

## **Identifying the Most Important Factor Motivating Nepalese Customers to Use Chatbots: An Analytic Hierarchy Process Approach**

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### **Highlights**

- Nepalese online service providers are unaware of which factor motivates their customer to use their chatbots.
- An AHP model was developed based on customer surveys, expert opinions, and literature reviews.
- Responsibility, Credibility, Technology and Risk are the four factors identified as responsible to motivate customers to use chatbots.

### **ABSTRACT**

Digital transformation has fundamentally changed the way we do business. Many companies have adopted new technologies to streamline operations, increase profitability, maintain a competitive advantage, and enhance customer experience. In line with this, interest in chatbots is growing, as these machine agents function as natural language user interfaces for service providers. Chatbots are believed to enhance customer satisfaction and operational efficiency. However, there is no definitive factor that motivates customers to use chatbots. This uncertainty also applies to the Nepalese context, where businesses offering chatbot services are unaware of the main reasons customers use them. Companies are unsure about upgrading their chatbot services, as several factors and subfactors influence their use. This research aims to identify and rank the factors and subfactors that motivate Nepalese customers to use chatbots. These findings can help chatbot service providers address areas where their chatbots need improvement. This is a true case of multi-criteria decision-making (MCDM), and the Analytic Hierarchy Process (AHP) has been adopted in this study.

**Keywords:** chatbots, digital transformation, e-commerce, online buyers, MCDM, AHP

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## **1. Introduction**

There has been significant digital transformation across the globe in the past two decades. This transformation has brought changes to business processes, technology, and culture, leading to improved business outcomes, including enhanced customer experiences. Digital transformation has impacted customer interactions, transactions, and business operations. Businesses have begun adopting hybrid models to ensure efficient collaboration among employees across various geographical locations. Similarly, digital transformation has become a means of survival for organizations of all sizes, and those that were quick to adopt it gained an initial competitive advantage by integrating digital technologies and capabilities into their business models.

One of the key drivers of digital transformation is the chatbot, a computer program that simulates human conversations and allows users to interact with it. Chatbots have successfully improved customer experience, increased operational efficiency, and generated more revenue.

The global rise of digital transformation has had a significant impact in Nepal. The number of e-commerce companies is increasing, and traditional businesses are also shifting towards digital platforms. This has heightened competition, and businesses are working to streamline their processes to gain an edge in their respective segments. Companies are striving to attract loyal customers by enhancing customer experiences through personalized, one-on-one services with minimal wait times. To achieve this, they are offering chatbot services. However, businesses remain uncertain about customer perceptions of chatbots, which has led to hesitation regarding potential improvements or upgrades to the currently used chatbot platforms.

Identifying the most important factors and subfactors influencing customer use of chatbots is not a straightforward task. Several factors and subfactors may be involved, and in some cases, they may hold equal importance. This complexity makes it a prime example of a multicriteria decision-making (MCDM) problem.

### ***Rationality of the Study***

Chatbots have the potential to alter how individuals engage with online services. Although interest in chatbot design and development is rapidly increasing, there remains a lack of understanding about the motivations driving people to use them. This work aims to identify the key factors and subfactors associated with the use of chatbots among Nepalese online buyers. The findings can help e-business owners enhance their platforms to provide a better customer experience.

### ***Research Question***

What is the most important motivating factor/subfactor for Nepalese online service seekers to use Chatbots?

## **2. Literature Review**

Companies are increasingly moving towards digital platforms, and their numbers are growing. This shift allows them to stay competitive, enter new markets, accelerate growth, enhance policy, flexibility, reduce costs, and streamline operations (Kumar & Ayodeji, 2021). However, competition has intensified with the arrival of multinational companies. To attract customers, companies should enhance their offerings and add more value propositions (Cao, 2014). Additionally, to ensure total customer satisfaction, shopping platforms need to address various issues such as security, quality, assurance, and accurate information (Hwang & Kim, 2007).

In this context, interest in chatbots is rapidly increasing; these machine agents function as natural language user interfaces for online service providers (Brandtzaeg & Følstad, 2017). The integration of chatbots in e-commerce assists customers throughout their shopping journey by answering product queries, facilitating secure transactions, and optimizing the checkout process (Dubey & Soni, 2024). However, most chatbot developers are unaware of why consumers use them (Brandtzaeg & Følstad, 2017). Identifying the most important criteria for consumer use of chatbots requires consideration of several factors. Saaty (2008) emphasized the use of a model that is not overly complex, legitimately aggregates across scales, and maintains consistency in judgments from multiple participants. The Analytic Hierarchy Process (AHP) can break down complex problems into smaller, more manageable parts (Saaty, 2008). AHP has been applied to digital commerce settings, for example, identifying and prioritizing success factors for online fashion retailers in Egypt (Morsi, 2023).

## **3. Objectives**

The objectives of this research are:

- To identify the motivating factors for Nepalese customers to use chatbots.
- To determine the most important factor and subfactor influencing Nepalese consumers' use of chatbots.

## **4. Research Design**

The research was conducted in two stages. In the first stage, literature was reviewed to identify potential motivating factors for online consumers to use Chatbots. The factors observed in the literature were further validated by a group of experts with a minimum of 2 years of experience in the field. Based on the experts' opinions, a questionnaire was developed using Google Forms. This questionnaire was then distributed to respondents who had previously used chatbots. The responses were collected and analyzed.

In the second stage, the Analytic Hierarchy Process was employed. The following steps were taken:

- An AHP model was developed based on the ranking of factors from the responses collected in the first stage, incorporating literature and expert opinions.
- Respondent selection: Two categories of respondents were chosen for the study. The first group included individuals directly involved in the development of

- chatbots, while the second group comprised users who had interacted with chatbots.
- A questionnaire based on pairwise comparisons of different hierarchical levels was created.
  - Data collection was conducted on an individual basis, with proper demonstration of the pairwise comparison process and explanation of potential inconsistencies. Data with an inconsistency ratio of less than 0.1 was accepted.
  - A total of 45 valid samples were used during the survey, all with an inconsistency ratio of less than 0.1.
  - The geometric mean of the valid data collected from individual respondents was calculated for aggregation. This mean value was used for further calculations and prioritization of alternatives.

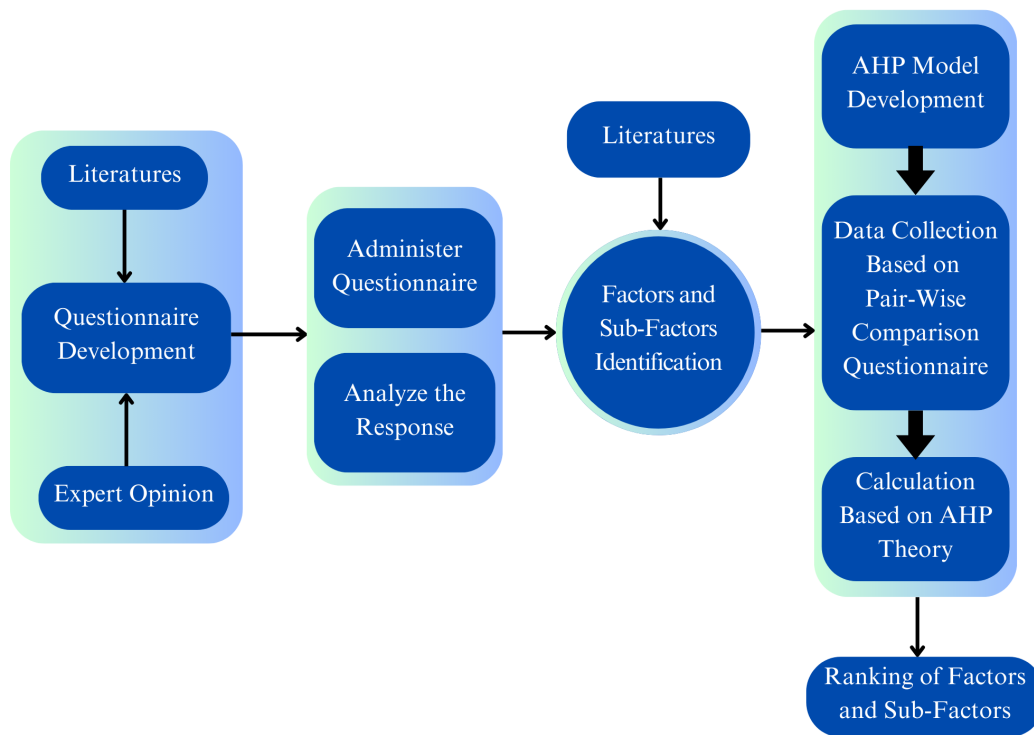


Figure 1 Research Design

## 5. Model Analysis

An AHP model was developed based on the responses collected from the first-stage questionnaire and expert opinions. The goal was set as 'Motivating factors/subfactors for Nepalese customers to use Chatbots,' which is placed at level 1 of the hierarchy. Four factors are incorporated at level 2, with their respective subfactors at level 3.

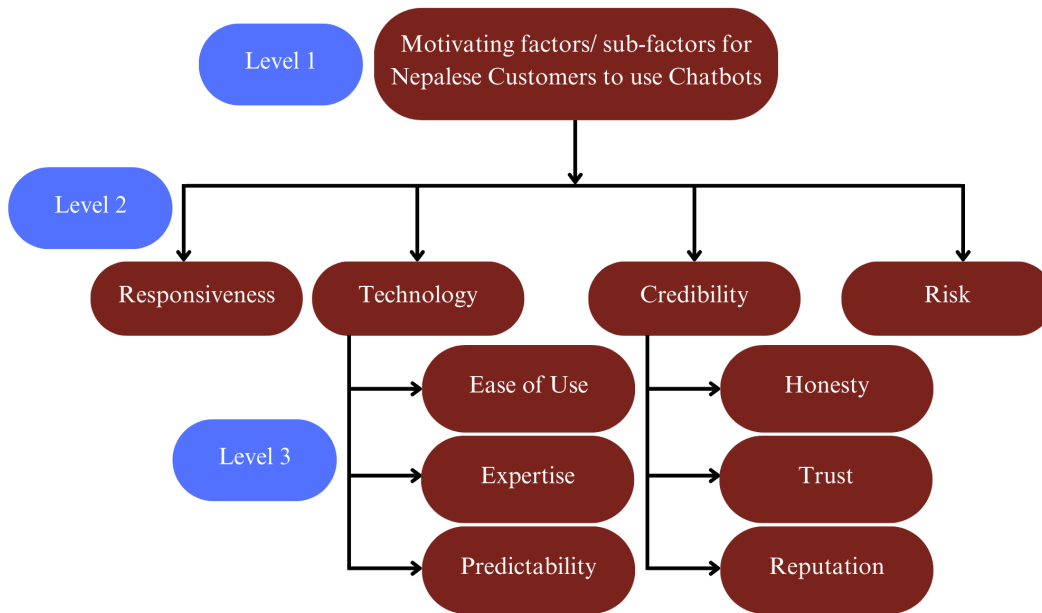


Figure 2 Hierarchy for prioritizing factors and subfactors

The responses obtained from the pairwise comparisons were aggregated by calculating the geometric mean using Microsoft Excel Office 365. The calculated geometric mean values were organized into a matrix. A sample matrix was developed during the calculations, as shown in Table 1. Further calculations were performed to determine the priority vector, row averages, and finally, the consistency ratio. The consistency ratio obtained was 0.01, which is below the threshold value of 0.1. In all cases, the consistency ratio remained below 0.1.

Table 1 Pair wise comparison of factors with respect to the goal

	Responsiveness	Technology	Credibility	Risk
Responsiveness	1	1.01	0.75	1.21
Technology	0.98	1	0.74	1.19
Credibility	1.33	1.34	1	1.61
Risk	0.82	0.83	0.62	1

## 6. Conclusions

The study aims to understand customers' perspectives on chatbots using MCDM and AHP approaches. This work could provide valuable insights for chatbot developers and business owners, helping them focus on improving areas that customers perceive as important. Although the study has been conducted in a Nepalese context, it can be easily adapted to other locations. Additionally, though the research findings are subjective, as they are based

on the judgment of a select group of individuals, the developed model is applicable and useful in most cases.

## **7. Limitations**

This paper has some limitations. The sample size used is small, and the method relies on subjective judgments from the respondents. Since only a select few people were respondents, the weights assigned to the decision-makers may reflect the opinions of a limited group. Inconsistent input from a single respondent can affect the overall rankings of factors and subfactors. Additionally, the same model may not be applicable to all e-commerce sectors in Nepal and may not be suitable for other organizations dealing with different aspects.

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