

## MEASURES FOR ASSESSING THE READINESS OF BACK-OFFICE STAFF

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### Abstract

**Purpose**—Public organizations deploy state-of-the-art technological advancements to facilitate sophisticated services to the citizens, businesses, and employees. The maturity of back-office staff to adapt, use, and utilize these technological changes at the organizational level is a prerequisite to introduce cutting-edge services. This paper investigates the maturity of back-office staff and proposes a conceptual framework, measurement constructs, and subsequent measures for the assessment.

**Methodology/Design/Research**—Design methodology focuses on combining research with practice. An initial framework and measurement constructs are developed based on the literature review, which are further investigated by conducting a case study at Inland Revenue, Karachi to test the usability in practice using the directive content analysis qualitative method.

**Findings**—the outcome of measurement reveals that though the proposed framework and measurement constructs i.e. roles; responsibilities; trainings; capacity building; capabilities; and attitude are relevant and useful to assess the back-office staff readiness, the measures to assess the constructs may vary in practice depending on the size, scope, and type of the public organizations.

**Research limitations/implications**—although the proposed measurement constructs and measures proved to be useful for assessing the back-office staff maturity, the relationships among different measures and constructs affecting the staff readiness require further research.

**Practical implications**—the case study was conducted at single public organization, which will be extended to multiple public organizations in practice. The extension will not to allow effective testing of the usability of the proposed conceptual framework and constructs, but will also broaden the benchmarking scope.

**Originality/Value**—back-office staff education is discussed and described in the literature as well practice, but there is hardly any existing framework for the assessment and benchmarking of staff maturity. Often viewed in isolation, the practitioners hardly realize the long term intangible objectives to understand how research (literature) can help improve the maturity. Similarly, the academics also describe staff education at generic level, which may or may not be applicable to the different types of organizations. Therefore, we propose a conceptual measurement framework with constructs and subsequent measures and show that combining the research (literature) and practice (Inland Revenue, Karachi) provides deeper insights.

**Keywords:** measurement, e-government, back-office, staff readiness

**Research type:** Conceptual paper, Case study, Literature review

## 1. Introduction

Assessment of the e-government education is sparsely discussed in the literature (Janowski, Estevez et al. 2012). It is increasingly relevant, since well-educated and trained staff is necessary to help public organizations to advance e-government progress. Education of e-government, using online portals, websites, hotlines, customers services, helpdesks, social media and telephony, have been the central focus to provide access, assistance, and education about the services, processes, and procedures (Baum and Di Maio 2000; Breen 2000; Moon 2002; Rohleder and Jupp 2003; Siau and Long 2004; Slack and Walton 2008; UN 2008). In 2012 the United Nations e-government survey published four stages assessment model (emerging, enhanced, transactional, and connected) where the first two stages focus on the information availability, access, communication and the third and fourth phase focus on transformational, integrated, and interoperable services (UN 2012). The majority of e-government efforts focus mainly on the front-office information availability, access, and education for the citizens, users, and the businesses (Maheshwari, Veenstra et al. 2011); whereas scant attention is given to back office aspects. In maturity models the education and training of staff is often neglected.

Technological advancements in the IT and software industries result in the implementation of innovative information systems to provide advanced services to citizens, businesses, and employees. Improved quality of service, transparent

operations, integrated processes and procedures, accountable and efficient service delivery at the technical level have been the focus of design and implementation strategy of e-government (UNESCO; Layne and Lee 2001; Moon 2002; Siau and Long 2005). Though these changes and reforms in the public sector are seen as major achievements, the realization requires a well-educated and trained workforce that is able to implement and operate these new technologies and systems. Recently, governments become aware that the success of e-government is not only dependent on making use of the advancements in technologies (Wong, Fearon et al. 2007). The education of the back-office staff to accommodate these changes is also a key aspect. In this paper we use the term “staff readiness” describing the characteristics of back-office staff education required to accomplish the desired objectives of the public service organizations.

E-government education in general is a broad concept which consists of the learning prospects for professionals, public service employees, academics, businesses, and citizens (UNESCO; Biasiotti and Nannucci 2004; Elovaara, Eriksén et al. 2004; Kaiser 2004; Botts, Schooley et al. 2008). A comprehensive list of potential stakeholders that need various kinds of e-government education is identified by Janowski, Estevez et al. (2012, p-2272). Stakeholders include political leaders, government leaders, project managers, management staff, technical staff, service staff, businesses, and citizens. Since this paper is aimed at measuring the education readiness of back-office staff, the focus will be on project managers, administrative staff, technical staff, and service staff working in the back office. This paper develops a set of measurement constructs to measure the back-office staff readiness. In addition, these measures are used to assess the maturity of staff in a case study. First we investigate the existing literature on the measurement of back-office staff education and propose the measurement framework comprising of a list of measurement constructs and associated measures for staff readiness. Next we conduct a case study of the back-office of the Inland Revenue Karachi, Pakistan and apply the research methodology to combine research with practice. Thereafter, we discuss the outcome of the case study for application and use of the proposed measurement constructs and the measures. Finally, we draw a conclusion and recommendations.

## 2. Theoretical Background

The goal of using literature for a background is to provide a foundation for the elements that should be included in the measurement of the back-office staff readiness for e-government. Schools, colleges, and universities around the globe provide education in different areas of science, technology, and arts. The classification of these studies and sub-studies into independent areas of research and education as per demand and supply principle provides all types of skilled professionals. Though the aim is to meet the requirements of governments, businesses, and private organizations, the exploration and investigation of staff education for e-government is difficult (Janowski, Estevez et al. 2012). The scope of e-government education for public service organizations is wide and requires knowledge of multiple disciplines (Scholl 2007; Janowski, Estevez et al.

2012). Therefore many public organizations facilitate staff with on-the-job professional trainings and workshops, sponsoring part-time education at universities, and external trainings from abroad. Measuring the readiness of the back-office staff considering these various educational paradigms requires deeper understanding from theory as well as practice. Although many educational programs for e-government staff education by universities, local and federal governments, and international organizations are found in literature (UNESCO; Augustinaitis and Petrauskas 2004; Biasiotti and Nannucci 2004; Elovaara, Eriksén et al. 2004; Kaiser 2004; Slack and Walton 2008; Hu and Wen 2010); they hardly discuss the measuring and benchmarking of the readiness of e-government back-office staff. Though there are organization specific readiness measures for recruitment, trainings, and skills development (Field 2003), these measures do not provide any guidelines for measuring the back-office staff readiness in general. Likewise, there is hardly any consensus among different organizations about the measures that can be used to determine the back-office staff readiness. The existing e-government educational programs vary from each other as the design criteria are based on the conditions arising from the specific public organizations. Furthermore there is no unified or standardized e-government curriculum (Leitner 2006; Janowski, Estevez et al. 2012).

The measurement constructs for measuring the readiness of e-government back-office staff can be explained by understanding the basic requirements of public organizations for effective implementation and operationalization of e-government education objectives. These objectives require the stakeholders of public organizations to understand the roles and responsibilities to advance the future policies and strategies (Torres, Pina et al. 2006; Wong, Fearon et al. 2007). The role and responsibilities of back-office staff refer to the vision, strategy, decision making, staff motivation, collaboration, human resources, accounting, monitoring, technical assistance, systems design, service provision, interaction, innovation, operations, and implementations (UNESCO; Moon 2002; Field 2003; Irani, Love et al. 2005; Sigala and Marinidis 2010). Another important objective of e-government education is training and development. Traditionally, public organizations require specific degree programs and related working experience at the time of recruitment, but the organizational changes due to advances in the ICT, business processes, integrated service provisioning, and public-private partnerships etc. require further training and development of the staff. Yet, the effect on education and training is often not measured. There is hardly any developed framework to determine staff readiness.

According to Hu and Wen (2010) China alone in the coming 10 years will require 135 thousand ICT professionals for networking, website management, and IT solutions. ICT trainings mainly target maintenance, installations, debugging, hardware assembly, software utilization, operating platforms, networking, and information safety and security (Hu and Wen 2010; Schuppan 2010). On the contrary to the ICT trainings, human development trainings are equally important. The UN e-government survey 2012 describes the human development index as an integral part of e-government success (UN 2012). Along with trainings, the back-office staff of public organizations requires a range of diverse types of competences e.g. change management, leadership skills, and

knowledge capacity in order to be able to innovate (McCauley 2006; Deursen and Dijk 2009; Schuppan 2010). For the conceptualization, improvement and administration of e-government objectives, it is required for public organizations to assure the competence capacity (Gupta 2006). Similarly, the education on knowledge and professional attitude of the back-office staff are significant for effective e-government service provision, coordinated decision making, collaboration, cooperation, shared values, business processes, and operation procedures (Ndou 2004; Schuppan 2010; Maheshwari, Veenstra et al. 2011; Janowski, Estevez et al. 2012). The review of e-government education related work in traditional education system and e-government literature provides basic understanding of the need and importance of back-office staff education. The existing literature clearly lacks to fully incorporate the staff readiness in the measurement models, methods, and frameworks.

### 3. Research Methodology

Measuring the readiness of the back-office staff in public organizations is a difficult endeavour, as there is a broad range of skills, capabilities, and competences that represent the staff readiness. The public organizations can have different organizational structures for staff roles, responsibilities, tasks, functions, and operations. Based on the e-government literature review of staff education, we propose a generic framework for measuring the readiness of the back-office staff. Figure 1 shows the framework consisting for six broad measurement constructs as part of the e-government staff education. The constructs capture the broad area of e-government staff education, whereas the associated measures reflect the characteristics of the each constructs. It is important to note that though these constructs and measures are described separately, they might be correlated and interdependent. The measurement constructs roles and responsibilities of the back-office staff are more at the organizational level, whereas the other four constructs i.e. capability, capacity building, knowledge, and attitude are at the individual level. The organizational level education includes all staff and is required to advance e-government.

The measures for the constructs of back-office staff education will be further refined in the case study. The purpose is to develop a measurement framework for back-office staff readiness by combining the research with the practice. The initial proposed framework was further refined and tested for its completeness and usability in practice by conducting sixteen targeted interviews with managers, project leaders, policy makers, IT specialists, and operational team leaders at the Inland Revenue Karachi, Pakistan. In addition to the interviews; several documents, reports, press releases referred by the interviewees were investigated.

The interview questionnaire comprised open as well as semi-structured questions. Furthermore, each interviewee was also asked to provide oral and written feedback about the usefulness of proposed measurement framework, constructs, and measures. We

used qualitative data analysis software ATLAS.ti version 6.2 to analyse the interview data. This tool is useful for qualitatively analysing the large amount of data in text and audio formats; reducing large data into systematically structured codes and quotations; avoiding biased interpretation of the text, annotations and concepts; and effective coding of the factors and quotations (Klein 1997; Muhr and Friese 2004).

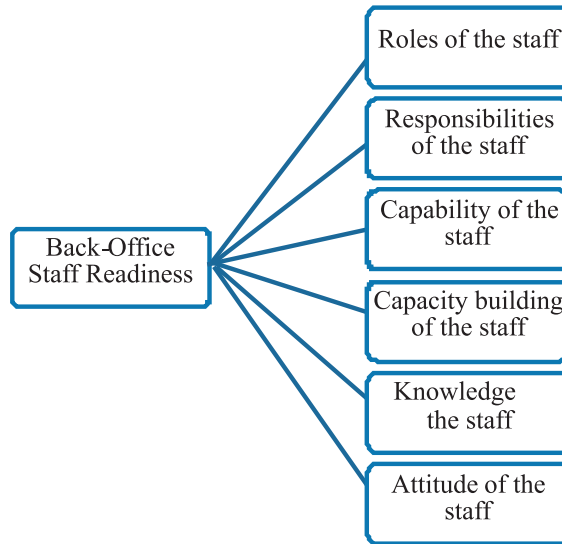


Fig. 1. Measurement framework

#### 4. Roles of the Staff

Roles of staff in public organizations vary and depend on the different areas, organizational strategy, and policy design (Baxter 1998). Roles are set of linked tasks, rights, behaviours, and obligations (Wikipedia) that are assigned to the different types of employees e.g. technical staff requires e-government education because their roles include design, management, IT solutions, operational activities, and technical assistance to the customers (Parker and Hobbs 1999; Schuppan 2010; Janowski, Estevez et al. 2012). The readiness of this construct is determined using the measures job-description and functions of the back-office staff. A high readiness is represented by pro-active and constructive behaviour and low readiness by passive and submissive behaviour.

**Job-description:** This measure describes detailed explanation of activities and tasks associated to the job position of the back-office staff. Readiness of this measure reflects the staff associated roles and functions.

**Functions:** This measure describes the actions required for fulfilment of designated roles of the staff in the back-office of the public organizations.

## 5. Responsibilities of Staff

Responsibilities of the back-office staff underpin the tasks and liabilities. Clear and well documented responsibilities are imperative for effective service provision and governance (Hackney and Jones 2006; Janssen and Joha 2007; Sigala and Marinidis 2010). Clear responsibilities in a structured and professional organization indicate a high readiness, whereas unstructured and ad-hoc activities depict low readiness. This measurement construct will assess the legal and collective responsibilities of the back-office staff. For successful e-government accountability, monitoring and evaluation of the staff responsibilities is a key guiding principle (Field 2003).

Legal responsibilities: Public organizations laws and regulations describe legal responsibilities of the staff for service provision (Janssen and Cresswell 2005). This measure determines the readiness of the back-office staff legal responsibilities.

Collective responsibilities: This measure focuses on the collective responsibilities of the back-office staff as stakeholders. Collective responsibilities of e-government stakeholders are important for the collaboration and coordinated decision making (Burn and Barnett 2000; Hackney and Jones 2006; Sigala and Marinidis 2010).

## 6. Training of the Staff

Back-offices of public organizations require both technical as well as organizational expertise to achieve the desired objectives (Maheshwari, Janssen et al. 2011). Trainings are the essential part of e-government transformations to implement the technological advancements in the back-office (Parker and Hobbs 1999; Homburg and Bekkers 2002; Schuppan 2010; Janowski, Estevez et al. 2012). This measurement construct focuses on the measure ICT trainings and human development trainings. The first measure encapsulates the technical problems and the last measure focuses on the organizational problems of the back-office. The ability to effectively handle these problems represents the high and low readiness for this construct.

ICT trainings: The readiness of this measure reflects the ability of back-office staff to operate, handle, and implement the technological advancements i.e. information systems and software.

Human Development: Unlike ICT trainings, human development trainings focus on the organizational aspects e.g. communication and leadership skills of the back-office staff.

## 7. Capacity Building

The capacity building of an organization is described by Gupta (2006) as the resources of people, processes, and tools for conceptualizing, developing and managing the e-government projects. This implies that the management (managers, project

leaders, and senior back-office staff) require education about the leadership skills, change management, and knowledge (McCauley 2006; Schuppan 2010). This construct determines the readiness of the back-office management staff. The construct is assessed using the measures change management and leadership skills of the back-office staff. The successful staff management, direction, and deployment reflect the high readiness, whereas the lack of management resources reflects low readiness.

Change management: Back-office managers, project leaders, and seniors are liable for implementation and operationalization of designated tasks and assignments. Thus, the change in public organizations at operational as well as strategic levels are crucial and ever-present (Burnes 2004). Therefore, the staff leadership should be able to provide continuous direction and manage required changes (By 2005). This readiness of this measure reflects how the back-office staff manages changes in the organization.

Leadership skills: The back-office staff as IT managers, project leaders, and senior staff is required to deploy skilled, effective, and knowledgeable employees for the appropriate jobs (Parker and Hobbs 1999; Accenture 2002). The capacity building of back-office staff requires effective leadership skills for the success of e-government projects (Gupta 2006).

## 8. Capability of sStaff

Capability of back-office staff is important for effective service delivery, internal and external interactions, co-operation and communication, economic competitiveness, and shared decision making (Ndou 2004; Schuppan 2010). This construct determines the readiness of business processes and operational procedures of the back-office staff, where the appropriate knowledge of processes, procedures, and business means high readiness and vice versa.

Business processes: Public organizations provide better services by advancing the business processes. Back-office staff education about the business processes is important for government to citizen (G2C) and government to government (G2G) interactions as the lack of knowledge can result in wrong interpretations of the information (Schuppan 2010; Maheshwari, Veenstra et al. 2011). This measure determines the business processes readiness level of the back-office staff.

Operational procedures: Public organizations follow organizational operational procedures for execution of day-to-day tasks. These procedures are generally standardized and documented in the organizational laws, regulations, and constitutions. The readiness of this measure determines the knowledge level of staff about these operational procedures.

## 9. Attitude of Staff

Implementation and operationalization of changes in the public organizations depend on the attitude, ability, and willingness of the e-government stakeholders



e.g. citizens, businesses, and the organizational staff. Among these stakeholders the education or awareness of the attitude and willingness is often discussed in literature from citizens and businesses perspectives (Field 2003; Belanger and Hiller 2006; Arrivals, Friends et al. 2007; Schuppan 2010). Though the attitude and willingness of the employees in general is sparsely discussed (Ndou 2004; Trkman 2010; Chiou 2011), there is hardly any discussion about the attitude of the back-office staff. Readiness of this construct depends on the level of pro-active behaviour contributing to the continuous organizational improvement.

**Willingness:** This measure focuses on the pro-active behaviour of the back-office staff to endure organizational changes due to technological advancements, and policy and strategy reforms.

## 10. Case Study and Findings: Inland Revenue (IR) Karachi, Pakistan

The Federal Board of Revenue (FBR) is responsible for Inland Revenue, Customs, and Excise departments. This case study focuses on the Inland Revenue (IR) Karachi, Pakistan. Inland Revenue Pakistan aims to improve tax collection and return operations and systems by introducing state-of-the-art technology to the citizens, businesses, and employees. The main objectives of FBR Pakistan include transparency, credibility, integrity, professionalism, and tax payer's satisfaction in rendering various processes and procedures involved in service provision. FBR focuses on enhancing the capabilities of Inland Revenue services by providing ICT based transparent, integrated, interoperable, responsive, satisfactory, fair, and efficient services. This implies that along with front-office, the readiness of back-office staff of Inland Revenue is equally important to achieve above stated aims and objectives. Though the IR Karachi often provides these staff trainings based on the demand and supply principle, there is hardly any developed framework to determine the staff readiness.

The case study focuses on measurement of the back-office staff readiness at IR Karachi, Pakistan. In research methodology section, we described the initial measurement framework, constructs, and subsequent measures for each construct; whereas in this section they are applied in practice to investigate the completeness and usability the proposed measurement framework and constructs. This not only allowed us to test the usability in practice, but also to refine the constructs and measures by combining research and practice. In January, 2012 sixteen targeted interviews were conducted with the managers, project leaders, policy makers, IT specialists, and operational team leaders. Inland Revenue Karachi is divided in 3 zones with each having a Regional Tax Office (RTO) for small and medium tax payers and a central Large Taxpayers Unit (LTU) for the large tax payers e.g. businesses, corporations, and private companies. Jointly, these four offices command, control, and facilitate the Inland Revenue services in Karachi under the FBR, Pakistan. This decentralization was initiated as a part of

2004 reforms supported by World Bank Project. In order to avoid the bias during data collections, the experts with similar portfolio were interviewed from each RTO and LTU offices. Furthermore, the interviews taken at LTU were recorded in audio format, whereas the interviews at RTOs were directly coded in the text format. Though the usability testing of the proposed measurement framework, constructs, and measures was investigated during the interviews, a separate discussion was also arranged after each interview for short period to get feed-back about the measurement framework, constructs, and measures. Interviews were designed to measure the back-office in general, whereas a part of interviews focused only on the readiness of staff education. Each interview comprised of eighty questions in total and lasted for one hundred twenty minutes including specifically designed twenty six questions about the readiness of back-office staff education. It was observed during the interviews that the interviewees were very keen on understanding the back-office staff readiness, which led to further discussions and questions. Though the interviewees were technically knowledgeable and well prepared for the answers, they did hesitate to reply some questions due to privacy concerns or if they were not sure about the exact numbers. Therefore, starting from the first interview different documents, reports, press releases were referred by the interviewees for detailed explanations about the Inland Revenue acts and reforms. Furthermore, the contact details were also exchanged for feedback as well as confirmation of the exact figures.

The interviewees found the staff readiness constructs useful for policy making, measuring, and operationalization of e-government back-office objectives. They considered them essential for the success of the current as well as upcoming projects. An interviewee at RTO-II quoted saying “without proper education of the back-office staff, we cannot achieve major long-term objectives of paperless, transparent, accountable, and citizen oriented public organizations,” whereas another interviewee at RTO-III quoted saying “Staff training mechanism should be improved to enhance change acceptance at the grass root level for operationalization of the technological advancements and policies issues of the back-office.” Similarly, the word “capacity building” was repeatedly mentioned forty one times in interviews as an important factor to accomplish the desired goal of integrated paperless back-office.

Figure 2 shows the outcome of the case study in a map showing the relationships between the construct and measures. The numbers in brackets e.g. Moral resp: {15-3} on each node show the frequency count (15) and the links (3) between the measures and constructs. This implies that the measure i.e. Moral responsibility was mentioned fifteen times in discussions during sixteen interviews in relationship with three distinct measures and constructs. Though these relationships are described by the interviewees, their weight is not necessarily in proportion with the frequency counts as shown on each node. The open questions asked with the interviewees for staff readiness often resulted in further discussions, suggestions, and future recommendation.

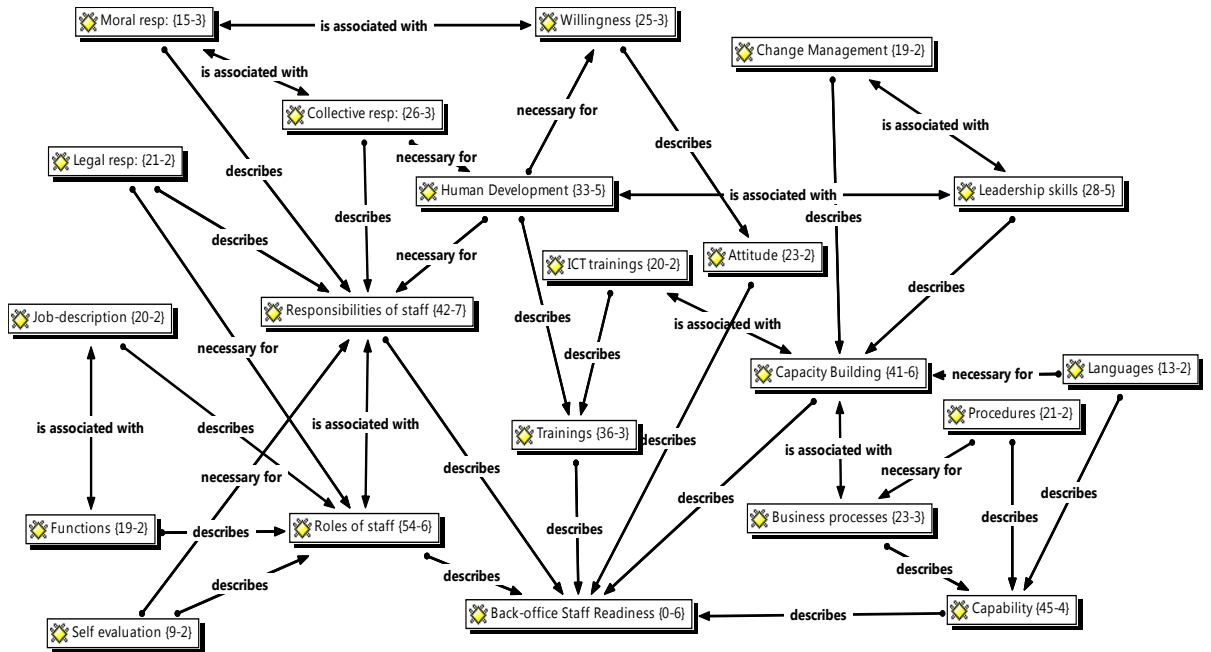


Figure 2. Map of measurement constructs, measures, and their relationships

The majority of interviewees recommended the proposed framework and its measurement constructs for back-office staff readiness as useful for measurement, some of them suggested for expansions, and some were interested in the benchmarking. Furthermore, the list of selected measures was considered important and relevant for measurement by majority, some also argued that the measures are relative to the type of organization and likely vary from one organization to another. Thus, they suggested the customization of measures to the specific circumstances. The interviewees were also interested in further investigation of the measures and their inter-dependencies and how they fit in different organizations.

Fig. 2 shows that though the frequencies of each construct and measure is different, they are interdependent on each other via specific relationship links. The analysis of the interview data reveals that there are three types of relationship links, namely describe, necessary for, and associations relationships. First the unidirectional relationship link “describe” between the back-office staff constructs and measures depicts that the measures defining the constructs explain the back-office staff readiness. This relationship link shows the acknowledgement of interviewees about the measurement framework, whereas the frequency count of each measure for this relationship link explains the readiness of measures and constructs. For example the frequency counts twenty, nineteen, and nine explain the readiness of the measures i.e. job-description, functions, and self-evaluation and the frequency count fifty four explains the maturity of the construct roles of staff construct. Though these figures are not the absolute values of readiness, these frequency counts were used to determine the significance of the measures and their

constructs. It must be noted here that though the frequency counts are the number of times these measures and constructs are mentioned for the assessment of the back-office readiness, the distribution of these counts is divided among the relationship links.

The second relationship link “necessary for” is also a unidirectional connection which describes the dependence of measures and constructs on other measures and constructs. For example the measures i.e. self-evaluation and legal responsibilities are necessary for the constructs i.e. responsibilities of staff and roles of staff respectively. Though the measure self-evaluation describes the construct roles of staff and the measure legal responsibility describes the construct responsibilities of staff, they are also necessary for the other constructs. This elaborates the concept that measures describing constructs of back-office staff readiness are not independent and can have interdependencies on each other. These types of relationships show the interdependencies between the constructs and measures.

Finally, the third relationship link “is associated with” is bi-directional connection among the measures and constructs which describes that the measures and constructs are mutually related and dependent on each other. These relationships can be among the measures of the same construct as well as among the different measures and constructs. For example the measures i.e. job-description and functions both describe the construct roles of staff, but they are also mutually related and dependent on each other. Similarly, the measures moral responsibilities and willing describe different constructs i.e. responsibilities of staff and attitude of staff respectively, but these measures also associated and depend on each other. More morally responsible staff is more willing staff and vice versa more willing staff is more morally responsible. This shows that many of the measures can be assigned to more than one construct.

The outcome of the field study interviews also reveal that new measures can be added to the proposed list of selected measures. Fig. 2 shows three additional measures expect the initially proposed measures which were found prominent in the data analysis. These new measures include self-evaluation, moral responsibilities, and languages. The interviewees insisted that the staff should be capable to convey clear messages in regional languages. Table 1 shows the total of extended measures and their respective constructs. The newly added measures are highlighted in bold to make distinction between the proposed and extended measurement constructs. The case study reveals that the isolated view on measurement based on either research or practice may not incorporate the essential measures that are relevant and appropriate to the particular organization.

The data analysis of the interviews data and feedback discussions shows that the proposed measurement framework and constructs are essential for organizational success of e-government projects and long-term strategic objectives. They described this need as a gap which requires immediate attention from researchers and practitioners for e-government to proposer in developing countries. Some interviewees suggested in the feedback form to include the education of back-office staff as the primary focus in e-government design and development strategy, whereas others explained the use

of back-office staff education as an integral requirement for the progress of Inland Revenue, Pakistan and particularly Karachi.

Table 1. Extended Measurement Constructs

No.	Measurement Constructs	List of Measures
1	Roles of staff	a. Job description b. <b>Self-evaluation</b> c. functions
2	Responsibilities	a. Legal Responsibilities b. Collective Responsibilities c. <b>Moral Responsibilities</b>
3	Trainings	a. ICT Trainings b. Human Development
4	Capacity Building	a. Change Management b. Leadership skills
5	Capability	a. <b>Languages</b> b. Business processes c. Procedures
6	Attitude	a. Willingness

The testing of the proposed measurement framework for the back-office staff readiness in practice by means of interviews not only explained the usability importance of the staff education, but also helped in extending the measures for constructs. The measures like human development, moral responsibilities, and willingness of staff were identified by the interviewees as the major indicators for improvement of back-office education. The interviewees were putting continuous emphasis on the need of staff education. The interviewees discussed that though the technology limits the direct interaction with customers which reduces the possibilities of corruptions; whereas reduced interaction of back-office staff with customers results in low revenue collections. Therefore, the focus should be on staff education and not on the reduced interaction by utilizing technology. Another interesting finding of the field study was the knowledge about the regional languages. Pakistan has around eighty local languages and ten major regional languages; but official government language is mainly English whereas in some (but very rare) cases, Urdu. As a consequence the majority of employees have difficulties in understanding and interpretation of the business terminologies, policies, acts, and laws to communicate them to the customers of Inland Revenue. The field study also reveals that the ability to use the existing infrastructure, systems, laws, policies, and regulations is lacking due to insufficient staff education. Therefore, the acceptability of technological advancements in the back-office staff and the customers e.g. citizens, businesses, and employees is not high. Finally, the feedback of interviewees about the measurement framework and constructs was promising, but they were interested in further investigation and application of proposed list of measures in other public organizations.

## 11. Conclusions

As no measurement of staff readiness is available, an explorative study to develop a measurement framework was conducted. The measurement consisted of constructs and measures to determine the back-office staff readiness. The initial framework was further refinement and tested in practice by conducting interviews. The investigation of the back-office staff education in research (literature) as well as practice (IR Karachi case study) confirmed the need to educate back-office staff. Several interviewees indicated that E-Government education of back-office staff is increasingly becoming the central focus of the public organizations. Though this phenomenon is discussed and explained in literature, there is hardly any existing frameworks for the assessment and benchmarking of back-office staff readiness. The back-office education is equally important for e-government compared to the advancements in the ICT infrastructure. The selection of relevant measures for each construct is difficult since the ontological interpretation of these measures can be different in research as well as practice. There were six constructs and fourteen measures identified. Moreover the scope, complexity, and size of public organizations for their services, processes, and operations can also be different from each other. Therefore, this paper includes the generic constructs in the measurement framework. Further research should focus on further refinement, extension and generalization of the constructs and measures. This can be done on other situations, like other (non-developing) countries and for other situation (e.g. participation instead of services).

The challenges to educate the back-office staff are not easy and the policy makers need to focus more on capacity building, trainings, and competence of the back-office staff. The organizational collaboration, co-operation, and co-ordination in public organizations are often very poor due to the lack of knowledge, willingness, moral responsibilities and human development. Though this paper shows promising results for measurement framework and constructs from the case study, there is a definite need for further investigation into measures that can be generally applied to different types of public organizations.

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## „BACK-OFFICE“ DARBUOTOJŲ PASIRENGIMO E. VALDŽIOS ĮGYVENDINIMUI VERTINIMO PRIEMONĖS

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**Santrauka.** Viešosios organizacijos nuolat transformuojamos dėl technologijų pažangos siekiant palengvinti darnias paslaugas piliečiams, įmonėms ir darbuotojams. Siekiant užtikrinti e. valdžios pažangą viešosiose organizacijose, reikia kvalifikuotų „back-office“ specialistų. Nors darbuotojų švietimas yra dažnai aptariama tema ir moksliniuose tyrimuose, ir praktikoje, bet dėl matavimo metodų, kuriais būtų galima nustatyti personalo pasirengimą, sutarimas dar nerastas. Dabartinė praktika yra sukurta siekiant patenkinti konkrečius reikalavimus, tačiau ji formuojama atskirai neatsižvelgiant į mokslinis tyrimus ar praktikos perspektyvas. Vargu ar yra bet vienas personalo pasirengimo matavimo metodas, kuris jungia mokslinis tyrimus ir praktiką, pvz., organizacijos. Šiame straipsnyje, mes pasiūlėme vertinimo sistemą, sudarytą iš konstruotų ir susijusių priemonių, kurios leidžia įvertinti „back-office“ darbuotojų pasirengimą. Be to, mes taikėme gludinimo metodą (angl. refinement method) testuodami siūlomą pasirengimo vertinimo metodiką praktikoje. Atvejo tyrimas buvo atliktas Inland Revenue (IR) Karačyje, Pakistane. Mes atlikome 16 tikslinių interviu su vadovais, projektų vadovais, politikais, IT specialistais ir veiklos grupių vadovais. Atvejo tyrimas ne tik leido mums išbandyti siūlomą matavimo metodiką ir konstruktus praktikoje, bet leido patobulinti ir išplėsti „back-office“ personalo pasirengimo priemones aktualiomis ir pritaikytinomis IR Karačyje. Atvejo tyrimo rezultatai atskleidžia, kad pasiūlyta metodika ir konstruktai, t. y. vaidmenys, atsakomybė, mokymai, gebėjimų stiprinimas, pajėgumai ir požiūris, yra aktualūs ir reikalingi įvertinti „back-office“ darbuotojų pasirengimą. Tačiau kai kurie dalyviai pasiūlė, kad priemonės gali skirtis priklausomai nuo viešosios organizacijos dydžio, apimties, sudėtingumo ir tipo. Dalyviai teigė, kad gebėjimas naudoti esamą infrastruktūrą, sistemas, įstatymus, politikas ir reglamentus yra neigiamai veikiamas dėl nepakankamo personalo ugdymo. Atlikti moksliniai tyrimai personalo pasirengimo klausimu (literatūra), taip pat praktikos analizė (IR Karačyje atvejo analizė) patvirtino, kad būtina ugdyti „back-office“ personalą. „Back-office“ darbuotojų švietimas toks pat svarbus elektroninės valdžios efektyviam įgyvendinimui, kaip ir IRT infrastruktūros pažanga. Tinkamų priemonių parinkimas kiekvienam konstruktui yra labai sudėtingas, kadangi jų ontologinis aiškinimas skiriasi ir moksliniuose tyrimuose, ir praktikoje. Be to, priemonių ir konstruotų tarpusavio priklausomybė gali skirtis priklausomai nuo organizacijos, kurioje jie bus taikomi. Tolesni tyrimai reikalingi testavimui, tobulinimui ir priemonių generalizavimui, kad siūlomą metodą būtų galima taikyti įvairiose organizacijose.

**Raktiniai žodžiai:** matavimas, e. valdžia, „Back-office“ darbuotojų pasirengimas.

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