E-Governance and Teaching in Higher Education Institutions in Sudan

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ABSTRACT: *Integrating the advanced technology in teaching resulted in providing various opportunities for teaches through the use of different technological tools that enhance teaching and learning process. E-governance is widely accepted as an effective service delivery tool and equated with good governance by all developed countries and developing countries like Sudan. Many challenges, such as social, political, and technological considerations, beset the successful implementation of e-governance. All of these need to be given due care and attention for e-governance to be successfully developed. This study aims to examine the contributions of e-governance in enhancing the missions of higher education institutions in Sudan. Paper constructs were developed using measurement scales adopted from prior studies. Both qualitative as well as quantitative research approaches were conducted. Data was collected using a self-administered questionnaire from random samples drawn from the population of students and staff from three different Sudanese universities located in Khartoum Municipality. The data of the study was analyzed using descriptive analysis, regression analysis, and linear regression analysis. The study findings revealed that e- governance applications in higher education institutions contribute significantly to enhancing the teaching missions through created educational platforms and provide immediate feedback on student tasks among others but the application of e-governance in the selected universities was found to be low and the incorporation of advanced technology was also found to be low due to many challenges confronted by the faculty members. Therefore For the success of e-governance, there is a need for good university practice, improved infrastructure, and allocating a good budget for higher education. Thus, barriers to e-governance are technological or institutional and depend on their resources, policies, or traditions. Recommendations were made for the university leaders, university teachers, students, and bodies responsible for higher education policy.*

Keywords*: E-governance, Higher education, teaching.*

I.   Introduction and Context

Sudanese universities seek to achieve a distinguished position among the top international universities list as part of the country's Higher Education Vision 2030. Consequently, universities make every effort to achieve their excellence, move towards e-governance and implement its principles. The most important are transparency, accountability, equality, internal and external participation, and effective representation of all parties in the decision-making process. Universities also tend to decentralize and work towards empowering faculties and schools. These have effectively managed their resources in a way that achieves quality and distinction in the educational process. The application of e-governance in universities is essential because of the roles of integration, societal development achievement, and institutional excellence for universities. Many people believe that the e-governance concept is newly emerging and that it is beginning with the internet

emergence. The e-governance concept appeared in the 1930s, but it was limited to the business administration field. The emergence of the e-governance concept has come very late in universities and education in general. The e-governance application in Sub-Saharan African universities has come even later. The Arab Universities Association at the Beirut Conference 2015 commissioned the application of e-governance in Higher Education. This guide has included several dimensions: administrative and financial control, university management and activities, participation, stakeholders, transparency, accountability, planning, and measuring potency (Al-Din, 2015).

Higher Education Institutions (HEIs) are responsible for providing education, research, and qualified and skilled human resources to engage effectively in the community. The HEIs primary missions are teaching, research, and community outreach. They serve as a source or feeder system in all areas of life by providing human resources in management, planning, design, teaching, and research. Hence, a country's technological advancement and economic growth depend on higher education institutions (Chinnathurai&Javid, 2018).

II.   Statement of the Problem

The application of e-governance in higher education institutions are expected to enhance the delivery of the educational services and make them accessible as well as improves the overall administration of higher education institutions. Many studies have been conducted on e- governance and higher education missions, but separately, and only a few reviews link them together. It can be said that all Sudanese universities have the main objective be excellence and exclusivity in teaching, research and community outreach which can be achieved by applying e- governance in various dimensions to attain the best results. Most e- governance studies deal with reaching a specific concept of e-governance and defining its dimensions as a study. Most of the studies deal with institutional excellence determinants and institutional excellence variables, such as creative behaviour and institutional excellence, the leaders' role in institutional excellence, human resource management applications, and the functional environment.

Moreover, it has been observed that there is a lack of e-governance application in higher education institutions, in terms of the mission delivery. This lack of e- governance application impedes the institutions' progress in their mission's delivery and monitoring, particularly during the global pandemic (COVID-19). The lockdown had a negative effect on the general education system in Sudan, particularly the higher education institutions. These pandemic effects led to the closure of the schools and universities, and they were also closed prior to that due to the 2019 Sudanese revolution, which created learning gaps and increased the number of years of education for the students because there was no alternative learning. The pandemic also expanded its effects to the post-graduate students and the researchers, specifically those who attend physical class where there was a need to continue through online class with the access to the information. Accordingly, this study's problem is represented in the scarcity of previous studies and research that deals with e-governance and higher education mission in Sudanese universities. It is also evident that most e-governance studies aim to reach a specific e-governance concept and define its dimensions, focusing on its role in the government's public services delivery. The inspiration to conduct this study is an attempt to fill this gap by analyzing the extent to which e-governance enhances teaching missions in higher education institutions in Sudan.

III.   Research Question

To what extent does e-governance enhance university teaching in Sudan?

IV.   Higher Education in Sudan

Education is definitely a valuable resource for any country, however it's particularly important for developing countries and those hoping to break free from the cycle of violence and despotism that afflicts much of Africa. In Sudan's case, the history of its educational system mirrors the country's painful transition to independence,

violent attempts to forge a common national identity, and decades of conflict and governmental rule. Unfortunately, this history is also one of missed opportunities, inequitable policies, and a self-perpetuating tendency to use higher education as a proxy for genuine political processes (Bishai, 2008).

Later on, Higher education institutions in Sudan have grown significantly due to the government's efforts to address the significant changes in Sudan's political institutions, economy, and peace process. The higher education revolution of 1998 adopted Arabic as a language of instruction in all universities instead of English and established 19 new public universities. The government also approved the establishment of private universities and colleges (Gasim, 2010).

Good university governance considers a vital factor in driving social changes and ensures education sustainability for every country. Despite the progress regarding the expansion of Sudanese universities, the higher education institutions in Sudan face many challenges concerning practicing good university governance. These challenges encompass the financial budget to function effectively, such as low pay for university staff compared to the teaching and administrative tasks they perform and the rising cost of living, in addition to the lack of facilities, including lecturer's room, libraries and students' accommodation as well as laboratory equipment that are vital in undertaking scientific research. Hidayah and Susanto (2020) argue that Universities must be supported with sufficient facilities and equipment and high discipline in developing guidelines, education, teaching and cultural norms in the university context to produce competent graduates. Hence, it's clear that the university must be managed in accordance with good university governance.

Good University Governance (GUG) can potentially improve the quality of universities' administrative system that supports monitoring the colleges and encouraging academic achievement. According to (Morton et al., 2019), the concept of good university governance emerged from the realization that higher education institutions cannot be directly correlated with the administration of a country. Instead, the universities must uphold their values, develop and implement a more transparent, accountable model, and comply with applicable rules. Hence, there is a need for Good University Governance practice in Sudanese higher education institutions to improve the technological infrastructure as long as there is a global shift in the higher education structure.

Challenges force universities to adapt their resources, academic programs, research investments, and other items to continue operating within the environment. Camelia and Marius (2011) argue that economic and technological development provides many opportunities for these institutions to improve their activities. The researcher considers the application of e-governance in Sudanese higher education institutions as critical as one of the twenty-first-century demands. This will support transparency and accountability and provide a clear map of evaluating and monitoring the university institution, besides reducing the administrative tasks, cost, and effort. Furthermore, e-governance in the context of universities could lead to the development of effective and transparent university governance since e-governance has significant potential for enhancing communication between students, staff, the community, and other stakeholders.

V.   E-governance in Higher Education

According to Casap and Peterson (2017), education is one of the most significant components in any country's long-term development. E-governance in education refers to using information and communication technology to improve education quality and service delivery and facilitate access to information and educational resources (Abboud& Abdel-Saheb, 2019).

E-governance also encourages students' participation in the decision-making process and makes the administration more transparent and efficient. It can be said that e-governance at Sudanese Universities is the application of modern technologies and electronic technology to all organizational and administrative processes to enhance teaching, research and community outreach. It electronically transfers all commitment to apply the

principles of governance and ensure institutions' excellent and distinguished performance. It aims to achieve efficiency, effectiveness, and excellence in performance using modern technologies and information technology for several goals. The most important are institutional integration, administrative processes, improved efficiency, information accuracy, and effective decision-making, reducing costs, and developing the functional environment (Al-Zuhairi and Fadel, 2017).

Rahmani and Jenabi (2020) claim that integrating e-governance in the field of education prepares academic institutions and university colleges to address the challenges posed by globalization," international" and scientific competition, and technological advancement in terms of global up-to-date, and effective quality management, including required productivity and effectiveness. The primary goal of e-governance in education is to improve educational quality. Because of their expanding interactions with students and universities are among the organizations that are well-suited for integrating e-governance.

Integrating e-governance in higher education institutions has resulted in significant improvements in terms of research, teaching, and learning. Many positive changes have resulted from the integration of information technology into the education sector. Numerous online libraries provide extensive reading materials to students, researchers, and lecturers and they can publish their work online for their students to read. For all these reasons, more academic systems should embrace technology because it improves teaching effectiveness and facilitates practical learning, and students should also embrace it because most jobs will be technologically based in the future(Kakkar and Himanshi,2020).

According to Dahiya (2018) effective integration of ICTs in the education sector helps in improving teaching, learning, and research because it increases flexibility and provides a rich environment and motivation for teaching, significantly impacting the learning process by introducing better opportunities for learners and teachers. These opportunities would influence student achievement and performance; for instance, the students will benefit from increased access, flexibility in content and delivery, combination and education, learner-centered approach, high-quality education, and new modes of interaction.

E-governance offers massive opportunities for adopting educational resources that facilitate teaching. According to Subba (2016), e-governance has promoted the use of numerous new innovative and advanced teaching tools. It has also provided self-learning guidance that provides incredible knowledge opportunities in higher educational institutions due to the several new innovations in the field of teaching technologies that emerged recently, and the teacher's role has shifted because teaching and learning are not restricted to the confines of the classroom setting and the information is not only available through teachers and books.

Sudan's national ICT strategy was developed in 1997, and a high-level ministerial committee was formed to supervise its implementation. The strategy has been divided into five major areas: development of human resources, technology, infrastructure, and software. The national policy promotes the use of e-governance in the development of local policies to ensure the complete integration of ICTs into the education sector, including the development of school curricula, teacher training, managing and organizing educational institutions, and supporting the concept of lifelong learning by designing ICT training program to meet educational needs (Hamdy, 2017). This strategic plan for Sudan's national information and communication infrastructure is still in effect because it represents the foundation of the country's ICT development and incorporates all of the ICT initiatives that the government has been implementing incrementally since early 1997. Undoubtedly, higher education has a significant role to play in this strategy because There have been significant efforts made to integrate e-governance into the administrative system.

Therefore, online registration was established as the initial step; it is an electronic system for submitting and enrolling students into Sudanese universities to facilitate the provision and submission of students' documents and payment. In addition to establishing an electronic registration system for postgraduate colleges, this

presented numerous challenges, the most significant of which is internet connectivity. The ministry has also launched initiatives such as installing the National University Network (NUN) to improve access to information and digitally deliver educational services. As a result, the Sudanese Universities Information Network (UIN) and the Sudanese Universities Virtual Library are the two main initiatives of the NUN project. These initiatives aim to connect educational institutions, increase knowledge sharing, and guide universities and institutes in building their information infrastructure and digital support libraries (Li &Abdalla, 2014).

According to the report published on the progress of nations in promoting e-governance, the United Kingdom leads the world in providing government services and information via the internet, followed by Australia and the Republic of Korea. The 2016 UN E-Government survey offers new evidence that e-government has the potential to aid in the implementation of the 2030 Agenda and its 17 Sustainable development goals (SDGs). According to the survey, the United Kingdom has pursued continued development in e-government innovation, and its Government Digital Service has been replicated by other countries worldwide. For example, Australia and the Republic of Korea have recently established robust telecommunications infrastructure and invested in human resource development, expanding the use of e-government facilities and extending service delivery.

The report also indicated the number of increased attempts that have been made to use advanced electronic and mobile technologies to the advantage of all. However, fixed and wireless broadband subscriptions across the country have increased differently. While broadband availability has increased, significant regional disparities and a growing divide remain. Europe leads the world and is nearing market maturity, while Africa continues to lag in behind. In SDG 9, all countries agreed that a major effort is needed to ensure universal internet access in the least developed countries. To appreciate the potential impact of e-government, the report concluded that it must be accompanied by measures to ensure ICTs access and availability and make public institutions more accountable and responsive to people's needs. It concluded that it is critical to position the overarching goal of poverty eradication and "Leaving No One Behind," transformation required by the 2030 Agenda (UN, 2016).

VI.   Research Design

This paper adopted empirical research design with a mixed approach (quantitative and qualitative approaches). To achieve the study's objectives, primary quantitative data were collected via a structured survey questionnaire on the subject matter which focused on the topic of e-governance and higher education institution missions in Sudan (case of Khartoum). The survey questionnaire was randomly distributed to tertiary students, tertiary professors, lecturers, and teaching assistants from various disciplines. The qualitative method included physical interviews conducted by the researcher, and it was intended to interview administrative staff in charge of teaching, research, and community outreach at the three universities chosen.

VII.   Area of study

The research is conducted on the selected sample, and the findings are generalized to a large or entire group of targeted subjects. In research, such a group is referred to as the population. Hence before beginning research activities, the researcher must decide on and precisely define the population because a well-defined population assists the researcher in selecting a sample of sufficient size to represent the entire population since the sample is crucial to the success of research and the reliability of results (Shuklak, 2020).   The study targeted all academic staff and students selected from universities in Khartoum (the capital of Sudan). These universities include the University of Khartoum, which is located in Khartoum (the Capital of Sudan). This University has 20 faculties and colleges divided into four campuses. The second selected university is the University of Sudan for Science and Technology which distinguished by specializations in engineering and information technology. The university's headquarters is located in the city of Khartoum, and its facilities are distributed throughout the city. The third is the University of Bahri. Which is located in the Kadro area, north of the city of Bahri, where there is the main college complex that includes all colleges except for the two colleges of medicine, which are located in Khartoum.

VIII.   Population and sample

To select sample respondents for quantitative data, the researcher used the Krejcie and Morgan (1970) scientific sample size determination table. thestudy first determined the total population of the three selected universities: the University of Khartoum (teachers 2230 and 27000 students), the University of Sudan for Science and Technology (35,000 students and 1800 teachers), and the University of Behri (24,000 students and 750 teachers), which stand at 86000 students and 4780 lecturers. A sample size of 1133 (University of Khartoum= 377, the University of Sudan for Science and Technology= 378, University of Behri= 377) was determined from the population based on Krejie and Morgon (1970). How ever only 799 participants responded to the questionnaire with a return rate of about 75%

Table 1: Demographic Characteristics of the Respondents

Variables	Categories	Frequency	Percent
Title	Students	532	66.7
	Teaching Assistants	45	5.6
	Lecturer	64	8.0
	Assistant Professors	97	12.2
	Associate Professors	32	4.0
	Full Professors	28	3.6
	Total	**799**	**100.0**
University	University of Khartoum	276	34.54
	Sudan University for Science and Technology	293	36.67
	University of Bhari	230	28.79
	Total	799	100.0

IX.   Instruments and Data Analysis

Questionnaire and interview guides were conducted for the study. All of the collected data were transcribed into excel texts to ease the data analysis and then the data were further interpreted through SPSS method. The descriptive and regressive analyses were used.

X.   The Findings

Nine items were designed to answer this section on the effects of e-governance on teaching. From the below table, all the items have a mean greater than 3, which is the cut-off mean. It shows that 91.6% (723) of the respondents generally agreed that using technology in university teaching helps create online educational platforms. 77.5% (619) of the respondents generally agreed that using technology in university teaching supports transparency in education. 82.9% (662) of the respondents support that technology in university teaching makes lectures more engaging. 78.2% (625) believe that technology in university teaching supports students' participation in decision-making. 75.1% (600) supported the fact that technology in university teaching provides immediate feedback regarding students' tasks. Only 44% (352) of the respondents generally agreed that the University monitors the performance of lectures electronically. 44.4% (355) of the respondents supported the notion that the University has an effective policy regarding e-learning. Concerning the universities having a body responsible for monitoring online teaching, only 47.2% (377) generally agreed. 60.8% (484) of the respondents generally agreed that their universities encourage the use of educational technology in teaching.

Table 2: The extent to which e-governance enhance teaching in Sudanese higher education institutions

Item no		SA		A		NU		DA		SD		M	SD
		F	%	F	%	F	%	F	%	F	%		
1.	The use of technology in	460	57.6	272	34.0	31	3.9	23	2.9	13	1.6	4.4	.83

no	Item	F	%	F	%	F	%	F	%	F	%	M	SD
	university teaching helps in creating online educational platforms.												3
2.	The use of technology in university teaching supports transparency in teaching.	301	37.7	318	39.8	103	12.9	60	7.5	17	2.1	4.03	.99
3.	The use of technology in university teaching makes lectures more engaging.	436	54.6	226	28.3	70	8.8	44	5.5	23	2.9	4.26	1.02
4.	The use of technology in university teaching supports students' participation in decision-making.	331	41.4	294	36.8	89	11.1	51	6.4	34	4.3	4.05	1.09
5.	The use of technology in university teaching provides immediate feedback regarding students' tasks.	305	38.2	295	36.9	110	13.8	57	7.1	32	4.0	3.98	1.08
6.	My university monitors the performance of lectures electronically.	172	21.5	180	22.5	180	22.5	179	22.4	88	11.0	3.21	1.31
7.	My university has an effective policy regarding e-learning.	139	17.4	216	27.0	172	21.5	183	22.9	89	11.1	3.17	1.27
8.	My university has a body responsible for monitoring online teaching.	161	20.2	216	27.0	183	22.9	146	18.3	93	11.6	3.26	1.29
9.	My university encourages the use of educational technology in teaching.	255	31.9	229	28.7	139	17.4	104	13.0	72	9.0	3.61	1.29
	Grande mean	**3.09**											
	SD	**.813**											

Technology Tools in Monitoring Teaching

Four (4) items were designed to answer this section on the University's usage of technology tools in monitoring teaching. From the above table, all the items have a mean less than 3, which is the cut-off mean. Regarding the use of Security Cameras in monitoring teaching, 28.6% (229) of the respondents generally agreed that the University uses security cameras in monitoring teaching. 26.3 (210) of the respondents generally agreed that the University uses online tools in monitoring teaching. 45.9 (366) of the respondents assert that the University uses emails as a tool for monitoring teaching. Also, 62.2% (497) of the respondents generally agreed that the University uses WhatsApp groups for faculty members to monitor teaching.

Table 6: University's usage of technology tools in monitoring teaching

Item no	Item	SA		A		NU		DA		SD		M	SD
		F	%	F	%	F	%	F	%	F	%		
1	Security Cameras.	96	12.0	133	16.6	126	15.8	286	35.8	158	19.8	2.65	1.29
2	Online monitoring.	83	10.4	127	15.9	135	16.9	267	33.4	187	23.4	2.56	1.29
3	Emails.	161	20.2	205	25.7	118	14.8	161	20.2	154	19.3	3.07	1.43
4	WhatsApp Groups for faculty members.	250	31.3	247	30.9	93	11.6	116	14.5	93	11.6	3.56	1.37

Grande mean	2.96
SD	1.345

XI.   Discussions of Findings

The discussion will logically follow the sequence of the research hypothesis and will be based on the relevant research data as presented in chapter four as well as the views of some authors and theories.

XII.   The application of e-governance in higher education institutions enhances university teaching

The first hypothesis in this study states that the application of e-governance in higher education institutions enhances university teaching. Simple linear regression was used as a statistical tool to test this hypothesis.The level of significance is $P<.000$ and thus is less than 0.05, which is the alpha and the standard error margin. The correlation coefficient of .364 indicates that the link is positive and moderate. Since the probability value is <0.05, we concluded that the application of e-governance in higher education institutions enhances university teaching. However, the level of e-governance application in these universities is low due to many challenges. On the other hand, the level of this application differs from one university to another because each university is independent and has its resources that use to improve their technological infrastructure. Hence, we reject the null hypothesis and retain the alternative hypothesis. The results also indicate that the teacher's role has shifted because teaching and learning are not restricted to the confines of a classroom setting, and the information is not only available through teachers and books.

The results also show that there is still need for improving infrastructure and the policies since they are not successfully implemented. E-governance and teaching findings also lend support to the technological determinism theory, which holds that technology is a driving force in social change. Therefore, society should adapt to this change because it determines how people interact, which in turn reshapes organisational structures. This is related to the fact that technological advances change educational practises and force academic institutions to reform their policies in order to accommodate these advances and compete with so-called "globalization."For example, there are now some institutions that provide distance education, which may solve the challenges of lecture rooms and provide opportunities for many segments of society, particularly women, to enrol in it, but this depends on how effective the programme is and how well the institutions have resolved the challenges of networking, power, and so on. Another example is that teachers can now easily perform their teaching classes virtually, eliminating the need for physical classes, interact with their students through various technological tools, and create and provide immediate feedback for student assignments using various technological tools.

These results are consistent with the empirical literature. For instance, Suba's (2016) study, e-governance has promoted the use of numerous innovative and advanced teaching tools as well as self-learning guidance that provide incredible knowledge opportunities in higher educational institutions due to the several new innovations in the field of teaching technologies that emerged recently. The above obtained result supports the previous findings of study conducted   by Koudiki&Janardhanam (2017), which stated that the basic goals of implementing e-governance in higher education are to enhance administrative transparency and efficiency, support education quality, and enhance educational services to students and other stakeholders because it offers opportunities to transform the relationship between higher education institutions and students, contributing to the achievement of good education goals as well supporting the effective academic standards monitoring.

This finding also supports Kakkar and Himanshi, who claim that integrating e-governance in higher education institutions has resulted in significant improvements in terms of research, teaching, and learning. Many positive changes have resulted from the integration of information technology into the education sector. Numerous online libraries provide extensive reading materials to students, researchers, and lecturers and they can publish their work online for their students to read. For all these reasons, more academic systems should embrace

technology because it improves teaching effectiveness and facilitates practical learning, and students should also embrace it because most jobs will be technologically based in the future.

However, the findings revealed that e-governance enhances university teaching because of the great opportunities that the integration of ICT could provide for both teachers and students as well as shifting the traditional method of teaching towards more innovative and student-centred approaches, but in the context of the study, the integration of ICT in teaching was found to be low in comparison with the research and community outreach. This supports the Dintoe study (2018), which claims that higher education institutions have been transferring and modifying from face-to-face to distance education to online learning, providing programmes and courses to individuals who need them through the utilization of advanced e-learning technology. In the African context, faculty in universities, despite receiving support from the university system through training and professional development, are generally hesitant to embrace and disseminate technological innovations for teaching and learning when compared to faculty in the United Kingdom, North America, and Australia. These may be due to teachers' perceptions, experiences with traditional teaching methods, reluctance to change, and lack of e-literacy to adapt to these changes, all of which may contribute to teachers' reluctance to integrate technology into their teaching mission.

XIII. Recommendations of the Study

Based on the findings of the study, the researcher suggests that university teachers integrate advanced technology into their teaching because teachers' attitudes and practices play a critical role in the successful integration of ICT in the educational setting, particularly in higher education institutions, which could support and lead to the full application of e-governance once the challenges have been overcome. This is because the teacher is the cornerstone of the educational process, with all his abilities and skills that enable him to use all available material and moral capabilities to advance the educational process and achieve the desired goals effectively and efficiently. The use of modern technology in teaching does not eliminate the role of the teacher but rather makes some modifications to it. The teacher must, therefore, employ technology in the teaching environment so that it is an active learning environment, such as using computers, educational software, and media. Presenting educational material using media and producing it in a fun and attractive way raises student motivation, and making a presentation that allows students to be creative and innovative will provide them with a wide range of skills. However, it requires providing a set of technological competencies for the teacher, enabling him to play his new role fully.

In addition, university teachers should encourage their students to embrace technology and acquire soft skills, as it is crucial for their future careers, besides creating online platforms that connect all the students for the benefits of collaborative learning and fruitful discussion. The use of technology also promotes students' creative problem-solving because it helps them become more ambitious to achieve more at a faster pace and exercise greater creativity by reducing the cost and work duplication. Furthermore, teachers should try to practice online task performance reporting and provide immediate feedback, as well as online educational consulting, research consulting, and educational services to facilitate smooth e-governance functioning. Provide online courses, online tutorials, and remedial classes for students; most importantly, most of the e-literacy among teachers and academic staff should be developed within the framework of lifelong learning.

XIV. Conclusion

The study attempted to investigate e-governance and the missions of higher education institutions in Sudan with the objective of examining how e-governance enhances the missions of higher education institutions, namely teaching, research, and community outreach, as well as identifying the challenges of e-governance. The researcher aimed to conduct this study because the application of e-governance in higher education institutions improves teaching and learning and contributes to research and community outreach, making it a priority in the education sector and frequently regarded as a necessary tool for fully participating in the knowledge society.

These addressed the contemporary world and emphasized the demands for innovation, creativity, and skilled professions since higher education institutions have been described as the backbone of any society and a critical component for a country's educational sustainability, socioeconomic prosperity, and cognitive development, all of which necessitate keeping up with contemporary world demands.

Based on the main findings in line with the objectives of the study, this study concludes that e-governance in higher education institutions plays a critical role in the sustainability of these institutions and in maintaining a competitive advantage in this digital era. The empirical studies support the fact that e-governance in higher education institutions makes its missions more effective and the administration more efficient in terms of swiftness, accuracy, integration, and staff and student satisfaction.

According to the study findings, e-governance has the highest effects on research, followed by community outreach and teaching. According to the respondents' responses on the contributions of e-governance in teaching, it helps in creating online educational platforms as some universities use, for example, the blackboard model, which provides immediate feedback regarding students' tasks. It also creates teaching transparency because it allows electronic teaching monitoring and helps the students to participate in decision-making. In terms of its contribution to research, e-governance facilitates research by providing opportunities for distance supervision, which, to some extent, contributes to education equality by allowing national and international scholars to participate in research projects regardless of their geographical location, particularly in postgraduate programs, where access to references and resources is readily available as well as transparency in research

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