may be interpreted in the context of each of the case studies using Interpretive Matrix Tool (Sushil 2005) to arrive at the interpretation of influencing links between ‘COMPSF’ and ‘PERF’.

5.7.2 *Limitations*

This study is constrained by lack of similar past studies. As such, there is ample scope for improving the proposed constructs by studying more e-governance projects pertaining to different areas.

5.8 **Conclusion**

Many studies have revealed that several of the e-governance projects have not delivered as per expectations. The dismal performance could well be due to gaps in the strategy formulated for these projects. In this chapter, two constructs have been

proposed to measure comprehensiveness of strategy formulation and performance in the context of the study, which are based on six agriculture-related projects. The constructs have been statistically validated. An opinion survey of government officials involved in planning of these projects has been conducted to populate the constructs for further analysis. The results reflect upon the gaps related to strategy formulation in the e-governance projects in the study context. There is much scope for improving performance as well in the context of the study. The analysis has brought out implications for both researchers and practitioners. The corrective measures by the practitioners, in terms of addressing the identified strategic gaps with due diligence, are expected to play a catalytic role in the realization of the intended outcomes of the Agriculture MMP for the benefit of the farming community. The study findings also serve as a base for proposing hypotheses of association for testing predictive relationship between the two variables conceptualized for measuring 'comprehensiveness of strategy formulation' and 'performance of e-governance'.

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