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Testing Structuration Theory in E-Government System Assimilation: Mediating Role of Pakistani Cotton Ginners' Absorption Capacity

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Abstract

Electronic Government (E-Government) is a significant and vital application of the information and communication technologies (ICTs) to enable functional relations and communication with key government stakeholders. Governments have launched E-Government system for the basic objective of delivery and transfer of electronic information as well as services to their targeted citizens and for enhancing interaction with businesses and commerce. Therefore, assimilation and integration of E-Government systems in organizations is a strategic need. However, existing literature on E-Government system assimilation and meta-structures of organization (signification, domination, and legitimization) is limited. Therefore, in this paper, based upon structuration theory, we have developed a theoretical model with the aim to investigate the effect of organizational meta-structures of signification, domination, and legitimization on E-Government system assimilation with mediating effect of E-government absorption capacity. To test the proposed model, data collected from 414 ginning firms listed in the Pakistan Cotton Ginning Association (PCGA). The results confirm the direct relation between organizational meta structures and E-Government system assimilation and also support the mediating relationship of E-Government absorption capacity between the E-Government system assimilation and organizational meta structures. Moreover, the theoretical and managerial implications along with limitations and direction for future research also have been discussed in this study.

Keywords: *E-Government,organizational meta structure, signification, domination, legitimization, absorption capacity, assimilation*

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1. Introduction

E-Government is a significant as well as vital application of the internet to boost wide-ranging use of computers, laptops, tablets, and mobile devices by authorities and to enable communication with its key stakeholders. Since the early 1990s, grounded on the application of ICTs (information and communication technologies) in government entities, E-Government is the first growing concept familiar as a significant development in the outreach from government to citizens, businesses, industries, stakeholders, and other government agencies. At the same time, governments predict the practice of ICTs to promote efficacy, transparency and to decrease the corruption (Shim & Eom, 2009; Von Waldenberg, 2004).

In the developing countries, E-Government is one of the most essential and main ways to bridge the digital divide (Venkatesh, Sykes, & Venkatraman, 2014). Governments have launched E-Government systems for the basic objective of delivery and transfer of electronic information as well as services to their targeted citizens (Choudrie, Weerakkody, & Jones, 2005; Navarra & Cornford, 2003) and for enhancing interaction with businesses and commerce (Davison, Wagner & Ma , 2005; Riemenschneider & Mykytyn, 2000; Scavo & Shi, 1999; Torres, Pina, & Acerete 2005). These new technologies have provided many benefits to governments including facilitating democratic process, reducing corruption & cost, improving growth, transparency, and national business competitiveness (Carter & Belanger, 2005; Davison et al., 2005; Irani et al., 2005; Srivastava & Teo 2006; West, 2004; Wong & Welch, 2004). Now in modern government, E-Government takes part as most essential and beneficial element in the administration decisions (Torres et al., 2005).

Lee (2010) have described the five stages of e-government development (i.e., presentation, assimilation, reforming, morphing and e-governance). Last stage is E-Governance that is considered as the symbol of ideal stage. At this stage, full utilization of advanced ICTs for effective involvement of citizens, businesses, stakeholders, industries, and agencies in political and administrative decision making of the government is ensured. However, in spite of potential of E-Government systems, in most of the circumstances, the implemented system which is accepted and welcomed initially does not survive later on. Therefore, under-utilization and short cycle of E-Government systems have raised concerns about the worth of its investment (Zhang & Shu, 2010).

Pakistan is a south Asian country. South Asian countries have commonalities in terms of geography, IT infrastructure, literacy rate, and adoption of e-government services. E-government is in its embryonic stage in the emerging world, where countries have similar difficulties in the carrying out of E-Government services. Particularly, Pakistan is moving gradually to the target of implementation of E-Governance to enhance the quality as well as the coverage of services and information furnished to the general public using ICT in an efficient and effective manner (National Information Technology Board, 2021). However, according to the UN E-Government survey

report (2020), Pakistan has attained the E-Government Development Index score of 0.4183, and thus secured the global rank of merely 153 out of 193 countries. The UN e-government survey report (2020) further provided that with E-Participation Index score of 0.5238, Pakistan attained only the global ranking of 103 out of 193 countries. These low-ranking figures implied that as citizens, SMEs, and corporate sector approach to the government in diverse manners, therefore, Pakistan should create a model for Pakistani stakeholders digitally by changing the government itself by converting its public services into E-Government systems. E-Government systems can furnish opportunities for both to the private sector to work on large projects as well as to general local customers to better engage with government for their general services.

Therefore, Pakistan's Federal Government defined the scope of E-Government in Pakistan in terms of Government-to-Citizen (G2C), Government-to-Business (G2B), Government-to-Employee (G2E), and Government-to-Government (G2G) types of e-services offered to their stakeholders in full day of 24 hours, 7 days a week. By using E-government system, the government of Pakistan overcome the losses of million due to poor quality of work in public sectors. Moreover, recently under National Information Technology Board, Government of Pakistan (2021) have launched innovative projects for attaining the objectives of e-governance including (1) Automation and Monitorization Portal for Ehsaas Program, (2) Board of Investment Visa Portal, (3) Monitorization and Maintenance of Prime Minister Citizen Portal, (4) Prime Minister office Computerization, (5) Monitoring and Evaluation System, (6) E Office, (7) Digitization of Kamyab Jawan For Youth Betterment, (8) Complaint Portal & Mobile App For Overseas Pakistanis, (9) Infrastructure and Automation of President Secretariat, (10) Computerization & Execution Of Government Cases, and many others (for further detail see web stie of National Information Technology Board-https://nitb.gov.pk/index). However, Hossain, Moon, Kim, and Choe (2011) have asserted that once implemented fewer than all e-government projects have proved successful and about 60 pc of E-Government projects at the time of implementation have not provided the desired results. Therefore, the integration and assimilation of E-Government systems in organizations is a strategic need, and it is necessary to find out how best to strategically launch E-Government projects to assure their significant impact on organizational success. The existing research on E-Government adoption in Pakistan has concentrated majorly by incorporating the users and policymakers' perspectives on the factors of e-government assimilation (see e.g., Ahmad, Markkula, & Oivo, 2013; Chohan, Hu, Si, & Pasha, 2020; Hassan, & Lee, 2019; Khan, Umer, Umer, & Naqvi, 2021; Rehman, Esichaikul, & Kamal, 2012; Rehman, Kamal, & Esichaikul, 2016; Zahid & Din, 2019). However, majority of these studies have investigated the E-Government phenomenon from the perspective of an applied issue by using the social psychological theoretical lenses, thus lacking the capacity to predict how and why systems continue to be used after they are adopted. Besides, limited focus has been directed to underlying organizational paradigms and thus neglecting

the realities of utilizing technology entrepreneurships within firms and lacking in explaining innovation assimilation, and may therefore need changes. Thus, from a theoretical perspective, a nuanced insight of the E-Government system assimilation is needed (Hossain et al., 2011).

Therefore, based on Giddens' structuration theory (1984), the current research adds to the literature by observing the part played by organization-meta-structures of signification, domination, and legitimization (Whittington, 2010) on the organizational absorption capacity and thereby toward E-Government assimilation in the context of Pakistan. The framework of this study is already tested in Korean government namely AgriX (Agriculture Integrated Information excellent System). Besides, within the context of business value of E-Government system assimilation, the framework has explored the impact on organization efficiency, public satisfaction, and operational transparency. Now ginning industry in Pakistan have good IT infrastructure and they are also the user of internet and web-based application such as E-Government system. However, keeping in view the best knowledge of the authors of current research, there is no single research within the context of Pakistani agriculture sector (cotton ginning industry), which has investigated the E-Government system assimilation. Thus, the current research would add the value theoretically and practically in the existing research.

1.1. Objectives of the study:

Keeping in view the above discussion, within the context of cotton ginning sector of Pakistan, the current study has four objectives:

1. To find the linkage between organizational-meta-structures of signification, domination, and legitimization and absorption capacity of ginning industry of Pakistan.
2. To find the linkage between e-government absorption capacity and E-Government system assimilation.
3. To find the linkage between organizational-meta-structures of signification, domination, and legitimization and E-Government system assimilation.
4. To find the mediating effect of e-government absorption capacity of ginning industry between organizational-meta-structures of signification, domination, and legitimization and E-government system assimilation.

1.2. Contribution and Significance of the Study

The current research aims to theoretical contribute to existing literature on structuration theory regarding meta structures of the organization (i.e., signification, domination, and legitimization) within the context of E-Government system assim-

ilation. Moreover, the current research aims to enhance the existing literature on IS assimilation through the addition of E-Government systems assimilation. Besides, practically, the current research offers a structure for managers to evaluate inter and intra organizational as well as technical factors in determining the E-Government system assimilation behavior through firm level high absorptive capacity.

Finally, methodologically, the current research within the context of ginning sector of Pakistan contributes by applying the partial least squares structural equation modeling (PLS-SEM) to test proposed measurement as well as structural model.

2. Literature Review

E-Government permits all citizens, enterprises to carry out their business with government more easily, more rapidly, more speedily and at minor cost (E-Government in Europe [Online], 2009). Tallon et al. (2000) defined that E-Government system value measured by firm performance when E-Government system is used. Hossain et al. (2011) provided that E-Government system assimilation is the result of organizational proficiency, transparency and perfections in public services. They further provided system is measured in terms of operational transparency, organizational efficiency and public satisfaction along with E-Government value chain. Organizational efficiency, transparency, and improvement of delivery of services are based on organizational meta structures. Prior research (see e.g., Puron-Cid, 2013; Veenstra et al., 2010; Parvez, 2006; Basettihalli et al., 2010; Heinze & Hu, 2005; Gil-Garcia et al., 2008; Meneklis & Douligeris, 2010; Hossain et al., 2011; Senyucel, 2002) have used Giddens' structuration theory (1984) (Whittington, 2010) for explaining the meta structures of organization necessary for the operation of E-Government system. Thus, successful implementation of E-Government system would lead toward high assimilation.

By following the study of Hossain et al. (2011), the foundation of current study's research framework is developed keeping in view the literature on organizational IS assimilation and structuration theory. Especially, based upon the perspective of structuration theory, the current study argues that dynamic organizational meta-structures and models of human behavior maintain their control across the lifespan of E-Government systems as they are selected and evolved constantly. These meta-structures of signification, domination, and legitimization strengthen current patterns and models of behavior which replicate the standard actions or allow the birth of innovative designs, and these behaviors in turn produce assimilation actions which may change value generation. Besides, the current research framework argues that assimilation may be significantly enhanced if firms have large absorptive capacity especially in the context of helping the assimilation of outside knowledge and utiliz-

ing this outside knowledge for commercialization (Cohen & Levinthal 1990). Thus, the current study further argues that organizational absorptive capacity mediates the relationship between organizational meta-structures of signification, domination, and legitimization in explaining the E-Government system assimilation behavior of Pakistani Cotton Ginners Association. Particularly, within the theoretical framework of structuration theory, the current study hypothesizes that in constructing the modes of structuration, social connections are totally consists of the patterns of meaning, power, and moral models, and that any communication may be examined relating to these, as the zones of social structure and social action live together. Besides, it admitted three modes which connect the domains of behavior and social structure: interpretive schemes, resources, and norms (see Fig. 1). Finally, Scott 1995) provides 3 methods by which firms affect cognition and behaviors of individuals: (1) structures of signification, (2) structures of legitimization, and (3) structures of domination. Orlikowski et al. (1995) provided that people applying these institutional structures understand technology, collect the resources required to apply technology in working methods, business strategies, and actions, and carry out the contingency steps required to assimilate the technology. These assimilation behaviors are termed as structuring behaviors. They further provided that organizational leadership may control the institutional structures of signification, legitimization, and domination, and thus affect, lead, encourage, or change people structuring behaviors. These firm level behaviors are termed as meta-structuring actions as they either reinforce the existing institutional structures or change those structures to develop environmental prerequisites necessary for technology assimilation (Hossain et al., 2011).

Particularly adoption of E-Government systems develops from the structuring actions of persons, whose behaviors and cognitions are shaped by institutional meta-structures of signification, domination, and legitimization in terms of providing meaning and promoting understanding, validating desirable organizational actions and behaviors, and by enforcing institutional rules to control the individual actions and behaviors, respectively (Orlikowski, 1995; Scott, 1995).Thus, based upon the study of Hossain et al. (2011), the current study keeping in view the structuration theory and organizational IS literature has identified intra, inter organizational as well as technological meta structures of signification (forming through top management leadership, user support, and security), legitimization (forming through top management leadership and e-government systems standards efficacy), and domination (forming through top management leadership, IT sophistication, and user IT competence) in an E-Government system assimilation context (see Table-1). Besides, organizational absorptive capacity mediates the relationship between organizational meta-structure factors and E-Government system assimilation behavior.

Particularly, the current study hypothesizes that top management leadership contributes significantly in each of the three meta structuring behaviors of signification, domination, and legitimization by not only formulating a government strategic vision, mission, and plan to achieve the government will of a digital future, but also

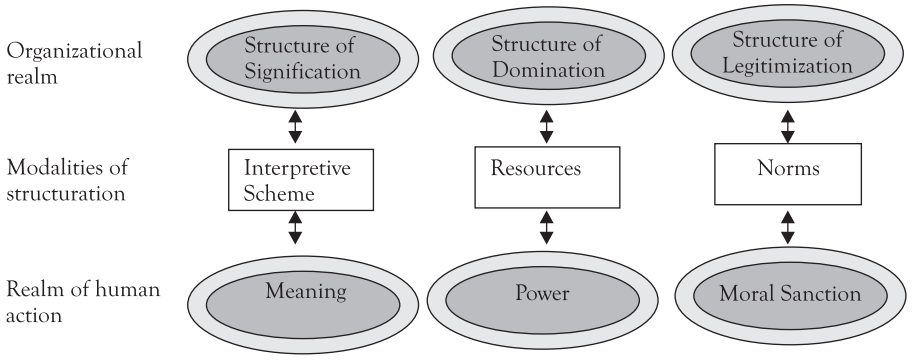

Figure 1: Collaboration between organizational properties and human action as mediated by the three modalities (interpretive scheme, resources, and norm) of structuration (Adapted Giddens' structuration theory (1984) from (Whittington, 2010)

Table 1: Structuration View: Mapping to Construct (Adapted from Hossain et al., 2011)

Structures	Definition	Construct	Description
Signification	Meta-structures related to understand the behavior and action toward E-Government system assimilation by using technological, relational, strategic, and signification contexts.	Top Management Leadership	The level of top management giving strategic context on which E-Government system utilization is possible in the firm.
		User Support	Service providers give the technical support for E-Government.
		Security	Security describes the level of protection of user of E-Government system .It protected the information system from disruption, modification, unauthorized access, disclosure, use, availability, construction to ensure honesty and privacy.

Domination	Meta-structures that validate the behavior and action toward E-Government system assimilation become reliable with their goal and value of organization by using technological resources, political and financial context.	Top management leadership	The level of top management giving political support of activities related to E-Government system assimilation toward utilization of E-Government system.
		IT sophistication	The capability of the organization that is important about the knowing the desire of IT related innovations.
		User IT competence	It shows the confidence to use E-Government system for attaining the certain goals.
Legitimization	Meta-structures that regulate the action and behavior toward E-Government system assimilation by using goals and organization standards.	Top management leadership	The level of top management establishing goals and standards that regulate the action and behavior toward E-Government system assimilation.
		Standards efficacy	E-Government system standards efficacy reflect the flexible and comprehensive standards that move toward the utilization of E-Government systems by accepting for the range of trade activities.
		Organizational absorptive capacity (OAC)	It is clear as an organization's competence to use new IT innovations by using existing infrastructure of IT (Tippins & Sohi 2003, Cohen & Levinthal 1990).

establishing a context where behaviors and actions of E-Government system assimilation carry meaning. Besides, top management leadership by its commitment and political support can also bring legitimization into E-Government system assimilation. Finally, top leadership through establishing of new targets, routines, and deployment of resources for assimilation can control the progress of E-Government system assim-

ilation throughout its life cycle.

Besides, the current study expects that user support from the provider contributes fundamental meta-structuring part in signification by forming the users' cognitions, and behaviors in daily utilization of E-Government systems, and deployment of e-government system applications. Moreover, to achieve a greater levels of E-Government system assimilation, security acts as a key explanatory variable by ensuring that e-government system processes to be safeguarded against key security concerns (Parker, 2002).

Moreover, firms with valuable human resources having competing IS knowledge can enjoy high levels of IT sophistication and user IT competence that together explain firm level readiness, and are the main explanatory variables of the meta-structure of domination reflecting the organizational key resources having power and intention towards E-Government system assimilation.

Besides, the richness of an organization's IS culture, an organization's flexibility, and high level of enforcement are captured by E-Government systems standards efficacy that collectively determine the meta-structure of legitimization by regulating behaviors and actions of E-Government system assimilation. Therefore, the current study expects that if E-Government standards with referred traits are deployed, the perceptions, and behaviors pertaining to E-Government systems will be positively supported, thus boosting E-Government system assimilation.

Finally, firm level absorptive capacity is termed as the capability of a firm to learn, assimilate, and deploy innovative IT knowledge via its existing infrastructures (Cohen & Levinthal 1990; Tippins & Sohi 2003) including IT knowledge structures as well as technological opportunism. The capability an organization to understand the value of innovative, outside knowledge, to adopt and deploy it for commercialization purposes is fundamental to its innovative capabilities. Cohen and Levinthal (1990) designated this capacity as organizational absorptive capacity and proposed that it depends upon firm prior related knowledge. In this regard, theory of absorptive capacity provided the robust foundation to analyze importance and the nature of knowledge swaps between IT managers, intra firm level interactions and partnerships (Boynton, Zmud & Jacobs 1994). Thus, a major part of a firm level absorptive capacity relating to E-Government systems may be presented by the diffusion of IS and business based knowledge enjoyed by and mutually exchanged among firm technical staff and IS managers. Therefore, firm having high amount of absorptive capacity will be more dynamic in exploiting the environmental opportunities suggesting that knowledge structures are at the core of firm's capacity to innovate and adapt to environmental changes. Thus, high levels of absorptive capacity improves the communication among IT managers and business

units, enabling innovative IT uses (Lind & Zmud 1991).

Thus, keeping in view the above mentioned theoretical arguments on meta structures of firm as well as on absorptive capacity and its association with firm level assimilation help us to propose the following hypotheses:

H1: Organizational meta-structure of signification (OMSS) (i.e. Top management leadership, User support, security) has a positive effect on organizational absorption capacity (OAC).

H2: Organizational meta-structure of domination (OMSD) (i.e., IT sophistication, User IT competence) has a positive effect on organizational absorption capacity (OAC).

H3: Organizational meta-structure of legitimization (OMSL) (i.e. E-Government standards efficiency) has a positive effect on organizational absorption capacity (OAC).

H4: Organizational meta-structure of signification (OMSS) (i.e. Top management leadership, User support, security) has a positive effect on e-government system assimilation (EGSA).

H5: Organizational meta-structure of domination (OMSD) (i.e. IT sophistication, Use IT competence) has a positive effect on e-government system assimilation (EGSA).

H6: Organizational meta-structure of legitimization (OMSL) (i.e., E-Government standards efficiency) has a positive effect on e-government system assimilation (EGSA).

H7: The organizational absorption capacity has a significant (positive) effect on E-Government system assimilation (EGSA).

H8: There is a mediating effect of organizational absorption capacity between organizational-meta-structures (signification, domination and legitimization) and E-Government system assimilation (EGSA).

2.1 Theoretical framework:

The basis of theoretical framework of this research has been built up on structuration theory within the context of organizational based e-government Information system (IS) assimilation having the paths from organizational meta-structures of signification, domination, and legitimization to organizational absorption capacity and further to e-government system assimilation can be seen in figure-2.

3. Research Methodology

3.1 Population and Sampling:

As shown in Table-2, we acquired list of ginners of all over Pakistan, issued by the

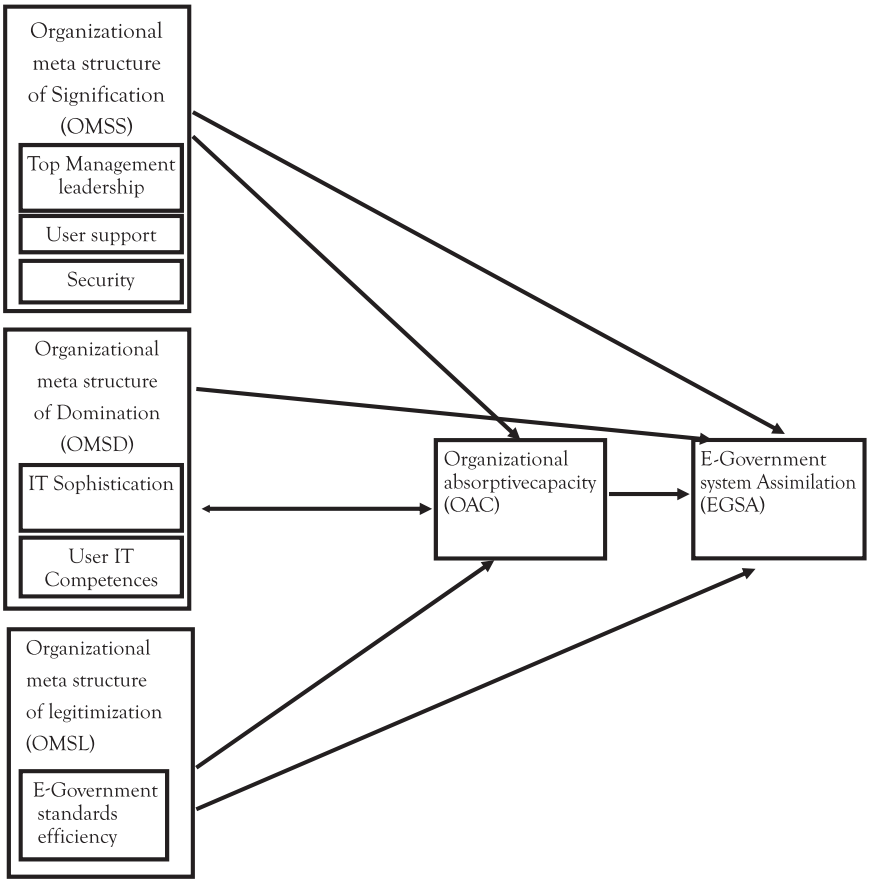

Figure 2: Research Framework

Pakistan Cotton Ginners 'Association (PCGA). According to this list, there are total 1200 ginners for year 2014-15. The sample size was calculated by using calculator. net. Thus, minimum sample size of 292 samples was required at the confidence level of 95% and confidence interval of 5%. However, the current research successfully collected more than 292 samples from cotton ginners of Pakistan.

3.2 Instrument Development

This research is quantitative in nature, so survey method is used for data collection. After review of literature, theoretical modeling and after refinement, measurement of

Table 2: Population & Sampling

No of Population	1200
Required Sample at confidence level of 95% and confidence interval of 5% Margin of error +/- 5%	n = 292
Population areas (Ginning industry dividing into two zones)	
Northern Zone (20 District)	Multan, Lodhran, R.Y.Khan, Khanawal, M.Ghar, Rajanpur, Bahawalpur, Vehari, Bahawalnagar, Sahiwal, Pak Patan, Okara, Qasur, D.G. Khan, Toba Tak Singh, Fasialabad, Jhang, Mianwali, Bakkar and Sargodha
Southern Zone (11 District)	Hyderabad, M.P.Khas, Sanghar, NausheroFeroz, Khairpur, Ghotki, Sukkur, Dadu, Jamshoro, Badeen and Baloch-istan
Sampling technique	Area sampling technique , the most important form of cluster sampling.
Target Areas	5 Offices of Pakistan Cotton Ginners Association (PCGA) Multan, Bahawalpur, Vehari and Chichawatni offices deal with Northern zone jurisdiction is Punjab and Khyber Pakhtunkhwa. Karachi office deal with south zone jurisdiction is Sindh and Baluchistan. In this research individual offices targeted as a cluster and for collection of data, area-sampling technique has used that is most important form of cluster sampling.
Total no of distributed Questionnaires	1200
Total no. of successful responses	450

constructs were finalized. These measurements of constructs are listed in Appendix A. As mentioned earlier that the current research targeted the ginners from all over the Pakistan and majority using the National language of Urdu, therefore, for data collection, survey questionnaires were initially translated into Urdu language (see Appendix A for English version of survey questionnaire). Besides, five-point likert scale is used for majority of questionnaire items (1 for strongly disagree, 2 for disagree, 3 for neutral, 4 for agree and 5 for strongly agree).

3.3 Measures

3.3.1 Independent Variables

The scales of organizational-meta-structures were adopted with different concepts

of signification, domination, and legitimization. Meta structure of signification having three dimensions (i.e., top management leadership, user support, and security), followed by domination having two dimensions (i.e., IT sophistication and user IT competence) and legitimization having one dimension (i.e., standard for e-government). To measure these different dimensions, all scales having 22-items were adopted from existing research (see e.g., Armstrong & Sambamurthy, 1999; Boynton, Zmud & Jacobs 1994; Chwelos, Benbasat & Dexter 2001; Chatterjee, Grewal, & Sambamurthy 2002; DeLone & McLean 2003; Liang et al., 2007; Parasuraman, Zeithaml & Berry 1988; Rai et al., 2006; Rai et al., 2009; Tippins & Sohi, 2003).

3.3.2 Mediating variable

Organizational absorptive capacity was measured by 4-items adapted from prior studies (Liang et al., 2007; Tippins et al., 2003; Boynton et al., 1994).

3.3.3 Dependent Variable

Similarly, E-government system assimilation was measured by 3-items adapted from prior research (Armstrong & Sambamurthy, 1999; Fichman & Kemerer, 1999; Liang et al.. 2007; Massetti & Zmud, 1996).

4. Data Analysis

For the descriptive analysis, the current study used the SPSS software-version 20. For checking the direct and indirect paths, the current study used the Smart PLS-version 3.20 and Sobel test, respectively.

The current study used Partial least Squares-Structural Equation Modeling-PLS-SEM. It is second-generation model. Besides, to test the mediation, the current study used the Sobel test.

The subsequent section includes the descriptive statistics, followed by measure of convergent validity, discriminant validity, reliability, correlation analysis, path co-efficient, adjusted R^2 , and Sobel test results.

4.1 Descriptive Statistic

Total responses were about 328 showing the response rate about 34.5%. This response is parallel to prior research (Chatterjee et al. 2002; Badri & Alshare, 2008; Hossain et al. 2011). After eliminating 36 missing values, total 414 responses were used for final analysis, so the current study achieved the final response rate of 34.5%. In Table 3, characteristics of sample are summarized. This sample covers a comprehensive range of cotton ginners of Pakistan; therefore, it is appropriate to examine

Table 3: Descriptive Data

Variables	ES	PSN	PCV	WB
ES	0.714			
PSN	0.375	0.715		
PCV	0.366	0.467	0.737	
WB	0.334	0.336	0.405	0.709

WB = workplace bullying, PSN = Perceived Narcissistic Supervision, PCV = Psychological contracts violation, ES = Employee silence, Larger diagonal value (Fornell & Larcker, 1981)

assimilation of E-Government system. Table-3 shows the demographics of data, the sample of ginning industry of all over the Pakistan shows that respondents from ginners were male, most of the ginners lie in age limit 41-50 years, most of the ginners have education level of under junior high school / junior high school and maximum ginners have level of experience of 16-20 years.

4.2 Results of PLS-SEM

SEM in smart PLS comprises of dual models (outer and inner). Outer model explains the link between latent variable and their observed indictors and Inner model explain the link between latent dependent variable and independent variables (Wong, 2013).

4.2.1 Outer model

Outer model related with latent variables and their observed indicator so, it is first part of model that is examined (Chin, 2010 p. 670). According to Hair, Sarstedt, Hopkins & Kuppelwieser (2014) and Hair, Ringle, & Sarstedt (2013) reliability and validity is measured by criteria mentioned in Table-4.

4.2.2. Measurement model: convergent validity

Table-5 shows that the values of composite reliability minimum is 0.922 and maximum is 0.948 which fulfil the criteria of acceptance i.e., = and > than 0.70 and the values of Cronbach alpha, the standards of Cronbach alpha defined by George and Mallery in 2003, > .9 termed as Excellent, > .8 termed as Good, > .7 termed as Acceptable, > .6 termed as Questionable, > .5 termed as Poor, and < .5 termed as Unacceptable (p. 231). All constructs have values of Cronbach alpha greater thatn 0.70 that are acceptable and internally consistent.

The standard of average variance explained (AVE) is 0.50 that is 50% of construct variance (Bagozzi& Yi, 1988). It also shows the values of AVE for each construct span-

Table 4: Checks and Acceptable Criteria

Checks	Acceptable criteria
Internal Consistency Reliability (Chronbach alpha)	Composite reliability must be = and > than 0.7. In case of exploratory study = and > than 0.6 (Bagozzi & Yi, 1988)
Indicator Reliability (composite reliability)	= and > than 0.70. In case of exploratory research, = and > than 0.4 (Hulland, 1999)
Convergent validity	= and > than 0.5 or greater (Bagozzi& Yi, 1988)
Discriminant validity	Square root of AVE > correlation among latent variables (Fornell & Larcker, 1981; Chin, 2010)

Table 5: Reliability of Constructs

	Cronbach Alpha	Composite Reliability	AVE
Domination	0.901	0.922	0.628
EGSA	0.892	0.933	0.822
Legitimization	0.904	0.933	0.776
OAC	0.923	0.945	0.813
Significations	0.938	0.948	0.668

ning from 0.628 to 0.822, showing the greater than minimum acceptable value of 0.50.

4.2.3 Measurement model: discriminant validity

Discriminant validity was verified with the squared root of the average variance extracted for each construct higher than the correlations between it and all other constructs. Table-6 shows that square root of AVE point out suitable discriminant validity that are greater than parallel off-diagonal correlations values (Barclay, Higgins, & Thompson, 1995).

According to Hair, Money, Samouel, and Page (2007), coefficient range of "±0.91 to ±1.00" shows very strong, "±0.71 to ±0.90" shows high, "±0.41 to ±0.70" shows moderate, "±0.21 to ±0.40" shows small relationship, and "±0.01 to ±0.20" shows slight, almost negligible relationship.

Table 6: Fornell-larker criterion

	Domination	EGSA	Legitimization	OAC	Signification
Domination	0.792				
EGSA	0.701	0.907			

Legitimization	0.763	0.673	0.881		
OAC	0.772	0.786	0.784	0.901	
Signification	0.864	0.642	0.705	0.771	0.817

NOTE: Bold values are the square root of AVE

Information about the individual loading and cross loading shows that all are an acceptable range and in Table-6 indicates that the measurements are reliable because the value of reliability of coefficients are greater than 0.7.

4.3. Structural model

Figure 4 shows the path coefficients (beta) of the constructs. Path coefficient identifies the positive and negative connection, level of statistically significant relationship among constructs. Figure 4 also shows the amount of variance in dependent variable in terms of square multiple correlation value of R^2 which explains the predictive power of specified model. Standard of R^2 values are Strong = 0.67, Weak = 0.19 and Moderate = 0.33 (Chin 2010; Henseler, Ringle & Sinkovics 2009; Hair et al. 2014; Götz, Liehr-Gobbers, & Krafft, 2010). According to Wong (2013) when the value of one-tailed t-statistic is greater than 1.96 and in two tailed t-test value less than 5% or .05 then Path coefficient will be significant (Wong, 2013).

PLS Analysis of main effect

Figure 4 indicated that all of betas (path coefficients) of all constructs are strong. Path coefficient between organizational-meta-structure of signification (OMSS) and organizational absorption capacity (OAC) is 0.355 (beta= .355, $p<.05$, Adjusted R^2= 0.713). Path coefficient between organizational-meta-structure of domination (OMSD) and organizational absorption capacity (OAC) is 0.121. Similarly, organizational-meta-structure of legitimization (OMSL) has a strong positive effect on organizational absorption capacity (OAC) (beta =.443, $p<.05$, Adjusted R^2= 0.713). Path coefficient between organizational-meta-structure of signification (OMSS) and E-Government system assimilation (EGSA) is 0.342 (beta= .342, $p<.05$, Adjusted R^2= 0.617).Path coefficient between organizational-meta-structure of domination (OMSD) and E-Government system assimilation (EGSA) is 0.534. Similarly, organizational-meta-structure of legitimization (OMSL) has a strong positive effect on E-Government system assimilation (EGSA) (beta =.345, $p<.05$, Adjusted R^2= 0.617). Organizational absorption capacity (OAC) has a strong significant effect on e-government system assimilation (EGSA) (beta = .786, $p<.05$, Adjusted R^2= 0.617).

Table-7 shows the positive and significant beta values where t value are > 1.96 and p value are < .05 which confirmed all the hypothesized relationships among all

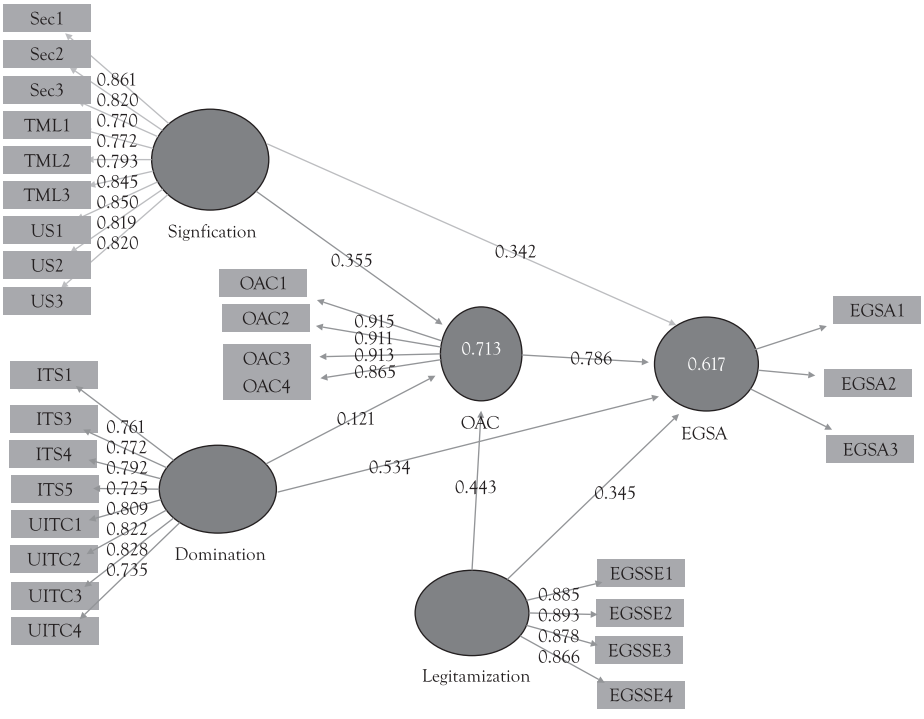

Figure 4: Structural Model

constructs. Thus H1, H2, H3, H4, H5, H6, H7 are supported based on above mentioned significant values (see Tabl-7 and Tabl-8).

Table 7: Original sample, sample mean, Standard error, T Statistics, P value

	Original Sample (O)	Sample Mean (M)	Standard Error (STERR)	T Statistics (|O/STERR|)	P Values
Domination -> OAC	0.156	0.151	0.074	2.097	0.036
Legitimization -> OAC	0.431	0.432	0.049	8.867	0.000
OAC -> EGSA	0.786	0.785	0.017	44.927	0.000
Signification -> OAC	0.333	0.337	0.056	5.918	0.000
Domination -> EGSA	0.167	0.245	0.045	3.078	0.021
Legitimization -> EGSA	0.678	0.347	0.019	25.23	0.000
Signification -> EGSA	0.342	0.451	0.043	7.56	0.000

4.4 Test of mediation hypothesis (sobel test)

For the test of mediation relationship of Organizational Absorption Capacity (OAC) between e-government system assimilation (EGSA) and organizational-meta-structures of signification (OMSS), domination (OMSD), and legitimization (OMSL), Sobel test was used (Sobel. 1982) and two tail probability values (i.e., p-value and sobel test value) were measured by following the mediation model of Baron and Kenny Technique for Sobel test (e.g. Baron & Kenny, 1986).

x= β value of independent variable (OMSS, OMSD, OMSL) which is forecasting the mediator (OAC)

y= β value of mediator variable (OAC) which is forecasting the dependent variable (EGA)

Sx= st-error of x

Sy= st-error of y

Where β= unstandardized regression coefficients and st-error= Standard error

Sobel (1982) recommended that z-test value is a Sobel test value. It must be >1.96 at significant level of 0.05. Table 8 displays the results of sobel test. Mediation relationships of organizational absorption capacity (OAC) between organizational-meta-structure of signification (OMSS), domination (OMSD), and legitimization (OMSL) and e-government system assimilation (EGSA have z-value (sobel test value) above 1.96 and p-value below 0.05.

Table-8 shows the result of mediating hypothesis i.e., H8 and assessment of hypothesis based on Sobel test results. It shows that hypothesis **H8** is accepted.

Conclusion

Table-8: Sobel test

Sobel Test			
Relationship	**Sobel test result (z-value)**	**Two tail Probability (p-value)**	**Assessments**
Organizational-meta-structures of Signification (OMSS), Domination (OMSD), Legitimization (OMSL)--> Organizational Absorption Capacity (OAC)--> E-Government System Assimilation (EGSA)	12.27	0.000	Significant

Based upon business value creation, the prior empirical research confirmed the relationship of meta structures of signification (top management leadership, security, and user support), domination (user IT competence and IT Sophistication), and legitimization (e-government standard efficacy) with IS assimilation as well as with electronic acquisition innovation assimilation (see e.g., Hossain et al., 2011; Rai et al., 2009). If the organization have strong top management leadership, security and user support then the capacity of the absorption and assimilation of new technology will also be strong. Absorption capacity of new technologies depend on strong IT competence and sophistication of the organization. Because the strong E-Government standard efficacy strongly effect on the absorption and assimilation of E-Government system. In addition, the assimilation of any technology depends upon the level of organizational absorption capacity of the companies (Cohen & Levinthal, 1990 ; Tippins & Sohi 2003). By following the same paths, the current study examined the mediating effect of organizational absorption capacity (OAC) in the relationship between E-Government system assimilation and organizational meta structures of signification, domination, and legitimization. However, the current study found different effects among three organizational meta structures: legitimization (OMSL) has higher significant effect (β=0.443) followed by signification (OMSS) (β=0.355), and domination (OMSD) (β=0.121) on organizational absorption capacity (OAC). As well as there are positive and significant effect between independent variables (i.e. organizational meta structure of signification (OMSS), organizational meta structure of domination (OMSD) & organizational meta structure of legitimization (OMSL) and dependent variable (i.e. E-Government system assimilation (EGSA)). Finally, organizational absorption capacity (OAC) also confirmed direct impact on E-Government system assimilation (EGSA) (β=0.786) as well as indirect relationship (z value =12.27).

5.1 Managerial and Theoretical Implications:

The current study research has important managerial as well as theoretical implications, particularly in the context of IT implementation for e-government assimilation. Especially, Pakistan Textile industry overwhelming influences the national economy by contributing up to 70% in the exports of Pakistan. Therefore, the current government has formulated an ambitious Textile and Apparel Policy 2020-25 envisioning to rise clothing and the textile exports to a minimum of $15.7bn and a maximum of $20.8bn by end of the year 2025. Besides, the first-ever Pakistani E-Commerce Policy is under execution stage, and this will provide open access to textile manufacturers/ exporter to tap available business opportunities across the globe. Amazon has already initiated registering Pakistani exporters and manufacturers including textiles (Khan et al. 2021). However, the results of current study implied that to tap all these business opportunities, the top management of Pakistani textile industry should influence

organizational users to accept the e-government implemented systems in their everyday work processes. Besides, the top leadership should also know the structures and factors through which e-government system assimilation processes work and under what conditions these processes are expected to thrive or collapse. The current study especially presents a valuable research model for textile sector managers to assess the technological, intra and inter organizational factors that form the institutional meta-structures that influence the Pakistani ginners' assimilation of e-government systems. Finally, the current study recommends that managers of Pakistani textile industry should plan their e-government system assimilation strategy through personnel training, technology integration, and process changes.

Theoretically, the current study based upon structuration theory within the context of e-government system assimilation, attempts to measure the business value creation by exploring the linkages of organizational as well as IT related six factors of signification, legitimization, and domination with the assimilation of e-government system of Pakistani cotton ginning firms. Particularly, with the addition of absorption capacity as the mediating variable, the whole theoretical framework used in the current study extends and enriches the existing literature on organizational assimilation of e-government systems on business value creation.

5.2 Research Limitations and Future Research Direction

In this study, organizational, technological, and inter-organizational meta structures of signification, domination and legitimization are analyzed within the context of Pakistani ginners' assimilation of e-government system. However, managerial leadership role and organizational readiness for assimilation of new innovations may be integrated in the current research framework to examine their role. Besides, the current research is conducted on ginners industries of Pakistan, therefore, to increase the scope of generalization, the current study can be conducted on other industries. Moreover, in the current research, direct effects of meta structures of signification, domination, and legitimization as well as indirect impact of organizational absorption capacity on e-government assimilation have been studied. However, the current study suggests that other factors such as using social media for e-government services may be included in the forthcoming studies.

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Appendix A: Questionnaire

Sr#		Strongly disagree	disagree	Neutral	Agree	Strongly agree
Organizational meta structure of Signification (OMSS) Top management leadership(TML)						
TML1	The top management of our organization actively articulates a vision for our organizational use of e-government.	1	2	3	4	5
TML2	The top management of our organization actively participates in formulating a strategy for organizational use of e-government.	1	2	3	4	5
TML3	The top management of our organization actively participates in establishing goals and standards to monitor e-government.	1	2	3	4	5
User support (US)						
US1	When our service provider promises to do something by a certain time, it does so.	1	2	3	4	5
US2	Service providers provide prompt services to users	1	2	3	4	5
US3	Service providers provide individual attention to users.	1	2	3	4	5
Security (Sec)						
Sec1	.I feel comfortable with the security that e-government provides to conduct transactions.	1	2	3	4	5
Sec2	I feel comfortable that legal structures adequately protect me from problems regarding business operations.	1	2	3	4	5
Sec3	In general, e-government provides a safe environment in which to transact business.	1	2	3	4	5

Organizational meta structure of Legitimization (OMSL) E-government systems standards efficacy(EGSSE) In my organization, e-government is important for the fulfillment of the following objectives:						
ITS1	Operational cost reductions					
ITS2	Improved quality of decision-making	1	2	3	4	5
ITS3	Improved service to customers	1	2	3	4	5
ITS5	Improved access to information	1	2	3	4	5
User IT competence (UITC)						
UITC1	I have the knowledge to develop and maintain computer-based communication links with our customers.	1	2	3	4	5
UITC2	I am knowledgeable about new computer-based innovations.	1	2	3	4	5
UITC3	When I use the Internet, I feel it is really easy to use.	1	2	3	4	5
UITC4	I am confident to use credit card transactions.	1	2	3	4	5
Organizational meta structure of Legitimization (OMSL) E-government systems standards efficacy(EGSSE)						
EGSSE1	The e-government business standards in our organization for business operations are more or less comprehensive in comparison to other organizations	1	2	3	4	5
EGSSE2	The e-government business standards in our organization address the full spectrum of relevant IS business standards issues.	1	2	3	4	5
EGSSE3	The e-government business standards in our organization are typically flexible in how IT can be used.	1	2	3	4	5

EGSSE4	Typically, our organization commonly takes some form of action against those who knowingly fail to comply with e-government business standards.	1	2	3	4	5
Organizational absorptive capacity (OAC)						
OAC1	Our IS management team is well informed about the business operations of each unit.	1	2	3	4	5
OAC2	Our technical support staff is knowledgeable when it comes to e-government.	1	2	3	4	5
OAC3	Our organization actively seeks information on technological changes that are likely to affect our business.	1	2	3	4	5
OAC4	Our organization generally responds quickly to technological changes.	1	2	3	4	5
E-government system assimilation (EGSA)						
EGSA1	Percentage of the organization's business processes that use the e-government system (%)	1 1-20	2 21-40	3 41-60	4 61-80	5 81-100
EGSA2	What percentage of your office hours are spent doing different business functions using e-government?	1 1-20	2 21-40	3 41-60	4 61-80	5 81-100
EGSA3	Our organization uses e-government systems for its value chain activities ranging from planning to decision-making to meet the organizational business vision.	1	2	3	4	5