A New Perspective of Web-Based Systems Quality Engineering Measure by Using Software Engineering Theory (ISO 25010): An Initial Study

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Abstract. An extensive number of engineered frameworks and web assessment accessible are not good enough in the appraisal of systems’ quality. Thus, the comprehension of the systems’ quality in Mukalla, is basically critical. The research literature review aims at developing a successful novel theoretical approach for measuring system. The research contribution can be seen theoretically, in the methodology and practical perspectives. Theoretically, it presents a refined expansion of up-to-date DeLone and McLean’s information success framework (2003), TAM and ISO 25010 posits that some factors are directly related to satisfaction. The need to answer why users dislike system after the initial experience must be known. Methodologically, the contribution of the research study will be performed using census and other data collection processes from student were instruments will be validated by 8 experts. Lastly, some factors like loyalty, security and benefits would be adapted and employed on non-commercial settings

1. Introduction

For about 60 years of introducing and implementing systems, different organization still needs to ensure the success of their systems (Petter, DeLone, & McLean, 2012). The success of systems can be measured based on important value attached by users to developed systems. It is a general phenomenon today that systems fail to provide successful outcomes and satisfy users (Scott &
Fruhling, 2013). System implementation consist of huge financial requirements for business. These may lead to financial loss because intensive management and organized plan or decision may sometimes accrue system failure (Sykes, 2015). In Arab Economies, Yemen is within the ranks of poorest economies, being the 160th position in the Human Development Index (HDI) (Nations, 2015). The country has been trying to move towards progress for the past ten years by improving its educational system (Rakels, 2013). It is quite sad to know that the country presents situation has brought about serious challenges in its economy. The challenges include poor systems, wastage in resources, increased number of users, material duplication and dissatisfied state of system organization (AbdulMonsif, 2015; Baheshwan, 2016; Fadhel, 2015; Rakels, 2013). Considering the present Arab economy, research pose it that system success is limited. Additionally, after series of critical review in this regard, it is known that no study has considered the country of Yemen as a case study (Baheshwan, 2016; Fadhel, 2015; Khred, 2017). There is a rapid increase recorded by the global economy in reference with information technology (IT) and information system (IS). Academic institutions to be specific universities are termed to be the early forerunners in Web-based information system Development (WIS), which was aimed at targeting interested audience (Hasan, 2014; Hasan & Abuelrub, 2008).

Remember that the least developed nations are being tested by low-level economies which means a low impact on all parts of life in these countries. Therefore, the beneficial outcome of scientific research and higher education are rarely noticed, thus resulting into carelessness of the entire research process (Baheshwan, 2016; Fadhel, 2015; Khred, 2017). This will help the advancement of a system for progress quality being seen from a user's point of view (Mebrate, 2010; Mwangi, 2016; Singh and Kumar, 2014). This asserts a past finding that the examination of success measure from the users' viewpoint is very essential in laying out the correct worth of the systems (Galliers and Leidner, 2014). This research study will indeed be the first to leverage ISO 25010 framework to measure the success of system. The research study also adds to the body of knowledge on the aspects of leveraging web-system satisfaction on universities for practical use in education. System usage level can be increased from the perspective or framework of higher education system satisfaction predictors, which may lead to the increase of user acceptance and user innovation.

Examining the factors that influences user satisfaction in higher education, key figures can be in better position to develop strategic policies to maintain satisfaction. Many studies can also research on other predictors that may contribute to satisfaction in higher education, this may be of utmost importance to students and most value will be for people in charge or decision makers who makes relevance plans for Continuous Professional Development (CPD). This study will also be the first to comprehensively investigate security factors in satisfaction that lead to an improved system file as well the loyalty in non-commerce platforms.

2. Background

Existing research tracks the importance of measuring software and/or any information system (Fadhel, 2015). It is worthy to know that measuring the success of software and assessing information system is important and has led to the challenges experienced in regard to software measurement (DeLone & McLean, 2016). It is evident, that the importance underlining issues and demands related to measuring system success and effectiveness reduces (DeLone & McLean, 2016). However, accessing and testing system success or software with regards to context of use is very important nowadays (DeLone & McLean, 2016).

Scholars in this field face challenges in examining the success of system. understanding customers’ needs and how effective and responsive system can be also very vital (DeLone & McLean, 2016). With respect to this, culture is seen as a strong prospect role for success when considering norms, values and code of conduct. These norms and values have a way of positively influencing insights on how systems are used (Mohammadi, 2015).

Many researchers have found out that system implementation in many ways can be expensive to establish due to relatively low adoption rate among users (Fadhel, Idrus, Ibrahim, & Omar, 2018).
Disaster or satisfaction may either be experienced by end-users when engaging with systems, despite increased rate of failure in system fields (Fadhel, Idrus, Ibrahim, & Omar, 2018). The increase of system implementations, availability in technology and reliance in modern day institutions, has brought the awareness to understand factors that could lead to high level of usage and as well increased level of system success (Fadhel, Idrus, Ibrahim, Omar, et al., 2018). Taking into consideration of research variables that could be significant in success of IS, it is observed that little researches are in existence (DeLone & McLean, 2016; Mwangi, 2016; Petter, DeLone, & McLean, 2013).

The inconsistent and mixed results have led to loopholes in understanding actual causes of IS success (DeLone & McLean, 2016; Mardiana, Tjakraatmadja, & Aprianingsih, 2015; Snead Jr, Magal, Christensen, & Ndede-Amadi, 2014). Considering the limitations in engineering methods to construct standard WIS frameworks, it is daunting for existing systems to satisfy user needs in Institutions. Existing systems also fails in measuring sufficiently system success because of domain specific problem associated with systems (Mebrate, 2010; Mwangi, 2016; Singh & Kumar, 2014; Sugiyanto, Siti, & Sarwosri, 2016; Zahran, Al-Nuaim, Rutter, & Benyon, 2014). Up till date there are scantly information available about the success of systems (Stefanovic, Marjanovic, Delic, Culibrk, & Lalic, 2016), which is likewise the case when relating this to Middle East or Arab countries where empirical research in this regard it is practically non-existent (Khred, 2017).

For this reason, there is a high rate of system failures, which in turn may cause financial losses and lead to business risks (Baheshwan, 2016; Bloch, Blumberg, & Laartz, 2012; DeLone & McLean, 2016; Dwivedi et al., 2015; Khred, 2017; Maier, Laumer, Eckhardt, & Weitzel, 2013). There is a difference in expectation by users from the systems and the user perspective (Vaezi, Mills, Chin, & Zafar, 2016). A study of variable that is responsible for system quality service, based on context is urgently needed as a common definition for information quality is not in existence (McNab & Ladd, 2014; Mebrate, 2010; Mwangi, 2016). In higher Institutions, the frameworks that engineers the ability to measure quality is still a challenge (Teeroovengadum, Kamalanabhan, & Seebaluck, 2016). Lack of research or little available information about the influence of loyalty in non-commerce systems, the influence of loyalty and satisfaction is quite unclear up till now (Khred, 2017; Mohammadi, 2015; Mosahab, Mahamad, & Ramayah, 2010). Additionally, the measurement of system quality and success in Mukalla Universities is immature and is in concordance with a high level of expressed dissatisfaction by users and organizations towards system (AbdulMonsif, 2015; Baheshwan, 2016; Fadhel, 2015; Khred, 2017).

System failure remains a major challenge for organization and it has been broadly elaborated that the bid to manage this issue by resolving system failure, is by constructing a framework as a prospective solution in an increased success and failure rate system initiatives (Baheshwan, 2016; Bloch et al., 2012; Dwivedi et al., 2015; Fadhel, 2015; Khred, 2017; Moh’d Al-adaileh, 2009). System being a failure or success remains a growing interest of research. For this reason, it is pertinent to note that some systems achieved their expected requirements while others did not. This is a complex area for researchers (Dwivedi et al., 2015).

In this manner, systems' quality remains a noteworthy issue requiring a structure with the goal that it can be seen better (Sugiyanto et al., 2016). From this time forward, measuring and understanding the achievement and quality of university's web-based system is imperative. This will be considered with regards to Hadhramaut universities, in introducing a complete designed quality structure appropriate for giving a point by point manual for these classifications of systems and meeting setting prerequisite, as considered from the users' viewpoint. Along these lines the point of this research looks for the advancement of a novel framework for university web-based systems, being the advanced education space in the nation. This is accomplished by the estimation of how successful Hadhramaut universities web-systems are, and subsequently deciding the important factors towards accomplishing user’s satisfaction.
3. Role of Universities Web Based Systems

Cited by (Caglar & Mentes, 2012) in highly competitive environment technology is playing an important role in communication such as web based IS for the organizations of all fields (Cocquebert et al., 2010; Daim et al., 2010). Higher Educational institutes such as universities across the world are using technological based tools to compete and attract interested entities. Web based systems are helping universities to operate efficiently as well as present them across their physical boundaries (Caglar & Mentes, 2012). Web presence and utilization of technology has given advantage to the universities to compete and increase visibility on search engines for the information seekers. Web presence attract stakeholders all over the world such as students, human resource and international relations with other higher educational institutes (Ortega and Aguillo, 2009).

4. Satisfaction, Benefit & Loyalty

Cheok & Wong, (2015) stated that satisfaction as a concept can be measured by the gap between what is expected and experience. The idea is that, satisfaction may lead to many meaningful results that may be of interest to policy makers, administrators and instructors. Computer-based systems are generally related to user satisfaction. Satisfaction is a person’s emotional considerations based on beliefs and experiences. It is also an individual happiness index. Students satisfaction can be termed as key measures to university web systems outcome as it improves quality quoted in (Cheok & Wong, 2015). However, success can never be measured through a single factor. One of the most pertinent measures of system effectiveness is the End-users’ satisfaction assessment. This is due to its high and easy level of face validity. Existing measures have not covered the underlying reasons for dissatisfaction or satisfaction among teachers in institutions. There are limited studies performed to know the antecedents of website satisfaction beyond non-e-commerce domains and classical contexts as cited in (Cheok & Wong, 2015). Cakir, (2017), stated that a pertinent modality for student’s satisfaction is a quality indication to know if a system will be successful or not. According to the dictionary, Satisfaction is “a feeling of happiness or pleasure because you have achieved something or got what you wanted”, while contentment is defined as “the state of being happy and satisfied” while contentment is “the state of being happy and satisfied”. In many other resources both can be interchangeably used, but for the research study, the term students’ satisfaction is used. Contentment may sometimes mean being happy due to an achieved or fulfilled desires or task. Considering students satisfaction, it can be seen in various dimensions of services as satisfaction and contentment especially in learning, teaching activities and triggered facilities in students (Cakir, 2017). End-users satisfaction is the extent to which users trust the system meet their information requirements.

In the views of Kiran and Diljit (2011), customer loyalty is the core objectives of every service business. Therein, loyalty is referred to behavioral expressions and intentions of customers that are mainly outlined from the repeated purchase of use of service (Cronin et al. 2000). Likewise, it is also expressed from the recommendations users give to others about a service or commodity. Enterprises focused on profit making require a lot of loyal customers in order to keep the revenues intact. Concerning to non-profit organization, the number of users and rate of return is decided accordingly. In terms of academic institutions, higher scale research and financial strength is considered important (Kiran & Diljit, 2011). According to Hernon and Altman (2010), organizations require loyal customers as their repeat purchases help them to maximize their sales and profitability (Kiran & Diljit, 2011). The importance of loyalty is also showcased from the element of relationship development between organizations and their customers (Schneider & White, 2004). This affiliation also termed as relationship marketing in notable literatures (Kiran & Diljit, 2011).

Wang and Liao (2008) showed the result that has considerable support for the DM model and encourage the study of perceived net benefit. Alshibly (2015) also, forwarded support and recommendations towards net benefits and asserted that it ideally should be designed under a specific framework to help scholars and practitioners to effectively assess system benefits. DeLone and McLean (2016), have outlined that some of the most prominent measures for assessing IS success are
designers, managers, users and so on. Therein, the net impacts are system outcomes which are generally compared to the core purpose of the system. For this reason, the Net Impacts construct will be the most contextual dependent and varied of the six D&M Model success dimensions (DeLone & McLean, 2016). Several methods are available to examine the net effects at all four levels — organizational, individual, and societal and industry. It is recommended that the usage of individual measure would be more appropriate for the assessing information system success rather than from other general prospects (DeLone & McLean, 2016).

5. System Success
Over the past 60 years of systems introduction and implementation, organizations in the different fields still needs to ensure the success of their systems (Petter, DeLone & McLean, 2012). Measuring systems success based on its users is important value especially with new developed systems, today’s it became a general phenomenon of systems fail to satisfy users and to provide outcomes successfully (Scott & Fruhling, 2013). According to Wu, Guo, Choi & Chang (2017) system implementation constitutes a huge financial undertaking for businesses. financial losses because of systems fail can accrue even with intensive development management and watchful plan (Sykes, 2015).

When Success and failure of information systems are important streams in IS research. Some IS fulfilling their expectation of being successful while others fail, which may be due to complex factors. Despite these underlying factors, IS failure rate is increasingly high. In Bangalore 2013, an IFIP conference working group 8.6 panel session was held. The conference forms the subject of the issue and aims at the reflection for new perspectives in research directions, to further guide future managers in enabling IS success and avoiding failure. Many important topics emerged, such as the need to know the problems of IS in multi-facial perspectives, the need to go beyond narrow considerations of IT artefacts by venturing into underexplored organizational sectors like the public sector (Dwivedi et al., 2015).

System provides a numerous case of successful implementation proffering benefits for both organizational staff and the organization itself (Dwivedi et al., 2015). The diffidence includes improved organizational performance and enhanced profitability also, benefits the process of working routines in an individual level effectively and efficiently (Gable, Seder, & Chan, 2008). A known consequence of IS failure is often a dispute between clients and software vendors about the responsibilities for the enormous financial losses incurred. Organizational evaluation of finding ideas, successful projects has been a fundamental issue over decades. Despite all these, investigating project success and now the ISOP environment, we still lack a consistent model metrics to explain and measure the success or failure (Haried & Claybaugh, 2017).

According to (Hagos, Garfield, & Anteneh, 2016) system implementation in institutions is a huge investment. These kinds of investments are expected to increase the efficiency and effectiveness, as well quality of services to stakeholders. Over the past decades, researchers have resulted to several approaches in identifying factors of measuring IS success. Some of these factors includes; information value, system usage, service quality as also being recently added to these factors and final user satisfaction. These varied methods to measure IS success is suggested as lack of agreement of what makes up IS success. Researchers have gotten different models to explain what makes up IS success compared to others. The use of theory of planned behaviour and reasoned action was used by Davis’s Technology Acceptance Model. These theories were leveraged to give detailed explanation on why some IS model are readily accepted by users than others. However, Acceptance does not equate success, but rather a necessary precondition to success. Due to the complex nature of IS, its multi-dimensional and interdependent nature has made its early attempts of definition an ill-definition.

6. Hypothesis and Instrument Items
To examine the framework and meeting the aims, these hypotheses are suggested:
H1. Perceived quality of information significantly affect students’ satisfaction of university web site system.

H2. Perceived quality of system significantly affect students’ satisfaction of university web site system.

H3. Perceived ease of use significantly affect students’ satisfaction of university web site system.

H4. Perceived reliability significantly affect students’ satisfaction of university web site system.

H5. Perceived usability significantly affect students’ satisfaction of university web site system.

H6. Perceived functionality significantly affect students’ satisfaction of university web site system.

H7. Perceived efficiency significantly affect students’ satisfaction of university web site system.

H8. Perceived security significantly affect students’ satisfaction of university web site system.

H9. Students’ satisfaction significantly affects loyalty towards university web site system.

H10. Students’ satisfaction significantly affects benefit of university web site system.

The instrument consists of 8 independent variables (IV), which hypothesized as will significantly affect the first dependent variable (DV) students’ satisfactions, then the dependent variable students’ satisfactions will work as independent variable that hypothesized as will significantly affect the second dependent variables loyalty and benefit.

First IV Perceived Information Quality (PINFQ) will measure the accuracy, content and understandability:

1. The information outputs of my university web system (including on-screen and printed outputs) are Complete.
2. The information outputs of my university web system (including on-screen and printed outputs) are concise and are easy to understand.
3. It is easy to find what I’m looking for when using my university web system.
4. The information outputs of my university web system (including on-screen and printed outputs) are accurate and is free from errors.
5. My university web system provides the precise information I need.

These questions adapted from (Byrd, Thrasher, Lang & Davidson, 2006; Chen & Kao, 2012; Chiu, Chao, Kao, Pu & Huang, 2016; Davarpanah & Mohamed, 2013; Edlund & Lövquist, 2012; Fadhel, 2015; Gorla, Somers & Wong, 2010; Mohammadi, 2015; Wang & Liao, 2008; Zaied, 2012).

Second IV Perceived System Quality (PSYSQ) will measure the adaptability and sophistication:

1. It is easy for me to become skilful by using my university web system.
2. In general, I find my university web system is easy to use.
3. My university web system is well integrated.
4. My university web system has a short time lag between input and output of data as example (registration process).
5. My university web system has a short response time for on-line enquiry.

These questions adapted from (Chiu et al., 2016; Fadhel, 2015; Gorla, Somers & Wong, 2010; Mohammadi, 2015; Wang & Liao, 2008; Zaied, 2012).
Third IV Perceived Efficiency (PEFF) will measure the time behaviour and accessibility:
1-It is possible to find in my university web system what I want in a reasonable time.
2-My university web system enables me to get on to it quickly.
3-My university web system does not use advertisements or unwanted plug-ins.
4-I can access my university web system from my favourite browser.
5-It is easy to get and browse any part on my university web system.

These questions adapted from (Alves, Wangenheim, Lacerda, Savaris & Wangenheim, 2015; Khawaja & Bokhari, 2010; Mebrate, 2010; Rocha, 2012; Zehir, Sehitoglu, Narcikara & Zehir, 2014).

Forth IV Perceived Functionality (PFUN) will measure the navigation and search:
1-It is easy to go to the home page while I’m browsing any other page in my university web system.
2-While using my university web system, I can easily navigate backwards through previously visited pages.
3-My university web system provides varied search options (e.g. By faculty, courses, etc).
4-Search hints are provided when wrong search keywords are used.

These questions adapted from (Aladwani, 2002; Khawaja, 2010; Mebrate, 2010).

Fifth IV Perceived Reliability (PREL) will measuring maturity, fault tolerance, recoverability, availability and reliability:
1-My university web system never stops unexpectedly.
2-When there is a problem in some part or parts in my university web system I still can browse and perform some of process.
3-In case of interruption of fault, my university web system recovers properly.
4-In general, my university web system is available 24/7.
5-I believe that my university web system is reliable.

These questions adapted from (Aghazadeh, Pirnejad, Aliev & Moradkhani, 2015; Alves et al., 2015; Constantin, 2013; Devaraj, Fan & Kohli, 2002; Mebrate, 2010).

Sixth IV Perceived Usability (PUSA) will measure the user interface aesthetics and protection from users’ error:
1-The interface design of my university web system is attractive.
2-All interface elements are well combined and harmonious in my university web system.
3-My university web system protects me from making errors when inserting data.
4-My university web system errors messages clearly indicate to me how to correct the problem.
5-In my university web system, it is easy to recover from the error quickly.

These questions adapted from (Aghazadeh, Pirnejad, Aliev & Moradkhani, 2015; Alves et al., 2015; Constantin, 2013; Devaraj, Fan & Kohli, 2002; Mebrate, 2010).
These questions adapted from (Alves et al., 2015; Astani & Elhindi, 2008; Mebrate, 2010; Padayachee, Kotze & van Der Merwe, 2010; Wolfinbarger & Gilly, 2003; Suwawi, 2015).

Seventh IV Perceived Security (PSEC) will measure the security privacy and trust:

1-I believe my university web system is secure.
2-Overall, I trust my university web system.
3-My university web system has adequate security features that make you feel secure while using.
4-I believe that the information offered by my university on the university web system is sincere and honest.
5-The output information of my university web system is secure.

These questions adapted from (Alves et al., 2015; Jeon, 2009; Malik, Shuqin, Mastoi, Gul & Gul, 2016; Webb & Webb, 2004; Wolfinbarger & Gilly, 2003; Zaid, 2012; Zehr, 2014).

Eight IV Perceived Ease of Use (PEOU):

1-I find my university web system flexible to interact with.
2-My interactions with my university web system during doing online process were clear and understandable.
3-My university web system is convenient for me.
4-My university web system is laid out in a modern and fashionable.

These questions adapted from (Devaraj et al., 2002; Khawaja & Bokhari, 2010; Liu, Chen, Sun, Wible & Kuo, 2010; Mohammadi, 2015; Wolfinbarger & Gilly, 2003).

First DV Students’ Satisfaction (STSA):

1-My university web system is of high quality.
2-My university web system has met my expectations.
3-My interaction with my university web system is very satisfying.
4-Overall, I am satisfied by using my university web system.
5-Overall, I’m happy with my university web system.

These questions adapted from (Devaraj et al., 2002; Khawaja & Bokhari, 2010; Liu, Chen, Sun, Wible & Kuo, 2010; Mohammadi, 2015; Wolfinbarger & Gilly, 2003).
These questions adapted from (Al-Azawei & Lundqvist, 2015; Chiu et al., 2016; Constantin, 2013; Eppler, Algesheimer & Dimpfel, 2003; Fadhel, 2015; Jeon, 2009; Kiran & Diljit, 2011; Liaw & Huang, 2013; Mohammadi, 2015).

Second DV Benefit (BENE):
1-My university web system helps me to retrieve my information easier and quickly.
2-My university web system saves my time.
3-Overall, I obtained benefits from using my university web system.
4-My university web system is an important and valuable aid to me.
5-My university web system has a large, positive impact on me as a user.

These questions adapted from (Chiu et al., 2016; Dernbecher, 2014; Fadhel, 2015; McGill, Hobbs & Klobas, 2003; Wang & Liao, 2008; Wixom & Watson, 2001).

Third DV loyalty (LOYA):
1-I will be using more of my university web system in the future.
2-I will recommend my university web system to others.
3-I will say positive things about my university web system to others.
4-I like using my university web system.
5-I use my university web system frequently.

These questions adapted from (Constantin, 2013; Eppler et al., 2003; Jeon, 2009; Kiran & Diljit, 2011; Mohammadi, 2015; Valvi & West, 2013; Zehir et al., 2014).

7. Methodology
Research survey is the best for studying complicated phenomenon for technological implementation in an organizational setting (Majchrzak, Rice, Malhotra, King, & Ba, 2000; See, 2012). The research was conducted for the assessment of user perceptions, attitudes and behaviours (Weisberg, Krosnick, & Bowen, 1989). The quantitative method is chosen in this study and it entails the gathering of data employing questionnaire approach, whereby instruments have been pretested by users. A 33 students and Cronbach’s coefficient were employed in conducting research pilot study. This enables the test of consistency and reliability of the study. This test is best for use in multipoint scaled items (Cronbach, 1946; Davarpanah & Mohamed, 2013). According to Pallant (2013) it is ideal for the value of Cronbach’s coefficient alpha to be greater than 0.70. The results of rho_A, Composite Reliability and Average Variance Extracted are very excellent. The results of reliability for the pilot study is presented in Table 1.
Table 1. Construct Reliability Factor Loading and Validity of the Variables.

| Factor                  | Cronbach's Alpha | Composite Reliability | Extracted Variance (AVE) | Average Variance |
|-------------------------|------------------|-----------------------|--------------------------|------------------|
| Benefit                 | 0.8177           | 0.8726                | 0.5784                   |                  |
| Ease of Use             | 0.7734           | 0.8550                | 0.5976                   |                  |
| Efficiency              | 0.8019           | 0.8635                | 0.5597                   |                  |
| Functionality           | 0.8097           | 0.8769                | 0.6435                   |                  |
| Information Quality     | 0.8520           | 0.8950                | 0.6317                   |                  |
| Loyalty                 | 0.8011           | 0.8633                | 0.5591                   |                  |
| Reliability             | 0.7905           | 0.8569                | 0.5460                   |                  |
| Satisfaction            | 0.8189           | 0.8749                | 0.5857                   |                  |
| Security                | 0.8097           | 0.8682                | 0.5693                   |                  |
| System Quality          | 0.8328           | 0.8827                | 0.6023                   |                  |
| Usability               | 0.8191           | 0.8741                | 0.5825                   |                  |

8. Conclusion
The pilot results showed a very good result. So, it’s justifiable to make an integration between theories of information systems and software engineering. ISO 25010 approved that can be used as a success measure of systems quality engineering.

9. Future work
This is the first study that opens the way for the researchers to conducting more researchers based on the computer science and software engineering perspectives. The ISO 25010 model is still not being used in the researches, researchers are in the open call to conduct studies and create their models by using ISO 25010 and other frameworks. ISO 25010 limitations such as multi faces features, characteristics with the sub-characteristics that are too many which makes a hard job for the researchers to perform the measurement directly using it. The researcher also, faces a problem of how they can use ISO 25010 or its features such as security to solve the issues. Results of commerce systems studies are not applicable in non-commerce systems also, results in the developed countries are not applicable in the least developed countries. The higher education domain needs for future researches because there is a lack of studies and frameworks are domain context, most of studies are targeted health and business domains.

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