

Readiness to E-commerce Adoption by Micro and Small Enterprises in Small Town: A Case Study of Vyas Municipality, Nepal

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Abstract

E-commerce has substantial potential to foster the growth of micro and small-sized enterprises (MSEs) in developed and developing countries alike. The survey was aimed to investigate the current status and future direction to the adoption of e-commerce by micro and small enterprises. A questionnaire survey was conducted to collect data from 70 MSEs as samples located in Vyas Municipality, Tanahun. The result shows that the overall scale value of all five factors was 3.205, indicates the poor level of e-commerce adoption. Even though 76 % of the enterprises were capable to adopt e-commerce based on technology available and knowledge of ICT, only 33% of the enterprises were ready to adopt e-commerce. Findings show that the important inhibiting factors are lack of internal trust, lack of awareness, intolerance towards failure, incapability of dealing with rapid change, and lack of online transaction system.

Keywords

E-commerce - Micro and Small Enterprises - E-commerce Adoption

1. Introduction

When internet was systematically started in 1960s, lots of innovation have taken place in the field of Information and Communication Technology (ICT). E-commerce is one of the consequences innovation of evolution of internet. In simple terms, e-commerce is buying and selling of goods and services over internet using website or mobile application [1]. E-commerce has already been adopted by the developed countries and has been spreading over developing countries.

E-commerce has substantial potential to foster the growth of micro, small and medium-sized enterprises (SMEs) in developed and developing countries. However, E-commerce adoption by small enterprises in developing countries has faced many challenges that have not been adequately addressed due to the complex nature of its adoption in such countries [2]. SMEs and micro-enterprises play significant roles in Nepalese economic and social development. It also allows small and medium-sized businesses to create wealth; by growing employment opportunities and declining unemployment. Send Gifts to Nepal was set up around a decade ago, with it's help, people residing

abroad sent gifts to their loved ones in Nepal. While this wasn't really based in Nepal, it provided people an opportunity of what it was like to buy things online. Platforms such as Muncha.com, neapalibazar.com, fatafatt.com Bhatbhatenionline, Thamel.com, Giftmandu, and so on were later introduced but couldn't get their anticipated popularity because people in Nepal were just getting friendly with the internet back then and there are many wonders. With the steady increase in the number of internet users with time, e-commerce is flourishing and gaining attraction in Nepal right now. With the aid of their smartphones, people love the idea of shopping, not just clothes but everything from furniture to food, liquor to electronic appliances.

2. Literature Review

The internet and computers have revolutionized electronic transactions that include ownership transactions or the right to use online goods or services. E-commerce not only involves buying and selling over the internet but also collaborating with business partners. It is not constrained by time or

physical location it can be conducted at any time from any place which opened unlimited new markets. It is also defined as the process of buying, selling, transferring, or exchanging products, services, and/or information via computer networks, mostly the internet and intranets [3]. It is presented in different dimensions with different business models based on the participants of the transactions. For instance, if the participants are governments, the model is known as the government to government (G2G). If it is businesses, it would be business to business (B2B). When participants in the transactions are business and consumers, it is thus referred to as the business to consumer model (B2C).

2.1 Global E-commerce

E-commerce allows consumers to take advantage of greater options and lower prices. Global e-commerce is rapidly expanding, several trillion dollars are being exchanged annually over the web. In 2017 about 1.3 billion people (one quarter of the world's population) aged 15 years and older, shopped online [4]. In 2019 Global e-commerce sales was nearly 3.5 trillion dollars worldwide, which is about 14 percentage of total retail sales and it expected to increase in coming years [5]. The adoption of E-commerce in developing countries differs greatly from developed countries. Developing countries often lack the necessary physical infrastructures and awareness for the development of E-commerce [6].

2.2 E-commerce in Nepal

The greater adoption of internet and smartphones is the biggest driver of e-commerce in Nepal. According to Nepal Telecommunications Authority (NTA), mobile phone penetration has reached 145 percent. Whereas broadband internet penetration in Nepal is 72 percentage by the end of 2019 and about 3 million of cellular mobile phone are imported in last six month of 2019 [7],[8] . In 2019 Nepal is in 112th rank B2C e-commerce index among 152 countries with index value 35.4 out of 100 [4] . Expansion of the information and communication technology have created prolific ground for the development of e-commerce. Social media sites such as Facebook, Instagram and Viber are now commonly used for socialization. Not only are they used for establishing people to people contacts, but now they are often being used to connect businesses to people or other businesses as well. The use of smartphones and

different mobile apps is growing fast, mostly amongst the youth and in urban areas. Nepali youth, because of their education, and largely influenced by family members that have gone abroad for work or study, have embraced the evolving digital landscape. Since the young outnumber every other age group in Nepal, they have the potential to drive economic transformation by employing mobile technology. Both the public and private sectors have to understand this emerging opportunity and tap it to build a robust and thriving national economy.

Despite the potential, Nepal is already lagging behind in localizing e-commerce as a business tool compared to other Asian countries. However, there are private-sector providers that have been pushing digital development. Nepal's e-commerce market is getting crowded day by day as smaller startups are trying to sustain in the market. Currently Daraz, Sastodeal, Hamrobazar, Foodmandu, some other e-commerce business are leading in Nepali market. Among those daraz.com.np on the top, currently they are providing services in 24 major cities.

The digital payment system is another requirement for running e-commerce effectively. It is estimated that, currently, over 85 percent of the payments for e-commerce transactions are done using the cash on delivery method. Nepal Rastra Bank and Nepal Telecommunications Authority (NTA) have to build ground for customer-friendly payment gateways. The availability of an easy e-payment system in export can also help promote the export sector. E-commerce transactions require strong legal protection and regulation as well. Provisions of quality control, respect of customers' rights, data privacy, return and refund systems and payment solutions; all have to be regulated by law. Strong legal foundations will also help attract foreign direct investment (FDI) and domestic investment in this sector.

2.3 E-commerce Adoption Model by SMEs

Numerous models have been developed over the years to assist in the adoption of e-commerce to gain the benefits and resolve the barriers. From the literature three of these have been identified as the most commonly used in SMEs e-commerce adoption research.

- Technology Organization Environment (TOE)
- Technology Acceptance Model (TAM)
- Perceived e-readiness model (PERM)

According to the TOE framework Technological innovation in organization is influenced by three factors such as Technology available, organizational structure and External Environments [9]. TAM is commonly used in information technology adoption research. It suggests perceived usefulness (PU) and perceived ease of use (PEOU) as the two most important determinants of technology adoption in an organization. A more useful model that has been designed in the context of developing countries is the Perceived E-Readiness Model (PERM) by Molla and Licker [10]. The model includes two major constructs to access both internal and external factors. The internal factor is termed Perceived Organisation E-Readiness (POER) and the external factor termed perceived Environmental E-Readiness (PEER).

The main limitation of the first two models from the perspective of developing countries is that they are designed to address issues in developed nations. Issues that might seem insignificant in developed countries may be important to organizations in the developing region. Perceived E-Readiness Model affirmed that determining adoption level of an organization was an essential part of e-readiness assessment.

3. Methodology

The focus of this research was to perform an appropriate readiness assessment to adopt e-commerce by micro and small enterprises. This paper also tried to get preference of those enterprises' to use e-commerce in the future. The questionnaire assessment was carried out in Vyas Municipality based on the Perceived organization e-readiness for e-commerce adoption framework from literature review.

Research Technique

The questionnaire was designed by using factors identified in the framework. Total 29 questions were prepared for the survey, comprised for each of the five factors. Each question was assessed against a 5 point likert scale ranging from (1) strongly agree to (5) strongly disagree.

Awareness: It represents the information available and understanding about the e-commerce. There were total 9 questions for this factor.

Human resources: It refers to the availability of appropriate education and experience to information and communication technology. There were total 5

questions for this factor.

Technology Use: This is the most crucial factor than other factors. It reflects the basic ICT based infrastructure and knowledge available in the organization. There were total 6 questions for this factor.

Finance: It reflects the current financial transaction methods preferred by the organization. There were total 5 questions for this factor.

Market Readiness: It represents the enterprises' perception towards business partner and customers to adopt e-commerce. There were total 4 questions for this factor.

There were total 1046 firms as a population in the city which limits in this survey category. Total minimum required sample size was 64, but for error minimization total 70 samples were taken for the study. Random sampling was used to select enterprises for collecting the information.

Statistical Analysis Approach The data collected from the survey were tabulated according to factors from the framework. The basic reliability analysis was performed to validate questionnaire within the group. Cronbach's alpha (α) measures an internal consistency and reliability of items are as a group [11]. So, α value for all five factors was calculated to validate the consistency and reliability of questions related to those factors.

$$\alpha = \frac{k(\sigma_t^2 - \sum_{i=1}^n \sigma_i^2)}{(k-1)\sigma_t^2} \dots \text{equation (1)}$$

where,

k = Number of items in a group,

σ_t^2 = Total Variance,

σ_i^2 = Varaince of each item

The mean score and standard deviation of each indicator was calculated based on responses from participants and were depicted on column charts to give a visual representation of the results and make it easy for the MSEs to understand. Furthermore, an e-readiness scale was used to determine the readiness level of each factor in the framework. Five likert scale was used for each question to determine the readiness level of each factor.

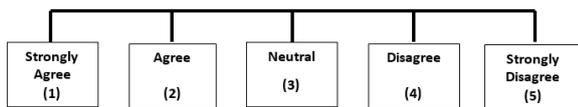


Figure 1: Likert Scale

Based on central tendency of the result factors were analyzed as follows:

- Factor average between 1 and 2: The factor favored to adopt e-commerce.
- Factor average between 2 and 3: The factor favored to adopt e-commerce but can still be improved.
- Factor average between 3 and 4: The factor do not favored to adopt e-commerce; some work have to be done prior to implement e-commerce system.
- Factor average between 4 and 5: The factor do not favored to adopt e-commerce; lots of work have to be done before to implement e-commerce system.

Based on technology used factor, firms were also categorized to e-commerce adoption level into non-adopters, capable adopters, and initial adopters.

Non-Adopter: The non-adopters were organizations which have not been connected to the internet, had not been using a smartphone or laptop, and didn't have an email.

Capable Adopter: The capable adopters were organizations that have been connected to the internet, have been using a smartphone or laptop, and had email, but have not exercised to use website or e-commerce.

Initial Adopter: Initial-adopters were organizations with a static website that was used for publishing company information without interactivity or participated in other e-commerce platforms.

4. Result and Discussion

The Cronbach's alpha coefficients range from 0.71 to 0.87, higher than the recommended 0.70 level which indicated acceptable level of reliability. So it was concluded that the construct to intend measure from the questionnaires was fit for measuring the instruments. This showed that the instrument was

sufficiently reliable and could consistently capture true score variability among respondents.

Table 1: Alpha value and factor's scale value

| Factors | Alpha Value | Mean and S.D. |
|------------------|-------------|---------------|
| Awareness | 0.86 | 3.370 ± 1.101 |
| Human Resources | 0.81 | 2.749 ± 1.041 |
| Technology Use | 0.75 | 2.971 ± 1.350 |
| Finance | 0.71 | 3.029 ± 1.140 |
| Market Readiness | 0.87 | 3.975 ± 0.937 |
| Total | | 3.205 ± 1.194 |

As of the results, it was clearly seen that MSEs had a relatively low-level e-commerce adoption in the city with the overall scale mean value 3.205. Total standard deviation was 1.194, indicates that the response was not consistent to one scale. Human resource was the most supportive factor with scale value 2.749 and market readiness was the most lagging factor with factor value 3.975. From the observation, it was found that many MSEs were not interested to use e-commerce as they are selling product to the local market and others due to lack of awareness.

The mean scores of three factors Awareness, Market Readiness, and Finance were greater than 3 and less than 4 implied that those factors were defied to support e-commerce implementation. Whereas, the main two factors Technology use and Human resources have an average scale value between 2 and 3, implied to supportive factors to adopt e-commerce.

Figure 2 shows that 25% female and 37% male were strongly agreed/ agreed to e-commerce adoption based on all factors. Whereas, 53% female and 41% male were strongly disagreed/ disagreed to e-commerce adoption. 23% female and 22% male were not sure to accept or reject the e-commerce system.

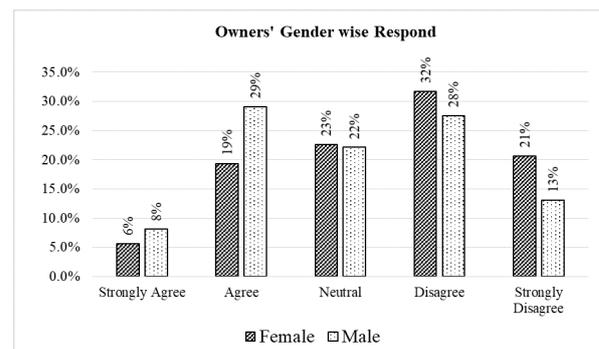


Figure 2: Owners' gender wise response

Technology used factor was the major factor to adopt e-commerce. Only based on this factor 14% enterprises were initial adopter, they were somehow familiar with e-commerce system. Mostly, 76% enterprises were capable to adopt e-commerce in future and only 10% firms didn't have sufficient and adequate IT infrastructure for e-commerce adoption.

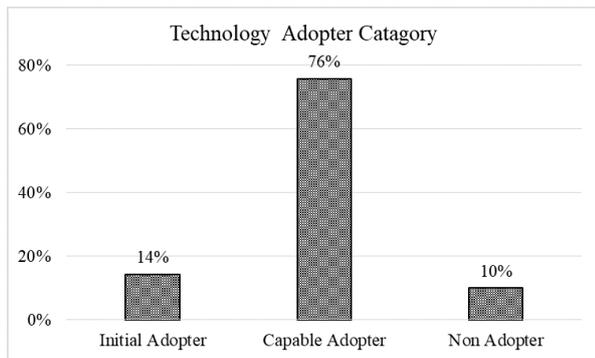


Figure 3: E-commerce adopter category based on the technology used

Figure 4 shows that 67% respondents never tried online transaction system before. Only 20% respondents were committed to use online financing system regularly. Whereas, 13% of the respondents only tried the system but have not been using regularly.

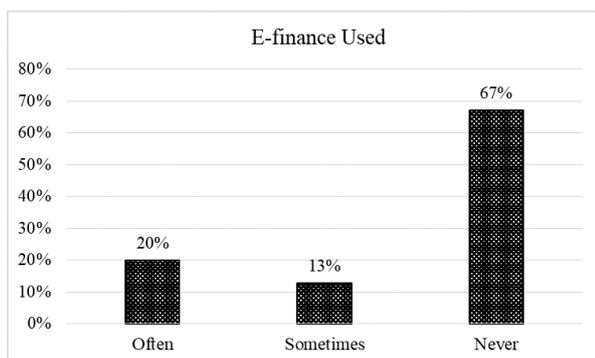


Figure 4: Online payment system used statistics

Since most of the respondents' MSEs were not adopted to online payment system, cash on delivery system was the preferably practiced payment system by existing e-commerce portals in Nepal. So, cash on delivery preference of the respondent was calculated, result has been shown in figure 5. Where, 33% of the respondents agreed to accept cash on delivery whereas, 44% were undecided to accept this system. Only 23% do not prefer the cash on delivery system.

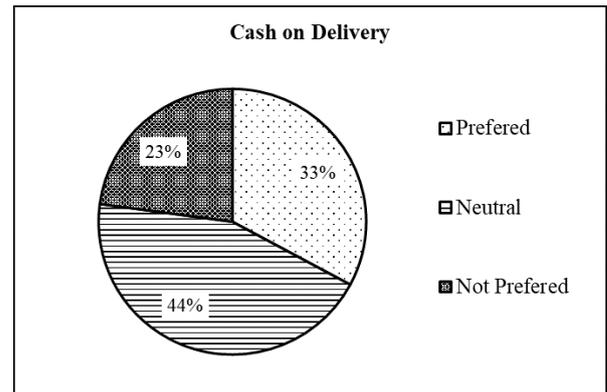


Figure 5: Cash on delivery preference statistics

Based on all five factors, market readiness result has been shown in figure 6. While considering all five factors, only 33% of the market was ready to adopt online commerce system whereas 45% were lagging behind to start online system. 22% of the enterprises were in undecided condition, they can adopt after some guidance.

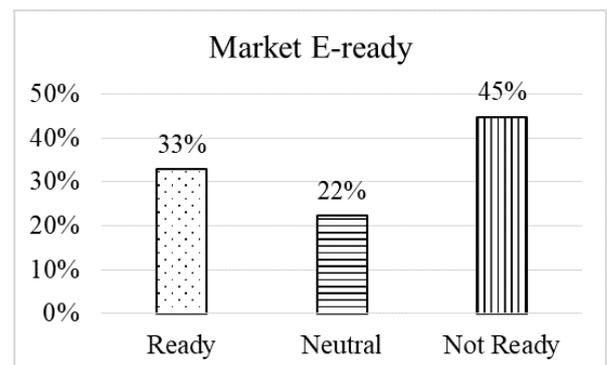


Figure 6: Overall market e-readiness based on 5 factors

5. Conclusion

Evidence from literature has shown that the adoption of e-commerce has proven to be a potential method of boosting the efficiency and effectiveness of a business as it allows organization to adjust to new market opportunities and remain competitive in the ever-growing global market. The main purpose of this study was to investigate the current status of micro and small enterprises to adopt e-commerce. Conclusion has been drawn based on the questionnaire assessment in Vyas municipality. Five factor analysis was carried out which are Awareness, Human resource, Technology use, Finance, and Market Readiness.

From result it was seen that overall scale value of all five factors is in between 3 and 4, it indicates the poor level of e-commerce adoption. Based on the technology used factor, majority 76% were capable to adopt e-commerce. Even though, most of the enterprises were capable to adopt e-commerce based on technology available and knowledge of ICT, only 33% of the enterprises were ready to adopt e-commerce because of the lack of awareness and perception towards e-commerce. This result proves that awareness and intuition towards e-commerce are essential factors to adopt e-commerce.

It was seen that only 20% of respondents had on hand practice to use electronics transaction and only 33% preferred to use cash on delivery. So integrated system of cash on delivery and electronics transaction has been suggested for future implementation. The analysis of existing literature on e-commerce adoption leads to the generation of an integrated e-commerce business model which encompasses both B2B and B2C model in a single portal in the future.

References

- [1] Dave Chaffey, Tanya Hemphill, and David Edmundson. *Digital Business and e-commerce management*. Pearson, 2019.
- [2] Sherah Kurnia, Rahim MD Mahbubur, Basil Alzagool, and Jyoti Chudrie. E-commerce technology adoption: A malaysian grocery sme retail sector study. 2015.
- [3] Alice Phiri Shemi. Factors affecting e-commerce adoption in small and medium enterprises: An interpretive study of botswana. 2012.
- [4] Unctad b2c e-commerce index 2019, 2019.
- [5] Oberlo. Global ecommerce sales (2014–2021), 2019.
- [6] Jing Tan, Katherine Tyler, and Andrea Manica. Business-to-business adoption of ecommerce in china. 2007.
- [7] Nta mis report, 2019.
- [8] Foreign trade statistics fy 2076/77 (2019), 2019.
- [9] Jeff Baker. The technology–organization–environment framework, 2011.
- [10] Alemayehu Molla and Paul S. Licker. ecommerce adoption in developing countries: a model and instrument. 2005.
- [11] Alexandros Leontitsis and Jenny Pagge. A simulation approach on cronbach’s alpha statistical significance. 2006.