An Assessment of Usability of Online Tax Return Services in Uganda and Its Influence on Tax Revenue

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ABSTRACT

The introduction of various online tax return services in sub-Saharan Africa was meant to foster tax compliance and improve tax revenues for economic growth and development. However, there is evidence that these online tax services may not have improved tax returns as expected. In this paper, we set out to investigate how the usability factor of these online tax return services has affected the use of the services by the tax payer. This research undertook a pilot study in Uganda which is a typical Sub-Saharan African country. We majorly focused on the online tax return services provided by Uganda Revenue Authority (URA). In order to assess the usability level of these services, the System Usability Scale (SUS) was used. Developed by John Brooke in 1986, the SUS is a simple, ten-item scale used to conduct usability assessments on a systems. Twenty two tax paying businesses within Central Business District of Mbale municipality in Uganda were selected for the study. The study found out that, out of the four online tax return services provided by URA at the time of the study, only 50 % of the online tax return services were utilized by the tax payers. Only 33% of the different electronic payment modes provided by URA are used. The findings also revealed that the SUS average score for URA's online tax return services was 53, and this means that the average usability score for the URA online tax return services was 16%. This signifies serious usability problems with the services. Based on the findings of this study, there is a high likelihood that poor usability of the online tax return services may have played a major role in the low tax revenues expected from the online tax return services in Uganda and sub-Saharan Africa in general.

CCS CONCEPTS

• **Usability Studies**;

KEYWORDS

E-Tax, Usability, Uganda, sub-Saharan Africa

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1 INTRODUCTION

Tax collections are a major source of government revenue and a driving force for economic growth and development in developing countries. Tax revenues are used for state building, infrastructural development, reduce long-term independence on foreign assistance, increase the fiscal effects of trade liberalisation, and to generally provide the much needed public goods and services in developing countries [10;13;12]. However, the African Development Bank Group [14] reported that revenue collected from domestic taxes in many Sub- Saharan African (SSA) countries is still very low. For example, between 2006 and 2008, the tax-to-Gross Domestic Product of the five East African countries of Kenya, Tanzania, Uganda, Rwanda and Burundi ranged from 12.3% to 22.1%. This is far much less than their counterparts in the Organisation for Economic Co-operation and Development countries which had a tax-to-GDP of between 35.6% and 25.4% respectively [14]. As a result of the low tax revenue, many countries in SSA cannot adequately finance the national budgets. On average, the total revenue collected in many of these countries can only finance about 30% to 40% of the national budgets [15]. It, therefore, means that, about 50% to 60% of the national budget in these countries is financed by donors. For example, a report by the World Bank [16], indicated that SSA received about US$40.1 billion in aid in 2008 alone. As a result of the low tax revenue, the economic growth in the region has slowed significantly in recent years. It fell to 3.4% in 2015, its lowest level in the past 15 years, and could continue to slow to 1.6% [18].

In an attempt to increase domestic revenue to foster economic growth and development, a number of tax reforms have been introduced by most SSA countries. First, many of the SSA countries have widen their tax bases by introducing a number of taxes, namely domestic tax revenue, direct domestic taxes, indirect domestic taxes, excise duty, and value-added tax (VAT) among others. Secondly, in order to improve tax compliance among the tax payers, many tax processes have been hosted online [20]. The use of online tax return processes have been helpful broadly in accumulating and handling tax payer's data through online filing of tax returns, online tax assessments and online tax payments.

However, whereas the introduction of online tax return services was meant to foster tax compliance and improve tax revenues, there is evidence that these online tax services may not have improved tax returns as expected. For example, in Kenya, since the introduction of the online tax return system in 2005, there seems to be no sustained increase in tax revenue [18]. A study conducted in 2014 in Rwanda found out that the introduction of electronic tax

services had contributed to an increase of only 5.4 % of VAT, much lower than what was expected by the Rwandan Revenue Authority [19]. In Uganda, although there are a number of online tax services, Uganda's revenue collection performance is still below the Sub-Saharan and East African Countries averages [17]. There are a number of reasons why there seem to be very little tax revenue increase even after the introduction of online tax return services in SSA. One of the major reasons is that these online tax return systems have serious challenges with their usability. For example, a study conducted by Owigar [27] in Kenya found out that 77.6% of the tax payers had usability challenges using the Kenya Revenue Authority iTax online system. Another study conducted by Baguma [1.] found evidence of inadequate testing of the Uganda Revenue Authority online portal particularly with users before roll out resulting in usability challenges.

As defined by ISO 9241-11 (1998), usability is the extent to which a product [a portal] can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use. According to the revised definition of usability in ISO FDIS 9241-210, it is the extent to which a system, product or service can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use. According to the ISO definition,

1. Effectiveness- means "accuracy and completeness." Error free completion of tasks.
2. Efficiency- means "resources expended." how quickly a user can perform work
3. Satisfaction- means the extent to which expectations are met.

Generally usability challenges are synonymous with government websites in SSA. Citizen acceptance and utilisation of these e-government websites are still a challenge for many governments, as many e-government websites fail to meet user expectations. A Study by Mtebe & Kondoro [26] on the usability of 22 government websites in Tanzania pointed out many accessibility and usability problems that hindered the citizens from using them. Another study by Elisa [23] on 79 government websites in Tanzania found out that 100% of websites had broken links and 52 out of 79 websites had loading time of more than five (5) seconds for their main page. Eilu [20] conducted an assessment on the challenges and opportunities of implementing Electronic Fiscal Devices (EFDs) in East Africa, and found out that one of the major challenges affecting the implementation of EFDs in East Africa was the usability of the devices. There seems to be a big usability challenge government online services. Although there are some statistics on the effects of usability challenges on general government online services, few or no studies have been carried out on the extent to which online tax service achieve the usability goals in developing countries, and its effects on the overall tax revenue. The purpose of this paper, therefore, is to measure the extent to which these online tax return services achieve the usability goal and its implications on tax returns. In order to guide the discussion, the following questions were asked.

1. What online tax return service are available to the tax payer, and to what extent are these services being used by tax payers
2. To what extent to do these online tax return services achieve the usability goal, and what is the implication

2 METHODOLOGY

2.1 Survey

Based on the research questions, we used a survey. It provided the best approach for addressing the research questions raised in this study. A survey can be defined as a "means for gathering information about the characteristics, actions, or opinions of a large group of people" [6]. It is normally used to gather quantifiable information on the situation, subject, behavior, or phenomenon of the study population. This can then be used to statistically analyze a target audience or a particular subject. This research undertook a pilot study and Uganda was considered a representative Sub-Saharan African country. This research majorly focused on the online tax services provided by Uganda Revenue Authority (URA). URA was established by the Uganda Revenue Authority Statute of 1991 and set up in September of the same year as a central body for assessment and collection of specified revenue. In a bid to improve tax compliance, URA decided to go online, hence introducing a number of online tax return services. These online tax return services were launched in 2008 to shorten the process of tax payments, avoid long queues at URA offices and reduce unnecessary costs incurred when filing tax returns, such as travel costs. In the long run, it was hoped that this would increase compliance. Tax payers were now able to register as a tax payer, file tax returns, conduct tax assessments and make tax payments using the various electronic tax payment services such as Payway, Mobile Money, Real Time Gross Settlement (RTGS), Visa, MasterCard, and Electronic Fund Transfer. Therefore, in this paper, we assessed the four online services offered by URA at the time of the study namely;

1. Registration of Tax Payers
2. Tax Filing
3. Tax Assessment
4. Tax Payments.

The study was conducted in Mbale Municipality, one of the largest Municipalities in Uganda. Mbale Municipality is located in the eastern part of Uganda and lies on coordinates 1{°}04'50.0"N, 34{°}10'30.0" E (Latitude: 1.080556; Longitude: 34.175000). The research was conducted in the Central Business District (CBD). Mbale was chosen because the research institution (Uganda Christian University- Mbale University College) where the researchers work is located in Mbale Municipality. It was, therefore, convenient and cost-effective to conduct the study. Mbale municipality is also the second biggest city in eastern Uganda and it's a major a commercial hub.

2.1.1 Sample Size of the Participants. During the study, there was need to determine the number of participants for the study. Nielsen [3] recommends a minimum of 5 participants for a usability evaluation of a product or service. Using 5 users is expected to find 85 percent of the usability or user experience problems in a test iteration [3]. Additionally, Nielsen [3] observes that Virzi developed a model based on other usability projects and observed that 80 percent of the usability problems in a test could be detected with 4 or 5 participants. Macefield [4] observes that there is no "one size

fits all", but, for studies that focus on problem discovery, a group size of 3-20 participants is typically valid, with 5-10 participants being a sensible baseline range. For comparative studies where statistically significant findings are being sought, a group size of 8-25 participants is typically valid, with 10-12 participants being a sensible baseline range. Faulkner [3] used yet another benchmark task and found that although tests with 5 users revealed an average of 85 percent of usability problems, the total percentages for each set of 5 participants ranged from nearly 100 percent down to only 55 percent. Groups of 10 participants did much better, finding 95 percent of the problems with a lower bound of 82 percent. Based on the evidence from existing research on sample size for usability evaluation, a total of 22 tax paying businesses were purposively sampled within the Central Business District (CBD) in Mbale municipality. During the selection process, emphasis was made on those business owners who always used the URA online tax return system. One respondent (a cashier or an accountant responsible for tax remittance of the business) was chosen for each business

2.1.2 Using System Usability Scale (SUS). In order to assess the usability level of the online tax return system, a Simple Usability Scale (SUS) was used. For over 30 years now, SUS has been used as a reliable, tested tool for evaluating usability of a wide range of products and systems. It is also customizable and easily administered via simple survey tools like Survey Monkey, or more advanced survey distribution tools like Qualtrics [8]. Developed by J. Brooke in 1986, the SUS is a simple, ten-item scale giving a global view of subjective assessments of usability of systems. Numerous studies have indicated that the SUS has excellent reliability, and can be used with confidence on both large and small sample sizes [11]. The SUS is also free, easy to set up and administer to participants online or in printed. SUS is a *Likert scale type of questionnaire* based on forced-choice questions, where a statement is made and the respondent then indicates the degree of agreement or disagreement with the statement on a 5 (or 7) point scale. In Likert scale, a range of SUS ten standard statements were presented to the respondents who responded by either agreeing or disagreeing (based on a Likert scale of 5, that is, Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree) with the following statements.

1. I think that I would like to use this system frequently.
2. I found the system unnecessarily complex.
3. I thought the system was easy to use.
4. I think that I would need the support of a technical person to be able to use this system.
5. I found the various functions in this system were well integrated.
6. I thought there was too much inconsistency in this system.
7. I would imagine that most people would learn to use this system very quickly.
8. I found the system very cumbersome to use.
9. I felt very confident using the system.
10. I needed to learn a lot of things before I could get going with this system.
11. Analysis of SUS for URA Online Tax Return System

To calculate the SUS score, the total score contribution for each item was summed up. Each item's score contribution ranges from 0 to 4. For items 1, 3, 5, 7, and 9 the score contribution is the scale position minus 1. For items 2,4,6,8 and 10, the contribution is 5 minus the scale position. The sum of the scores was then multiplied by 2.5 to obtain the overall value of SUS. According to Brooks [5], SUS scores have a range of 0 to 100, not as a percentage. The average SUS score is 68. If the score is below 68, then it means there are probably serious problems with the website's usability. If the score is above, then it means it is above average but can still be improved. Over 80.3 score means that the users like the website and are mostly to recommend it to their friends as illustrated in table 1

Table 1: SUS Scores

SUS Score	Grade	Adjective Rating
>80.3	A	Excellent
68-80.3	B	Good
68	C	Okay
51-68	D	Poor
<51	E	Awful

Sauro [25] observes that when communicating SUS scores to stakeholders, and especially stakeholders who may not be familiar with SUS, it's best to convert the original SUS score into a percentile. If the SUS score is 70 or 80, its percentage equivalent should be also be determined for easy interpretation. Sauro [25] has forwarded a simple graph that converts the SUS score to percentages as presented in figure 1. According the Sauro's graph in figure 1, a SUS score of 60 represents a percentage score of 30%, and a SUS score of 70 represents a percentage score of 56%.

3 FINDINGS OF THE STUDY

3.1 Widely used Online Tax Return Service

The study first investigated the most widely used online tax return service. The findings show that out of the four online taxes return services namely; online registration of tax payers, online tax assessments, online filing of tax returns and electronic payment of taxes. Only two service were used by tax payer. From the findings, all the 22 respondents (100%) used the electronic tax payment service, while about 17% used both online filing of tax returns and electronic tax payment service.

3.2 Tax Payment System Used

The study also assessed the form of tax payment system that was frequently used by the tax payers. Out of the 6 electronic payment modes (Pay Way, Mobile Money, RTGS, Visa, Master Card and EFT) only two service (representing 33%) were used namely Pay Way (37.5%) and Mobile Money (62.5%).

3.3 The Most Challenging Online Tax Return Service

There was also need to establish which of these online tax return services namely registration of tax payers, filing of tax returns, tax assessment and payment of taxes was more challenging to use. The findings indicated that a majority of tax payers (60%) found the electronic tax payment system to be more challenging than the rest of the service. About 20% indicated that the online tax assessment

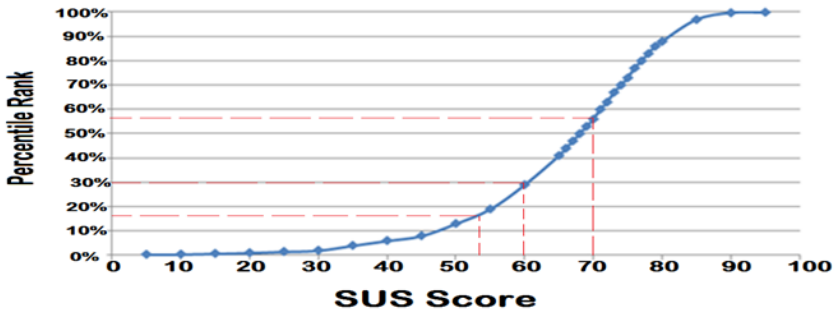

Figure 1: SUS Scores and its Percentiles [25]

Table 2: below presents the demographics of the respondents in the study

Age			Gender			Education Level		
	Frequency	Valid Percent		Frequency	Valid Percent		Frequency	Valid Percent
18-30	4	18.2						
31-40	10	45.5				0-Level	2	9.1
41-50	6	27.3	Male	12	54.5	A-Level	4	18.2
50 and above	2	9.1	Female	10	45.5	Diploma and Above	16	72.7
Total	22	100.0	Total	22	100.0	Total	22	100.0

Type of Business			How Long in Business		
	Frequency	Valid Percent		Frequency	Valid Percent
Retail	14	63.6	1-5 Years	8	36.4
Wholesale	6	27.3	6-10 Years	10	45.5
Manufacturing	2	9.1	above 11 Years	4	18.2
Total	22	100.0	Total	22	100.0

Table 3: SUS Score for each Participant

Participants	P1	P2	P3	P4	P5	P6	P7	P8	P9	P 10	P 11	P 12	P 13	P 14	P 15	P 16	P 17	P 18	P 19	P 20	P 21	P 22	AVG
SUS Score	**60.0**	**47.5**	**55.0**	**57.5**	**57.5**	**50.0**	**52.5**	**55.0**	**47.5**	**35.0**	**62.5**	**60.0**	**47.5**	**55.0**	**57.5**	**57.5**	**50.0**	**52.5**	**55.0**	**47.5**	**35.0**	**62.5**	**53.3**

was more challenging. About 10% said registration of tax payers and another 10% said filing of tax return was difficult

3.4 Evaluating Usability of the Online Tax Service Using SUS

The study further used the SUS to measure the usability level of the online tax return system. From the findings in Table 3, the results show that the SUS average for the URA online tax return service is 53.0. The results presented in Table 7 shows that there are serious usability problems with the Uganda Revenue Authority online tax return services since the average score is at 53.0. Therefore, based on Sauro & Lewis, [9] method of interpreting the SUS score, it, therefore, means that Uganda Revenue Authority SUS average score of 53 represents is a ‘’D”, which still falls below average. The percentile interpretation of the SUS score of 53 according to Sauros [25] is 16%

4 DISCUSSION AND CONCLUSION

4.1 Online tax return services offered by URA and their usage

One of the objectives of this study was to examine the different online tax return services provided by URA and the extent to which these services are being used by tax payers. From the findings, it was revealed that out of the four online tax return services offered by URA at the time of the study, namely registration of tax payers, tax assessment, filing of tax returns and payment of taxes, only two online services namely filing of tax returns and payment of taxes were used by the tax payers. Meaning only 50% of the online tax

return services are used by the tax payers. Out of the total number of tax payers who used online tax return services, all (100%) of the tax payers used the electronic tax payment service, while about 17% used both filing of tax returns and payment of taxes services. The finding also show that, out of the different electronic payment modes offered by URA, only 33% of the electronic payment modes were used by tax payers. From the results presented, there is an indication that the online tax return services are underutilized by the tax payer.

4.2 Usability of the URA online tax return services

We also see that the SUS average score for URA's online tax return services was 53, meaning that there were serious usability problem with the service. The 53 SUS average means that the average usability score for URA online tax system was 16%. The findings show that out of the four online tax return services provide by URA (registration of tax payers, tax assessment, and filing of tax returns and payment of taxes) the most challenging online service was the electronic payment system (60%). Poor usability of government online services has been cited as a major problem in many Sub Saharan African countries. This is confirmed by a study conducted by Verkijika and Wet [24]. The study evaluated a total of 279 e-government websites from 31 Sub Saharan African countries (SSA). The findings showed that most e-government websites in SSA were characterised by poor usability. The average usability score for the websites was 36.2%, with the most usable website having a score of only 64.8%. As pointed out earlier, studies conducted by Mtebe & Kondoro [25] on 22 government websites in Tanzania found out that 82% of the websites had severe usability challenges that hindered the citizens from using the websites. Another study conducted on 2013 in Kenya revealed that government websites had low usability rating and user experiences were poor and most users only revisit the sites as an obligation or lack of a better option. During the study 80% of users experienced broken links on the left side of the home page, while 100% of the users abandoned one particular task due to unfamiliar terminology and lack of website status information [21].

4.3 Implications of the Study

We can, therefore, observe that the online tax return services provided by the URA have generally been underutilized by the tax payers. Our findings show that only 50% of the online tax return services were used, and only 33% of the different modes of electronic payment services provided by URA were used by tax payers. Furthermore, the average usability score for the URA online tax return services was 16%. This implies that there were serious usability problems with the online tax return services provided. The serious usability challenges, therefore, could have caused the underutilization of the URA online tax return services.

Different studies carried out on the importance of usability of a website has proven that web sites having a user friendly design and an easy-to-use interface increase user satisfaction, while web sites which violate usability conventions confuse users and result in a loss of revenue for the companies behind them [28;29]. For example, a survey by usability net revealed that 50 percent of website users would not return to a particular site if there was a usability challenge [30]. In yet another study by usability research firm User Interface Engineering found that 70%ofthecustomer'sshoppingattemptsendedinfailure on most web sites as a result of poor usability [31]. Therefore, the underutilization of the available online tax services could be one of the major contributors of poor performance of Uganda's revenue collection which is still below the Sub-Saharan and East African Countries averages [17].

Based on the findings of this study, we, therefore, confirm the narrative that whereas the introduction of online tax return services was meant to foster tax compliance and improve tax revenues, there is evidence that these online tax services may not have improved tax returns as expected as a result of usability challenges. There are high chances that serious usability problems may have undermined the intended purposes of the online tax return services in Uganda and many other sub- Saharan African countries. We recommend that since usability is an important factor for the success of online tax return services. It is vital for governments to make a concerted effort to ensure their online tax return services are extremely user friendly and can easily be used by even tax payers who have no ICT background. There were some limitations of this study. Mbale Central business district may not be representative sample of the entire Uganda and the entire sub-Saharan Africa. There is a need to conduct more usability studies among the various business communities in Uganda. Also, there is a need to conduct a number of usability studies using different usability evaluation techniques other than Simple Usability Scale used in this study. One of the disadvantages of SUS is it doesn't provide a precise basis of action.

5 CONCLUSION

In our conclusion, we, therefore, observe that whereas the government of Uganda invested huge amounts of money in setting up online tax return services for the tax payer. This investment seem not to have been embraced by many tax payers. According to our study, only 50% of the online tax return services were used. Only 33% of the different kinds of electronic payment services provided by URA are used by tax payers. This means that the online tax return services provided by URA are generally underutilized. We also observe that there were serious usability challenges with the online tax return services. As report early, the 53 SUS average score means that the average usability score for URA online tax return services was 16% (every poor usability). The poor usability most likely explains why the URA online tax return services are underutilized. Based on the findings of this study, we do conclude that there is a high likelihood that poor usability of the online tax return services may have played a major role in the low tax revenues expected from the online tax return services in Uganda, and this could be the same in many sub-Saharan African countries.

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