Citizen Centric Approach for Skill Testing and Certification of CTEVT

Mahesh Maharjan[a] and Suresh Maharjan[b]

[a] Department of Computer Science and Information Technology, Amrit Campus,
Tribhuvan University
Kathmandu, Nepal
E-mail: maheshmanmaharjan@gmail.com

[b] Department of Computer Application, Kantipur City College, Purbanchal University
Kathmandu, Nepal
E-mail: shoerace@gmail.com

Abstract

This study is on citizen centric approach for skill testing and certification of CTEVT, Nepal. The researchers explore current tools and technologies that have been adopted by CTEVT and explore e-Governance approaches for skill testing and certification of CTEVT, Nepal. Finally, they tried to automate the skill testing and certification of CTEVT, Nepal. Various research literatures were studied and data collected from 110 respondents using 26 interrelated survey questions to explore the citizen centric approach for skill testing and certification. This study adopted quantitative research design and followed random sampling. Traditional craft persons, occupational groups, informally and/or formally trained people and workforce of industry enroll to CTEVT for recognition of their skills through skill testing and certification. They have to wait in long time in an administrative process and pay high cost to avail services from CTEVT due to frequent travel. On the other hand, business organization are not getting certified workers and also facing problems in verifying certified workers from CTEVT. The service seekers are not getting the skill testing and certification services in convenient, equitable, transparent and economical manner around the clock. Based on the result of data analysis, the researcher has proposed an automated e-service delivery system framework for skill testing and certification so that CTEVT can provide quality of service and value to user service in terms of improved service, reduced cost and time saving to service seekers.

Keywords: *CTEVT, E-Governance, Skill testing and certification, Citizen centric approach, Public service delivery.*

1. Introduction

As Information and Communication Technology (ICT), especially Internet and World Wide Web (WWW), continues to expand all level of government agencies to deliver services to citizen and business. To enhance quality of services and operate more efficiently government is gradually transforming to e-Government. E-Government is the use of ICT to promote more efficient and effective government, and make it more accessible and accountable to the citizens (UNESCO, 2007). The application of ICT helps to improve governance to be more effective, transparent and also ensure wider participation and deeper involvement of citizens. E-Government is the public sector's use of ICTs with the aim to improve information and service delivery, encourage citizen participation in decision-making and make government more accountable, transparent and efficient (Malik,2016). Therefore, most of countries are using ICT to make citizen centric government. Citizen centric is all about turning the focus of government at the service delivery through the eyes of citizen. Citizen being main beneficiaries of entire process need of citizen should come first rather than operational and imperatives of the government system. In Nepal, government is introducing ICT to improve their performance and to make their service transparent and efficient so that citizen gets fast, convenient, equitable, transparent, efficient and economical services round the clock.

Different types of interaction are possible between the three major actor of e-government i.e. citizen, business and government or public institution to deliver government services, exchange of information, integration of various stand-alone systems and services between Government to Citizen (G2C), Government to Business (G2B), Government to Government (G2G) and Government to Employee (G2E) (Hunter, 2015).In the past public services were designed from government perspective, so these services were usually not user-friendly and had little values to the public. That is why instead of starting by asking what services government agencies can provide, government must start with what the citizens really need. In other words, there has to be a distinct shift from an "agency centric" to a citizen centric approach (Young, 2004).

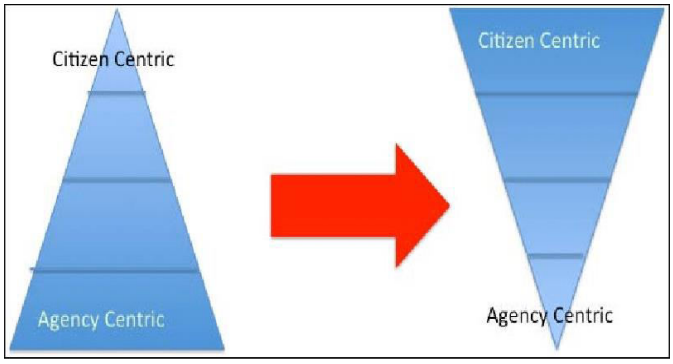

Figure 1: A shift from agency centric model to citizen centric model

Citizen-centric e-Government services are designed to deliver increasingly cost-effective, personalized and relevant services to citizens, but also serve to enhance the democratic relationship, and build better democratic dialogue, between citizens and their government, which then enhances the practice of citizenship within society (European Commission, 2007). The citizen centric approach advocates the provision of citizen-oriented services, that is, services to meets the citizens' demands and expectations. In other words, governments will provide services and resources custom made to the actual service and resource needs of the citizens, including government employees and others (Bertot, Jaeger & McClure, 2008). Citizen-centric service is viewed as the ideal manifestation of e-government as it demands information integration across department lines, government units, and even organizations across various sectors (Chen, 2010).

The efficiency of the service is facilitated through citizen utilization and the public value of its effectiveness. In the process of e-governance, efficiency is demonstrated by cost benefits, whereas effectiveness is a result of efficient processes to construct service portfolios that offer individual and public value. However, the challenges remain for government is to understand the needs and expectation of its citizens. Another issue is technology. Governments often consider the technological possibilities rather than the citizens' (users') needs in determining the design of government online services. Much more attention is given to technology than to the real needs and expectations of citizens (Bertot & Jaeger, 2008). For effective and efficient public services, understanding of citizens needs and meet their expectation is essential. Finally, the citizen centric approach should be such, which encourages citizens to avail e-services from citizen portal. Citizen centric is all about designing of services from user's point of view rather than government side. By addressing citizens need first, e-government can benefit citizens in a following way.

- **Round the clock service**: Government services can be accessed 24 hours, 7 days a week. It means that the government services are always available.

- **Economical:** Government services can be accessed in low cost as there is no need to physically visit the office.
- **Fast and efficient service:** As government services can be accessed electronically using multiple delivery channels, citizens can access government service in fast and efficient manner.
- **Transparent:** Government services can be accessed using ICT so no money is needed to speed up.
- **Equitable access:** Citizens from diverse background can have similar opportunities while accessing government services.
- **Convenient:** Government services can be accessed from home or work using the most convenient delivery channels.

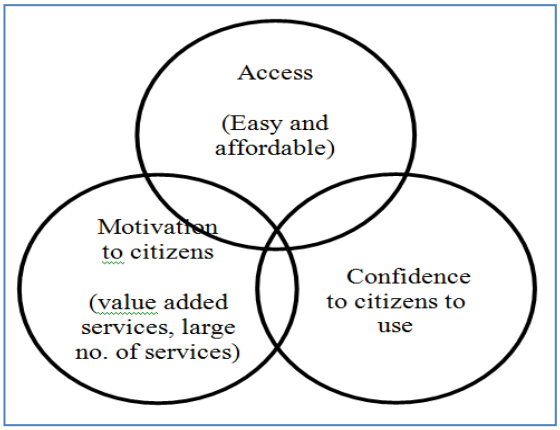

Figure 2: Encouraging citizens through citizen centric approach (Bertot &Jaeger, 2008)

2. Statement of the Problem

The traditional craft persons, occupational groups, informally and/or non-formally trained people and semi-skilled workforce of industry need their skills tested and certified to fulfill gap between traditional skill and job market. Council for Technical Education & Vocational Training (CTEVT) as a government entity has a mandate for skill testing and certification. The people who have gained skill and knowledge from informal and non-formal but do not have certificate enroll to CTEVT for skill testing and certification. While applying for the skill test, they have to visit CTEVT, stand in a long queue to get and submit the form. They have to visit several times during skill test process such as getting information, filling form, submitting form, getting admit card, for performance test and written test. They have to spend more than hours in each visit. In short, the people are not getting the services in convenient, equitable, transparent, efficient and economical services round the clock.

3. Objective of the Study

The main objective of this research work is to design citizen centric approach for skill testing and certification of CTEVT, Nepal.

4. Literature Review

E-government can be successful by enabling multi-channel delivery of services as citizens are in different situations with different degrees of accessibility to the channels. These channels can be classified into six categories such as directness, accessibility, speed, security and privacy, and availability/modality (Shareef, Arreymbi, Jahankhni & Pimendis,2010). One of the major goals of e-Government is to reach as many citizens as possible in different situation and this can only be possible with using various types of service channels provided by e-government. The main aim of multi-channel service delivery is to improve service offered to citizens and reduce the cost of offering these services. These channels mostly depend on internet accessibility to access the services. Various government institutions are already providing e-government services through various delivery channels apart from web. The advancement of ICT together with the growth of wireless/mobile communication has provided different types of channels allowing citizens to access government services anytime anywhere (Naqvi & Al-Shihi, 2009). The internet is the most efficient and effective channel as it provides the most effective means of interaction and allows services to be offered access 24/7, with e-services continuously available to the citizen at their convenience (World Bank, 2002).

Table 1: The type of service channels with their benefits to citizens and providers

Channels	**Citizen benefits**	**Provider's benefits**
Call centre	Provide services on a 24/7 basis -Provides various services -Services can be accessed from home or at work	Cheaper than the traditional channel
E-mail, automated responses	-Provide services on a 24/7 bases -Services can be accessed from home or the office	- Required no personal contact, less expensive, and more transparent - Can be sent one too many
E-mail, manual response	-Provides services from home or the office.	-Inexpensive than 'in person' contact

Digital TV	-Provide services on a 24/7 bases -Services can be accessed from home or the office	- High possible diffusion - can elevate e- inclusion - can be provided one-to-many
Voice Response System	-Provide services on a 24/7 bases -Accessed from home or the office for the services	-Less expensive -elevated diffusion of access equipment
Mobile devices	-Provides services regardless of the location -Provides varied channels service, SMS, e-mail, and access to internet,	- promote and increase e Inclusion
SMS	-Provide services on a 24/7 bases -Accessed from home or the office for the services	-Announcing services -Less expensive - Required no personal contact
Kiosk	Provide services on a 24/7 bases	-Simplicity in use
Telephone	- Accessed from home or the office for the services	-Very large Diffusion Use
Web Site	- Provide services on a 24/7 bases -Accessed from home or the office for the services	-Involve huge amount of Information - Obtaining services through internet and Less expensive

(European Commission, 2004).

The Government 3.0 lies in the expansion of the influence of individuals due to the development of ICT and governmental influence due to transition to Industry 4.0. Government 3.0 provides customized services to citizens in individual oriented approach.

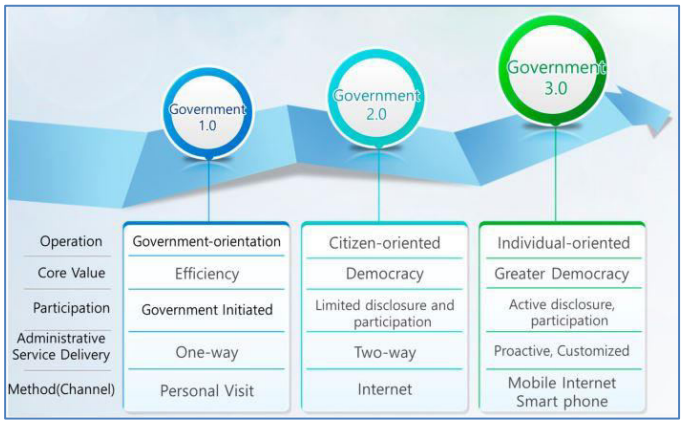

Figure 3: Shift of Governance paradigm in Korea

(Seo, Kim & Choi, 2018)

The Government of Korea is adopting Government 3.0 to promote active sharing of public information and removal of barriers existing among government ministries for better collaboration. The ultimate goal is to secure the driving force for national administration and to provide personalized services to individual citizens (Ministry of the Interior, 2015). At the same time, generating more jobs and supporting creative economy. A prime example of integrated citizen-centric public service is the year-end tax adjustment service provided by the National Tax Service (NTS) implemented in January 2016. The essence of this service is that it is a pre-filled service. Based on data possessed by NTS, the service first informs citizens of the items that require reporting and automatically fills in the necessary fields. This makes year-end tax adjustment and tax reporting more convenient for citizens, and saved KRW 210 billion in costs for taxpayers. The prefilled service for general income tax and value-added tax saved KRW 131.5 billion in costs for taxpayers (Seo, Kim & Choi, 2018).

5. Methodology, Data Analysis and Presentation

The researchers have chosen a quantitative research to address research objectives through data collection and analysis. Data collection has been carried out through questionnaire and adopted random sampling techniques. The survey questionnaire has been categorized into different portions for the purpose of this research. The first portion is used for demographic information such as address, age and occupation. The second portion is used to collect information about existing status of CTEVT services and the third portion is used to know the areas of improvement of better service delivery from citizen point of view.

The questionnaire consisting of 26 inter-related questions excluding demographic information were distributed to the skill test taker and service seeker visiting to CTEVT, Sanothimi, Bhaktapur for different purposes. A total of 110 questionnaires were distributed randomly to the service seekers. The response rate was outstanding and total 108 were collected. Among 108 returned questionnaires, 4 questionnaires were discarded during coding and tabulation of questionnaire due to blank responses.

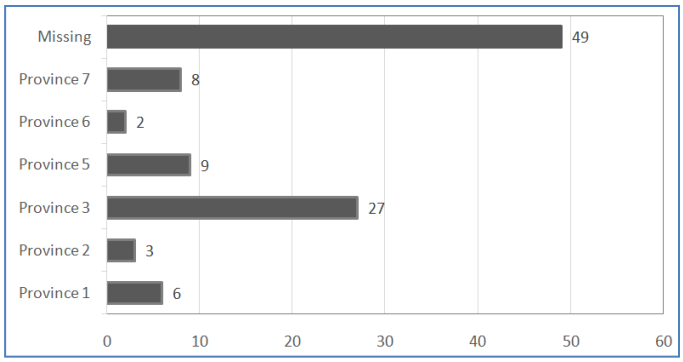

Figure 4: Distribution of respondents based on province

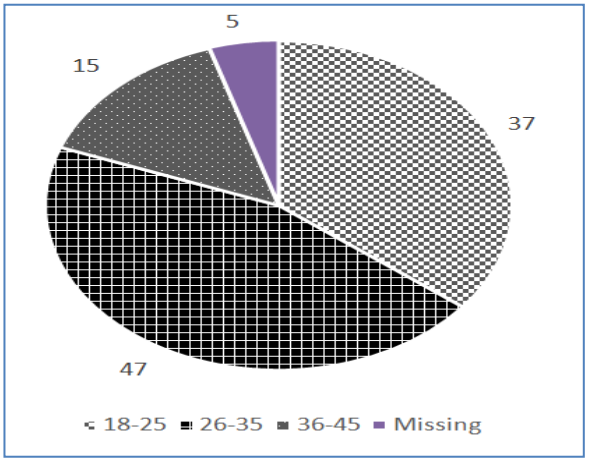

Figure 5: Distribution of respondents based on age

Distribution of respondents based on their age shows that 37 respondents were from age group 18-25 which is 35.6% of the total, 47 respondents were from age group 26-35 which is 45.2% of the total, 15 respondents from age group 36-45 which is 14.4% of the total and 5 respondents didn't answer the question which is 4.8% of the total respondents. This shows that respondents from age group 18-35 years visit CTEVT for skill testing and certification.

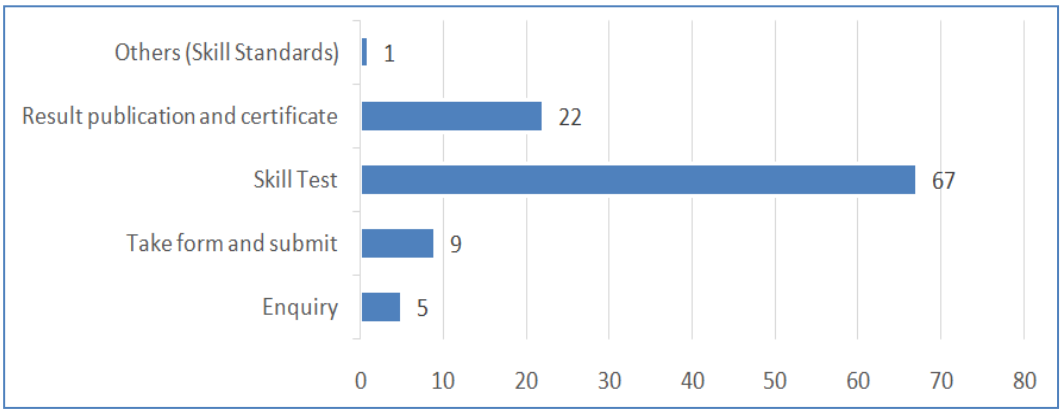

Figure 6: Purpose of visiting CTEVT

Figure 6 shows the respondent's purpose for visiting CTEVT. The majority of respondents (64.4%) visit CTEVT for skill test, 22 respondents (21.2%) visited CTEVT for result publication and certificate, 9 respondents (8.7%) visited CTEVT for taking and submitting forms, 5 respondents (4.8%) for enquiry and 1 respondent for skill standards. This depicts that 35.6% of respondents visit CTEVT for basic information.

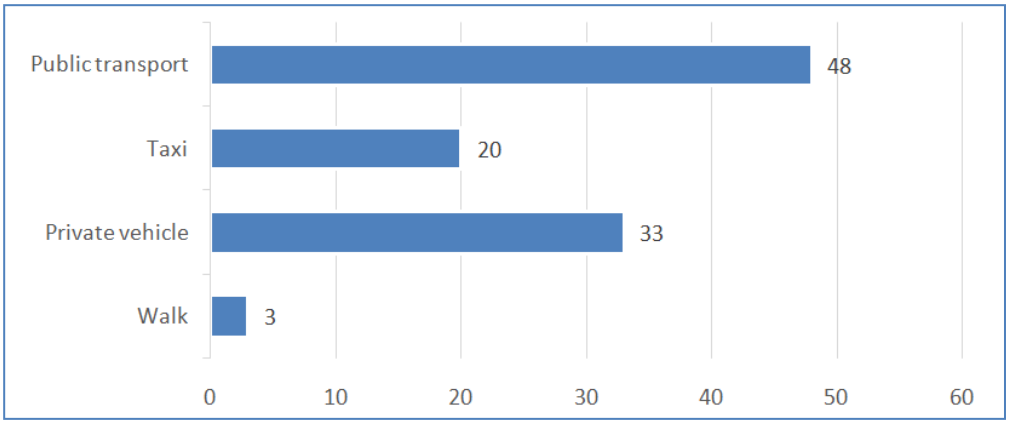

Figure 7: Transportation used to reach CTEVT

Figure 7 shows the different means of transportation that respondents used to reach CTEVT. The survey shows that 48 respondents used public transport, 20 respondents used taxi, 33 respondents used private vehicle (bike or car) to reach CTEVT and 3 respondents reached CTEVT by walking. This shows 97.1% of total respondents used transportation and only 2.9% respondents didn't use any form of transportation to reach CTEVT.

Duration	Respondent	Percent
0-1 hours	14	13.5
1-2 hours	19	18.3
2-3 hours	20	19.2
More than 3 hours	51	49.0
Total	104	100.0

Table 2: Time duration to complete the task at CTEVT

Table 2 shows how long it takes respondents to complete their task at CTEVT. Among 104 respondents, 51 respondents admitted that it took more than 3 hours to complete their task 20 respondents admitted that it took 2-3 hours to complete their task, 19 respondents admitted that it took 1-2 hours to complete their task and 14 respondents admitted that it took less than an hour to complete their task. This shows 87.5% of total respondents admitted that it took more than 1 hour to complete their task at CTEVT.

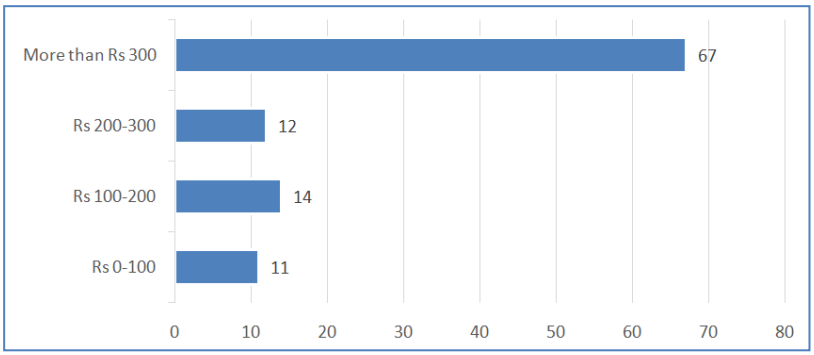

Figure 8: Expenses of respondents besides CTEVT regular charges

Figure 8 shows expenses of respondents besides CTEVT regular charges they have to spend. The survey shows that 67 respondents spent more than Rs 300, 12 respondents spent Rs 200-300, 14 respondents spent Rs 100-200 and 11 respondents spent less than Rs 100 to complete their task besides CTEVT regular charges. This shows respondents have to spend extra amount for refreshment and transportation besides CTEVT regular charges.

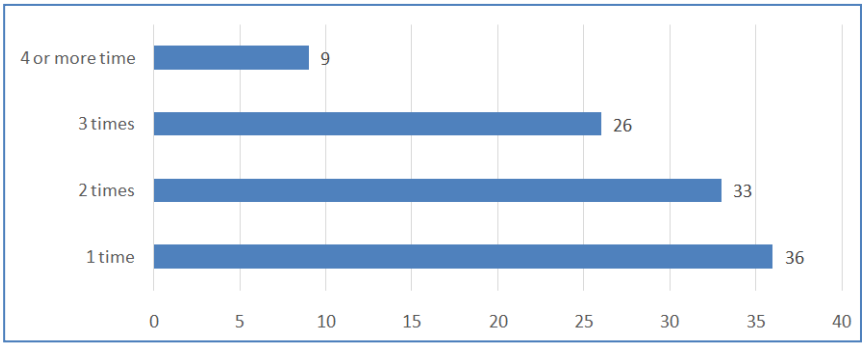

Figure 9: Frequency of visiting CTEVT for same work

Figure 9 shows frequency of visiting CTEVT for same work. The survey shows that respondents have to visit more than once to accomplish their task. 9 respondents visited CTEVT 4 or more times, 26 respondents visited 3 times, 33 respondents visited 2 times and 36 respondents visited 1 time to accomplish their task at CTEVT. This shows 34.6% of total respondents accomplished their task in single visit and 75.4% respondents have to visit more than once to accomplish the same task.

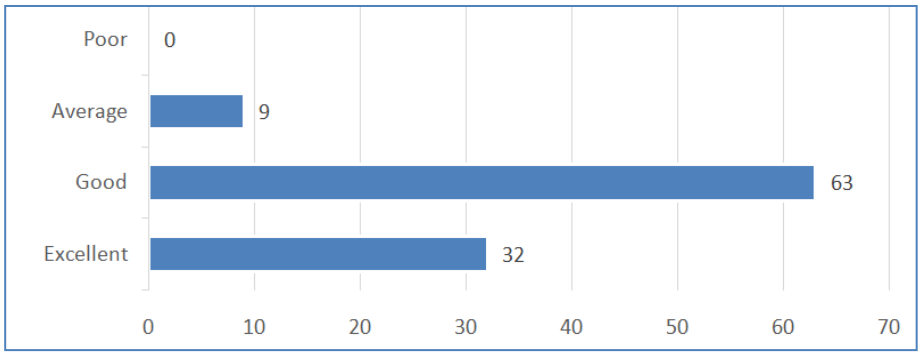

Figure 10: Perception towards provision of online certificate verification

Figure 10 shows what if there is a provision for online certificate. 32 respondents (30.8%) said it would be "Excellent", 63 respondents (60.6%) said it would be "Good" and 9 respondents (8.7%) said it would be "Average" if there is a provision for online certificate verification.

6. System Framework

A framework is a real or conceptual structure intended to serve as a support or guide for the building of something that expands the structure into something useful (Rouse, 2019). The researcher proposed the above e-service delivery framework for automation of skill testing and certification of CTEVT, Nepal considering the citizen need based on the result of data analysis. The service seekers can get easy, fast, transparent, and error free services through the proposed e-service delivery framework. The rate of skill testing and certification is increasing gradually every due to government policy and employer's preference as they bring certain set of skills and competencies in the workplace, for which employers do not have to make additional investments (Logic, 2018). The researchers proposed decentralized services of skill testing and certification through its province to provide prompt and quality services to service seekers throughout the nation. It provides skill testing services, training and employment opportunity, certificate print and verification through automated skill testing and certification system.

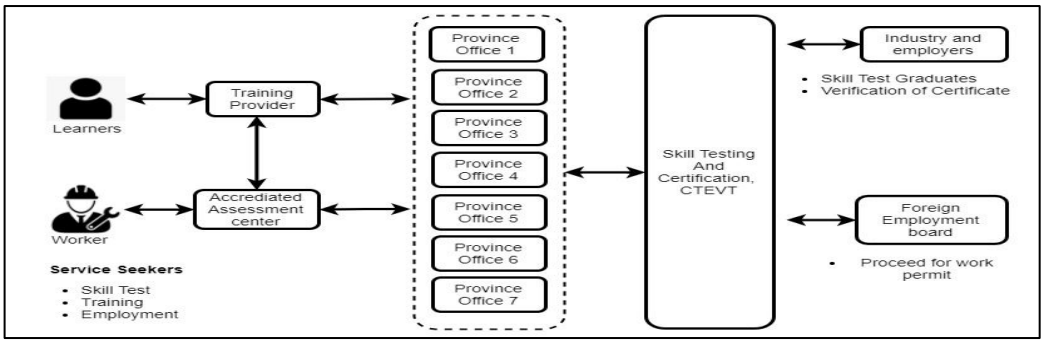

Figure 11: System framework for automation of skill testing and certification

Figure 11 shows system framework for automation of skill testing and certification. Based on the system framework for skill testing and certification of CTEVT, Nepal, the researchers have developed context level diagram to define and clarify the boundaries of the system. The system consists of five major entities. They are service seeker, employment provider, training provider, accredited center and admin/manager. This shows the relationship of system with entities and flow of information between system and entities. Service seekers apply and request for skill test after registration with necessary documents. They get notifications regarding skill test. They can apply for training and job after posted from training and employment providers. Accredited centers manage skill tests. Admin/manager activates and setup user role after verifying documents.

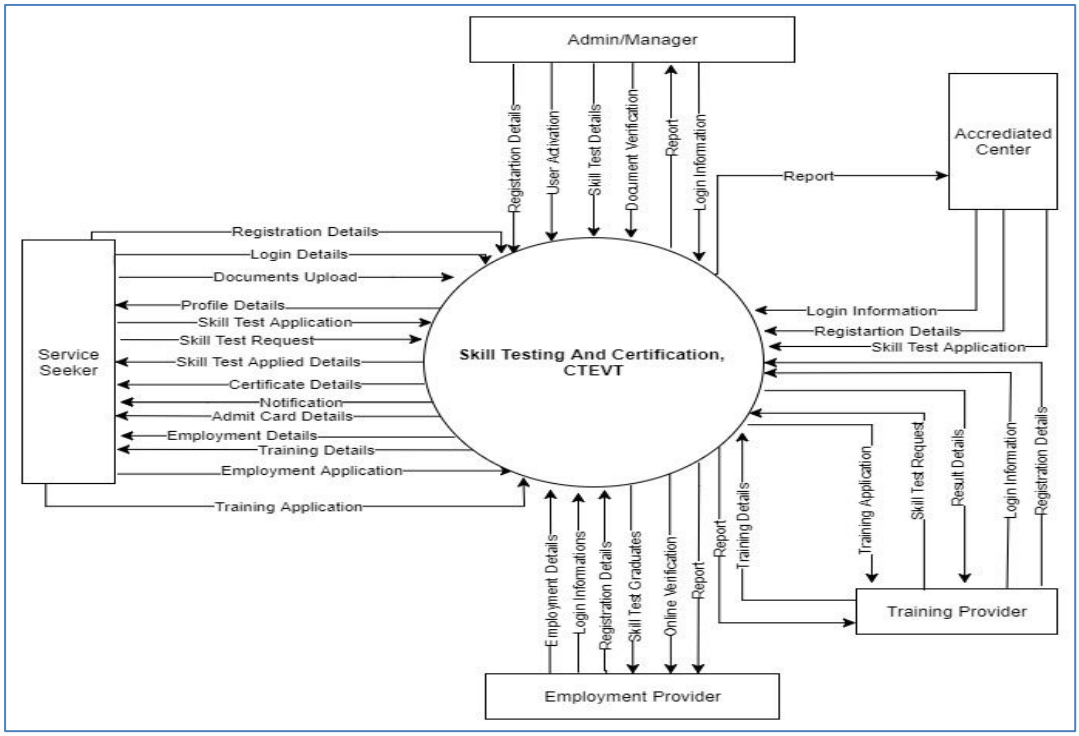

Figure 12: Context Level Diagram for skill testing and certification

7. Conclusion

The purpose of this study was to explore citizen centric approach for skill testing and certification of CTEVT, Nepal so that service seekers can get public services of skill testing and certification in convenient, equitable, transparent and economical manner throughout the clock. The existing ICT tools and technologies that CTEVT using for service delivery were developed focusing on the administrative and organization need rather than citizen centric model. As a result, service seekers have to spend more than 4 hours on an average including travel time and cost to access service

provided by CTEVT. Citizen centric approach is a proof that reduces number of trips to concerned office, waiting time, and cost to service seekers, corruption and error rate. This implies that service delivery of skill testing and certification can be improved through citizen centric approach. The expectations of service seeker are high as compared to service CTEVT is currently providing. Major expectations of service seekers are online application for skill test, print facility of admit card and certificate, Training and employment details. In order to meet those expectations, it is advised that CTEVT should develop a new automated system of e-service delivery so that it can provide quality of service and value to user service in terms of improved service, reduced cost and time saving to service seekers.

References

Bertot J. & Jaeger, P. (2008). The e-Government paradox: better customer service doesn't necessarily cost less. Government Information Quarterly.

Bertot, J. Jaeger, P. & McClure, C. (2008). Citizen-centered e-Government services: benefits, costs, and research needs, Canada.

Chen, Y. (2010). Citizen-centric e-government services: understanding integrated citizen service information systems. Social Science Computer Review, 2010.

European Commission (2004). Multi-channel delivery of e-Government services, 21-22.

European Commission (2007). A handbook for citizen-centric e-Government. E-Government Unit, DG Information Society and Media, European Commission.

Hunter, M. G. (2015). Understand E-government development in strategic use of information technology for global organizations, New York.

Logic, R. (2018). Tracer study of skill test graduate, NSTB, Bhaktapur.

Malik, F. (2016). Role of information technology in Governance.

Ministry of the Interior (2015). 2014 Government 3.0 White Paper, MOI Publications.

Naqvi, S. J. & Al-Shihi, H.(2009). M-Government services initiatives in Oman. Issues in Informing Science and Information Technology, 6 (1).

Rouse,M.(2019).TechtargetNetwork.

Seo, I., Kim, Y. & Choi, J. (2018). Assessment of efficiency in public service-focused on Government 3.0 case in Korea. Total Quality Management & Business Excellence.

Shareef, M. S., Arreymbi, J., Jahankhni, H. & Pimendis, E. (2010). Multi-channel delivery of services: initial pace towards M-Government: the case of Kurdistan region of Iraq, Proceeding of Advances in Computing and Technology conference.

UNESCO Asia-Pacific Bureau for Communication and Information. (n.d.). *e-Government toolkit for developing countries*. New Delhi: UNESCO.

World Bank (2002). The e-Government handbook for developing countries: a project of InfoDev and the Center for Democracy and Technology, World Bank, Washington DC.

Young, J. (2004). Promoting citizen-centered approaches to e-Government programmes - strategies & perspectives from Asian economies, Mexico.