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IDENTIFYING KEY FACTORS INFLUENCING RIDE-HAILING ADOPTION AND THEIR IMPACT IN TRAVEL BEHAVIOR: A CASE STUDY OF KATHMANDU VALLEY

By:

Ronesh Shahi (079MSUrP014)

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DECLARATION

I hereby declare that the thesis entitled "Identifying Key Factors Influencing Ride-Hailing Adoption and Their Impact in Travel Behavior: A Case Study of Kathmandu Valley" which is being submitted to the Department of Architecture, Pulchowk Campus, Institute of Engineering, Tribhuvan University. Under the direction of Prof. Dr. Padma Bahadur Shahi, I completed a research project as part of my master's degree requirements in urban planning (MsUrP). I declare that the work is my own and has not been submitted for a degree from another University.

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Ronesh Shahi
079/MSUrP/014

CERTIFICATE OF THESIS APPROVAL

The undersigned certify that they have read, and recommended to the Institute of Engineering for the acceptance, a thesis report titled "Identifying Key Factors Influencing Ride-Hailing Adoption and Their Impact in Travel Behavior: A Case Study of Kathmandu Valley" submitted by Mr. Ronesh Shahi (079-MSUrP-014) in partial fulfillment of the requirements for the degree of Masters of Science in Urban Planning.

Supervisor

Prof. Dr. Padma Bahadur Shahi

Chairperson

Nepal Engineering Council

Department of Architecture
M. Sc. in Urban Planning
Pulchowk Campus
Institute of Engineering
Tribhuvan University

External Examiner

Er. Nava Raj Pyakurel

Deputy Development Commissioner

Kathmandu Valley Development Authority, KVDA

Program Coordinator

Dr. Ajay Chandra Lal

Department of Architecture

IOE, Pulchowk Campus

External Examiner

Er. Kishore Kumar Jha

President

Regional and Urban Planners' Society of Nepal

April, 2025

ABSTRACT

The rapid proliferation of ride-hailing services (RHS) in Kathmandu Valley has reshaped urban mobility patterns, offering solutions to chronic transportation challenges while introducing new complexities. This study investigates the key factors driving RHS adoption and their impact on travel behavior in Kathmandu, a rapidly urbanizing region grappling with severe traffic congestion, inadequate public transport, and regulatory gaps. Through a mixed-methods approach—combining surveys (n=656), focus group discussions, GIS spatial analysis, and stakeholder interviews—the research identifies socio-demographic, technological, and infrastructural determinants of RHS usage and evaluates their implications for urban planning.

Findings highlight service quality (convenience, reliability), technology adoption (digital accessibility, real-time tracking), and cost sensitivity (affordability, fare transparency) as primary drivers of RHS usage. Female users' perspectives reveal safety as a critical priority, with nearly all female riders emphasizing secure travel. Ride-hailing disrupts traditional travel patterns by decreasing public transport usage, reducing reliance on walking, and enabling spontaneous leisure trips. Two-wheelers dominate due to their agility in navigating congested streets, yet regulatory fragmentation—conflicting federal-provincial laws, unenforced safety protocols, while drivers face income instability and jurisdictional ambiguities—leaves users and drivers vulnerable to exploitation and inconsistent service standards.

The study underscores RHS's dual role as both a mobility enhancer as well as a disruptor. While it bridges last-mile connectivity gaps and gender sensitive persists (e.g., women prioritizing safety), its unregulated growth risks deepening traffic congestion and undermining sustainable transit. Regulatory analysis highlights jurisdictional conflicts between federal and provincial authorities, with draft policies lacking enforcement mechanisms for GPS tracking, driver training, and fare transparency. The insights from this research contribute to urban transportation planning, providing policymakers, transport authorities, and industry stakeholders with evidence-based recommendations to enhance the safety, efficiency, and accessibility of ride-hailing services.

Keywords: Ride-Hailing Adoption, Travel Behavior, Urban Mobility, Regulatory Framework, Kathmandu Valley

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Sincerely,
Ronesh Shahi

TABLES OF CONTENTS

LIST OF FIGURES:

LIST OF TABLES:

LIST OF ABBREVIETATIONS

ATO - Asian Transport Outlook

CAGR - Compound Annual Growth Rate

DoTM - Department of Transport Management

GPS - Global Positioning System

ICT - Information and Communication Technology

JICA - Japan International Cooperation Agency

KII - Key Informant Interviews

KSUTP - Kathmandu Sustainable Urban Transport Project

MoPIT - Ministry of Physical Infrastructure and Transport

PU - Perceived Usefulness

PEOU - Perceived Ease of Use

RHS - Ride-Hailing Service(s)

TAM - Technology Acceptance Model

TNC - Transportation Network Company

TPB - Theory of Planned Behavior

VKT - Vehicle Kilometers Traveled

CHAPTER: 1 INTRODUCTION

Ride-hailing refers to a service where individuals request a private driver to transport them directly to their desired destination. Ride-hailing is a transportation service that allows passengers to request a ride in a real-time via smartphone applications that link passengers to nearby drivers (Etminani-Ghasrodashti & Hamidi, 2019). This form of mobility-on-demand allows users to schedule and pay for trips through smartphone apps, eliminating the need to rely on personal vehicles. Unlike shared or public transport, ride-hailing services typically involve a direct trip without additional stops or other passengers (Chan & Shaheen, 2012; Ecolane, 2022). These platforms work by connecting riders with available drivers nearby in real time, streamlining the travel process through digital technology (Etminani-Ghasrodashti & Hamidi, 2019). As Kostas Goulias explains, when people move between locations at specific times, they do so to fulfill various needs—such as working for income, spending time with others for social connection, or engaging in leisure for personal fulfillment. Travel behavior, therefore, is how individuals manage their time and resources to meet these goals while balancing constraints like cost, time, and social responsibilities.

The concept of the sharing or collaborative economy is based on the idea of individuals using digital platforms to exchange goods, services, or assets, often making better use of underutilized resources. These systems, known for minimizing transaction costs, are recognized for promoting economic efficiency, reducing environmental impact, and supporting overall growth (Avital et al., 2015). Among the many sectors reshaped by this model, transportation has seen the most noticeable shift, giving birth to various app-based services such as bike-sharing, scooter rentals, ridesharing, carpooling, and notably, ride-hailing.

Ride-hailing applications have revolutionized city transport systems by enabling people to book trips through their smartphones, offering flexible and personalized travel options (Chalermpong et al., 2022). Their rapid rise in popularity has been driven by technological innovation, widespread smartphone access, and the increasing demand for quick and convenient travel, particularly in urban settings (Karjalainen & Juhola, 2021). Often described as ride-hailing, ride-sourcing, or ride-sharing, these services are typically

managed by Transport Network Companies (TNCs). TNCs have introduced a new level of competition for traditional mobility services, including buses, taxis, and three-wheeled vehicles like autorickshaws (Kadali et al., 2021). By altering how people choose to travel, these companies have significantly influenced transportation patterns in cities across the globe.

1.1 Background

1.1.1 Global Context

Rapid urban mobility transformation has taken place through ride-hailing services (also called on-demand ride services or Transportation Network companies or TNCs) including Uber, Lyft, Didi Chuxing, Ola, and Grab. Users can use these services to request rides, see drivers in real-time, pay for trips, and comment on drivers via smartphone apps, all features that weren't ubiquitous in traditional taxis. **Uber and Lyft** were started in **2012** and are now wildly popular, offering new services such as pooled rides (e.g. Uber POOL, Lyft Line), which offer cheaper travel by **sharing a ride**, in the hopes of being an attractive option for price-conscious travelers. Despite their latter maturity, great growth, worldwide incidence in hundreds of cities, adoption rates, driving forces, and their effects on other transportation modes have not been addressed experimentally.

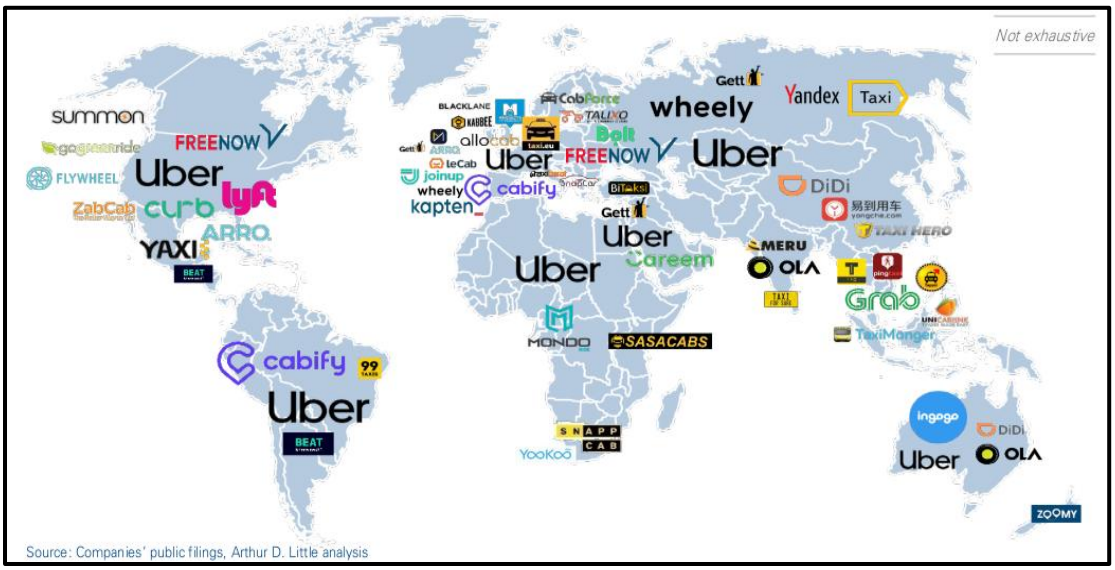


Figure 1: Global Ride Hailing Service Providers, *Source (Arther D. Little)*

Despite their growth, global presence, and the transformative impact on transportation systems, experimental research into their adoption rates, market drivers, and effects on other transport modes remains limited. In recent years, ride-hailing services have rapidly

advanced, reshaping how people travel in cities worldwide and influencing travel behavior across diverse urban environments. As urban centers face persistent issues like traffic congestion, environmental stress, and inadequate public transit, these platforms have become attractive alternatives by providing flexible and convenient travel options (Olayode et al., 2023). Industry forecasts predict that the ride-hailing market will expand significantly, potentially hitting a global market value of approximately USD 248.3 billion by 2030. This projected growth, at an estimated annual rate of 6.1% starting from 2024, is driven by the rising use of smartphones, fast-paced urbanization, and evolving consumer expectations for faster and easier travel (Markets, 2024).

Since emerging in 2012, companies like Uber and Lyft have had a significant influence on urban mobility in the United States, reshaping both traditional transportation systems and travel behavior. These platforms differentiate themselves from traditional taxi services by offering real-time ride tracking, easy payment options, and driver rating systems, all of which have fueled their rapid rise in popularity. However, while these services offer more flexible travel choices and better integration with public transport, they also risk encouraging more trips overall and reducing public transit ridership (Alemi, 2018). In Ghanaian cities like Accra, services such as Bolt, Uber, and Yango have become integral to daily transportation, making commuting easier for many residents. A survey among users revealed that 71.4% considered these services affordable for middle-income earners, while 22.2% thought the same for lower-income groups. However, traditional options like the ‘Trotro’ minibus still provide stiff competition during peak travel times, indicating that Ghana’s transport sector is dynamically evolving (Citi Newsroom, 2022).

Various factors influence the growth of ride-hailing services in developed countries. Studies show that socio-demographic aspects such as income, age, and vehicle ownership play important roles in shaping user preferences (Acheampong et al., 2020). Higher-income users, for example, are more inclined to choose ride-hailing due to its convenience and perceived safety compared to conventional public transit. Furthermore, widespread smartphone adoption and the availability of mobile apps have made accessing these services much easier, further boosting their popularity.

1.1.2 Regional Context

In Hanoi, Vietnam and many other South East Asian cities, motorcycles are the most loosely used method of transport. This prevalence affects the ride-hailing services since such services also tend to serve people's preference more of two-wheelers than the four-wheelers. This is because the shift from motor cycles to cars and the accessibility of various kinds of ride hailing services reformulates the transport policies in these areas (Hoang-Tung et al., 2022). Similarly, app-based ride-hailing services have significantly reshaped mobility patterns in China, influencing short-term travel mode choices as well as long-term decisions like car ownership. Their integration into the broader transport system highlights the need for smart management and effective regulation by both authorities and service providers (Tang et al., 2020). These services have also created meaningful travel alternatives to the users, in particular to the younger generation, due to an increase in the use of smartphones which facilitates a reliable and affordable ride-hail choice of mode (Liu, 2014). The ride-hailing industry in Southeast Asia has seen rapid growth and competition among key players such as Grab, Easy Taxi, Uber, and Gojek. This competition, supported by venture capital funding, has accelerated the socio-technical transition in urban mobility. The strategic niche management literature highlights the role of niche competition in scaling ride-hailing innovations quickly across the region (Teng & Schwanen, 2020). Likewise, the adoption of ride-hailing services (RHS) in India is influenced by a variety of factors that shape travel behaviors and impact urban mobility. In the Indian context, the adoption of RHS is characterized by diverse user segments, each with distinct attitudes and preferences. A study identified three primary clusters of users: Tech-savvy individuals who are highly receptive to RHS, traditional travelers who prefer conventional modes of transport, and multimodal users who own vehicles but occasionally use RHS (Bhaduri et al., 2022), these segments highlight the heterogeneity in travel behavior and the varying degrees of acceptance of ride-hailing services. The impact of ride-hailing on travel behaviors in these regions is multifaceted. In Southeast Asia, ride-hailing services are primarily used for commuting, with a high frequency of use and a significant number of full-time drivers (Chalermpong et al., 2022b). This trend is mirrored in other developing countries, where ride-hailing services often replace conventional taxis, public transport, and even private car usage, indicating a strong mode substitution effect (Acheampong et al., 2020). However, the integration of ride-hailing with other modes of transport remains weak, suggesting that these services are often used for complete door-to-door journeys rather than

complementing existing public transport systems (Acheampong et al., 2020). Similarly, ride-hailing on travel behaviors in India is multifaceted. Ride-hailing services have been shown to influence congestion levels in major Indian cities. During periods when ride-hailing services were unavailable, such as during driver strikes, there was a noticeable reduction in travel times, particularly in congested areas during peak hours. This suggests that ride-hailing vehicles contribute significantly to urban congestion, despite their relatively small share of the overall transportation market (Agarwal et al., 2023).

Furthermore, the adoption of ride-hailing services in India is influenced by factors such as travel time, reliability, and flexibility, while cost and waiting time act as deterrents (Bhaduri et al., 2022). The adoption of ride-hailing services in these regions presents both challenges and opportunities. While ride-hailing can enhance mobility for no vehicle owner households and individuals with physical limitations, it also poses challenges such as increased traffic congestion and environmental impacts (Tirachini, 2020). The socio-economic profile of users, the dominance of motorcycles, and the high frequency of ride-hailing use are unique aspects of the Southeast Asian context that must be considered in planning and regulatory efforts (Chalermpong et al., 2022).

1.1.3 Local Context

1.1.3.1 Digitalization

Digitalization in areas of the globe is very fast, including in Nepal in the last decade. It has greatly influenced developments in transportation which is an important part in accelerating economic and social interaction, in terms of the transportation economy. Motorcycles also go to digital with the start of Ride-Hailing. Ride-sharing platforms have offered commuters a convenient travel option while enabling drivers to generate income, effectively emerging as an alternative to traditional urban public transport systems. First, the existing transportation services should be more competitive. The use of ICT can enhance reliability and effectiveness.

1.1.3.2 Emergence of Ride Hailing Services in Nepal

People prefer speedy and hassle-free service regardless of its cost. People wish to be picked from and dropped at their doorstep and want the transportation services available on narrow streets. People are becoming time-conscious, which in fact, has triggered the growth of ride-hailing services. Unlike traditional public transport, which typically

operates only during business hours, most ride-sharing platforms provide round-the-clock service—an essential feature for individuals traveling late at night for work or emergencies (Subedi, 2021). Tootle pioneered the ride-sharing model in Nepal in 2016, quickly attracting tens of thousands of users and riders. As per its CEO, Sixit Bhatta, around 60,000 individuals signed up as riders on the platform. Meanwhile, Pathao a company offering multiple services including ride-sharing entered Nepal as a foreign direct investment in 2018 and has since registered nearly 80,000 riders (Subedi, 2021). Pathao has expanded its ride-hailing service to 20 cities across the country, covering most urban areas. The company employs more than 200 people full-time (Kathmandu Post, 2024). Asheem Man Singh Basnyat, the Country Director of Pathao Nepal, reports that more than 15,000 riders are currently active on the platform. While pioneers like Tootle and Pathao led the way, the ride-hailing sector has expanded to include newer entrants such as Super App, Lozoom, Hoop Rides, Sarara, and Filili Ride, all offering integrated digital mobility services. Additionally, platforms like In-Drive and Jum Jum have gained traction within the Kathmandu Valley.

Initially, only two companies offered ride-hailing services in Nepal, but by 2021, this number had grown to 11. According to a recent audit report, there are now 25 ride-hailing companies using GPS and digital platforms. However, none of these companies are formally registered for ride-hailing operations, and many are operated by foreign entities (Kathmandu Post, 2024).

In February when ride-hailing services were formally recognized as part of Nepal's service sector under the Industrial Enterprises Act 2020 (Aryal, 2024). This legal classification, announced in the *Nepal Gazette* on February 1, marked the first official acknowledgment of ride-hailing platforms nearly seven years after their introduction in the country. The Bagmati Province government is finalizing a regulatory framework specific to app-based ride-sharing. The proposed guidelines include vehicle registration requirements, mandatory passenger insurance, and fare regulation (Aryal, 2024). Drivers will need to register their vehicles motorcycles or cars similar to traditional taxi services, and companies must renew their operating licenses annually through the respective transport offices. In the Kathmandu Valley, the socio-economic and infrastructural environment presents both opportunities and challenges for integrating ride-hailing into the broader transport system. Globally, ride-sharing has emerged as a preferred urban

mobility solution due to its flexibility and convenience compared to conventional public transportation and private vehicle ownership. Ride technology like Pathao, Tootle and other Ride-Hailing Services (RHS) has revolutionized commuting leaving ordinary Nepalese urban dwellers with new transport options despite the aforementioned inadequate public transport system. While using these services increases, there also arises the need to understand the determinants that affect its usage from the user and the policymaker's point of view.

Figure 2: Ride Hailing Services in Nepal Source:(Tandukar, 2024)

Factors such as cost, safety, convenience, and reliability play critical roles in shaping user preferences for ride-hailing over traditional transport options. For instance, studies have shown that users often prioritize cost-effectiveness and perceived safety when choosing between ride-hailing and public transport (Etminani-Ghasrodashti & Hamidi, 2019).

Furthermore, the convenience of booking rides via mobile applications and the ability to track vehicles in real time significantly enhance the user experience, making ride-hailing an attractive alternative for many commuters (F. Dias et al., 2020). The COVID-19 pandemic has further complicated the landscape of urban mobility, influencing travel behavior and preferences. As cities adapt to new health and safety protocols, understanding the evolving role of ride-hailing services becomes increasingly important. Research indicates that shared mobility services, including ride-hailing, have gained traction as users seek safer and more flexible travel options during and after the pandemic (Shokouhyar et al., 2020). This shift highlights the need for comprehensive studies that

evaluate how ride-hailing services can be effectively integrated into the transportation ecosystem of Kathmandu Valley, particularly in light of changing user behaviors and preferences.

1.2 Need of Research

Ride-hailing services possess unique mobility characteristics that set them apart. Numerous studies have examined why users choose ride hailing services, revealing that its influence on mobility varies between developed and developing nations. In developing regions, where public transport and paratransit options are often unreliable or poor in quality, ride-hailing becomes a preferable choice due to its enhanced safety, security, and comfort in South Africa (Vanderschuren & Baufeldt, 2017), in India (Ilavarasan et al., 2018). The growth of ride-hailing services has notable effects on urban travel behavior, potentially shifting transport mode choices and travel frequencies. Some researchers argue that increasing ride-hailing adoption could result in higher vehicle kilometers traveled (VKT) and worsen congestion, especially during peak travel times (Tirachini, 2020). In contrast, other findings suggest that RHS are primarily used in off-peak hours, filling service gaps when public transportation is limited. Understanding the influence of ride-hailing on travel habits in Kathmandu is vital for evaluating its broader implications for urban mobility and congestion management. The global expansion of the digital platform economy has attracted significant attention, and Nepal is no exception. In response to Kathmandu Valley's struggling public transport system, ride-hailing services like Pathao and Tootle have quickly gained popularity. However, unlike similar platforms in other countries that have sparked considerable debate, Nepal's ride-hailing sector remains largely unexamined in academic research, leaving crucial questions unanswered (Hamal, 2019). Variations in user behavior and preferences across demographic segments—such as age, gender, income level, and occupation—play a critical role in how people engage with these services (Acheampong et al., 2020). By analyzing these patterns in Kathmandu, scholars can generate valuable insights into tailoring ride-hailing services to meet the needs of different commuter groups. As prior research has highlighted, ride-hailing has made its mark in both developed and developing nations, but there is a significant gap in location-specific, culturally sensitive studies, especially within developing contexts (Vanderschuren & Baufeldt, 2017).

In Kathmandu Valley, daily commuting for work, education, and leisure is essential, making the safety and accessibility of transport systems a crucial factor in residents' quality of life. Even though apps like Pathao, In-Drive, and Tootle have seen remarkable user growth in recent years, academic inquiry into how these services are reshaping travel behaviors remains limited. The emergence of ride-hailing platforms has noticeably altered commuting patterns in the valley, underscoring the need for comprehensive research into their effects on urban transport, social interactions, and regulatory frameworks. Gaining a deeper understanding of these dynamics will be key to building an effective and sustainable urban mobility system. Such insights are crucial for enhancing service quality and ensuring that app-based transport solutions effectively serve city dwellers.

1.3 Importance of Research

Transportation is still a major problem in Kathmandu Valley like traffic congestion, poor availability of quality public transport, and transport security. Substitutes that have developed in the industry include ride-hailing services including Pathao, In-drive, Tootle, and a bunch of others that have provided residents with easy and flexible means of transport solutions (Hamal, 2019). Understanding the factors that drive the use of these services can provide insights into how they may help address existing transportation issues and improve overall urban mobility. Research based on user perceptions and satisfaction levels can go a long way toward explaining the user experience and filling the gaps observed in service provision (Tirachini, 2020). It is crucial for improving service delivery and guaranteeing that application-based transport systems address consumers' needs in urban centers. Therefore, to understand how the ride-hailing services impact the travel patterns of their clients. This study will also explore shifts in transportation mode preferences, travel frequency, and potential increases in Vehicle Kilometers Traveled (VKT), all of which are critical for evaluating how ride-hailing services influence traffic dynamics in urban areas (Acheampong et al., 2020). The findings from this investigation can offer valuable insights for policymakers seeking to ease traffic congestion and enhance the overall efficiency of urban transportation systems.

An absence of clear guidelines for ride-hailing services in Nepal (Kathmandu Post, 2024). So, research insights can help policymakers formulate appropriate legislations that increase safety measures but also protects the interest of players offering ride-hailing services in the local markets. Identifying the factors that influence the adoption of these

solutions can inform policy reforms aimed at promoting the sustainable use of transport systems in rapidly expanding urban areas. This paper further argues that data gathered from ride-hailing services uses can greatly support urban planners in figuring out other aspects that affect its uptake. Such understanding can reveal shortcomings of the current transportation modes, and network and guide the development of infrastructure projects that seek to enhance transportability.

This research attempts to address this issue by concentrating on the Kathmandu Valley where transport facilities are comparatively still in the growth phase. As a result, the conclusions made from this study will guide further studies for scholars to understand ride-hailing dynamics within Kathmandu or other parts of the country. The paper's findings will help policymakers and service providers to navigate how best to improve the quality of services delivered, build and sustain the consumers' trust, and ensure that more research is encouraged toward developing sustainable urban mobility.

1.4 Problem Statement

Kathmandu Valley, Nepal's urban nucleus, faces a critical mobility crisis marked by severe traffic congestion, environmental degradation, and an overburdened public transport system. With a population exceeding three million and only 1,500 kilometers of road infrastructure, the valley's public transport system, dominated by low-capacity microbuses (94% of public vehicles) fails to meet escalating demand (MoPIT/JICA, 2012; KSUTP, 2020). This mismatch has intensified congestion and pollution, exacerbated by a 150% rise in urban population density since 2000 (Asian Transport Outlook (ATO), 2023). Amid this chaos, ride-hailing services (RHS) like Pathao, Tootle, and In-Drive have emerged as disruptive alternatives, offering convenience, safety, and flexibility (Kathmandu Post, 2024; Subedi, 2021). However, their rapid proliferation has outpaced regulatory frameworks, leading to unresolved safety concerns, fare disputes, and conflicts with traditional taxi operators (Kathmandu Post, 2024).

Globally, studies highlight ride-hailing's dual role as both a mobility enhancer and a congestion contributor (Acheampong et al., 2020; Tirachini, 2020). In Kathmandu, RHS are used 150,000 times daily, employing thousands of riders (Kathmandu Post, 2021), yet empirical understanding of **socio-demographic, economic, and perceptual adoption drivers** remains scarce. For instance, while safety and cost are critical adoption factors in

developing nations (Bhaduri et al., 2024), their relative importance in Kathmandu's unique context marked by informal transport dominance and motorcycle reliance (Hoang-Tung et al., 2022) is unexplored. Additionally, RHS's impact on travel behavior such as mode substitution (e.g., reduced public transport use), induced demand, and increased vehicle kilometers traveled (VKT) is poorly documented, despite evidence of similar trends in Southeast Asia (Chalermpong et al., 2022) and India (Agarwal et al., 2019).

Regulatory gaps further complicate integration. Nepal's Industrial Enterprises Act 2020 only recently recognized ride-hailing as a service industry, leaving fare transparency, driver licensing, and passenger safety unregulated (Kathmandu Post, 2024). Conflicts between traditional taxi operators and RHS platforms (e.g., fare undercutting, unregistered vehicles) highlight systemic inequities (Republica, 2019). These issues mirror challenges in other Global South cities (Vanderschuren & Baufeldt, 2017) but require localized solutions.

This study addresses these gaps by investigating key adoption factors and how ride-hailing adoption reshapes travel behavior in Kathmandu Valley and identifies regulatory blind spots hindering sustainable mobility.

1.5 Research Objectives

The main objectives are to identify key factors influencing the adoption of ride-hailing services, evaluate their impact in travel behavior among urban commuters of Kathmandu valley

To support this main objective, it is further divided into secondary objectives:

a) To identify key factors influencing users' decisions to adopt ride-hailing services over.
b) To evaluate how ride-hailing services impact users' mode choices, frequency of travel, and shifts from traditional public or private transportation.
c) To analyze regulatory gaps in the ride-hailing regulatory framework and their implications for urban transportation planning.

1.6 Scope of Study

Scope 1: Adoption Factors

The study will focus on key adoption factors

Scope 2: Travel Behavior

The study will analyze travel behavior by examining the mode choice, travel frequency, trip purpose, travel time & distance.

Scope 3: Focus on Specific Age Groups (18-45 Yrs)

The study targets **young urban commuters (18–45 years) in Kathmandu Valley**, a group highly adaptable to technology, influential in commuting trends, sensitive to economic factors, shaped by social and lifestyle dynamics, and characterized by frequent travel.

Scope 4: Focus on Two-Wheelers in Ride-Hailing

This study will narrow its scope to the adoption of two-wheeler ride-hailing services within Kathmandu Valley.

1.6.1 Limitation of Study

- Exclusion of Ride-Hailing Food Delivery Rides: Ride-hailing services (e.g., Pathao Food) and food delivery-related rides (e.g., Food Mandu, Bhoj) will not be included in the analysis, as these are outside the study's scope despite their growing presence in Kathmandu.
- Exclusion of Public and Private Vehicle Study: Travel behavior involving public transportation systems like microbuses, Sajha buses, or private vehicles like cars and motorcycles is beyond the scope of this study.

CHAPTER: 2 LITERATURE REVIEW

A literature review is not limited to a summary of the sources, but rather an organizational structure that incorporates both summary and synthesis. The main information of the source is recaptured in a summary, while the reorganization or reassignment of that information is involved in an overall analysis. This can result in a fresh portrayal of old content or merge new with earlier descriptions. The field often evolves alongside the intellectual progression of its subject, potentially encompassing major debates and discussions. Depending on the context, a literature review might also assess sources and guide readers toward the most relevant and significant ones (Clay, n.d.).

2.1 Transportation

Transportation is the movement of people and goods from one location to another. Development of any country depends upon the economic development of the country and economic development is supported by transportation infrastructure of that country. The word transport has been derived from Latin word. Trans means across or the other sides and portage means to carry. Transport, thus, means to carry to the other side or form one place to another. Transporter, as such is a service, which helps goods and persons to be carried from one place to another (Jain, 1973). The provision of transport services has changed dramatically during the last three decades. At the end of the 1970s, most countries relied on the public sector both to produce transport service and to build their basic infrastructure, namely, airports, roads, railways and ports.

2.1.1 Modes of Transportation

Urban transportation systems are critical to the functioning of cities, influencing economic, social, and environmental dynamics. This review synthesizes recent literature on various modes of transportation in urban areas, focusing on their integration, sustainability, and the factors influencing mode choice. Urban areas typically feature a variety of transportation modes, including:

- **Public Transit**: Buses, subways, and light rail systems are essential for mass transit, providing affordable and efficient travel options for residents.
- **Private Vehicles**: Cars remain the dominant mode of transport in many cities, although their prevalence often leads to congestion and environmental concerns.

- **Non-Motorized Transport**: Walking and cycling are increasingly promoted for short-distance travel because of health benefits and minimal environmental impact.
- **Shared Mobility Services**: Emerging services such as ride-hailing, bike-sharing, and e-scooter rentals are reshaping urban mobility by offering flexible alternatives to traditional transport mode.

2.2 Ride-hailing as an Emerging Mode of Transportation

There are many names for this emerging mode of transportation, such as ride-sourcing, e–hailing and TNC's, or app-based on-demand service. The RHS has undergone a transformation since its inception. Ride-hailing services (RHS) were originally envisioned as ride-sharing platforms, where passengers would join drivers already heading in the same direction. However, the current model closely resembles app-based taxi services. As a result, the term "ride-sharing" is frequently misapplied when referring to modern ride-hailing companies (*Mobility Lab | Redefining Uber*, n.d.).

RHS has quickly gained popularity and managed to capture a portion of urban transportation services market share, making it competitive with other modes of transportation. However, acceptance of these services in different cities around the world has not been the same. These services are known by different names, accepted by various countries. Why are these services so popular in other nations? The same RHS provider may operate in several countries with the same name, but their services may vary in terms of quality and scope. RHS is a completely different situation in developing countries. The RHS thrived in the developing world where it was rapidly expanding. The inaugural RHS in Indian cities was initiated by Uber. After being introduced in Bangalore in 2013, the RHS market experienced a significant surge in other regions, particularly metropolitan areas, with new operators such as Ola joining (Khera, 2018).

The existing literature on ride-hailing services presents a mix of viewpoints. Many studies point to advantages such as reduced wait times, lower commuter stress (Chan & Shaheen, 2012), cost savings in comparison to other transport modes, and a potential decrease in congestion, particularly with shared rides (Santi et al., 2014). However, the implementation of e-hailing technology doesn’t always guarantee success, as it faces significant obstacles, such as the need for a localized strategy and dealing with frequent

passenger cancellations. Jin et al. (2018) highlight that ride-hailing affects a city's efficiency, equity, and sustainability, with economic gains often being tempered by issues of discrimination and safety for riders and drivers. Environmental impacts of these services are still under investigation. Furthermore, while ride-hailing can complement public transportation, it may also exacerbate urban traffic congestion (Tirachini, 2020). Others suggest ride-hailing can fully replace public transport services because this service offers convenience and comfort that can attract users with car-dependency habits (Acheampong et al., 2020).

2.3 Technology Acceptance Model (TAM)

TAM posits that two primary factors—Perceived Usefulness (PU) and Perceived Ease of Use (PEOU)—influence users' behavioral intentions towards technology adoption. Numerous studies have built upon this model, extending its applicability across various contexts including education, healthcare, and general information systems (Teo, 2010). The model posits that perceived ease of use and perceived usefulness significantly influence user acceptance and adoption (Zaigham et al., 2022).

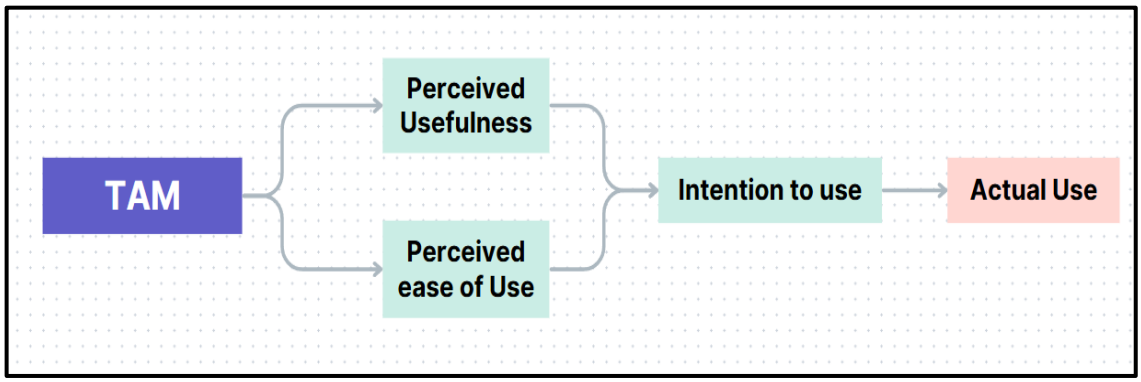


Figure 3: TAM Model

Recent research extending TAM highlights additional factors that may affect ride-hailing service usage, including perceived risk, trust, and regulatory influences (Zaigham et al., 2022). Zaigham et al. Zaigham et al. (2022) conducted a study in Malaysia, demonstrating that these factors could predict drivers' intentions to use ride-hailing services. This aligns with findings in Latin America where perceptions of safety and technology acceptance are critical determinants of ride-hailing adoption (Oviedo et al., 2023). A comparative approach across different regions reveals that while TAM provides a solid foundation, cultural and infrastructural differences necessitate localized adaptations of the model. Furthermore, the role of socio-economic factors cannot be understated. Research

indicates variances in ride-hailing adoption based on income levels and educational attainment, suggesting a complex interplay between the factors and users acceptance (Oviedo et al., 2023) For example, in studies conducted in Indonesia, social influences were found to be significant predictors of user acceptance, complementing the traditional constructs of TAM (Almunawar et al., 2020).

In conclusion, while the TAM provides a foundational framework for understanding the acceptance of ride-hailing services, ongoing research underscores the need to consider socio-economic, cultural, and infrastructural variables that significantly shape user experiences and intentions. This holistic approach allows for a in depth understanding of the adoption dynamics in the rapidly evolving landscape of urban mobility.

2.3.1 Identification of Perceived Usefulness & Ease of Use Factors Influencing RHS Adoption

The perceived benefits of ride-hailing services in transportation planning and mode choice have garnered significant attention in recent literature. This review synthesizes findings from various studies to elucidate the multifaceted advantages that users associate with ride-hailing, including convenience, safety, and integration with existing public transport systems. One of the major benefits highlighted in the literature is the convenience offered by ride-hailing services. Users appreciate the ability to summon rides through mobile applications, which allows for on-demand mobility that traditional public transport cannot match. This convenience is particularly pronounced in areas lacking adequate public transit options, where ride-hailing can fill critical gaps in service (F. Dias et al., 2020). Additionally, the ease of payment and real-time tracking features enhance user experience, making ride-hailing a preferred choice for many commuters (Oviedo et al., 2023).

Travel Time: Rayle et al. (2016) examined how travel time, combining both waiting and in-vehicle durations, influences the shift from traditional taxi services to ride-hailing platforms in San Francisco. Their research identified that the reduced overall travel time offered by ride-hailing services played a significant role in this transition. In comparison to conventional taxis and public transport mode, ride-hailing typically delivers faster pickups and shorter ride durations. In markets like China, for instance, companies such as DiDi Express incentivize short-distance journeys with discounts, while services like Hitch target long-haul trips with attractive pricing models (Jarah, 2023).

Multiple studies consistently point out that ride-hailing tends to cater predominantly to short-distance travel needs (Rayle et al., 2016). One major factor driving its popularity, particularly among younger users, is the time efficiency these services provide over older, more traditional transport modes. Research has further emphasized that users appreciate the speed and convenience of ride-hailing, making travel time a critical variable in understanding user preferences. These insights have been instrumental in shaping more responsive "pickup and drop-off" systems, especially for daily work commutes, highlighting just how crucial time savings are to the continued growth and appeal of ride-hailing services.

Efficiency: The widespread appeal of ride-hailing services largely stems from their perceived efficiency over conventional transportation modes. These platforms allow users to summon a vehicle almost immediately, typically reducing waiting times compared to traditional taxis or public transit options. In Tehran, Iran, research has demonstrated that ride-hailing proves particularly effective in lower-density areas, where public transport networks often fail to meet commuter needs (Etminani-Ghasrodashti & Hamidi, 2019). Comparable findings in China highlight how real-time tracking and flexible routing options further boost convenience and time savings, making ride-hailing especially attractive to users prioritizing speed and adaptability in their daily travel routines (Li et al., 2022).

Cost Considerations: Cost plays a significant role in shaping individuals' decisions to use ride-hailing services. While some may view these services as pricier compared to public transportation, others consider them cost-effective when factoring in the overall travel experience, including time savings and convenience (Lavieri & Bhat, 2019). In areas where public transport systems are either inadequate or unavailable, ride-hailing often emerges as a practical and justifiable alternative despite the higher fare (Zhong et al., 2020). Furthermore, features like ride-pooling help lower individual costs, thereby increasing affordability and widening access for users from various income levels (Gehrke et al., 2019). Raj et al. (2022) emphasize that fare-related considerations are particularly influential in developing countries, where financial limitations significantly impact travel choices. In such contexts, users tend to weigh the cost of ride-hailing services against alternatives like public transport or private vehicles to identify the most budget-friendly option.

Comfort and convenience: Comfort and convenience are key drivers behind the adoption of RHS, particularly in the Global South. These platforms are appealing largely due to their user-friendly mobile applications, which enable passengers to easily book rides, select preferred vehicle types, compare fares, and specify exact pick-up and drop-off points according to their schedules and needs (Nguyen-Phuoc et al., 2020; Ok & Hengsadeekul, 2018). Real-time tracking and integrated cashless payments further enhance user satisfaction, making RHS an attractive alternative to conventional public transport (Oviedo et al., 2023). Moreover, RHS provides accessibility advantages by offering services to locations that traditional transit systems often find challenging to reach. Studies in Bangladesh and similar contexts have highlighted shorter waiting times compared to taxis and greater affordability than car ownership, factors that appeal to urban, tech-savvy populations (Ali et al., 2022; Rayle et al., 2016). These features collectively make RHS a practical and increasingly popular solution for urban mobility.

Safety: Safety is a major factor influencing the adoption of ride-hailing services, particularly for vulnerable populations such as women and older adults. Features like driver identification and route tracking, which are often absent in traditional taxi services, provide users with a heightened sense of security (Nguyen-Phuoc et al., 2020). These measures are important for individuals who prioritize safety in their travel choices, offering reassurance and making ride-hailing services a preferred option in many cases (Ali et al., 2022). Despite these advantages, safety concerns persist, particularly among female passengers, who frequently perceive ride-hailing as unsafe due to the potential risks of harassment and crime during rides. Research indicates that actual safety incidents, when reported, can significantly deter users from adopting ride-hailing services, emphasizing the importance of effective safety protocols (Acheampong et al., 2020). The need for clear communication strategies about safety features and measures is also essential to build trust and enhance user confidence. In regions where safety concerns are more pronounced, like in Global South, addressing these issues through robust safety frameworks and technological innovations is critical. Ensuring accountability through features like emergency response mechanisms, driver verification processes, and real-time tracking can further bolster safety perceptions and encourage wider adoption of RHS.

Preference for Ease of Booking and Reliability: Ease of booking and reliability are key factors influencing ride-hailing adoption in South Asia. **Ease of booking** enhances travel flexibility, as seamless app interactions reduce uncertainties (Rafiq & McNally, 2023). In regions with inefficient transport, ride-hailing meets the demand for quick and reliable mobility. **Reliability** is crucial, with users valuing low wait times and predictable service quality (Ali et al., 2022). Real-time tracking and GPS features boost confidence, especially where public transport is lacking (Etminani-Ghasrodashti & Hamidi, 2019b).

Tech savviness: Attitudes toward ride-hailing technology vary across Bangladesh, India, Vietnam, and Indonesia, influenced by factors such as safety, transparency, and social trust. In Bangladesh, users prioritize safety features like GPS tracking due to distrust in traditional transport, with 65% of female users preferring ride-hailing over rickshaws for perceived security (Jaman, 2023). In India, tech optimism drives adoption, as 82% of users in Hyderabad value app-based services for transparency in pricing and route selection, though skepticism remains among older demographics unfamiliar with digital platforms (Rayle et al., 2016; Sikder, 2019). In Vietnam, younger users (18–35) embrace ride-hailing for its modernity, while older adults prefer cash payments due to privacy concerns (Nguyen-Phuoc et al., 2020). Meanwhile, in Indonesia, social trust in platforms like Gojek is high, with 78% of users trusting driver ratings more than street-hailed ojeks (Almunawar et al., 2021). Motorcycle-based ride-hailing dominates South Asia due to cost-effectiveness, urban suitability, and cultural acceptance. Motorcycles offer an affordable transport option, with fares 30–50% lower than car-based ride-hailing (Jaman, 2023; Sikder, 2019). They also navigate traffic-clogged cities like Dhaka and Jakarta more efficiently, reducing trip times by 25% compared to cars (Nguyen-Phuoc et al., 2020). Additionally, motorcycles are deeply embedded in daily mobility, with 90% of Indonesian users viewing ojek services as integral to urban life (Almunawar et al., 2021).

Table 1: Summery Literature on Perceived Benefits Influencing Ride Hailing

Study	Location	User Factors	Service Factors	Technical Factors
Esmaili, Ghazodadatti & Hamidi (2019)	Tehran, Iran	1. Socio-demographics 2. Individual attitude 3. Travel habit	1. Travel cost 2. Travel time	1. Trip security 2. Anti-shared mobility

		4. Travel environment attributes 5.Ride-sourcing attributes		(anti-newness)
(Rayle et al., 2016)	San Francisco, USA	1. Socio-demographics 2. Trip specific attributes	1. Travel time 2. Waiting time 3. Flexibility 4. Reliability 5. Availability	1. Convenience (technical) 2. Ease of payment 3. Health
Nguyen-Phuoc et al. (2020)	Vietnam: Hanoi, Danang, and Ho Chi Minh	1. Socio-demographics 2. Ride-hailing specific attitudes 3. Ride-hailing trip attributes 4. Personal attitudinal factors	1. Travel time 2. Flexibility 3. Reliability	1. App interface 2. Payment 3. Sales promotion 4. Driver appearance 5. Safety 6. Hygiene
Acheampong et al. (2020a)	Accra, Ghana	1. Personal attitudinal factors 2. Socio-demographics 3. Trip specific factors	Technology Embracing, Education Level, Service Reliability and Safety	1. Safety 2. Convenience
Kumar et al. (2022)	Delhi, India	1. Socio-demographics 2. Ride-hailing trip attributes 3. Service quality attributes	1. Travel time 2. Flexibility 3. Reliability 4. Availability	1. Safety and security 2. App interface 3. Convenience (technical) 4. Comfort 5. Driver behavior 6. Customer support 7. Payment options

2.4 Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (TPB) provides a framework for understanding user adoption of ride-hailing services, particularly as they interact with existing transportation options. TPB posits that an individual's intention to engage in a behavior is driven by their attitudes toward the behavior, subjective norms, and perceived behavioral control. Several studies have examined how these factors manifest in the context of ride-hailing. First,

attitudes toward ride-hailing services are influenced by various factors, including convenience and satisfaction.

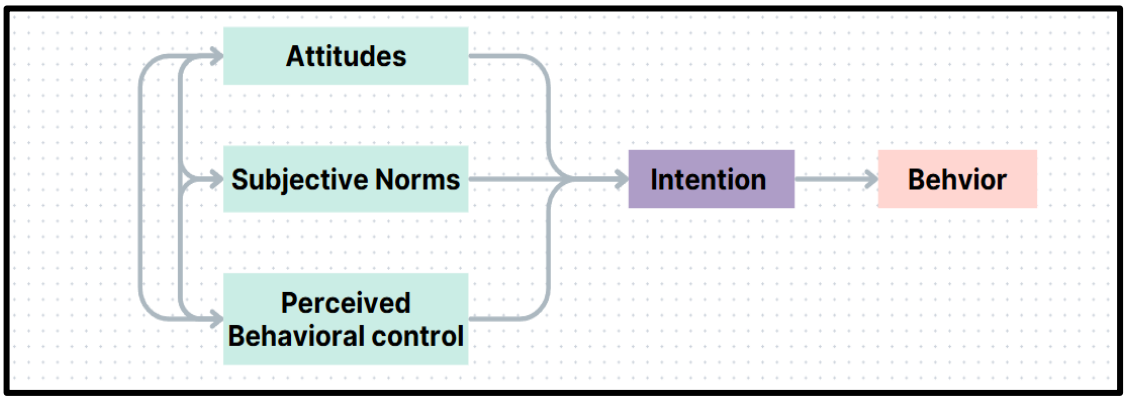


Figure 4: TPB Model

Research found that ride-hailing services typically offer advantages such as shorter wait times and competitive pricing compared to traditional taxi services, contributing positively to user attitudes (Li et al., 2022; Zhong et al., 2020). For instance, Li et al. demonstrated that integrating ride-hailing into urban public transportation frameworks enhances passenger satisfaction and, consequently, users' overall life satisfaction, affirming the services' efficacy in urban mobility (Li et al., 2022).Subjective norms also significantly influence the adoption of ride-hailing services. Studies have shown that social influences from friends and family considerably affect users' acceptance of these services, particularly in collectivist cultures (Almunawar et al., 2021). This finding similar with TPB's assertion that perceived social pressure can guide decisions regarding the adoption of new behaviors. Additionally, perceived behavioral control, which refers to the perceived ease or difficulty of performing the behavior, has been notably enhanced by technological advancements that facilitate seamless interactions between riders and drivers through mobile applications. The algorithms used by ride-hailing platforms effectively match users with nearby drivers, increasing the service's accessibility (Etminani-Ghasrodashti & Hamidi, 2019). Environmental concerns tied to ride-hailing services have gained increasing attention, with a particular focus on their role in exacerbating urban traffic congestion. Studies have shown that a significant share of ride-hailing trips adds to congestion in city environments (Gehrke et al., 2019; Natalia & Musu, 2024).

Ultimately, understanding the adoption and use of ride-hailing services benefits from applying the Theory of Planned Behavior. This framework illustrates how user attitudes,

social influences, and perceived control intertwine with technological, societal, and environmental considerations to shape intentions and travel behaviors.

2.4.1 Identification of Attitudinal, Subjective Norms & Perceived Behavioral Control Factors Influencing Mobility Preferences

Technology Embracing and Tech Savviness:

Individuals who are comfortable with technology are generally more willing to adopt ride-hailing services. As highlighted by Alemi et al. (2018) and Lavieri & Bhat (2019), younger and more educated users tend to engage more with mobile applications, digital payments, and other app-based systems, making them more open to using these services. Similarly, Raj et al. (2022) found that in New Delhi, users familiar with digital tools showed a stronger inclination toward modern, app-driven transport options.

Variety-Seeking Lifestyle:

Those who enjoy having diverse transportation choices often find ride-hailing appealing because of its flexibility—from economical rides to premium services. Lavieri & Bhat (2019) suggest that individuals with a variety-seeking mindset are more likely to be attracted to ride-hailing platforms, as they offer new and different travel experiences compared to routine or traditional modes.

Pro-Environmental Attitudes:

Environmental awareness significantly shapes transportation choices. Users who prioritize sustainability such as choosing electric vehicles or supporting eco-friendly initiatives are more likely to use ride-hailing services that align with these values. According to Lavieri & Bhat (2019), sustainability is a growing factor in adoption, and Malik et al. (2021) also link eco-conscious attitudes to a stronger interest in shared and environmentally responsible transport options.

Time Sensitivity:

Ride-hailing's appeal often lies in its ability to save time and offer convenience, especially in congested urban areas. Individuals who place a high value on time efficiency are more inclined to use on-demand services over traditional methods. The quick access, route optimization, and flexible pickup options make it an attractive solution for time-sensitive travelers.

Privacy Sensitivity:

For some users, privacy concerns can act as a barrier to adoption. Lavieri & Bhat (2019) note that individuals who are more cautious about data sharing and digital surveillance may be hesitant to use ride-hailing apps due to fears surrounding personal data misuse or tracking.

Social Influence:

The role of social networks family, friends, and public figures can strongly affect user decisions. In Indonesia, Almunawar et al. (2020) found that peer and community influence significantly shape perceptions and use of RHS. Similarly, Natalia & Musu (2024) observed that in Malaysia, younger users (especially those aged 16–29) are more likely to adopt such services based on social influence within their networks.

Socio-demographics:

The adoption of RHS is significantly influenced by various socio-demographic factors, which play a crucial role in shaping travel behavior. Understanding these factors is essential for comprehensively evaluating how ride-hailing services alter traditional transportation patterns.

- **Age:** Is a pivotal socio-demographic factor shaping the adoption of RHS globally, particularly in urban areas of developing nations like India, Bangladesh, Vietnam, and Indonesia. Younger individuals, primarily those aged 18 to 35, exhibit the highest adoption rates, driven by their familiarity with technology, mobile applications, and their urban lifestyle needs. Studies in Kolkata, India, align with global findings, showing that younger adults dominate ride-hailing usage (Sikder, 2019). Similarly, in Indonesia, ride-hailing has become a habitual choice among younger users, reflecting their preference for convenience and efficiency (Almunawar et al., 2021). Bangladesh also mirrors these patterns, with younger urban populations driving adoption, though specific age-related data is less comprehensive. Quantitative research highlights that up to 70% of ride-hailing users in these nations fall within the 18–35 age bracket, while adoption among those aged 56 and above remains below 20% (Jaman, 2023). Older individuals, though less frequent users, tend to opt for longer and more expensive trips, reflecting a preference for traditional transport

modes influenced by factors such as car dependency and limited familiarity with technology (Mitra et al., 2019).

- **Gender:** The adoption of RHS across different regions, influenced by societal norms, safety concerns, and cultural dynamics. Globally, studies show that men take more trips than women and are more likely to adopt ride-hailing services, often linked to greater access to technology and a higher propensity for risk-taking (Jaman, 2023). In Bangladesh, men dominate ride-hailing usage, particularly those aged 25–34, as societal constraints and safety concerns limit women's mobility and technology access. Similar patterns emerge in India, where safety perceptions are critical for women, who prefer ride-hailing as a safer alternative to traditional transport modes (Devaraj et al., 2020). Vietnamese women require strong assurances of safety and reliability, while Indonesian women often rely on recommendations from trusted social networks, such as family and friends, to build confidence in adopting these services (Almunawar et al., 2021). Similarly, in Kathmandu, ride-sharing platforms like Pathao and Tootle demonstrate how traditional gender norms affect travel behavior. Female riders face challenges due to societal stigma and safety concerns, while female customers frequently use these platforms for convenience despite these obstacles (Hamal, 2019). Quantitative data highlights the disparity, with studies indicating that male users constitute the majority of ride-hailing adopters, such as 62% in Bangladesh (Jaman, 2023).

- **Income and socio-economic status:** Are critical factors of ride-hailing adoption worldwide, influencing access, frequency of use, and travel preferences. Globally, individuals from higher-income brackets are more likely to adopt ride-hailing services due to affordability and greater awareness (Barajas & Brown, 2020). Conversely, lower-income populations face barriers such as financial constraints, limited access to mobile technology, and banking services, which hinder their engagement with ride-hailing platforms (Barajas & Brown, 2020). This socio-economic divide underscores equity concerns, as affluent users tend to dominate ride-hailing usage, while economically disadvantaged groups are left with fewer travel options (Gehrke et al., 2019). Regionally, studies highlight similar trends. In **Bangladesh**, financial constraints significantly impact the adoption of motorcycle e-

ride-hailing services, with lower-income individuals facing challenges due to limited access to the "smart mobility ecosystem," including mobile data and digital payment systems (Jaman, 2023). In **Indonesia**, higher-income individuals demonstrate a greater propensity to use RHS, reflecting the critical role of socio-economic characteristics in shaping user preferences (Almunawar et al., 2021). Lower-income groups often lack the resources to integrate ride-hailing into their daily routines, while higher-income users benefit from the convenience and efficiency these services offer. This pattern aligns with findings across other urban settings, where rising income levels correlate with increased likelihood of adopting ride-hailing services.

- **Education**: Individuals with higher education tend to exhibit greater adoption in most parts of the world, especially because they possess the technological capability to use digital tools like smartphones and mobile applications. Conversely, research indicates that individuals with higher levels of education are more inclined to use ride-hailing services, likely due to their greater familiarity with and adaptability to technology-driven solutions (Almunawar et al., 2020). In Vietnam, urbanization and educational attainment are closely linked to increased adoption rates, particularly among younger demographics adept at using new technologies (Mitra et al., 2019). In Bangladesh educated individuals also give higher value to the efficiency and convenience of ride-hailing services over traditional transport methods (Jaman, 2023).

Built environment: Plays a critical role in shaping the adoption of RHS globally, with factors such as land use, urban density, and the availability of public transit influencing user behavior. **Globally**, areas with a high density of establishments like restaurants and entertainment venues generate more ride-hailing trips, as these services are mainly used for social and recreational purposes (Clewlow & Mishra, 2017). Furthermore, the relationship between ride-hailing & public transport can be both complementary and competitive, depending on the availability and quality of transit options (Etminani-Ghasrodashti & Hamidi, 2019). In **China**, built environment factors significantly impact ride-hailing demand. (Tang et al., 2020) highlights that dining facilities contribute approximately 30% to ride-hailing usage, while Zhao (2023) underscores the spatiotemporal effects of urban design on ridership. Urban policies encouraging mixed-

use developments and enhanced public transit systems can further integrate ride-hailing into the transportation network (Zhao et al., 2024) In **India** and **Bangladesh**, rapid urbanization and challenges in public transit infrastructure drive ride-hailing adoption. In Dhaka, traffic congestion and insufficient public transportation options push users toward motorcycle e-ride-hailing services, emphasizing the need for alternative transport solutions (Jaman, 2023). In both countries, service quality and customer satisfaction also play a vital role, with users favoring platforms that meet their expectations (Sikder, 2019). In **Vietnam** and **Indonesia**, socio-demographic factors such as education and technology adoption further influence ride-hailing usage. Research shows that urban populations with greater engagement in technology and frequent long-distance travel are more inclined to use RHS (Jaman, 2023).

Travel-Specific Factors: Several travel-specific factors, such as trip purpose, distance, and time of day, also affect mode selection. For example, commuters may opt for reliable public transport, whereas those traveling for leisure may prefer the flexibility of ride-hailing services. The ease of ride-hailing is particularly evident for shorter trips, with increased usage often noted during evenings and weekends (Lavieri & Bhat, 2019).

Table 2: Summary of Literature on Attitudinal Attributes Influencing Modal Choice

Author	Study Area	Factor Categories	Major Attitudinal Factors
Specific to ride hailing Services			
(Alemi et al., 2018)	California	1. Personal attitudinal factors 2. Socio-demographics 3. Built environment attributes 4. Travel habits	1. Technology embracing 2. Variety seeking 3. Pro-environment 4. Time sensitivity
(Lavieri & Bhat, 2019a)	Texas, USA	1. Personal attitudinal and lifestyle specific factors 2. Socio-demographics 3. Built environment attributes 4. Trip level ride-hailing attributes	1. Green lifestyle propensity (Environment friendly) 2. Technology savviness 3. Privacy sensitivity 4. Variety seeking
(Malik et al., 2021)	California, USA	1. Personal attitudinal factors 2. Socio-demographics	1. Pro-environment 2. Pro-urban 3. Tech savvy

		3. Built environment 4. Lifestyle 5. Tolerance to shared RHS attribute	4. Attitude towards car (Loving, dependency, utilitarian, luxury)
Specific to other travel alternatives			
(Raj et al., 2022b)	New Delhi, India	1. Personal attitudinal factors 2. Socio-demographics 3. Trip specific factors	1. Tech savviness
(Bhaduri et al., 2022)	Kolkata, India	1.Personal attitudinal factors 2. Socio-demographics 3. Trip specific factors	Technology Embracing Education Level Service Reliability and Safety
(Nguyen-Phuoc et al., 2020)	Vietnam	1. Travel behavior 2. Mode comparison	1. Safety concerns 2. Preference for ease of booking 3. Reliability

2.5 Travel Behavior

Travel behavior can be defined as the mode and choice-making techniques used by people in planning and executing travel. The scope involves demography; these include; the business or personal where the importance of purpose bears much on the choice of the destination and the means of transport. Surveys show that income, as well as possession of a vehicle, is an essential and highly significant factor that defines travelling behavior. For example, under this category people may display different travel behavior in case they value convenience, cost or concern with the environment when choosing their mode of transport. Also, constraints involving attitude towards various forms of transport can have a profound impact on the travel decisions; research work revealed that actual utilization of public transport or bicycles is higher with acceptability of such transport (Firdausi et al., 2023).

2.5.1 Effects of Ride-Hailing on Travel Behavior

2.5.1.1 Mode Substitution

The adoption of RHS has significantly transformed travel behavior, influencing users' mode choices, frequency of travel, and the dynamics between traditional public and private transportation. This transformation can be attributed to various factors, including

socio-economic status, urban infrastructure, and the inherent characteristics of ride-hailing services. One of the primary impacts of ride-hailing is its effect on users' mode choices. Research indicates that ride-hailing can serve as complement as well as competitor to traditional public transportation. For instance, studies indicates that in areas with robust metro systems, ride-hailing trips are more frequent, suggesting a complementary relationship with rail transit. Conversely, in regions with more bus stops, ride-hailing appears to compete with bus services, potentially reducing their ridership (Etminani-Ghasrodashti & Hamidi, 2019). This duality highlights the complexity of ride-hailing's role in urban mobility, where it can either enhance or detract from the use of public transit depending on the local context and infrastructure.

The impact of RHS on traditional transport modes has been a subject of debate in numerous studies. In a study conducted in Vietnam, researchers used a stated preference technique to assess how the availability of RHS influenced travelers' mode choices. Participants were asked to answer their alternative mode of transport if ride-hailing had not been available for a given trip. Results from this study showed that traditional taxis were the most common alternative that respondents switched from, as many who would normally take a taxi instead opted for ride-hailing services (Alemi, 2018; Rayle et al., 2016; Tirachini, 2020). However, other studies have indicated that public transport or personal vehicles are more frequently replaced by ride-hailing in different settings (Gehrke et al., 2019; Lavieri & Bhat, 2019). The substitution impact of ride-hailing on public transport mode, personal driving, and other modes appear mixed. For instance, Alemi et al. (2018) noted a decrease in private car use, while Clewlow and Mishra (2017) reported a drop in bus ridership. Hall et al. (2018) highlighted regional differences, with ride-hailing reducing bus usage by nearly 6% in smaller cities but slightly increasing it by around 1% in larger cities (Shi et al., 2021) Research from China, the world’s largest market for RHS, has also yielded varying results. This is partly due to the limitations of the stated preference approach, which tends to underestimate the full impact of ride-hailing by focusing on specific trips and assuming that only one alternative mode is being replaced at a time. This suggests that further research with more robust methodologies is necessary (Shi et al., 2021). Likewise in India, the rise of ride-hailing services like Ola and Uber has been particularly pronounced. A study by Devaraj et al. indicates that ride-hailing services have significantly influenced commuting patterns, with many users transitioning from traditional taxis and public transport to app-based services (Devaraj et

al., 2020). The research highlights that approximately 40% of ride-hailing trips in Chennai replaced trips that would have otherwise utilized intermediate public transport (IPT) modes, showcasing a substantial mode substitution effect (Devaraj et al., 2020). Acheampong et al. (2020) highlight that the uptake of ride-hailing services is linked to a significant rise in vehicle miles traveled, indicating that while some users shift from public transport, others may contribute to greater traffic congestion. In a similar vein, the emergence of motorcycle e-hailing services like Pathao in Bangladesh has notably altered travel behavior. Studies show that these services have largely replaced traditional transport modes, especially in urban areas where traffic congestion and the demand for quick, convenient travel are pressing concerns. Jaman (2023) found that the popularity of motorcycle e-hailing is driven by its affordability and speed, leading to a decline in the use of conventional taxis and public transit. Collectively, these findings underscore how ride-hailing services have prompted substantial shifts in mode choice across different countries, significantly impacting traditional transportation systems.

2.5.1.2 Trip Frequency

The emergence of RHS has significantly influenced trip frequency across urban landscapes. This phenomenon can be attributed to various factors, including the convenience and accessibility of these services, as well as their interaction with existing transportation systems.

With the rapid growth of ride-hailing services in recent years, there has been a growing body of research examining how these services impact travel behavior. Nonetheless, this topic remains poorly understood, because results from previous studies are inconsistent and even conflicting in at least two aspects. The first debate is about whether and to what extent ride-hailing increases trip frequency. Compared to traditional travel modes, ride-hailing services are often considered more flexible, reliable, and convenient (Acheampong et al., 2020; Clewlow & Mishra, 2017; Rayle et al., 2016). As a result, it is reasonable to believe that utilizing ride-hailing services can lead to an increase in the number of trips. Nevertheless, not all prior research supports this belief. Several studies use a stated preference method to understand how ride-hailing influences travel behavior. Participants are asked whether they would have made a particular trip, such as their most recent ride-hailing trip, if ride-hailing services were unavailable (Alemi, 2018; Lavieri & Bhat, 2019). The proportion of individuals who claim they would not have traveled

without ride-hailing varies widely. For instance, Henao and Marshall (2019) found that 12.2% of respondents would not have traveled, suggesting that ride-hailing services significantly increase trip frequency. Conversely, Tang et al. (2020) reported only 0.4% of respondents would have skipped their trip, indicating a minimal effect of ride-hailing on travel frequency. The study by Hampshire et al. (2017) pointed to another story (Shi et al., 2021b). A study by Hampshire et al. (2016) on Uber and Lyft's service suspension in Austin, Texas, revealed a significant decrease in monthly trip frequency—from 5.65 to 2.01 trips—suggesting that ride-hailing services substantially increase travel demand, with 64.4% of respondents reporting reduced trip frequency post-suspension (Shi et al., 2021b). Jiao et al. (2020) found a significant positive relationship between RHS and trip frequency using 2017 National Household Travel Survey data, while Kong et al. (2020), using the same data with a structural equation model, found the relationship to be statistically insignificant, suggesting trivial effects (Shi et al., 2021b). In India, for instance, the integration of ride-hailing services has been linked to increased trip frequency, particularly among urban populations. This transition is reinforced by studies indicating that ride-hailing services are commonly used for both commuting and leisure purposes, with many users reporting a rise in trip frequency due to the ease and convenience these platforms offer (Devaraj et al., 2020). Likewise, in Bangladesh, the accessibility of app-based transport has led to a significant increase in travel, especially among younger, tech-oriented individuals who are more inclined to embrace such digital mobility solutions (Jarah, 2023).

2.5.1.3 Trip Purpose

In terms of trip-level ride-hailing behaviors, a small number of studies that have examined trip purposes reveal that social and recreational outings are the most frequent reasons for using ride-hailing services (Rayle et al., 2016). Regarding the travel modes that ride-hailing attracts users from, previous research has shown that ride-hailing typically serves as a substitute for taxi services. Individuals often cite the convenience of payment, the ability to easily request a ride, reduced fares, and quicker wait times as reasons for choosing ride-hailing over traditional taxis. Nonetheless, to a lesser extent, ride-hailing also competes with public transportation use, trips made by walking or biking, and solo driving, at least according to survey participants (Alemi, 2018; Chen et al., 2021; Rayle et al., 2016). The main reason many individuals prefer ride-hailing instated of public transportation or active travel modes is the shorter travel time. On the other hand, people

often choose ride-hailing over using their own vehicles due to factors like limited parking at their destination or the need to avoid driving while intoxicated. There is also evidence suggesting that ride-hailing has facilitated trips that otherwise might not have been made. For example, studies in California, including one focused on San Francisco (Rayle et al., 2016) and another covering various metropolitan areas (Alemi, 2018), found that approximately 8.0% of individuals would have skipped their most recent ride-hailing trip if the service had not been available. Furthermore, aggregate studies examining gasoline consumption, vehicle miles traveled (VMT), and traffic congestion in U.S. cities before and after the rise of ride-hailing services have not found a significant increase in per-capita vehicle use; in fact, some studies suggest a slight reduction in such metrics.

In China, ride-hailing services like Didi Chuxing are widely used for leisure and health-related trips, particularly in small and medium-sized cities where they complement existing public transport. However, in larger urban centers, these services often act as substitutes for public transit, reflecting a shift in travel behavior for occasional and flexible trip purposes (Zhong et al., 2020). The convenience and efficiency of ride-hailing have made it particularly attractive for users seeking alternatives to less reliable or overcrowded transport modes, especially for short-term needs. In India, ride-hailing services are predominantly used for commuting, leisure, shopping, and health-related purposes. These services fill critical gaps in urban transportation systems, offering a dependable alternative to inconsistent public transit. Their flexibility makes them suitable for both daily commutes and occasional trips, enabling users to adapt their travel behavior to varying needs (Devaraj et al., 2020). Similarly, in Bangladesh, ride-hailing services are primarily utilized for short-distance trips, such as commuting, running errands, and reaching destinations inaccessible by other means. These trips often replace walking or cycling, improving accessibility for users who lack private vehicles or face challenges with traditional public transportation (Jarah, 2023). In Vietnam, ride-hailing services are prominently used for work-related and leisure trips, reflecting their role in addressing urban transportation inefficiencies. Users in densely populated cities benefit from the ability to integrate multiple trip purposes into a single journey, particularly in areas where congestion complicates travel planning (Natalia & Musu, 2024). In Indonesia, social and recreational trips are the dominant reasons for ride-hailing usage, especially among younger, tech-savvy populations. These services offer a reliable and convenient option in regions where public transit is insufficient, allowing users to navigate urban spaces more

efficiently (Natalia & Musu, 2024). Overall, ride-hailing services have become a critical component of urban mobility across regions, serving diverse trip purposes such as social, recreational, commuting, and health-related travel. While these services address significant transportation gaps, their impacts vary based on regional contexts. In some areas, they complement existing modes of transport, while in others, they act as substitutes, prompting shifts in travel behavior.

In conclusion, the adoption of RHS has led to notable changes in travel behavior, impacting mode choices, travel frequency, and the dynamics of traditional transportation systems. The interplay of socio-economic factors, urban infrastructure, and the inherent characteristics of ride-hailing services shapes these changes, highlighting the need for ongoing research and policy considerations to address the gap.

Table 3: Summery on Effects of Ride-Hailing on Travel Behaviour

Aspect	References	Locations	Key Findings
Mode Substitution	Alemi et al. (2018); Rayle et al. (2016); Clewlow & Mishra (2017); Shi et al. (2021); Jaman (2023).	**US**, **Vietnam**, **India**, **Banglade sh**	Ride-hailing substitutes taxis, public transport, and private vehicles differently by region. In areas with robust metro systems, ride-hailing complements rail transit but competes with buses in bus-heavy regions. Traditional taxis are the most substituted in some countries. Public transport substitution is significant in cities like Chennai (**40%** of IPT trips replaced).
Trip Frequency	Hampshire et al. (2016); Devaraj et al. (2020); Jarah (2023).	**US**, **India**, **Banglade sh**	Mixed evidence: Some studies suggest a significant increase in trips, while others find negligible effects. 64.4% reduction in trip frequency during Uber/Lyft suspension in Austin, Texas.

			Increased trip frequency observed in **India** and **Bangladesh** due to convenience and accessibility.
Trip Purpose	Rayle et al. (2016); Alemi (2018); Zhong et al. (2020); Handayeni & Anindya (2024).	**US**, **China**, **India**, **Bangladesh**, **Indonesia**, **Vietnam**	Social and recreational trips dominate in several regions. Health and leisure-related trips common in China and Bangladesh. In India, primary purposes include commuting, leisure, shopping, and health-related trips. In Indonesia and Vietnam, ride-hailing is popular for social trips, especially among younger populations.
Socio-Demographics	Sikder (2019).	**US**, **Global**	Higher-income individuals and younger users adopt ride-hailing more frequently. Usage is lower in low-income neighborhoods.

2.6 Legal Aspect in Global Context

2.6.1 Fragmented Regulatory Frameworks

The inability to establish cohesive national policies causes developing nations to maintain disordered regulatory systems. Indian ride-hailing operations encounter obstacles due to various unclear state regulations which control both fare rates and authentication procedures and safety protocols (Agarwal et al., 2019). Ride-hailing companies in Indonesia need to partner with licensed transport cooperatives that act as entry barriers both against fresh operators and unlicensed ojek motorbike taxi drivers (Natalia & Musu, 2024).

2.6.2 Safety and Labor Informalization

Two-wheeler ride-hailing amplifies safety risks. The minimal regulation of motorcycle taxis in Southeast Asia continues because there are no established policies about vehicular

standards or motorcyclist helmet requirements. The Taxi Industry Transformation Program of Malaysia does not enforce its driver training initiatives effectively which has resulted in higher traffic accidents based on findings from Shiang & Fernandez (2022). The drivers from Bangladesh remain without social security benefits and fair wage protection due to their limited access despite Jaman (2023).

2.6.3 Conflict with Traditional Transport

The regulatory procedure encounters persistent obstacles when it seeks to implement modern advances into preserving operations within established sectors. Vietnamese traditional bikers became hostile towards Grab Bike and similar motorcycle services which hindered their operational profits (Nguyen-Phuoc et al., 2020). The Philippines. made a decision to stop ride-hailing legalization to protect jeepney operators which resulted in delayed establishment of clear regulatory norms as per Natalia & Musu (2024)

2.6.4 Data Privacy and Infrastructure Gaps

Rising markets face various barriers that prevent them from achieving sustained data governance quality. The local platforms of India and Indonesia store their data overseas which generates data privacy concerns according to Kumar et al. (2022) and Natalia & Musu (2024). Inadequate infrastructure in cities like Dhaka and Jakarta exacerbates congestion, undermining ride-hailing efficiency despite regulatory efforts (Jaman, 2023).

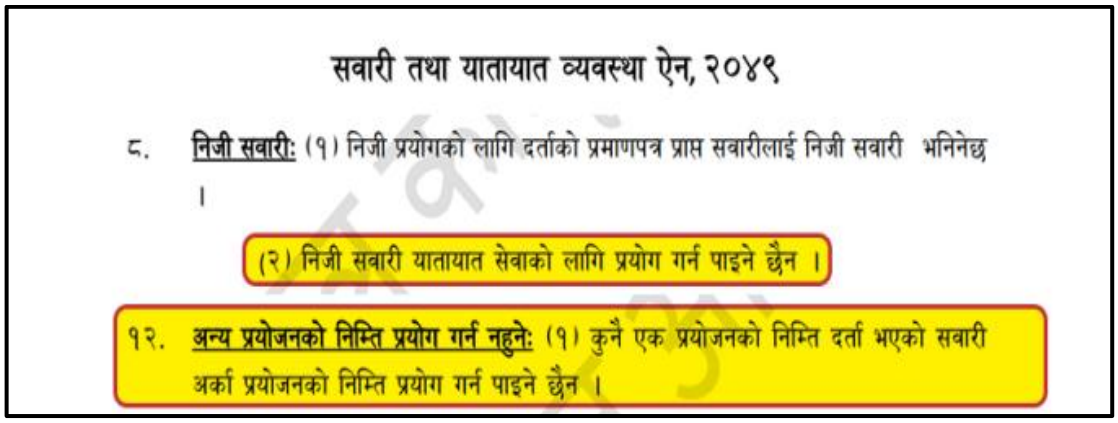
2.6.5 Adaptive Governance Models

Some countries adopt hybrid approaches. In Singapore the Point-to-Point licensing functions as a single governance structure to unite taxi operations with ride-hailing services thus creating accountable oversight (Shiang & Fernandez, 2022). Malaysia implemented variable pricing structures for motorcycle e-hailing operations yet faced ongoing challenges with implementing this policy based on Shiang and Fernandez (2022).

2.7 Overview of Existing Laws in Nepal:

In 2017, Tootle, Nepal's first ride-sharing app, was launched. At the time, there were no specific regulations for the ride-sharing industry in the country. Traditional transport service providers often viewed ride-sharing platforms as engaging in unlawful passenger transport. Under Section 8 (2) of the Motor Vehicles and Transport Management Act, 1993 (2049), the use of private vehicles for public transport is prohibited. Since ride-

sharing typically involves private car owners providing transport services, this legal restriction unintentionally slowed the growth of Nepal's ride-sharing market.



सवारी तथा यातायात व्यवस्था ऐन, २०४९

८. **निजी सवारी:** (१) निजी प्रयोगको लागि दर्ताको प्रमाणपत्र प्राप्त सवारीलाई निजी सवारी भनिनेछ ।

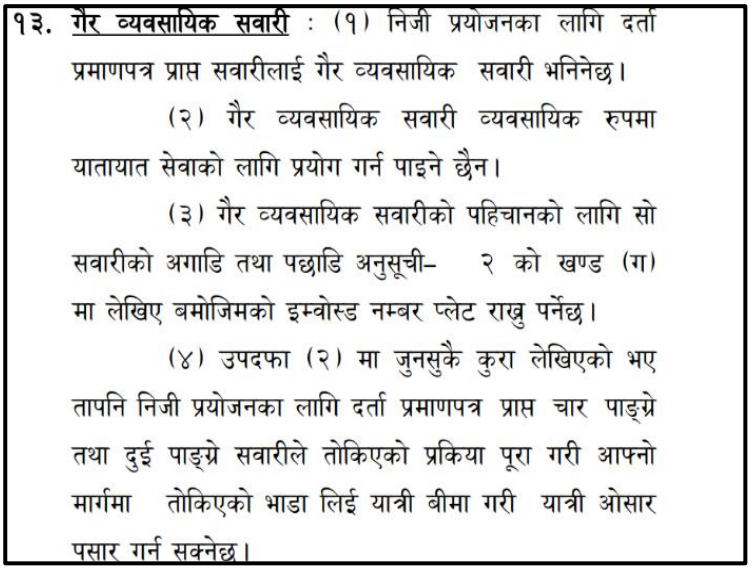
(२) निजी सवारी यातायात सेवाको लागि प्रयोग गर्न पाइने छैन ।

१२. **अन्य प्रयोजनको निम्ति प्रयोग गर्न नहुने:** (१) कुनै एक प्रयोजनको निम्ति दर्ता भएको सवारी अर्को प्रयोजनको निम्ति प्रयोग गर्न पाइने छैन ।

Figure 5: Motor Vehicles and Transport Management Act, 1993 (2049)

2.7.1 Bagmati Province Vehicle and Transportation Management Act, 2019 (2075)

The Bagmati Province Vehicle and Transportation Management Act of 2019 (2075), effective from February 1, 2019, was the first law in Nepal to officially recognize ride-sharing businesses at the provincial level.



१३. **गैर व्यवसायिक सवारी** : (१) निजी प्रयोजनका लागि दर्ता प्रमाणपत्र प्राप्त सवारीलाई गैर व्यवसायिक सवारी भनिनेछ।

(२) गैर व्यवसायिक सवारी व्यवसायिक रुपमा यातायात सेवाको लागि प्रयोग गर्न पाइने छैन।

(३) गैर व्यवसायिक सवारीको पहिचानको लागि सो सवारीको अगाडि तथा पछाडि अनुसूची– २ को खण्ड (ग) मा लेखिए बमोजिमको इम्बोस्ड नम्बर प्लेट राख्नु पर्नेछ।

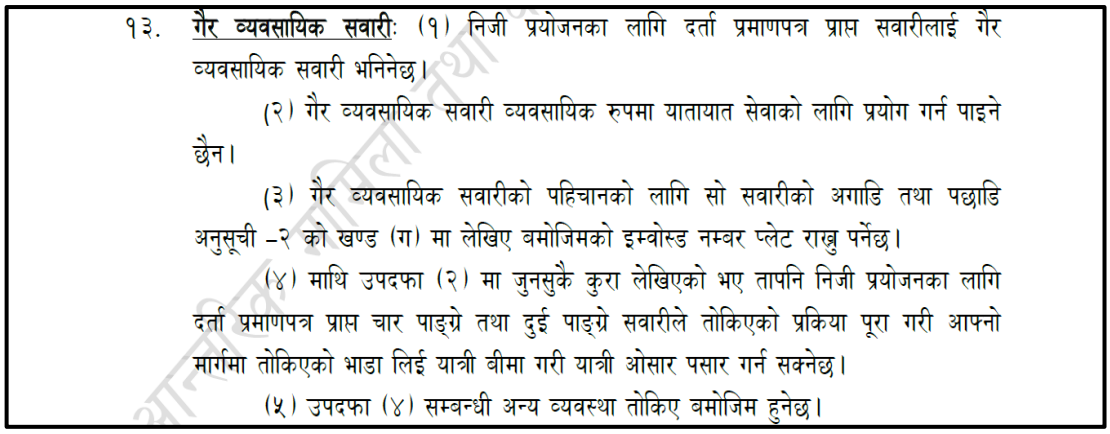
(४) उपदफा (२) मा जुनसुकै कुरा लेखिएको भए तापनि निजी प्रयोजनका लागि दर्ता प्रमाणपत्र प्राप्त चार पाङ्ग्रे तथा दुई पाङ्ग्रे सवारीले तोकिएको प्रकिया पूरा गरी आफ्नो मार्गमा तोकिएको भाडा लिई यात्री बीमा गरी यात्री ओसार पसार गर्न सक्नेछ।

Figure 6: Bagmati Province Recent Amendment in Act

Section 13(4) of this Act allows private vehicles with standard number plates to provide public transportation services through ride-sharing applications, marking a significant departure from federal law. However, the regulation does not adequately address the operation of ride-hailing platforms specifically for two-wheelers.

2.7.2 Gandaki Province Transportation Management Act, 2019

On October 18, 2019 (2076/07/01), Gandaki Province took a significant step toward recognizing the changing landscape of urban mobility.



१३. गैर व्यवसायिक सवारी: (१) निजी प्रयोजनका लागि दर्ता प्रमाणपत्र प्राप्त सवारीलाई गैर व्यवसायिक सवारी भनिनेछ।

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(३) गैर व्यवसायिक सवारीको पहिचानको लागि सो सवारीको अगाडि तथा पछाडि अनुसूची –२ को खण्ड (ग) मा लेखिए बमोजिमको इम्बोस्ड नम्बर प्लेट राख्नु पर्नेछ।

(४) माथि उपदफा (२) मा जुनसुकै कुरा लेखिएको भए तापनि निजी प्रयोजनका लागि दर्ता प्रमाणपत्र प्राप्त चार पाङ्ग्रे तथा दुई पाङ्ग्रे सवारीले तोकिएको प्रकिया पूरा गरी आफ्नो मार्गमा तोकिएको भाडा लिई यात्री बीमा गरी यात्री ओसार पसार गर्न सक्नेछ।

(५) उपदफा (४) सम्बन्धी अन्य व्यवस्था तोकिए बमोजिम हुनेछ।

Figure 7: Gandaki Province Recent Revision on Act

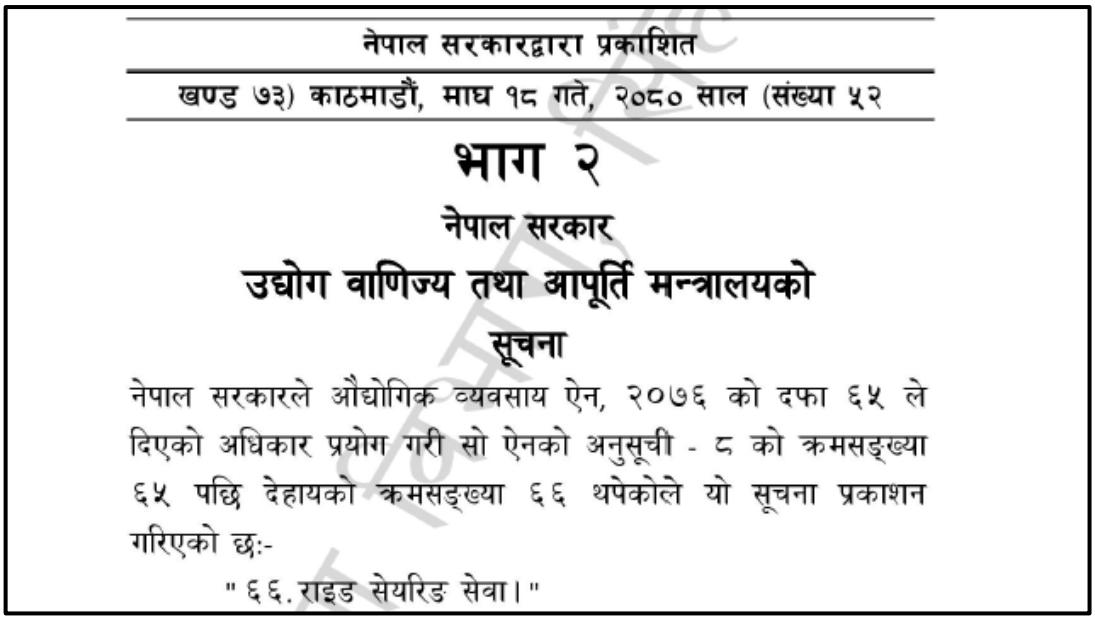
Section 13(4) of the *Gandaki Province Transportation Management Regulation Act, 2019 (2076)* officially permitted the use of private vehicles for public transport, but brief regulations were still opaque. This move reflected a progressive approach to transportation governance, acknowledging the growing role of RHS and setting a precedent for innovation-friendly policies in Nepal's mobility sector

2.7.3 Patan High Court's Judgement

On February 12, 2020 (2076/10/29), the Patan High Court reviewed the case *Akhil Nepal Labor Taxi District Committee v. Ministry of Physical Infrastructure and Transportation (Writ No. 076-WO-0392), a case filed by the Taxi Association.* The case challenged the legality of private vehicles transporting passengers through ride-sharing platforms. The court recognized the challenges posed by ride-hailing applications within the confines of existing federal laws, particularly the Transportation Management Act of 1993 (2049), and identified gaps in the regulatory framework for managing such services. It emphasized the importance of federal regulations to ensure public safety and called for collaboration between ride-sharing companies and government agencies to develop comprehensive policies. The court's decision allowed ride-sharing services to operate, urging the amendment and enforcement of relevant laws.

2.7.4 Progress on Federal Law: Recognition of Ride-Sharing Business an Industry by Industrial Enterprises Act, 2020

On February 1, 2024, the Government of Nepal formally integrated ride-sharing services into the industrial sector by categorizing them as service-oriented enterprises under the Industrial Enterprises Act, 2020 (2076).



नेपाल सरकारद्वारा प्रकाशित

खण्ड ७३) काठमाडौं, माघ १८ गते, २०८० साल (संख्या ५२

भाग २

नेपाल सरकार

उद्योग वाणिज्य तथा आपूर्ति मन्त्रालयको

सूचना

नेपाल सरकारले औद्योगिक व्यवसाय ऐन, २०७६ को दफा ६५ ले दिएको अधिकार प्रयोग गरी सो ऐनको अनुसूची - ८ को क्रमसङ्ख्या ६५ पछि देहायको क्रमसङ्ख्या ६६ थपेकोले यो सूचना प्रकाशन गरिएको छः-

"६६. राइड सेयरिङ सेवा।"

Figure 8: Federal Government Recent Amendment in Industrial Enterprise Act 2020

This announcement, published in the Nepal Gazette, marked a critical legal milestone, offering ride-sharing platforms official recognition within the country's industrial ecosystem. The Federal Ministry of Physical Infrastructure and Transport is currently preparing a nationwide regulatory framework to govern ride-sharing activities. These draft guidelines aim to introduce standard practices and regulatory clarity across the sector. However, their implementation faces hurdles due to conflicts with current federal legislation — particularly Section 8(2) of the Motor Vehicles and Transport Management Act, 1993, which prohibits private vehicles from being used for public transportation. To eliminate this legal contradiction and facilitate the application of new guidelines, revisions to the federal act are considered necessary.

With proper legal support and cooperation from key stakeholders, ride-sharing platforms can play a pivotal role in transforming urban transportation in Nepal. They offer scalable, reliable, and sustainable solutions to ongoing mobility challenges. Realizing this potential, however, depends on an adaptive legal framework that fosters innovation while protecting the public interest (Imperial Law Associates, 2024).

CHAPTER: 3 RESEARCH METHODOLOGY

3.1 Research Paradigm

Research is characterized as a methodical exploration and examination of resources and information to determine facts and draw new insights. The exact nature of the definition of research is influenced by the researcher's theoretical framework which is known as **paradigm**. As researchers, it is essential to comprehend and articulate our foundational convictions regarding the nature of reality, what can be understood about it, and the methodologies employed to attain this knowledge. These foundational beliefs constitute what is known as **research paradigms**, which serve as fundamental belief systems and theoretical frameworks. Many people have defined paradigm in their own way. Thomas Kuhn's defines Paradigm as the underlying assumptions and intellectual structure upon which research and development in a field of inquiry is based. Patton (1990) describes a paradigm as a comprehensive worldview or perspective that helps simplify and interpret the complexities of the real world.

3.1.1 Post-Positivist Paradigm:

The post-positivist framework recognizes that our grasp of reality is imperfect and probabilistic in nature. It converts qualitative data into quantitative findings through statistical methods. Although individuals possess free will and creativity, their actions tend to follow recognizable patterns, rendering absolute truth elusive (Guba, 1990).

This study aligns with the principles of post-positivism by employing empirical investigation to assess the effects of ride-hailing on mode selection, trip frequency, and shifts in travel patterns. Quantitative techniques effectively capture measurable impacts, while qualitative methods (such as surveys and interviews) delve into factors influencing adoption, including safety, comfort, and reliability, thereby providing a well-rounded view of urban mobility trends.

3.1.2 Constructivism / Interpretivism Paradigm:

The interpretivist framework posits that reality is constructed socially and is subject to change, rendering static research methods insufficient (Hudson & Ozanne, 1988). Researchers stay receptive to fresh insights and depend on participants' viewpoints to gain an understanding of human experiences (Cohen et al., 2007). Interpretivism is based on a

relativist ontology, suggesting that reality is contingent upon individual perceptions influenced by cultural and ideological factors (Creswell, 2003).

This study utilizes a qualitative method to investigate how users embrace ride-hailing services, highlighting the role of social and personal contexts in shaping travel behavior, including views on safety, comfort, convenience, and cost within urban mobility.

3.1.3 Ontology Position of Research:

Ontology relates to "our beliefs concerning the essence of reality" (Richards, 2003). Researchers hold certain assumptions (which may often be unspoken) about the nature of reality, its existence, and what can be comprehended about it. The ontological inquiry prompts a researcher to explore the type of reality that is present: "A singular, verifiable reality and truth [or] … socially constructed multiple realities" (Sharp, 2003).The ontological assumptions constitute the first set of assumptions 'which concern the very nature or essence of the social phenomena being investigated' (Cohen et al., 2007).

This study, rooted in the critical realism framework of post-positivism, investigates the intricacies of urban mobility in the Kathmandu Valley. It understands that factors such as demographics, economic status, gender, age, and limited transport options influence the travel patterns of young people. By acknowledging that reality is socially constructed, the research dismisses the notion of a singular truth regarding the effects of ride-hailing. Rather, it utilizes mixed methods to gather a range of viewpoints, examining both subjective experiences and context-related factors that affect the acceptance of ride-hailing in this urban environment.

3.1.4 Epistemology Position of Research:

Epistemology examines the essence of knowledge and the methods by which it is obtained (Cohen et al., 2007). It influences research views on objectivity, causation, and validity (Sharp, 2003). A post-positivist epistemology, which corresponds with measurable changes in travel behavior, recognizes the uncertainties arising from human behavior, infrastructure, and policies (Sharp, 2003). This perspective supports probabilistic inferences and ongoing learning when evaluating the effect of ride-hailing on urban mobility in the Kathmandu Valley. On the other hand, an interpretivist perspective emphasizes the perceptions and experiences of users through qualitative techniques, such as interviews and discussions. This framework underscores the social and cultural

contexts that influence user satisfaction and decision-making, offering a deeper understanding of the personal aspects of adopting ride-hailing services.

3.1.5 Conceptual framework

The Conceptual Framework can be organized around identifying the elements that affect the acceptance of ride-hailing services and their influence on urban travel patterns in Kathmandu Valley. Below is a streamlined framework:

1. Independent Variables:

- Socio-Demographic Factors: Gender, age, education, income, household traits, car ownership, and other individual characteristics.
- Key Adoption Factors: Cost, safety, convenience, reliability, availability, wait time, and comfort (established through surveys and focus groups).
- Built Environment: Urban density, closeness to public transport alternatives, and access to ride-hailing services.
- Technological Savviness and Peer Influence: Familiarity with digital platforms and social pressure, especially among younger, tech-oriented groups.

2. Mediating Variables:

- User Experience and Preferences: The way users view the service's convenience, safety, and reliability.
- Travel Behavior: Changes in transportation mode selections, travel frequency, and the integration of ride-hailing with conventional transportation modes.

3. Dependent Variables:

- Adoption of Ride-Hailing Services: The probability and degree of utilizing ride-hailing services compared to traditional transportation options, influenced by factors such as cost, reliability, and convenience.
- Changes in Travel Behavior: Frequency of ride-hailing usage, alterations in commuting habits, mode shifts (from public transport or private vehicles to ride-hailing), and purposes for trips (e.g., leisure versus work).
- Legal and Regulatory Impact: User satisfaction with current regulations, pinpointing regulatory gaps, and their influence on ride-hailing service acceptance.

4. External Factors:

- Legal and Regulatory Framework: Current policies regulating ride-hailing services and their potential effect on service quality, pricing, and user acceptance.
- Urban Mobility Trends: The broader consequences of ride-hailing adoption on urban mobility and sustainability challenges in Kathmandu.

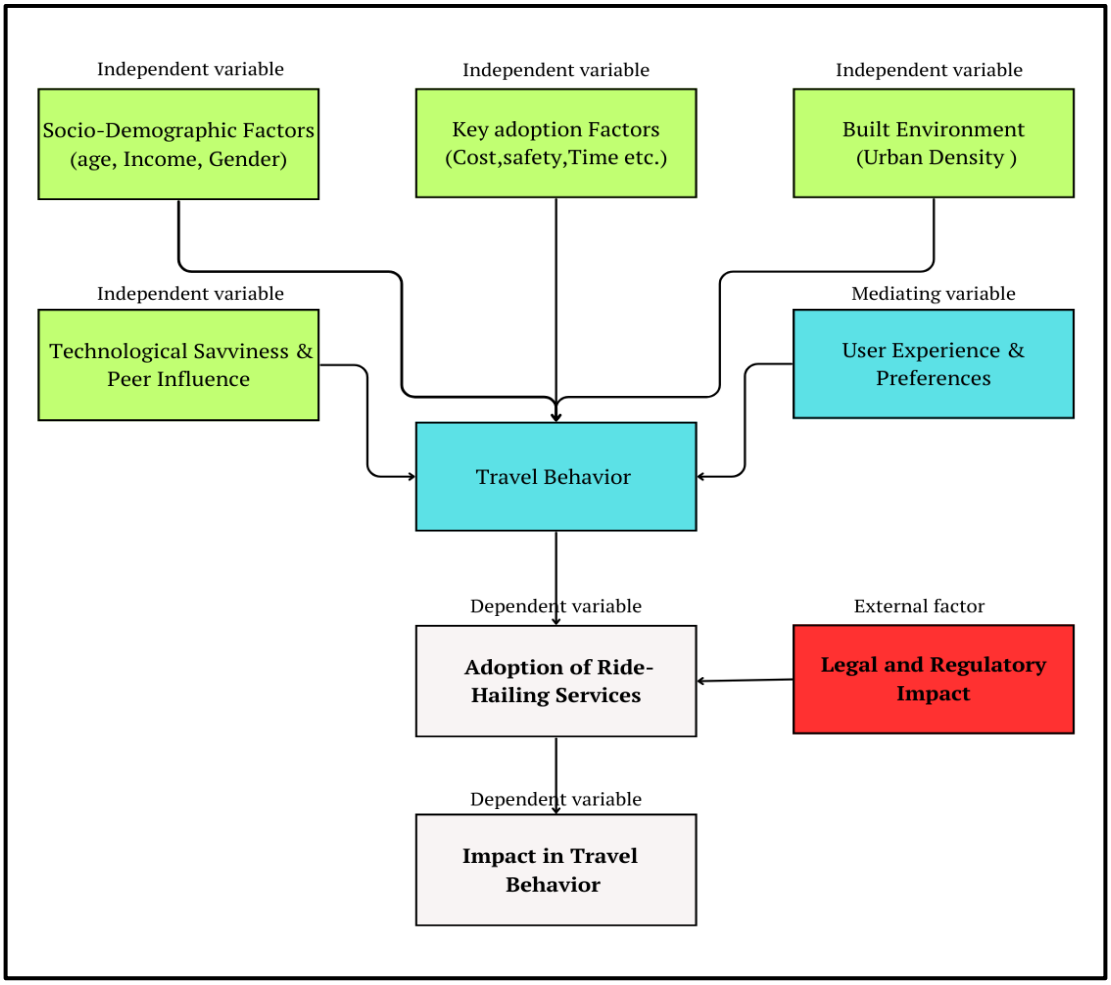


Figure 9: Conceptual Framework

Framework Relationships:

- Socio-demographic factors affect adoption elements like cost and convenience, which subsequently influence user conduct related to adopting ride-hailing services.
- User preferences act as intermediaries in how adoption elements translate into shifts in travel behavior, such as changing mode choices.
- Legal and regulatory structures may either facilitate or obstruct the rise of ride-hailing services, affecting their adoption levels and overall effectiveness in transforming urban mobility.

Through the integration of quantitative assessment (of adoption rates and significant influence factors) and qualitative insights (regarding user motivations and regulatory views), this framework offers a comprehensive understanding of ride-hailing adoption and its effects on urban travel behavior in Kathmandu Valley.

3.2 Study Area

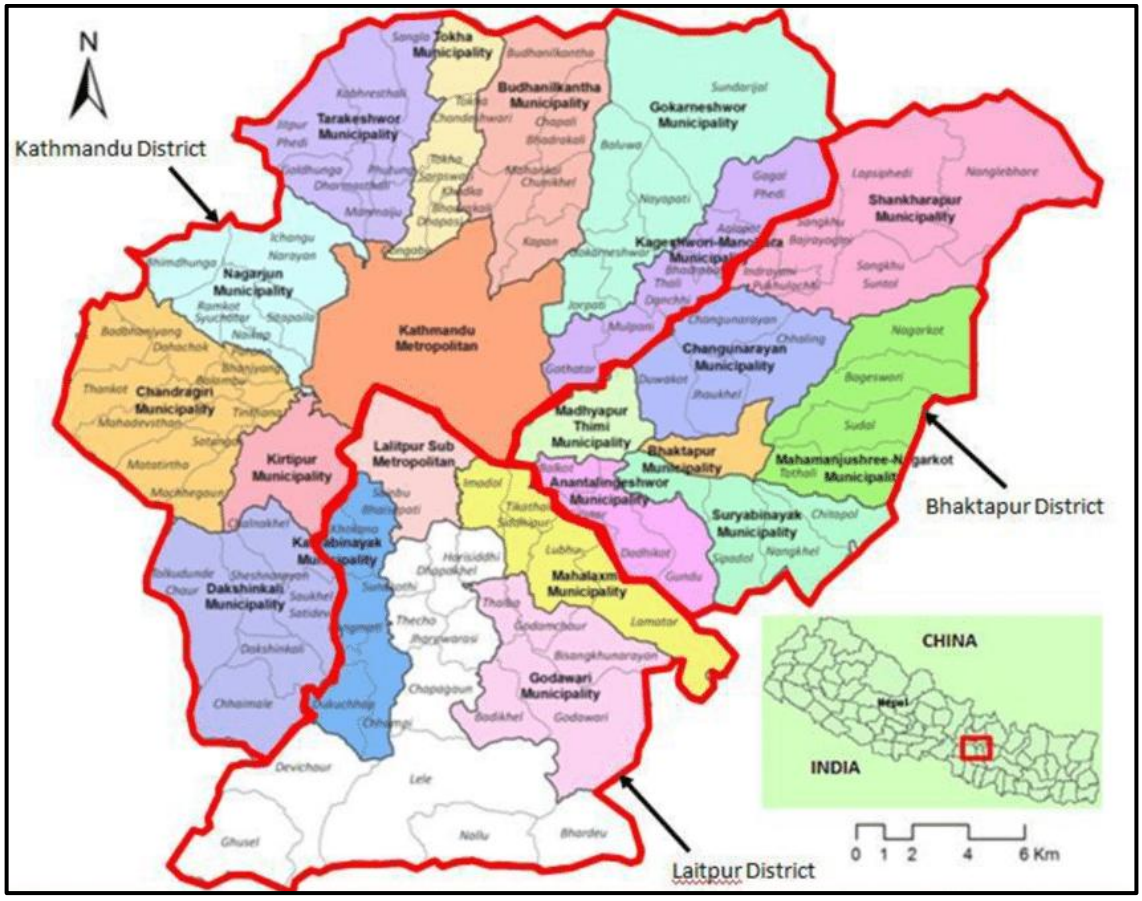


Figure 10: Kathmandu Valley Map Source: (Roblek et al., 2019)

The study is conducted on **Kathmandu Valley**, one of the most populated areas in the country and the economic and cultural center of Nepal. This area affords variability in transport modes ranging from public buses, micro buses, taxis and the relatively new ride hailing services hence a prefect area to investigate on transport use and mobility. Meaningful data can be only gathered from the selected institutions which include colleges and offices; young urban commuters will be targeted. Due to this, this group tends to have more mobility requirements and exposures across various transport means, thus, significant stakeholders for understanding the ride hailing services. This characteristic enables Kathmandu Valley as a site to study how external factors or the adoption factors that affect or contribute to changes in travel behavior interact with the

socio economic and infrastructure of the region. Here is the summarization for taking Kathmandu Valley.

3.3 Methodology

In everyday language, research is often understood as the process of seeking knowledge. More specifically, it can be described as a methodical and scientific approach to uncovering relevant information about a particular subject. Essentially, research involves the systematic investigation of various phenomena. According to *The Advanced Learner's Dictionary of Current English* (Hornby et al., 1952), research is defined as a thorough and careful inquiry, particularly in the pursuit of discovering new facts within any area of knowledge. Similarly, Redman and Mory characterize research as an organized and structured effort aimed at acquiring new insights.

Mixed method is utilized in my study. Using surveys and interviews, this study will identify and evaluate the key factors—such as cost, safety, convenience, and reliability—that drive users to choose ride-hailing services over traditional transportation modes like public transit and taxis. **Quantitative analysis** will measure the relative weight of each factor of adoption of Ride hailing, while **qualitative** insights will explore user motivations and preferences. This study will examine how the identified factors impact users' travel behavior, including shifts in mode choices, changes in travel frequency, and transitions from public or private transport to ride-hailing. Among young socioeconomic demographics, will be analyzed to understand the broader implications of ride-hailing on urban mobility patterns. These objectives aim to provide actionable insights for enhancing ride-hailing services while addressing urban mobility challenges and fostering sustainable transportation planning in the Kathmandu Valley.

3.3.1 Sampling strategy

Stratified random sampling was chosen because it ensured representation across specific age groups, particularly individuals aged 18 to 45 years, who exhibit higher usability and engagement.

Sample size calculation

To calculate the sample size Corchan equation (1963) with a 95% confidence level and precision of 5% is adopted.

$$n = \frac{z^2 * p * (1-p)}{e^2}$$

Where, n = required sample size

Confidence Level	Z Value
95%	1.960

z = Z-score inrelation to the desired confidence level (98% % taken)

p = Estimated proportion of an attribute that is present in the population. (50%)

N = Total population size of population **(Here, 2,996,341 according to 2021 CBS)**

e = desired margin of error (precision), expressed as a proportion (e.g., 0.05 for 5%)

Calculate the sample size n

$$n = \frac{1.960^2 * .5 * (1-.5)}{0.05^2}$$

n = 384.16

Since the sample size n should be a whole number. Therefore, $\boldsymbol{n}$**= 385**

3.3.2 Data Collection Techniques:

3.3.2.1 Focus Group Discussion

Figure 11: Focus Group Discussion

For this research, a focus group discussion was held with 9 participants, consisting of three female and six males, to ensure a diverse range of perspectives. The ages of the participants spanned from 18 to 33 years, allowing for a comprehensive viewpoint on the adoption of ride-hailing services across various life stages. The discussion continued for about 23 minutes, providing sufficient opportunity for a thorough investigation of the primary factors that influence the use of ride-hailing services.

The session was structured to be engaging and conversational, utilizing open-ended questions that prompted participants to discuss their experiences, concerns, and priorities. The topics addressed included cost, safety, reliability, time efficiency, and convenience—elements that significantly impact user decision-making. By promoting an open dialogue,

we were able to extract meaningful insights into how urban commuters in the Kathmandu Valley view and utilize ride-hailing services. The findings from the focus group discussion reveal essential elements that affect user acceptance of ride-hailing services and how they influence travel habits. Convenience is a key factor, as users are drawn to services that offer smooth booking processes, flexible ride choices, and shorter waiting times. Safety continues to be a significant concern, with users highlighting the importance of driver reliability, emergency features, and GPS-based route tracking. Availability and dependability are critical for adoption, especially in areas with poor public transportation systems. Users appreciate real-time tracking and guaranteed ride availability, making ride-hailing a reliable option. Comfort and ease of access are also influential, with amenities such as air-conditioned vehicles, door-to-door services, and digital payment methods enhancing user preference. Price factors affect transportation decisions, with competitive pricing making ride-hailing an attractive substitute for traditional taxis or public transit. The convenience offered has led to a rise in leisure and spontaneous trips, as easy access encourages more impromptu travel. Furthermore, ride-hailing has prompted a shift in transportation modes, as some individuals are choosing app-based rides over personal vehicle use or public transit.

Additional noteworthy elements include time savings related to travel, as ride-hailing reduces delays from transfers, and social influences, where recommendations from friends play a role in adoption trends. The dynamics of urban mobility are changing, as ride-hailing contributes to issues such as traffic congestion, regulatory hurdles, and variations in transportation demand.

3.3.2.2 Survey Questionnaire Design

Surveys are crucial in transportation research, offering both quantitative and qualitative insights into urban mobility trends (Litman, 2017).

The design of the questionnaire was influenced by the works of Clewlow & Mishra (2017) and Bhaduri et al. (2022), integrating findings from research on urban transportation and ride-hailing. A stratified random sampling method was utilized to capture a wide range of viewpoints across different age demographics. It addressed essential factors such as time efficiency, safety, comfort, preferred modes of transport, frequency of trips, and changes in commuting habits related to ride-hailing services. To enhance clarity and validity, the questionnaire underwent a pre-test with 25 individuals, including friends, family

members, and colleagues, which resulted in necessary adjustments for a more effective survey**.**

Explanatory variables

The survey investigated the adoption of ride-hailing services and its effect on travel habits in Kathmandu Valley, highlighting four main areas. Initially, sociodemographic variables such as gender, age, education, income, vehicle ownership, and the holding of a driver's license were examined to determine their impact on mobility preferences. Next, participants evaluated various adoption factors using a 4-point Likert scale, which included convenience, cost, reliability, safety, availability, waiting time, and comfort—providing insights into the key considerations when opting for ride-hailing. Thirdly, changes in travel behavior were analyzed, focusing on trip frequency, distances traveled, and shifts in modes of transportation. Respondents shared whether ride-hailing led to an increase in their leisure trips and if they would have taken their most recent journey without it. Shifts in transportation modes were also studied, particularly concerning taxis, public transit, and active travel methods. Lastly, regulatory and infrastructure issues were examined, gathering user viewpoints on safety, reliability, and deficiencies in ride-hailing regulations. Additional factors such as access to public transport, technological proficiency, affordability, and peer influence were also taken into account. To achieve a varied representation, random sampling was employed, and data was collected through both Kobo Collect and printed surveys for confirmation. Open-ended questions offered further insights into motivations, challenges, and potential areas for enhancement.

3.3.2.3 GIS Tools:

Some of the visualizations regarding the hotspot of uses of commuters regarding the uses pattern to the geographic locations are developed using the tool of ArcGIS.

3.3.2.4 Interviews to stakeholders:

To understand the regulatory landscape of ride-hailing, we mapped key stakeholders and conducted expert interviews with traffic police, law enforcement, regulators, and users. These discussions highlighted challenges like traffic management, safety, and regulatory gaps.

Authorities shared their enforcement strategies, regulators discussed compliance issues, and drivers and passengers voiced their experiences and expectations. Recorded and

transcribed interviews provided crucial insights, forming the foundation for data-driven recommendations to create a balanced and sustainable ride-hailing ecosystem.

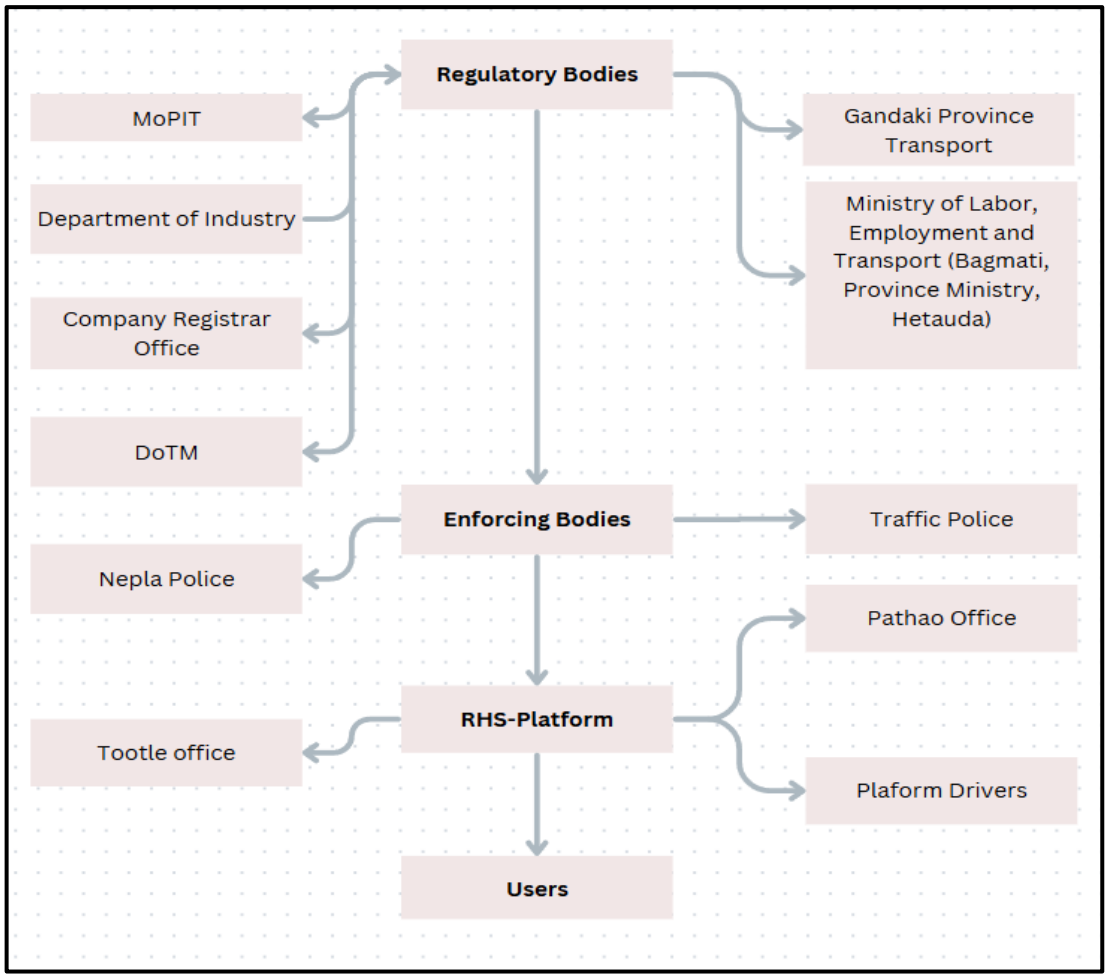


Figure 12: List of All Stakeholders Related to Ride Hailing

Table 4: Data Collection Methods:

Method	Purpose	Process
Questionnaire Survey	To understand the factors influencing the adoption of ride-hailing services and their impact on travel behavior.	A questionnaire was designed using Kobo Toolbox, and the survey was conducted via social media, WhatsApp, and printed physical forms distributed in various locations.
Key Informant Interview	To gain in-depth insights into current regulatory issues related to ride-hailing platforms. -Regulatory bodies -Enforcing bodies -Platform	Open-ended questions were asked verbally in individual interviews and focus group discussions with key informants and stakeholders.

	-Platform-Drivers	
Primary Data Collection	To assess current regulatory challenges due to the absence of specific laws and policies.	Since no official documents were available online, relevant draft regulations were obtained through direct inquiries and physical collection for discussion.

3.3.3 Data Analysis:

The research combines data from focus group discussions, surveys, mapping, and interviews with experts, examining both quantitative and qualitative dimensions. Conclusions are drawn from pertinent theories and policies to provide a comprehensive interpretation. The analysis seeks to uncover patterns, themes, and contextual elements that affect urban mobility and the uptake of ride-hailing services. For the quantitative portion of the analysis, SPSS is utilized to investigate critical factors, with Explanatory Factor Analysis (EFA) employed to reveal underlying connections among variables. This approach aids in confirming the reliability of the factors influencing adoption and deepens the understanding of ride-hailing services within the study.

3.3.4 Research Ethics

Ethical guidelines are essential in the planning and implementation of studies, especially those that involve human subjects. Research seeks to investigate real-world events, behaviors, and solutions while maintaining ethical standards. Essentially, ethics can be categorized into deontological (rule-oriented) and teleological (consequence-oriented) frameworks. This research adopts a deontological viewpoint, emphasizing ethical methodology over simply achieving results. The survey was administered in a considerate manner and without disturbance, guaranteeing no bias based on race, gender, religion, or other characteristics. By respecting the rights of participants, the study improves validity, preserves scientific integrity, and promotes ethical research practices.

3.3.5 Synthesis and Findings:

The ultimate deliverable will showcase analyzed and unified data, delivering definitive insights into city travel behaviors and the elements affecting ride-hailing utilization. By merging various data sources, the study seeks to offer an in-depth comprehension of mobility trends, user habits, and policy impacts, ultimately enhancing the overall understanding of urban transportation dynamics.

CHAPTER: 4 FINDINGS & ANALYSIS

Here, in this chapter we discuss about the research work that is carried out in the field to collect data. This chapter mainly focused about the Questionnaire survey, Interview and data collection related to policies.

4.1 Questionnaire Survey Findings

A total of 693 survey responses were collected through a combination of digital and physical distribution methods, including WhatsApp, social media, and in-person outreach. Among these, 256 responses were gathered by visiting educational institutions, girls' hostels, and Pulchowk Campus, where forms were distributed and collected directly. Additionally, online platforms were utilized to engage a wider user. However, printed 37 responses were discarded due to inconsistencies or incomplete information. This blended approach ensured diverse participation, maximizing reach through both online and offline channels.

4.1.1 Adoption Factors: Scio-Demographic

This section of the questionnaire was mandatory for all survey 656 participants, regardless of whether they had previously used or were currently using ride-hailing services. Every respondent was required to complete this section**.**

Table 5: Descriptive Statistics of RHS User's & Non-User's

		Users (N=548)		Non-Users (N=108)	
Variables	Definition	Responses	Percentage	Responses	Percentage
Age Group	Below 18	9	1.64%	2	1.85%
	18-25	242	44.16%	55	50.93%
	25-30	218	39.78%	41	37.96%
	30-35	66	12.04%	7	6.48%
	35-40	9	1.64%	2	1.85%
	40-45	3	0.55%	0	0.00%
	Above 45	1	0.18%	1	0.93%
Gender	Male	341	62.23%	70	64.81%
	Female	207	37.77%	38	35.19%
Profession	Student	245	44.71%	59	54.63%
	Private sector	188	34.31%	28	25.93%
	Self employed	57	10.40%	6	5.56%

	Government employee	39	7.12%	11	10.19%
	Unemployed	19	3.47%	4	3.70%
Education	School Level	1	0.18%	0	0.00%
	Secondary Level (+2)	116	21.17%	30	27.78%
	Graduate (Bachelor Degree)	141	25.73%	57	52.78%
	Post-Graduate (Master Level)	290	52.92%	21	19.44%
Income	Below NPR 15000	7	1.28%	2	2.00%
	15000-25000	29	5.29%	11	10.00%
	25000-35000	55	10.04%	9	8.00%
	35000-45000	82	14.96%	8	7.00%
	More than 45000	111	20.26%	15	14.00%
	No Income	264	48.18%	63	58.00%
Driver's License	Yes	325	59.31%	70	64.81%
	No	223	40.69%	38	35.19%
Vehicle Ownership	Two-wheeler (bike, scooters)	258	47.08%	60	55.56%
	Both	21	3.83%	7	6.48%
	Four-Wheeler (car, van, jeep etc.)	9	1.64%	1	0.93%
	None	260	47.45%	40	37.04%
Ride-hailing use	**Yes**	**548**	**83.54%**		
	No	108	16.46%		

- **Ride Hailing Services Use:**

According to 656 respondents answer larger portion representing **"Yes"** responses and a smaller portion representing "No" responses, **548** respondents (83.54%) reported using ride-hailing services, while 108 respondents (16.46%) indicated they had not used such services. Only respondents who have used or use RHS are only further analyzed**.**

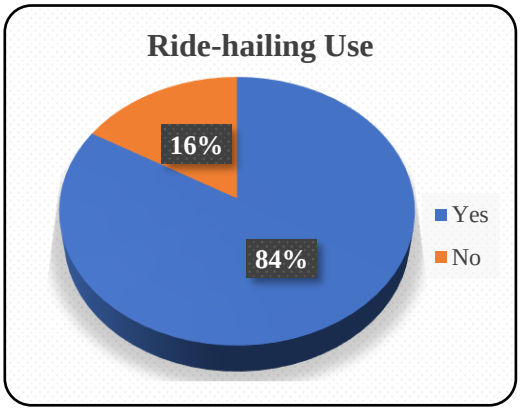


Figure 13: RHS Use

- **Socio-demographic (N=548)**

- The demographic analysis of 548 ride-hailing users in Kathmandu Valley reveals key insights into their characteristics. The majority (83.94%) are young adults aged 18-30, with 44.16% (242) in the 18-25 age group and 39.78% (218) between 25-30.
- **Gender distribution** shows that 62.23% (341) are male, while 37.77% (207) are female.
- **Education levels** indicate that 52.92% (290) hold a Bachelor's degree, 25.73% (141) a Master's, and 21.17% (116) have completed secondary education.
- **Profession**, students (44.71%, 245) and private-sector employees (34.31%, 188) dominate, with smaller shares among self-employed individuals (10.40%, 57), government employees (7.12%, 39), and the unemployed (3.47%, 19).
- **Income** distribution highlights that nearly half (48%, 264) report no earnings, primarily students, while 20% (111) earn above NPR 45,000.
- In terms of **driving eligibility**, 59.31% (325) possess a driver's license, and regarding **vehicle ownership**, 47.08% (258) own two-wheelers, while 47.45% (260) do not own any vehicle.

These findings emphasize that ride-hailing services cater largely to young, educated, and tech-savvy individuals, with students and private-sector employees forming the majority of users.

4.1.2 Adoption Factors: Built-Environment & Attitudinal Factor

- **<u>Relationship Between RHS Use, Transport Stop & Built Environment</u>**

Among the 548 respondents in the study on ride-hailing adoption factors, **88.5% (485)** reported having access to a bus stop, while **11.5% (63)** did not. The built environment plays a crucial role in shaping transportation choices. A majority of respondents **(59.31%, 325)** reside in high-density urban areas, where public transit options, including ride-hailing services, are more readily available. Suburban residents make up **37.96% (208)** of the sample, potentially relying on both public transit and ride-hailing as alternatives to personal vehicles. In contrast, only **2.74% (15)** of respondents live in rural areas, where limited transit infrastructure may make

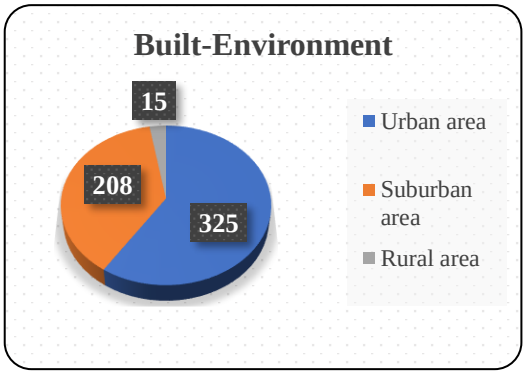


Figure 14: Built environment

ride-hailing a more critical mobility option. This distribution suggests that bus stop availability and built environment characteristics influence the likelihood of ride-hailing usage.

- **Attitudinal Character:**

The attitudinal characteristics of ride-hailing users reveal strong preferences for speed, safety, and affordability. Regarding public transport, **53.5% (293 people)** feel comfortable and safe using it, while **43.2% (237 people)** do not, indicating a divided perception. Similarly, opinions on whether public transport is less stressful than driving are nearly split, with **49.8% (272 people)** agreeing and **50.2% (276 people)** disagreeing. When considering travel speed, **84.3% (462 people)** believe they can travel faster using personal vehicles, reinforcing their preference for private or ride-hailing options, while only **12.4% (68 people)** disagree. Safety and convenience are even stronger factors, as **90.3% (496 people)** feel that personal vehicles are safer and more convenient, with only **12.3% (67 people)** disagreeing.

Table 6: Attitudinal Views of Respondents

Statements	N	Strongly disagree	Disagree	Agree	Strongly agree
I feel comfortable & safe traveling on public transport.	548	10%	36%	46%	8%
Public transport is less stressful than driving.	548	15%	35%	41%	9%
I can travel faster in my personal vehicle.	548	5%	7%	37%	51%
I feel safer & more convenient in my personal vehicle.	548	3%	7%	38%	52%
I like using online services (e.g., net banking, shopping).	548	4%	10%	55%	31%
I like trying new technologies.	548	3%	9%	55%	34%
Public opinion affects my decision to use ride-hailing services.	548	9%	30%	45%	15%
Affordability plays a significant role in my decision to use online ride services over other modes of transport	548	2%	7%	57%	34%

Additionally, the vast majority of respondents are comfortable with digital platforms, with **90.1% (496 people)** stating they like using online services such as net banking and

shopping. In terms of openness to new technologies, **65.1% (357 people)** express an interest in trying them, although **7.3% (40 people)** remain less inclined. Public opinion also plays a role, influencing **60.4% (331 people)** in their decision to use ride-hailing services, though **42.7% (234 people)** do not consider it a factor. However, affordability stands out as the most significant factor, with **90.5% (496 people)** stating that cost plays a major role in their decision to use online ride services, while only **9.2% (52 people)** do not find affordability important.

4.1.3 Adoption Factors- Perceived Benefits

- **Ride-hailing platform & Mode**

The majority of ride-hailing users prefer **two-wheelers (71.53%)**, while **20.62%** use both two-wheelers and four-wheelers, and only **7.85%** rely solely on four-wheelers. Among ride-hailing services, **In-Drive (67.33%)** is the most popular, followed by **Pathao (56.18%)**. Other services like **Tootle (2.29%)**, **Jum Jum (1.83%)**, **Others (0.92%)**, and **Sajilo (0.15%)** have significantly lower usage.

- **Key 7 Perceived Benefits Factors Influencing Use of RHS (N=548):**

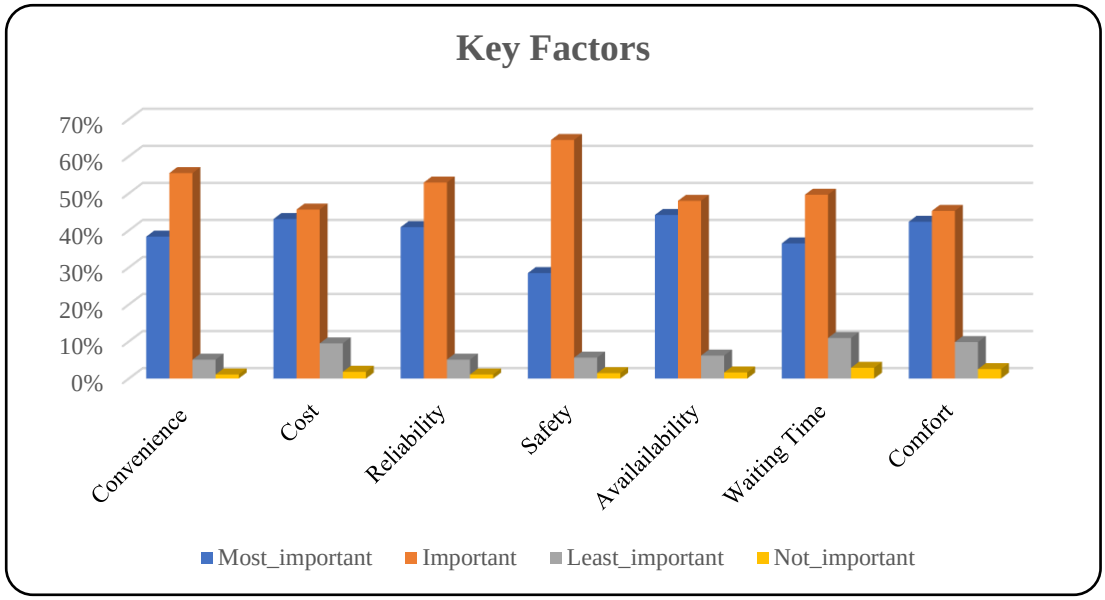


Figure 15: Perceived Benefits Adoption Factors (Summary)

Various factors significantly influence users' choices are **Convenience** (ease of booking and payment) is highly regarded, with **38.32%** of users identifying it as the top priority. **Cost** (trip price and value for money) is also an essential consideration, with **43.07%** of users ranking it as most important. **Reliability** (on-time service) is nearly as important,

with **40.88%** placing it high on their list. **Safety** (trustworthiness of the driver and route monitoring) is a vital consideration but is relatively less prioritized, with **28.47%** of users **(98% female rated most important and important while only 90% male**) labeling it as the most **critical aspect**. **Availability** (access around the clock) is a significant factor for **44.16%** of users, while **waiting time** (the duration for a vehicle to arrive) is a concern for **36.50%** of individuals. Lastly, **comfort** (condition of the vehicle and seating) is an important element for **42.34%** of users. In summary, **cost, availability, and convenience** seem to be the primary factors influencing users' decisions.

- **Reasons of Adoption of Ride Hailing Services Even by Vehicle Owners:**

Out of **549**(multiple choice) responses from **288 vehicle owners**, the top reasons for using ride-hailing were **emergencies (25%)** and **avoiding drinking and driving (19%)**, along with **lack of parking (19%)**. Other reasons included **pick-up/drop-off (10%)**, **miscellaneous (15%)**, and smaller factors like **stressful driving (7%)** or **running late (6%)**.

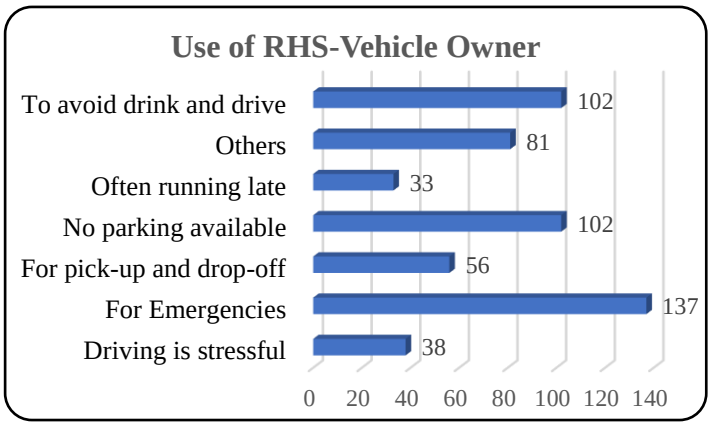


Figure 16: Reasons for Using RHS by Vehicle Owners

4.1.4 Travel Behaviour

- **Trip Purpose:**

The data, based on **1,074**(multiple choice) responses from 548 respondents, highlights the diverse trip purposes for which ride-hailing services are used. People mostly use ride-hailing for **work (17.13%)**, **emergencies (16.48%)**, and **airport or bus stop trips (16.20%)**. Social outings (15.83%) and **school/college (15.36%)** are also common, while **home trips (10.24%)** and **other**

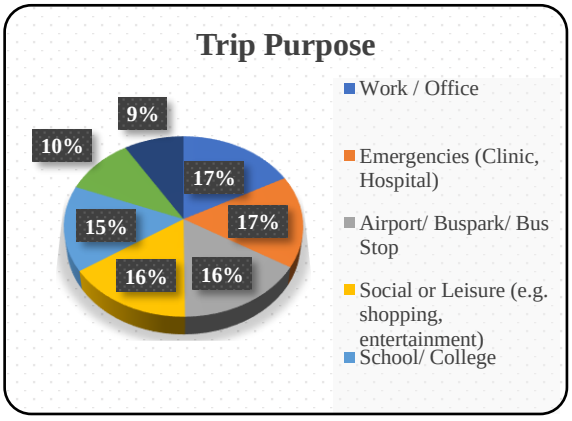


Figure 17: Trip Purpose

reasons (8.75%) are less frequent. These findings underscore the versatility of ride-hailing, serving essential needs such as work commutes and emergencies, facilitating daily travel logistics, and supporting leisure activities. The higher response count compared to the number of respondents suggests that many users rely on ride-hailing for multiple purposes.

- **Frequency:**

Ride-hailing services tend to be utilized on an infrequent basis, with **41.24%** of users indicating they use them **occasionally** and **28.10%** doing so **infrequently**. This implies that the majority of people consider ride-hailing as a supplementary option instead of their main transportation method. **18.43%** utilize the service **2-3 times each week**, while **6.75%** depend on it **3-5 times weekly**, pointing to a group of semi-regular users. Nevertheless, only **3.28%** make use of it on a **daily basis**, and an even **smaller fraction, 2.19%**, use it **several times a day,** demonstrating that ride-hailing has not established itself as a prevalent option for everyday commuting.

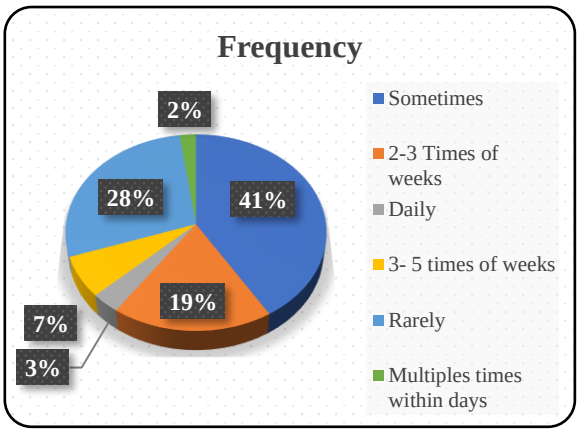


Figure 18: Trip Frequency

- **Time of Using Ride Hailing Services:**

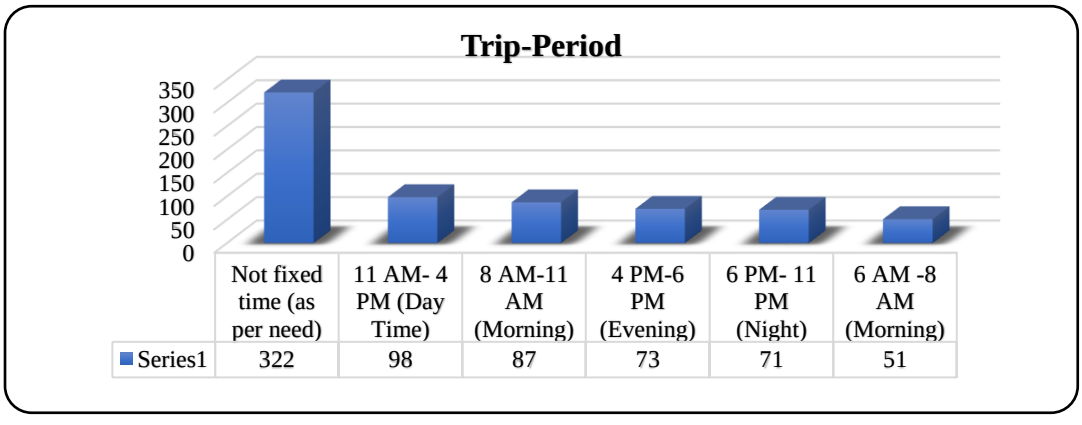


Figure 19: Respondent's Time of Using RHS

Ride-hailing usage is mostly **on-demand**, with **45.87%** using it **as needed**. The most common fixed time slots are **11 AM - 4 PM (13.96%)** and **8 AM - 11 AM**

(12.39%), followed by **evening (10.40%)**, **night (10.11%)**, and **early morning (7.26%)**. This suggests that flexibility is key for most users.

- **Trip Time Duration & Trip Distance:**

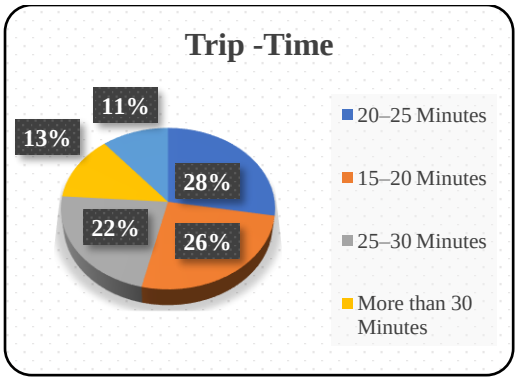


Figure 20: Trip time

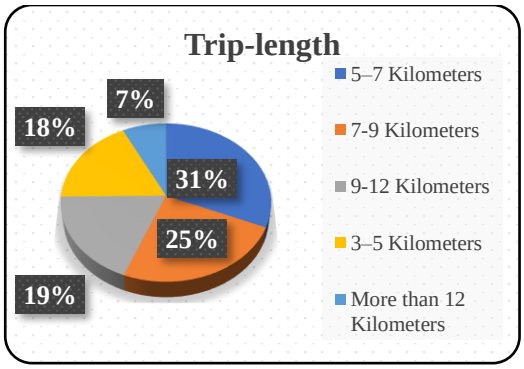


Figure 21: Trip length

Most ride-hailing trips fall within **15–30** minutes, with **27.74% lasting 20–25 minutes**, followed by **25.91% at 15–20 minutes**. Trips over **30 minutes** are less common **(12.96%)**, while **10–15** minutes is the least frequent duration **(10.95%).** In terms of distance, most trips cover **5–9 km**, with **31.39%** traveling **5–7 km** and **24.64% covering 7–9 km**. Longer trips beyond 12 km are relatively rare **(7.30%)**, suggesting that ride-hailing is primarily used for short to mid-range travel.

- **<u>Main Mode of Transport Before Ride Hailing Services:</u>**

Prior to the adoption of ride-hailing services, the majority of users depended on public transportation such as **buses, micros, and tempos (68.07%),** making it the most widely used option. The second most frequent mode of transport was **private vehicles (cars and motorcycles) at 22.63%**. **Walking (5.11%)** and taxis **(2.74%)** were less popular alternatives, while cycling **(1.09%)** and other methods **(0.36%)** were seldom used. This indicates that ride-hailing services have mainly attracted users who previously relied on public transport, followed by individuals who owned private vehicles.

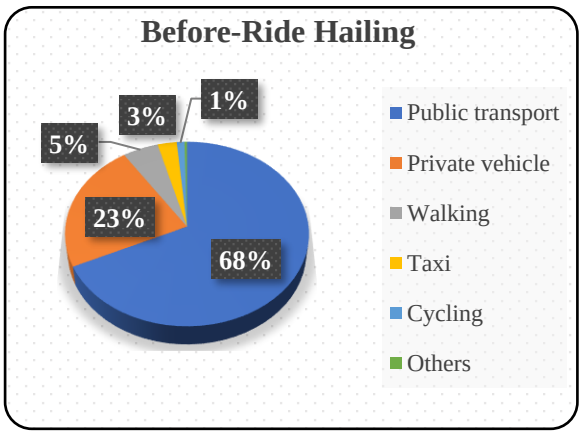


Figure 22: Mode of Transport Before RHS

- **Alternative Mode of Transport in Absence of Ride Hailing:**

Alternative transportation options preferred by 548 participants (multiple-choice) when not utilizing ride-hailing services, with a cumulative total of 707 responses recorded. **Public transport (bus, micro, tempo)** was the most commonly selected option, making up **52%** of the total responses, while private vehicles **(car, motorcycle)** accounted for **27%**. Walking accounted for **14%, taxis** were selected by **6%, and both cycling** and **other transportation** methods represented **1%** each. These findings highlight the varied transportation choices of users, with public transport and private vehicles being the most prevalent alternatives.

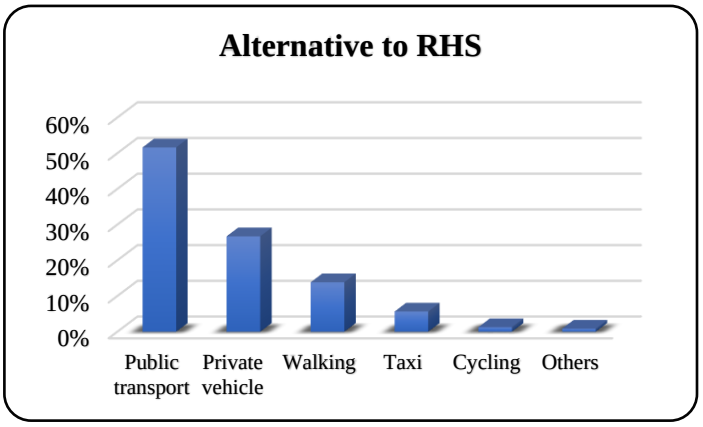


Figure 23: Alternative to RHS

- **Induced Trip:**

"Yes" (96 respondents, 17.52%), These respondents would not have taken place without the availability of ride-hailing services. **"No" (452 respondents, 82.48%)** would have undertaken the journey regardless of the existence of ride-hailing services, indicating that their travel needs existed independently of these options.

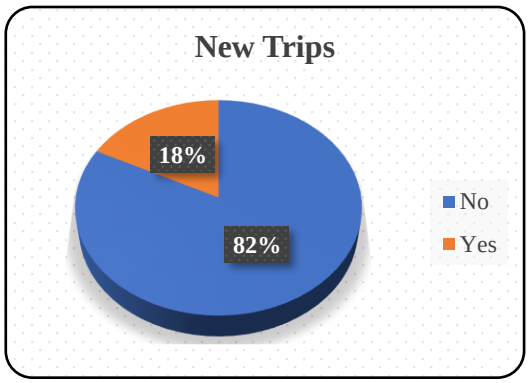


Figure 24: Induced Trips

- **Impact on Leisure Trips:**

Leisure trips (such as for entertainment or shopping) show that a majority of participants **(57.48%) responded with "Yes,"** suggesting that they have noticed an increase in leisure trips due to these services. Conversely, **42.52% of participants indicated "No" i**mplying this indicates that a notable portion of users

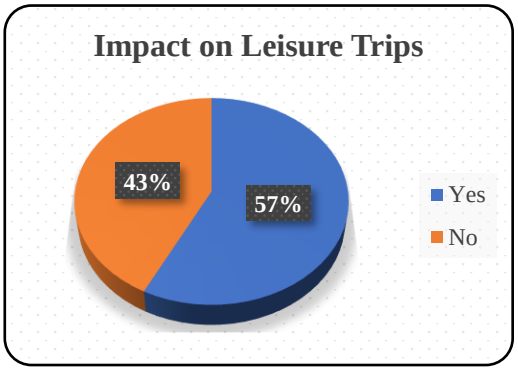


Figure 26: Leisure Trips Due to RHS

has identified online ride services as a convenient and accessible means for leisure activities.

- **Multi-Mode Uses With RHS:**

The survey indicates that a significant portion **(64.60%)** of respondents depend exclusively on online ride-hailing services, while a smaller fraction **(35.40%)** utilizes these services alongside other modes of transportation. Out of 35.40% who use multi-mode, **61.34%** of users combine ride-hailing with public transportation, 25.26% pair it with personal cars or bicycles, 12.37% incorporate walking with ride-hailing. This implies that numerous users choose ride-hailing to enhance public transit or for particular segments of their trip, such as navigating through traffic or arriving at a more accessible destination.

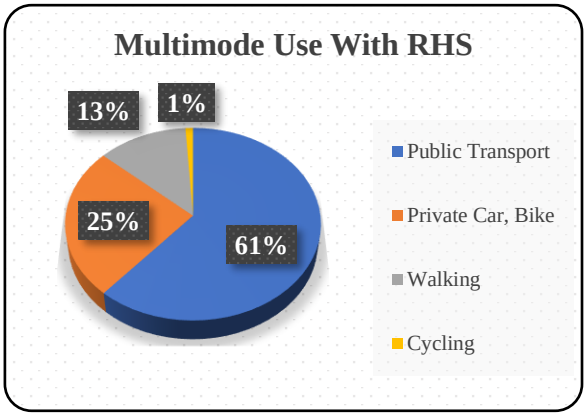


Figure 27: Multimode with RHS

- **Impact on Travel Time, Transportation Use & Walking Habit Due to Use of RHS:**

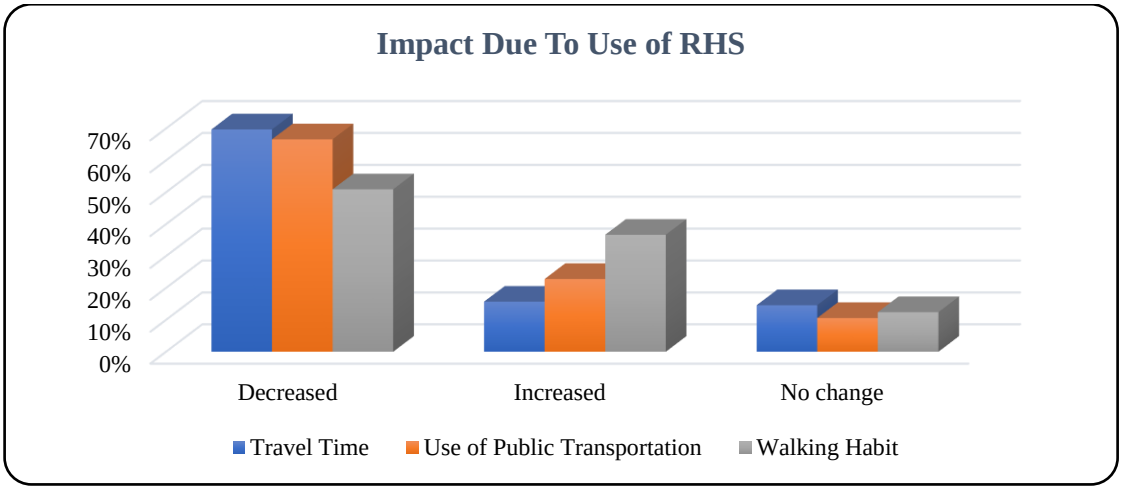


Figure 28: Impact on Mode of Transportation Due to Use of RHS

The data from 548 respondents reveals changes in travel time, use of public transportation, and walking habits. Most respondents **(70%)** reported a **decrease** in t**ravel time**, while **16%** saw an **increase** and **15% experienced no change**. Regarding **public transportation**, **67%** indicated a **decrease** in usage, **23%** saw an **increase**, and **11%**

noted **no change**. As for **walking habits**, **51%** reported a **decrease**, **37% an increase**, and **12%** experienced **no change**. This shows a trend of reduced travel time and public transportation use, with walking habits varying more widely.

4.1.5 Data Analysis - Factors Influencing Adoption of RHS

Explanatory Factor Analysis (EFA: N=548)

The **Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy** is **0.784**, which indicates that the sample is suitable for factor analysis. The KMO value ranges from 0 to 1, where values above 0.6 are considered acceptable, and values above 0.8 are considered good. A value of **0.784** suggests that the data is adequately suited for factor analysis, as there is a sufficient correlation among variables.

Table 7: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**0.784**
Bartlett's Test of Sphericity	Approx. Chi-Square	1090.807
	df	36
	Sig.	<.001

The **Bartlett's Test of Sphericity** has an **approximate Chi-Square value of 1090.807** with **36 degrees of freedom (df)** and a **significance level (Sig.) of <0.001**. The significance value being less than **0.05** indicates that the correlation matrix is not an identity matrix, meaning that the variables are significantly correlated and suitable for factor analysis. The initial communalities indicate the proportion of variance in each variable explained by all the factors before the extraction process, while the extraction communalities represent the variance explained after applying Principal Axis Factoring.

Table 8: Communalities

Variables	Initial	Extraction
Cost	0.216	0.452
Reliability	0.384	0.498
Safety	0.418	0.581
Availability	0.285	0.362
Waiting Time	0.232	0.296
Comfort	0.315	0.390
I like using online services	0.343	0.637
I like trying new technologies	0.313	0.451
Affordability	0.222	0.316
Extraction Method: Principal Axis Factoring.		

- **Initial Communalities**: The initial communalities (before extraction) represent the amount of variance each variable shares with the overall data. For example, "Cost" has an initial communality of 0.216, meaning only 21.6% of its variance is explained by the underlying factors before extraction. Other variables, such as "Safety" (0.418) and "Reliability" (0.384), have higher initial communalities, meaning they share more variance with the factors.
- **Extraction Communalities**: After extraction using Principal Axis Factoring, the communalities represent how much of the variance is explained by the extracted factors. For instance, "Cost" has an extraction communality of 0.452, which is higher than its initial value, suggesting that the extracted factors explain more of the variance for this variable. Similarly, the communality for "Reliability" increases from 0.384 to 0.498, and for "Safety," it increases from 0.418 to 0.581, indicating that these variables are better explained by the factors after extraction.
- **Low Extraction Values**: Variables like "Affordability" (0.316) and "Waiting Time" (0.296) have relatively low extraction communalities, indicating that the factors explain a smaller portion of the variance in these variables

The **"Total Variance Explained"** table shows how much variance in the data is accounted for by each factor before and after extraction, as well as after rotation. Initially, Factor 1 explains 34.946% of the variance, and the cumulative variance increases with each factor. After extraction, the variance explained by each factor reduces slightly, with Factor 1 explaining 28.820% of the variance. The rotation process further alters the distribution of variance, with Factor 1 explaining 2.333 of the variances after rotation.

Table 9: Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.145	34.946	34.946	2.594	**28.820**	28.820
2	1.455	16.166	51.113	0.968	**10.755**	39.575
3	0.990	11.004	62.117	0.420	**4.670**	**44.245**
4	0.716	7.957	70.074			
5	0.693	7.697	77.771			
6	0.608	6.751	84.522			

7	0.535	5.944	90.466
8	0.449	4.990	95.456
9	.409	4.544	100.000

Table 10: Factor Loadings (Pattern Matrix)

Variables	Factor		
	Service Quality	**Technology Adoption**	**Cost Sensitivity**
Reliability	**0.703**		
Comfort	**0.625**		
Availability	**0.604**		
Safety	**0.595**		**0.333**
Waiting Time	**0.537**		
I like using online		**0.791**	
I like trying new tech		**0.653**	
Cost			**0.653**
Affordability		**0.337**	**0.363**

Table 11: Factor Correlations

Factor	Service Quality	Technology Adoption	Cost Sensitivity
1	1.000	0.302	0.454
2	0.302	1.000	0.269
3	0.454	0.269	1.000

Three important factor influencing ride-hailing adoption were found to be according to the analysis. **Factor:1 (Service Quality)**, accounting for **28.82%** variance, consists of reliability (e.g. punctuality), safety (e.g. driver/route monitoring) and captures core operational performances. **Factor:2 (Technology Adoption)** accounting for **10.76%** is driven by consumers preference for online services such as banking/shopping and would indicate that tech savvy is an adoption driver. **Factor:3 (Cost Sensitivity)** contributes **4.67%** and it is trip price affordability/value for money. There is a moderate relationship between factors: Service Quality and Cost Sensitivity **(r=0.454)** indicate that those with cost sensitivity concerns, still value excellent service quality. On the whole, service quality and tech adoption are on top, with cost secondary yet connected.

4.1.5.1 Most Important Adoption Factors:

Table below outlines the relative importance of various factors influencing ride-hailing adoption, based on their eigenvalues and the percentage of variance they explain. Service

Quality takes the lead with an eigenvalue of **3.145**, accounting for **28.820%** of the variance, suggesting that elements like service reliability, safety, and comfort are the most significant drivers of adoption. Following closely is Technology Adoption, with an eigenvalue of **1.455 (10.755% variance)**, highlighting the crucial role of digital literacy and openness to adopting new technologies in mobility services. Cost Sensitivity ranks third, with an eigenvalue of **0.990 (4.670% variance)**, pointing to the fact that while cost is a consideration, it plays a smaller role compared to service quality and technological readiness in influencing decisions to use ride-hailing services.

Table 12: Weighted Importance According to Total Variance Explained

Factors	Eigenvalue	% of Variance	Importance Rank
Service Quality	3.145	28.820	1
Technology Adoption	1.455	10.755	2
Cost Sensitivity	0.990	4.670	3

4.1.5.2 Correlational Analysis Between Extracted Factors From FEA

Table 13: Spearman's Correlation Analysis Between Extracted Factor From EFA

Correlation Between	Spearman's ρ	Significance (p-value)
Service Quality ↔ Technology Adoption	0.325**	$p < 0.001$
Service Quality ↔ Cost Sensitivity	0.578**	$p < 0.001$
Technology Adoption ↔ Cost Sensitivity	0.366**	$p < 0.001$

The Spearman correlation analysis indicates a strong relationship between Service Quality and Cost Sensitivity ($\rho = 0.578$, $p < 0.001$), suggesting that users who perceive higher service quality are more likely to consider the cost worthwhile. A moderate correlation exists between Service Quality and Technology Adoption ($\rho = 0.325$, $p < 0.001$), indicating that improved service quality encourages technology adoption in ride-hailing services. Similarly, Technology Adoption and Cost Sensitivity ($\rho = 0.366$, $p < 0.001$) exhibit a moderate correlation, implying that while users who embrace technology may also be cost-conscious, cost sensitivity is shaped by additional factors. These findings emphasize the interplay between service quality, technology adoption, and cost perceptions in influencing ride-hailing service preferences.

4.1.6 Qualitative Analysis of Data

The adoption of RHS is influenced by socio-demographic characteristics, built-environment factors, and user attitudes. Based on the responses given by the respondents below is the qualitative interpretation with linking it to the quantitative data of the findings.

Youth-Driven Mobility Revolution

Young adults (18–30 years) dominate RHS usage due to their tech-savviness and alignment with digital lifestyles. This generation prioritizes convenience (e.g., app-based booking, 24/7 availability) and flexibility, which traditional public transport often fails to offer.

- **Impact:** Ride-hailing caters to spontaneous urban lifestyles, enabling leisure trips (shopping, entertainment) and addressing emergencies (medical needs). This reflects a broader cultural shift toward on-demand services in fast-paced urban environments.

Bridging Gaps in Urban Infrastructure

- Despite 88.5% of users living near public transport stops, RHS thrives as a solution to systemic inefficiencies. Overcrowded buses, unpredictable schedules, and poor last-mile connectivity make ride-hailing a more reliable and time-saving alternative.
- **Impact:** RHS substitutes public transport for 68% of users, exposing weaknesses in Kathmandu's transit systems. Suburban residents (38%) might rely on RHS as a primary mode due to sparse public transport coverage, highlighting urban-rural mobility divides.

Safety and Gender Dynamics

- Data suggests safety is a critical driver, especially for female users (38% of respondents). 98% female priorities safety as most important & important while only male 90%. Night-time usage (10.11%) and emergencies (24.95%) underscore RHS's role in providing secure mobility in a city where public spaces are often perceived as unsafe.
- **Impact:** Females prioritize RHS for secure travel, reflecting broader societal concerns about gender safety in Kathmandu's urban environment.

Economic Accessibility vs. Service Quality

- While cost sensitivity drives adoption among students and low-income groups (48% report no income), service quality (reliability, comfort) outweighs affordability for many. Users are willing to pay more for punctuality, safety, and app convenience.
- **Impact:** RHS is not merely a "budget option" but a strategic choice for balancing cost and quality. High-income users (20%) prioritize comfort for leisure trips, indicating RHS's role in catering to diverse economic segments.

Urban Challenges as Catalysts

- **Parking Chaos and Traffic Congestion:** Vehicle owners (47%) use RHS to avoid Kathmandu's mismanage parking shortages and traffic jams, particularly in core areas.
- **Short-Distance Dominance:** Most trips (56%) are 5–9 km, aligning with urban sprawl and congestion. RHS excels in navigating dense, chaotic streets where personal vehicles or buses are impractical.

- **Impact:** A significant portion of vehicle owners (47%) use (RHS) to navigate Kathmandu's severe parking shortages and chronic traffic congestion, particularly in the city's core areas. With limited formal parking infrastructure, RHS has become a go-to solution for many. However, the situation is further complicated by the rapid adoption of ride-hailing services like Pathao, InDrive, and others. While RHS are marketed as efficient and congestion-reducing alternatives, in practice, they add more vehicles to the roads—often circling, waiting for passengers, or stopping in undesignated areas, which disrupts traffic flow and consumes valuable curbside space. As both private vehicle ownership and ride-hailing service usage continue to grow, the strain on urban mobility infrastructure intensifies. This dual pressure not only amplifies demand for RHS but also exacerbates unmanaged roadside parking, contributing to gridlock and reduced walkability. Without a coordinated urban mobility plan and stricter enforcement of parking regulations, the convenience offered by RHS and ride-hailing may come at the cost of sustainable city living.

Technology as an Enabler

- High digital literacy (78% have bachelor's/master's degrees) drives app adoption. Users value seamless integration of technology (e.g., Pathao/In-Drive apps) for trip planning and payment.
- **Impact:** Tech readiness positions RHS as a gateway to modern urban living, appealing to younger, educated demographics seeking efficiency and innovation.

Ride-hailing adoption in Kathmandu is not just a transportation trend but a response to systemic urban challenges—poor public transit, safety concerns, traffic congestion, and parking scarcity. It reflects a population adapting to urbanization through flexible, tech-driven solutions. While RHS fills critical mobility gaps, its growth also pressures policymakers to improve public transport and regulate urban sprawl. Ultimately, ride-hailing services are reshaping Kathmandu's mobility culture, blending convenience, safety, and modernity into the fabric of daily life.

4.1.7 Interpretations – Impact on Travel Behavior Due to RHS

Interconnections: Adoption Factors → Impact on Travel Behavior Based on EFA (Exploratory Factor Analysis) and Survey Data (N=548)

- **Trip Frequency**

Adoption Factor	Impact on Trip Frequency	EFA Factor Loading
Convenience	Higher sporadic usage: 41.24% use ride-hailing "occasionally" (as per need).	Service Quality (0.703)
Cost	Lower frequency for long trips: Only 12.96% use ride-hailing for trips >30 minutes.	Cost Sensitivity (0.653)
Availability	24/7 access drives irregular use: 45.87% use ride-hailing at "not fixed times."	Service Quality (0.604)
Reliability	Peak-time commutes: 12.39% use ride-hailing during morning rush hours (8–11 AM).	Service Quality (0.703)

- **Trip Purpose**

Adoption Factor	Impact on Trip Purpose	EFA Factor Loading
Safety	Emergencies: 16.48% use ride-hailing for clinics/hospitals.	Service Quality (0.595)
Convenience	Social/leisure trips: 15.83% use ride-hailing for shopping/entertainment.	Service Quality (0.703)
Cost	Work commutes: 17.13% use ride-hailing for office trips due to affordability.	Cost Sensitivity (0.653)
Technology Adoption	Multi-mode trips: 35.40% combine ride-hailing with public transport (e.g., first-mile solutions).	Technology Adoption (0.791)

- **Mode Shift (Previous Mode, Alternative Mode, Waiting Time, Reduced Transportation Use, Walking Habit)**

Category	Previous Mode (Single-Choice)	Alternative Mode (Multiple-Choice)	Adoption Factor Driving Shift
Public Transport	68.07%	52%	Reliability: Users revert to buses/micros when ride-hailing is unavailable but still perceive them as less reliable.
Private Vehicle	22.63%	27%	Cost Sensitivity: Users with private vehicles revert to them to avoid surge pricing or unavailability.
Walking	5.11%	14%	Safety: Walking increases marginally due to reach to pick up and drop stations.

- **Induced Trips**

Adoption Factor	Impact on Induced Trips	EFA Factor Loading
Cost Sensitivity	17.52% of trips would not occur without ride-hailing due to affordability.	Cost Sensitivity (0.653)
Convenience	Spontaneous trips: 57.48% increase in leisure trips due to ease of booking.	Service Quality (0.703)
Convenience	Emergencies: 24.95% use ride-hailing for urgent trips (e.g., medical).	Service Quality (0.703)

- **Leisure Trips**

Adoption Factor	Impact on Leisure Trips	EFA Factor Loading
Comfort	Longer leisure trips: 27.74% tolerate 20–25-minute rides for social activities.	Service Quality (0.625)
Technology Adoption	App-based ease: 90.10% prefer digital platforms for seamless leisure trip planning.	Technology Adoption (0.791)
Safety	Night-time leisure trips: 10.11% use ride-hailing at night for entertainment.	Service Quality (0.595)

- **Summary of Key Relationships Between Adoption & Travel Behavior**

Adoption Factor	Travel Behavior Impact
Convenience	Increased leisure trips (57.48%), sporadic usage (41.24%).
Cost	Short trips (31.39%), induced demand (17.52%).
Availability/Reliability	Peak-time usage (12.39% morning), reduced travel time (69.90%).
Safety/Comfort	Reduced walking (51.10%), night-time reliance (10.11%).
Built-Environment	Public transport substitution (66.80%), high-frequency use.
Attitudinal Preferences	Stress avoidance (7%), situational emergency trips (24.95%).

Table 14: Socio-Demographics → Adoption Factors → Travel Behaviour

Socio-Demographic	Key Adoption Factors	Travel Behavior Outcomes	Interpretation (Kathmandu Valley Context)
Age (18–30 years, 83.94%)	- Cost Sensitivity - Convenience	- Induced Demand (**17.52%**) -Leisure Trips (**57.48%**)	Youth prioritize affordability due to limited income. Leisure trips reflect urban lifestyle shifts. Public transport proximity (**88.50%**) reduces usage due to ride-hailing's flexibility.
Students (44.71%)	- Cost Sensitivity - Safety	- Short Trips (**31.39%**) -Reduced Walking (**51.10%**	Students substitute buses/micros for campus commutes. Safety (**64.42%**) drives night-time adoption.
Income (Low: 48.18%)	- Cost, Availability	- 3–5 km trips (**17.88%**)	Low-income groups use ride-hailing for essential mobility gaps.
Income (High: 20.26%)	- Comfort	- 20–25-min trips (**27.74%**)	High-income users prioritize comfort for social/leisure trips.
Vehicle Owners (47.08%)	- Parking Avoidance (**19%**)	- Situational Usage (**19%**)	Motorcycle owners use ride-hailing to avoid parking chaos in areas like Thamel. Emergencies (**24.95%**) drive adoption.
Urban Dwellers (59.31%)	- Reliability	- Peak-Time Commutes (**12.39%**)	Urban congestion (e.g., Ring Road) makes reliability critical. Ride-hailing substitutes public transport despite proximity.
Females (37.77%)	- Safety	- Night-Time Usage (**10.11%**)	Females prioritize safety for night trips due to Kathmandu's perceived insecurity.
Education (Bachelor's/Master's: 78.65%)	- Tech-Savviness	- Multi-Mode Integration (**61.34%**)	Educated users leverage digital platforms (e.g., Pathao) for seamless trips. Leisure trips reflect rising disposable income.

Interpretation of Travel Behavior in Urban Ride-Hailing Service (RHS) Adoption

The travel behavior data reveals critical insights into *why* and *how* urban populations adopt ride-hailing services, reflecting broader urban mobility dynamics:

Trip Purpose: Versatility in Urban Life

- **Work & Emergencies (33% combined)**: RHS is a reliable alternative to unpredictable public transport (e.g., delayed buses) or personal vehicles in congested cities.
- **Leisure & Social Trips (16%)**: Reflects RHS's role in enabling *spontaneous urban lifestyles*, where convenience outweighs cost for social activities.
- **Airport/Bus Stop Connectivity (16%)**: Highlights RHS as a solution for *last-mile gaps* in formal transit networks, common in fragmented urban infrastructures.

RHS caters to fragmented urban needs—bridging formal transport gaps and supporting time-sensitive, multi-purpose mobility.

From Rigid Schedules to Spontaneous Mobility

- **Flexibility Over Routine:** The dominance of **on-demand usage** (45.87% use RHS "as needed") highlights a shift away from fixed travel schedules. Urban dwellers prioritize spontaneity, using RHS for unplanned trips like last-minute shopping, social outings, or emergencies. This reflects a cultural move toward instant gratification and time-sensitive urban lifestyles.
- **Peak-Time Reliance:** While most trips are sporadic, **12.39% use RHS during morning rush hours**, indicating its role in bypassing congested public transport. Users trade the stress of crowded buses for the predictability of app-based rides, even at higher costs.

Frequency of Use: Supplementary, Not Primary

- **Low Daily Use (3.28%)**: Urban users rely on RHS for *niche scenarios* (e.g., late-night trips, bad weather) rather than daily commutes, likely due to cost barriers or preference for cost-effective modes (e.g., public transport).
- **Occasional Use Weekly (41%)**: Reinforces RHS as a *strategic tool* for irregular urban demands (e.g., meetings, emergencies), not a systemic replacement for existing transport.

- RHS thrives in cities as a *flexible supplement* to rigid transit systems but struggles to dominate routine travel due to economic and infrastructural constraints.

Short-Distance Dominance: Addressing Urban Frictions

- **Efficiency in Congestion:** Most trips are **short to mid-range (5–9 km, 56%)** and last **15–30 minutes (76%)**, mirroring Kathmandu's fragmented urban sprawl and traffic jams. RHS thrives where traditional modes fail—navigating narrow lanes, avoiding parking hassles, and offering door-to-door convenience.
- **Short Durations (15–30 minutes, 76.09%)**: Reflects RHS's efficiency in navigating dense urban grids, avoiding the hassles of driving or waiting for buses.
- **Micro-Mobility Preference:** The preference for **two-wheelers (71.53%)** underscores their agility in dense traffic, making RHS a practical solution for quick, localized trips that cars or buses cannot efficiently serve.

RHS succeeds in cities by solving *local inefficiencies*—short trips that are logistically cumbersome with traditional modes.

Shift from Public Transport: A Competitive Edge

- **68% Relied on Buses Pre-RHS**: Users migrated to RHS for *speed, comfort, and reliability*—pain points in overcrowded or delayed urban public transport.
- **16% Reduced Public Transport Use Post-RHS**: Signals a *behavioral shift* where RHS competes with—rather than complements—public transit in cities with poor service quality.

RHS adoption exposes gaps in urban transit systems, pressuring cities to improve public transport or risk mode fragmentation.

Induced Trips: Creating New Urban Demand

- **Unplanned Trips: 17.52% of trips are "induced"**—trips that wouldn't exist without RHS. This includes impulsive leisure activities (shopping, dining) or late-night socializing, fueled by the ease of booking. RHS isn't just replacing old trips; it's **expanding VKT** and traffic congestion.
- **Leisure: 57% report increased leisure trips**, illustrating how RHS enables Kathmandu's youth to embrace a more dynamic, consumerist lifestyle. Night-

time usage (10.11%) further underscores its role in facilitating safer, after-dark mobility.

RHS isn't just replacing trips—it's *expanding urban economic activity* by making travel more accessible and spontaneous as well as increasing no of trips which is leading to the more traffic management issues.

Safety as a Behavioral Catalyst

- **Gender-Specific Shifts:** Female users (37%) prioritize RHS for **commuting for work, night travel and emergencies**, avoiding walking and perceived risks of using public transport. This reflects broader gender safety concerns in Kathmandu's public spaces, where women strategically adopt RHS to reclaim mobility autonomy.
- **Reduced Walking: 51% walk less** post-RHS adoption, trading pedestrian commutes for perceived safety and convenience, even for short distances.

Multi-Modal Integration: Hybrid Urban Mobility

- Among the total users, **35.40% adopt a multimodal travel approach**, and notably, **61.34% of these multimodal user's** pair ride-hailing services (RHS) with public transport. This reveals a clear behavioral trend: a large portion of users rely on RHS not as a primary mode, but as a **support system to public transportation**—especially to bridge first- and last-mile gaps. This trend indicates that users are actively seeking flexible, efficient, and time-saving ways to navigate urban areas where public transport alone doesn't fully meet their mobility needs. It also underlines the importance of **intermodal coordination** in enhancing the overall commuting experience. Such behavior reflects a growing shift toward **integrated mobility**, where users tailor their journeys using different modes for different segments of a trip.

- **25% Use RHS with Private Vehicles**: Indicates strategic avoidance of urban hassles (e.g., parking fees, traffic) for specific trip segments.

Built Environment and Accessibility:

- **88.5%** of users have access to **public transit stops**, yet still opt for ride-hailing, highlighting its role in last-mile connectivity.

- **59.31% reside in high-density urban areas**, where ride-hailing competes with existing public transit, while **37.96%** suburban users see it as a primary alternative.

Economic Stratification in Mobility Choices

- **Low-Income Pragmatism:** Students and no-income groups (48%) use RHS sparingly, prioritizing **cost-effective short trips** (e.g., emergencies, campus commutes). For them, RHS is a situational tool rather than a daily habit.
- **High-Income Comfort:** Affluent users (20%) leverage RHS for **comfort-driven leisure trips** (e.g., 20–25-minute rides to malls), treating it as a lifestyle upgrade rather than a necessity.

Urban Infrastructure as a Silent Driver

- **Parking Avoidance:** Vehicle owners (47%) use RHS to dodge Kathmandu's notorious parking chaos, especially in commercial hubs like Thamel, New-road and Sundhara etc. This behavioral shift highlights how **infrastructure deficits** (e.g., limited parking, narrow roads) indirectly fuel RHS demand.

The impact of RHS on travel behavior reveals a city in transition. Kathmandu's residents are adopting hybrid, tech-driven strategies to navigate systemic inefficiencies—poor public transport, traffic congestion, and safety concerns. While RHS empowers users with flexibility and safety, it also risks deepening inequalities (e.g., cost barriers for low-income groups) and undermining public transit viability. Policymakers must address these tensions by improving public transport reliability, regulating RHS to ensure equitable access, and integrating it into a cohesive urban mobility plan. Ultimately, ride-hailing is not just changing how people move—it's reshaping Kathmandu's urban identity, blending tradition with modernity in a rapidly evolving landscape.

4.2 Intensity Map Preparation of Trips

Location marking

The locations were marked in google earth or extracted from previous places and intersection data from Open Street Map and verified. The marked locations were exported in Kmz format for importing in GIS.

Data Import and GIS mapping

The exported data in Kmz form were imported in GIS application and merged with frequency data form the collected file. Then Surface was created from these points. The generated surface was classified based on frequency interval and the final intensity(hotspot) map for the ride-hailing trips was generated.

Strong demand for ride-hailing services as they are increasingly relying on such services to fulfill transportation needs. The highest demand for ride-hailing services falls in the major urban areas of Kathmandu where people regularly make pickups and drop-offs on a daily and weekly basis. Prominent points include Bagbazar, Pulchowk Campus, New Plaza, Koteshwor, Kalanki, Airport, Balaju, and Anamnagar. In addition to this, peri-urban areas including Kapan and Lubhu show relatively low demand of pick and drop location.

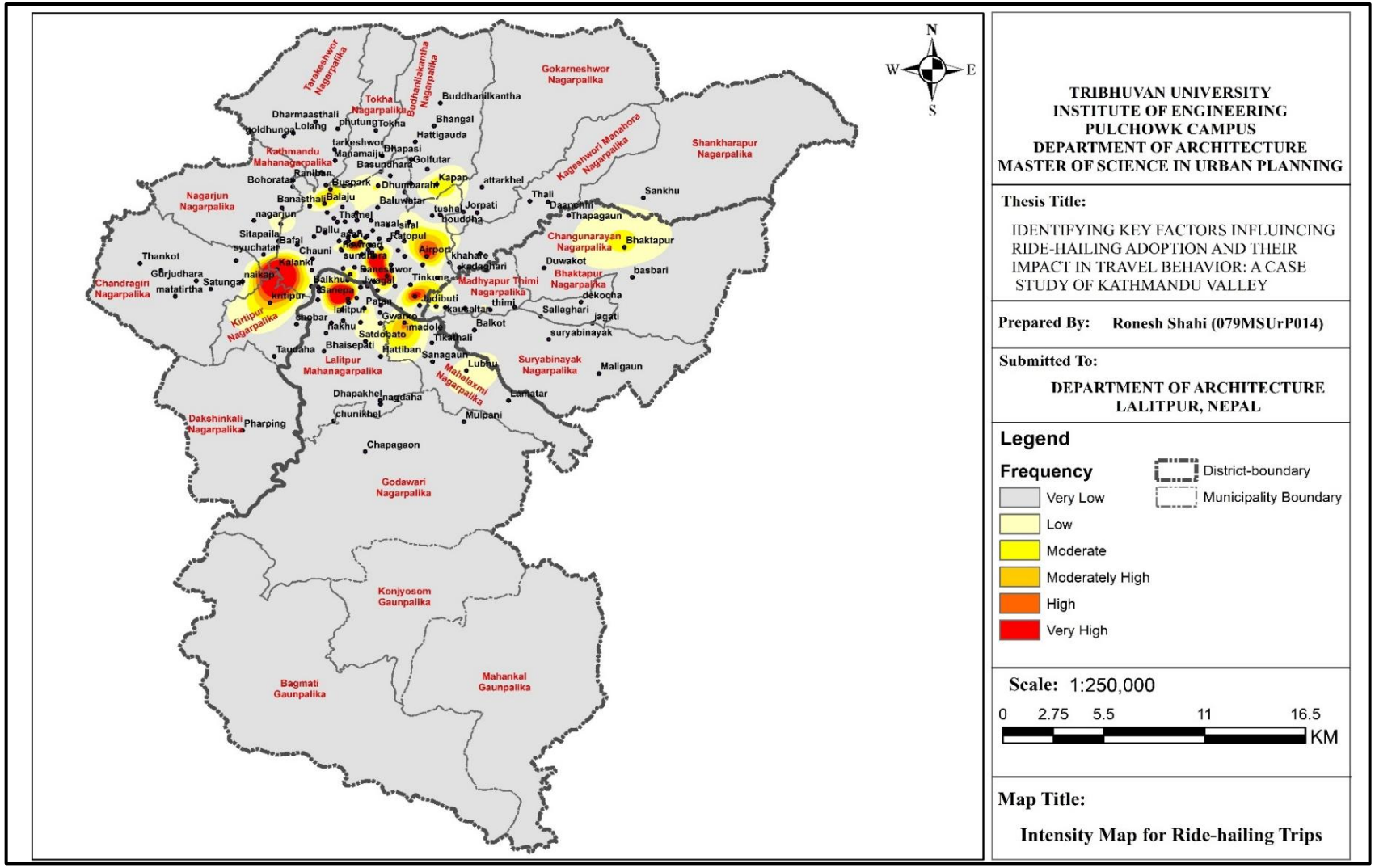


Figure 29: Intensity Map of Trip Distributions

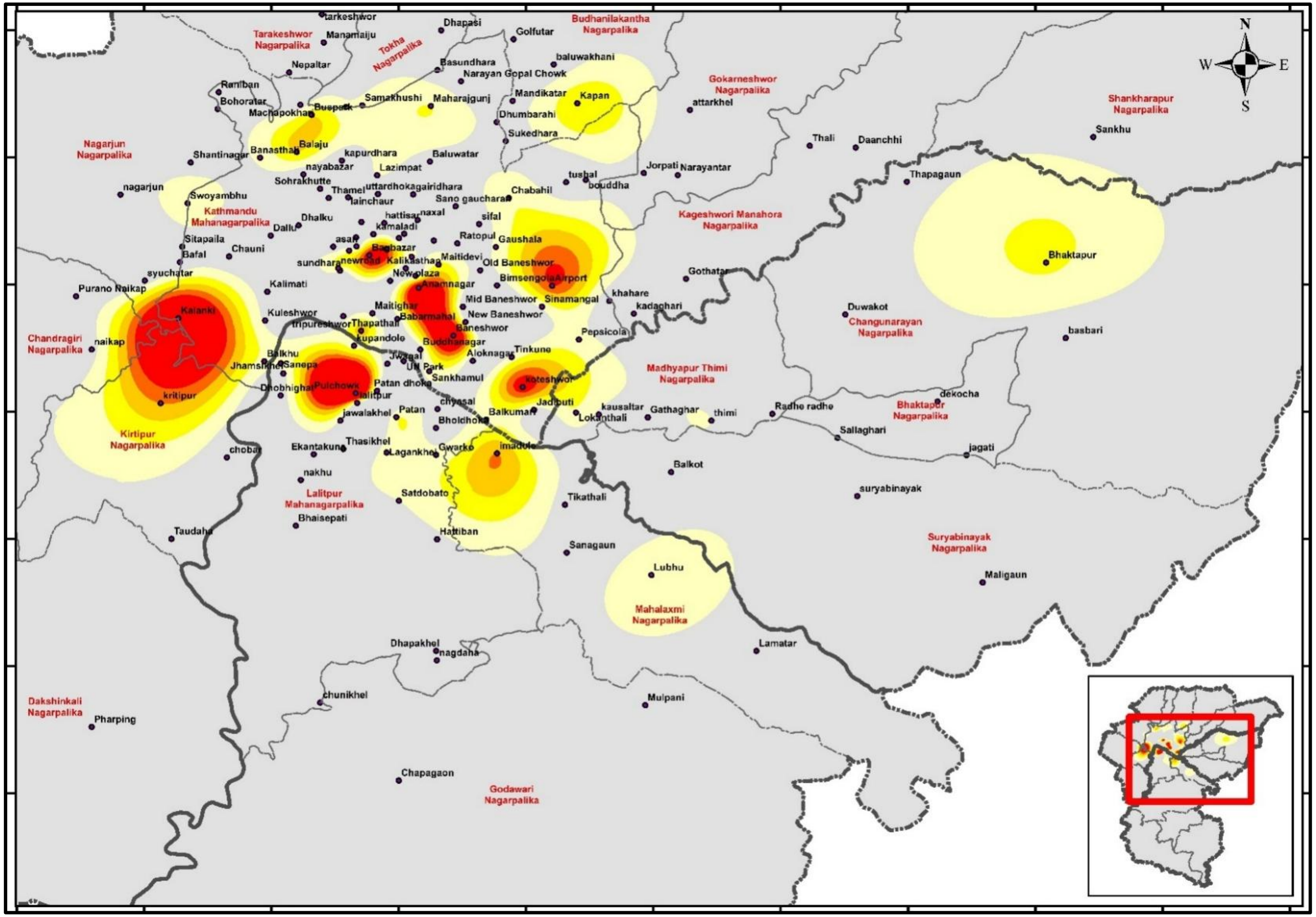


Figure 30: Intensity Map of Distribution (Blow-up Map)

4.3 Findings From Regulatory, Policy Formulating Body & Stakeholders Interview

4.3.1 Ministry of Physical Infrastructure and Transport (MoPIT)

Existing Legal Framework:

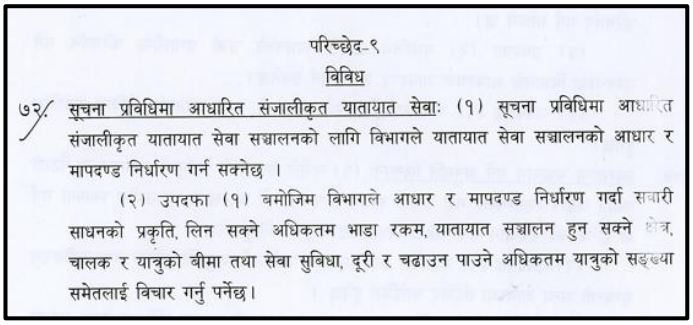
The current legal structure for ride-hailing services in Nepal is undergoing revision, with a draft bill pending approval from the Ministry of Law before it moves to the House of Representatives. Drafted guidelines have also been forwarded to the Department of Transport Management for further evaluation. Nevertheless, conflicts between Section 8(2) of the Motor Vehicles and Transport Management Act of 1993 and recently passed provincial regulations remain. Efforts are being made to address these discrepancies through discussions with provincial authorities.

Addressing the 2020 Patan High Court Judgment:

The 2020 Patan High Court ruling highlighted the need for flexible legal structures for ride-hailing services. Although efforts are underway to integrate these recommendations into forthcoming laws, progress has been sluggish due to the complexities involved in aligning federal and provincial regulations. At present, ride-hailing services enhance accessibility in urban regions but also contribute to traffic congestion owing to inadequate infrastructure.

Progress on Federal Law Development:

A proposed act has been submitted to the Ministry of Law to officially acknowledge ride-hailing services under the Industrial Enterprises Act and to manage aspects such as registration, licensing, and oversight. Obstacles include the lack of universal regulatory standards, growing public demand, and challenges in coordinating actions among provinces. Here is the proposed act regarding the ride-hailing industry,



परिच्छेद-९

विविध

७२. सूचना प्रविधिमा आधारित संजालीकृत यातायात सेवाः (१) सूचना प्रविधिमा आधारित संजालीकृत यातायात सेवा सञ्चालनको लागि विभागले यातायात सेवा सञ्चालनको आधार र मापदण्ड निर्धारण गर्न सक्नेछ ।

(२) उपदफा (१) बमोजिम विभागले आधार र मापदण्ड निर्धारण गर्दा सवारी साधनको प्रकृति, लिन सक्ने अधिकतम भाडा रकम, यातायात सञ्चालन हुन सक्ने क्षेत्र, चालक र यात्रुको बीमा तथा सेवा सुविधा, दूरी र चढाउन पाउने अधिकतम यात्रुको सङ्ख्या समेतलाई विचार गर्नु पर्नेछ।

Figure 31: Draft Act Regarding RHS by MoPIT

72. Information Technology-Based Ride-Hailing Service: (1) The department may determine the basis and criteria for operating a ride-hailing service based on information

technology. (2) As per subsection (1), while determining the basis and criteria, considerations shall include the nature of vehicles, maximum and minimum fare, operational feasibility of transportation, insurance for drivers and passengers, service convenience, distance, and the maximum number of passengers per ride.

Role of Provincial Governments:

Provincial authorities have a crucial role in the regulation of ride-hailing services. To ensure coherence and tackle regulatory overlaps, a committee of nine members, comprising secretaries and deputy secretaries from relevant ministries, has been established. Acknowledging the necessity for a cohesive federal framework, the Ministry is diligently working to create one that prevents discrepancies across provinces.

Safety and Oversight Mechanisms:

Key issues of concern include safety and regulatory compliance. Draft regulations in development feature requirements for GPS tracking, background checks for drivers, and vehicle inspections, which will be enforced by the Department of Transport Management. Additionally, data collection for ride-hailing services is currently disorganized due to a lack of legal requirements. A centralized data system is essential for effective monitoring and regulation of operations but lacks it.

Industrial and Economic Perspective:

From an industry and economic standpoint, the Ministry advocates for recognizing ride-hailing as a service-driven industry and is adjusting policies accordingly. Oversight of foreign investment is managed through the Department of Industry, which encourages investment while emphasizing the need for sound regulations before promoting significant investments.

Legal and Regulatory Gaps:

Despite efforts to regulate ride-hailing, **legal gaps remain**, especially for **single-vehicle services**, as the government prioritizes **mass transit**. Confusion between **federal and provincial laws** makes enforcement difficult, and frequent **policy shifts** slow progress.

Future Outlook and Recommendations:

In the future, the Ministry looks forward to a regulated and secure ride-hailing system that enhances urban mobility while prioritizing public safety, privacy, and mass transit objectives. Although there are no current intentions to adopt global best practices, the

Ministry remains receptive to exploring such options in the future. To ensure smooth operations, it is vital to create a consolidated legal framework, formulate precise guidelines for registration, licensing, and regulation, establish a centralized database, and address safety and privacy issues through stricter compliance measures.

4.3.2 Department of Transport Management (DoTM)

General Overview & Policy Framework:

The Department of Transport Management (DoTM) is working on a regulatory framework for ride-hailing services, focusing on safety, accountability, and governance. This draft is based on the "National Directive 2080 on Public Transport Regulation" ("दुई पाङ्ग्रे सवारी सम्बन्धी निर्देशिका २०८० मस्यौदा").

Regulatory Gaps & Challenges:

While the draft guidelines lay the groundwork for regulation, several shortcomings remain:

- **Lack of legal enforcement** – Since the regulations are still in draft form, they lack the authority needed for implementation.
- **Rapid industry evolution** – Ride-hailing is changing quickly, making it difficult for the DoTM to create adaptable policies.
- **Data scarcity** – The DoTM has limited information on the number of platforms and their operations, complicating effective oversight.

Monitoring & Governance:

Currently, no structured monitoring system exists for ride-hailing services. Once the draft guidelines are approved, the DoTM plans to implement safety and operational compliance measures. However, the lack of a reliable data-sharing mechanism between the government and ride-hailing platforms further complicates governance.

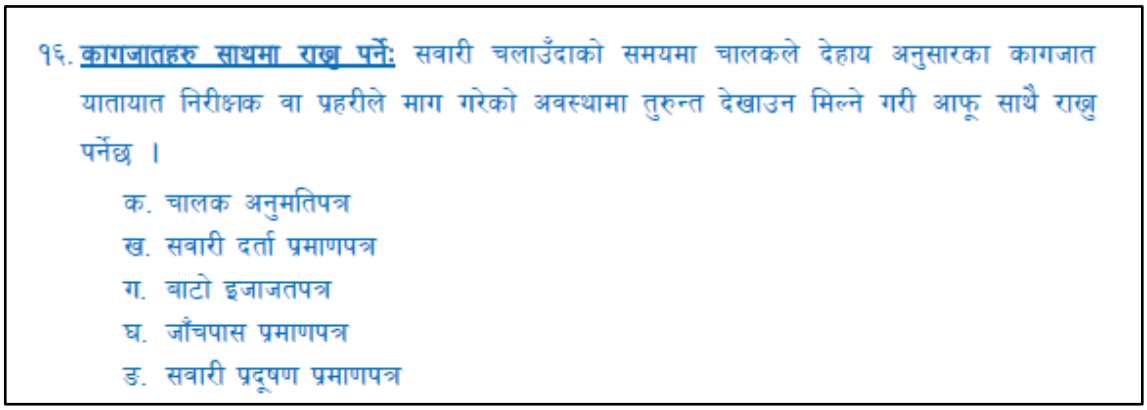
Stakeholder Engagement:

During policy discussions, only Pathao participated, while other platforms, such as In-Drive, did not engage. This lack of industry-wide input has made it harder for the DoTM to address all operational challenges. However, the department welcome to further stakeholder discussions.

Conflict With Traditional Transport Services and Black Plate Number: s Traditional transport service providers have raised strong concerns regarding the legal and regulatory status of ride-hailing services. Their primary demand is that ride-hailing vehicles should be required to use *black number plates*—the same as those used by commercial transport operators. This would mean that ride-hailing drivers must also obtain vehicle and route permits, road permits, and pay the same taxes and regulatory fees as traditional operators.

While the DoTM's intention behind enforcing black plate registration is to formalize ride-hailing services, it may discourage part-time drivers due to complex renewal procedures, added taxes, and high costs—limiting service availability to only full-time drivers.

Clearly defined about the document's that the riders should have while riding are following


१६. कागजातहरु साथमा राख्नु पर्ने: सवारी चलाउँदाको समयमा चालकले देहाय अनुसारका कागजात यातायात निरीक्षक वा प्रहरीले माग गरेको अवस्थामा तुरुन्त देखाउन मिल्ने गरी आफू साथै राख्नु पर्नेछ ।

क. चालक अनुमतिपत्र
ख. सवारी दर्ता प्रमाणपत्र
ग. बाटो इजाजतपत्र
घ. जाँचपास प्रमाणपत्र
ङ. सवारी प्रदूषण प्रमाणपत्र

Figure 32: Documents Required for Drivers to Operate

Future Outlook:

Ride-hailing services continue to grow, offering convenience but also worsening traffic congestion in Kathmandu. The DoTM aims to introduce stricter regulations over the next five years to ensure these services complement, rather than compete with, public transportation.

- **Draft prepared by Department of Transport Management (DoTM)**

Key Provisions in the Draft Guidelines

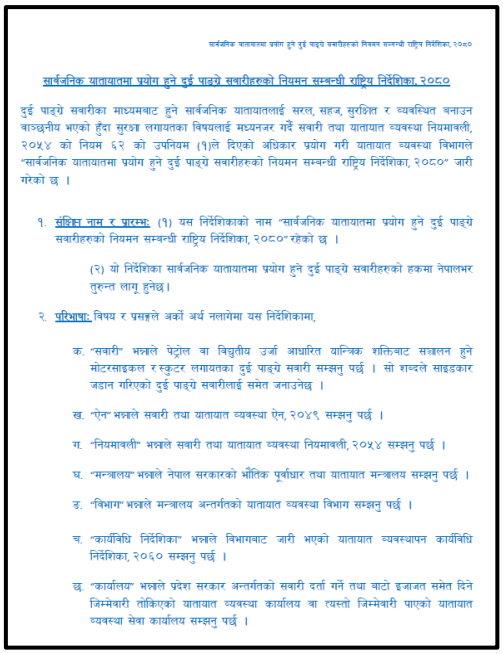
A. Legal Framework & Registration

- Ride-hailing platforms must register as a legal business entity and obtain a license to operate in Nepal.
- Companies must comply with transportation, taxation, and labor laws.
- Riders must register their vehicles under a commercial category to operate legally.

- Periodic renewal of registration and licenses is required for both the platform and the riders.

B. Eligibility & Requirements for Riders

- Minimum age requirement: Riders must be at least 18 years old.
- License requirement: A valid motorcycle driving license is mandatory.
- Riders must undergo basic safety training before being allowed to operate.
- Two-wheelers used for ride-hailing must be insured under a commercial policy.
- Vehicles must pass a periodic fitness test to ensure roadworthiness.



सार्वजनिक यातायातमा प्रयोग हुने दुई पाङ्ग्रे सवारीहरुको नियमन सम्बन्धी राष्ट्रिय निर्देशिका, २०८०

सार्वजनिक यातायातमा प्रयोग हुने दुई पाङ्ग्रे सवारीहरुको नियमन सम्बन्धी राष्ट्रिय निर्देशिका, २०८०

दुई पाङ्ग्रे सवारीका माध्यमबाट हुने सार्वजनिक यातायातलाई सरल, सहज, सुरक्षित र व्यवस्थित बनाउन वाञ्छनीय भएको हुँदा सुरक्षा लगायतका विषयलाई मध्यनजर गर्दै सवारी तथा यातायात व्यवस्था नियमावली, २०५४ को नियम ६२ को उपनियम (१)ले दिएको अधिकार प्रयोग गरी यातायात व्यवस्था विभागले "सार्वजनिक यातायातमा प्रयोग हुने दुई पाङ्ग्रे सवारीहरुको नियमन सम्बन्धी राष्ट्रिय निर्देशिका, २०८०" जारी गरेको छ ।

१. संक्षिप्त नाम र प्रारम्भः (१) यस निर्देशिकाको नाम "सार्वजनिक यातायातमा प्रयोग हुने दुई पाङ्ग्रे सवारीहरुको नियमन सम्बन्धी राष्ट्रिय निर्देशिका, २०८०" रहेको छ ।

(२) यो निर्देशिका सार्वजनिक यातायातमा प्रयोग हुने दुई पाङ्ग्रे सवारीहरुको हकमा नेपालभर तुरुन्त लागू हुनेछ।

२. परिभाषाः विषय र प्रसङ्गले अर्को अर्थ नलागेमा यस निर्देशिकामा,

क. "सवारी" भन्नाले पेट्रोल वा विद्युतीय उर्जा आधारित यान्त्रिक शक्तिबाट सञ्चालन हुने मोटरसाइकल र स्कुटर लगायतका दुई पाङ्ग्रे सवारी सम्झनु पर्छ । सो शब्दले साइडकार जडान गरिएको दुई पाङ्ग्रे सवारीलाई समेत जनाउनेछ ।

ख. "ऐन" भन्नाले सवारी तथा यातायात व्यवस्था ऐन, २०४९ सम्झनु पर्छ ।

ग. "नियमावली" भन्नाले सवारी तथा यातायात व्यवस्था नियमावली, २०५४ सम्झनु पर्छ ।

घ. "मन्त्रालय" भन्नाले नेपाल सरकारको भौतिक पूर्वाधार तथा यातायात मन्त्रालय सम्झनु पर्छ ।

ङ. "विभाग" भन्नाले मन्त्रालय अन्तर्गतको यातायात व्यवस्था विभाग सम्झनु पर्छ ।

च. "कार्यविधि निर्देशिका" भन्नाले विभागबाट जारी भएको यातायात व्यवस्थापन कार्यविधि निर्देशिका, २०६० सम्झनु पर्छ ।

छ. "कार्यालय" भन्नाले प्रदेश सरकार अन्तर्गतको सवारी दर्ता गर्ने तथा चाटो इजाजत समेत दिने जिम्मेवारी तोकिएको यातायात व्यवस्था कार्यालय वा त्यस्तो जिम्मेवारी पाएको यातायात व्यवस्था सेवा कार्यालय सम्झनु पर्छ ।

Figure 33: Draft Guidelines Prepared by DoTM

C. Safety & Security Measures

- Helmets are compulsory for both the driver and passenger.
- Ride-hailing platforms must install a GPS tracking system for monitoring rides.
- Emergency contact features must be integrated into ride-hailing applications.
- Drivers must maintain a professional code of conduct, and any complaints against them must be investigated.
- Insurance coverage must be provided for both drivers and passengers.

D. Fare Regulation & Payment Methods

- Fare rates may be regulated by the government to prevent unfair pricing.
- Digital payment options should be available for transparency and security.
- Platforms must issue electronic receipts to passengers.
- Surge pricing may be restricted during peak hours or emergencies.

E. Designated Service Areas & Operational Boundaries

- Ride-hailing services can only operate within approved urban zones.
- Some areas, such as government buildings, airports, and highways, may be restricted.
- Intercity services may require special permits for operation.

F. Dispute Resolution & Customer Rights

- Platforms must establish a grievance redressal mechanism for drivers and passengers.

- Drivers and passengers should have access to customer support services.
- Clear policies should be in place regarding cancellations, refunds, and penalties.

G. Compliance & Penalties for Violations

- Failure to comply with registration requirements may result in license suspension.
- Overcharging, reckless driving, or other violations may result in fines and penalties.
- Repeat offenses may lead to permanent bans from operating ride-hailing services.
- Law enforcement agencies will have the authority to monitor and regulate ride-hailing operations.

Responsibilities of Ride-Hailing Platforms

- Ride-hailing companies must:
  Ensure compliance with government regulations.
  Provide driver training programs for road safety.
  Offer transparent fare pricing and digital payment options.
  Set up emergency response systems for passenger and driver safety.
  Maintain a database of drivers and passengers to track rides.

Environmental and Sustainability Measures

- Encouragement of electric two-wheelers for ride-hailing services.
- Possible subsidies or incentives for using eco-friendly transport options.
- Emphasis on reducing emissions and promoting sustainable urban mobility.

4.3.3 Ministry of Labor, Employment and Transport, Hetauda (Provincial Ministry)

Current Legal Framework

Ride-hailing services in Bagmati Province function under the Bagmati Province Vehicle and Transportation Management Act, 2019 (2075), which establishes a legal basis for their acknowledgment. Section 13(4) permits private vehicles to serve as public transport through ride-sharing applications. Furthermore, the **Ride Sharing and Pay Bike Karya Bidhi 2080 (राईड सेयरिंग तथा पे-बाइक मार्फत यातायात सेवा संन्चालन सम्बन्धी कार्यविधि, २०८०** is currently being drafted and is pending approval.

Challenges in Implementation:

Despite being legally recognized, enforcement is weak due to ambiguous policies and a lack of structured oversight. Key issues include:

- **Absence of a standardized fare system**: The draft policy suggests an initial fare for the first 2 km, yet the final pricing structure remains undetermined.
- **Safety concerns**: Ride-hailing platforms are anticipated to adopt GPS tracking, real-time location sharing, and visible driver information (photo, name, vehicle details), but ensuring adherence is challenging.
- **Enforcement challenges:** Though the draft policy includes a complaint mechanism and penalties for infractions, there is no clear enforcement process, complicating oversight.

Gaps in the Existing Framework:

While ride-hailing is legally recognized, the absence of a fully approved regulatory framework leads to several uncertainties:

- No established dispute resolution system for disagreements among drivers, passengers, and platforms.
- Ride-hailing companies are expected to maintain records of trips, drivers, and passengers, but there's no enforcement mechanism to guarantee compliance.
- Ride-hailing services lack integration with public transport, overlooking an opportunity to enhance urban mobility efficiency.
- No clear differentiation exists between ride-hailing services and traditional taxis, resulting in confusion among operators and regulators.

Digital & Technological Considerations: Ride-hailing platforms must register with the Ministry of Physical Infrastructure and Transport and preserve ride data for a minimum of three months for compliance and safety. However, significant issues persist:

- Lack of explicit laws regarding data privacy, raising concerns about the security of passenger and driver information.
- Unclear data-sharing policies between ride-hailing companies and the government hinder the effective use of this data for urban planning and traffic management.
- Absence of a structured method to utilize ride-hailing data for regulatory enhancements and transport planning.

Future Directions & Recommendations:

To foster a more robust regulatory framework, it is crucial to approve and implement the Ride Sharing and Pay Bike Karya Bidhi 2080. A collaborative approach that includes government entities, ride-hailing companies, drivers, and passengers is essential for

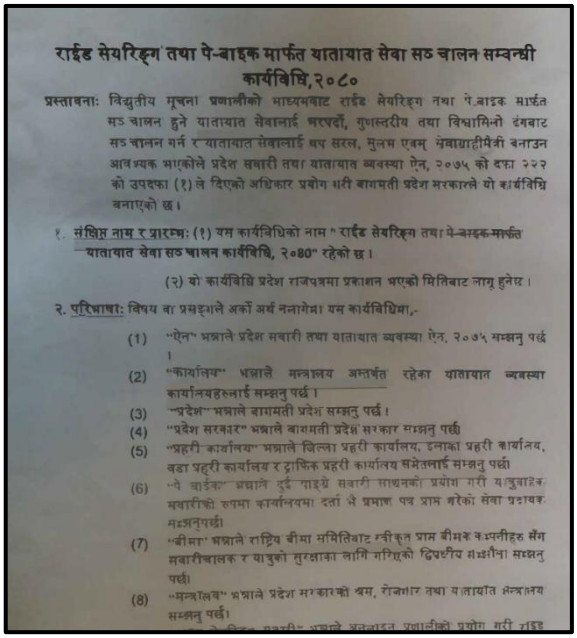
developing a comprehensive and impactful policy. Additionally, regulations should be regularly updated to align with the swift evolution of ride-hailing services. The objective should be to harmonize industry growth with sustainable urban mobility, ensuring that ride-hailing services enhance rather than compete with public transportation.

Draft Prepared by Bagmati Province Government, Ministry of Labor, Employment and Transport, Hetauda, Makawanpur

राईड सेयरिंग तथा पे-बाइक मार्फत यातायात सेवा संन्चालन सम्बन्धी कार्यविधि, २०८०

Licensing and Registration

- Establishes a legal structure for ride-hailing services in Bagmati Province.
- Requires all ride-hailing companies to register as legal entities and obtain necessary operating permits.
- Enforces the registration of vehicles used for ride-hailing under a commercial category.
- Mandates vehicle fitness certifications for ride-hailing two-wheelers to ensure roadworthiness.
- Introduces periodic renewal of licenses for both ride-hailing companies and drivers.



राईड सेयरिङ्ग तथा पे-बाइक मार्फत यातायात सेवा सञ्चालन सम्बन्धी कार्यविधि,२०८०

प्रस्तावना: विद्युतीय सूचना प्रणालीको माध्यमबाट राईड सेयरिङ्ग तथा पे-बाइक मार्फत सञ्चालन हुने यातायात सेवालाई भरपर्दो, गुणस्तरीय तथा विश्वासिलो बनाउन सञ्चालन गर्न र यातायात सेवालाई थप सरल, सुलभ एवम् सेवाग्राहीमैत्री बनाउन आवश्यक भएकोले प्रदेश सवारी तथा यातायात व्यवस्था ऐन, २०७५ को दफा २२ को उपदफा (१) ले दिएको अधिकार प्रयोग गरी बागमती प्रदेश सरकारले यो कार्यविधि बनाएको छ।

१. संक्षिप्त नाम र प्रारम्भः (१) यस कार्यविधिको नाम " राईड सेयरिङ्ग तथा पे-बाइक मार्फत यातायात सेवा सञ्चालन कार्यविधि, २०८०" रहेको छ।

(२) यो कार्यविधि प्रदेश राजपत्रमा प्रकाशन भएको मितिबाट लागू हुनेछ।

२. परिभाषाः विषय वा प्रसङ्गले अर्को अर्थ नलागेमा यस कार्यविधिमा,-

(1) "ऐन" भन्नाले प्रदेश सवारी तथा यातायात व्यवस्था ऐन, २०७५ सम्झनु पर्छ।

(2) "कार्यालय" भन्नाले मन्त्रालय अन्तर्गत रहेका यातायात व्यवस्था कार्यालयहरुलाई सम्झनु पर्छ।

(3) "प्रदेश" भन्नाले बागमती प्रदेश सम्झनु पर्छ।

(4) "प्रदेश सरकार" भन्नाले बागमती प्रदेश सरकार सम्झनु पर्छ।

(5) "प्रहरी कार्यालय" भन्नाले जिल्ला प्रहरी कार्यालय, इलाका प्रहरी कार्यालय, वडा प्रहरी कार्यालय र ट्राफिक प्रहरी कार्यालय समेतलाई सम्झनु पर्छ।

(6) "पे बाईक" भन्नाले दुई पाङ्ग्रे सवारी साधनको प्रयोग गरी यात्रुढाईक सवारीको रुपमा कार्यालयमा दर्ता भै प्रमाण पत्र प्राप्त गरेको सेवा प्रदायक सम्झनुपर्छ।

(7) "बीमा" भन्नाले राष्ट्रिय बीमा समितिबाट स्वीकृत प्राप्त बीमक कम्पनीहरु सँग सवारीचालक र यात्रुको सुरक्षाका लागि गरिएको द्विपक्षीय सम्झौता सम्झनु पर्छ।

(8) "मन्त्रालय" भन्नाले प्रदेश सरकारको श्रम, रोजगार तथा यातायात मन्त्रालय सम्झनु पर्छ।

Figure 34: Draft Prepared by Bagmati Province

Driver Eligibility and Operational Requirements

- Min. age for drivers is 18 years.
- A valid two-wheeler driving license is required for all drivers.
- Drivers must undergo basic safety training before being allowed to operate commercially.
- Vehicles using for ride-hailing must have commercial insurance coverage to protect both the driver and passengers.

Ride-Hailing Fare Structure and Payment Methods

- Fare rates may be regulated by the province government.
- Encourages digital payment systems for transparency and accountability.

- Requires electronic receipts to be generated for all trips, sent via SMS or ride-hailing apps.
- Surge pricing may be restricted during peak hours to prevent price manipulation.

Safety and Passenger Protection

- Helmets are compulsory for both the driver and passenger.
- Ride-hailing platforms must integrate GPS tracking systems for real-time ride monitoring.
- Emergency response features must be available in ride-hailing applications.
- Platforms must maintain a complaint system where both drivers and passengers can report issues.
- Insurance policies must cover accidents, theft, and liability for both riders and passengers.

Operational Boundaries and Service Area Restrictions

- Ride-hailing services can only operate within approved urban zones in Bagmati Province.
- Certain zones, including government buildings, airport premises, and highways, may require special permits for operation.
- Inter-city ride-hailing services may be subject to separate regulations and approvals.

Penalties and Compliance Measures

- Strict fines and penalties will be imposed for unregistered operations.
- Overcharging, reckless driving, or misconduct will lead to financial penalties or suspension.
- Platforms failing to comply with data protection and passenger safety policies may face temporary or permanent bans.
- Repeat violations will result in license suspension or revocation.

Responsibilities of Ride-Hailing Platforms

- Ride-hailing companies must:

  Ensure full compliance with government regulations.

  Provide regular safety training for drivers.

  Implement transparent fare calculation models to prevent disputes.

  Maintain a driver and passenger database to enhance security and accountability.

  Set up customer support and grievance redressal mechanisms.

Environmental and Sustainability Policies

- Encourages electric two-wheeler adoption in ride-hailing services.
- Suggests incentives for eco-friendly transport alternatives.

4.3.4 Ministry of Physical Infrastructure Development and Transport Management, Gandaki Province (Provincial Ministry)

Current Legal and Regulatory Landscape:

In Gandaki Province, ride-hailing services are governed by the **Gandaki Province Ride-Sharing (Regulation and Management) Procedure, 2081**, drafted under Section 13 of the Gandaki Province Vehicle and Transport Management Act, 2076. This framework aims to ensure reliable, safe, and user-friendly ride-sharing and self-drive services through digital platforms.

Existing Gaps and Limitations:

- **Regulatory Uncertainty**: Delay in formal approval of the draft procedure creates ambiguity, especially in distinguishing private/commercial vehicles (e.g., proposed "black plate" system for commercial use).
- **Dispute Resolution**: No formal mechanisms to address conflicts between drivers, passengers, and platforms.
- **Integration with Public Transport**: The draft lacks provisions to harmonize ride-hailing with public transit systems, missing opportunities for holistic urban mobility.
- **Data Utilization**: While ride data must be stored locally for six months, guidelines for using this data in urban planning or policy development are absent.

Digital and Technological Factors:

- **App Requirements**: Platforms must feature bilingual (Nepali/English) interfaces, cybersecurity certifications, real-time tracking, and encrypted data storage on Nepali servers.
- **Data Privacy**: Passenger data cannot be shared without consent, except for government requests. However, cybersecurity audits and vulnerability testing are not yet enforced.
- **Technological Gaps**: No clear protocols for data-sharing between platforms and government agencies, limiting its use for traffic management or infrastructure planning.

Challenges in Implementation:

- **Lack of Enforced Laws**: The draft procedure is pending full implementation, leading to unregulated fare fluctuations and safety gaps.
- **Fare Standardization**: No official pricing framework exists, though the draft proposes competitive fare caps and a 15% service fee limit for platforms.
- **Safety Concerns**: While the draft mandates GPS tracking, emergency buttons, and real-time ride monitoring, enforcement remains weak without finalized laws.
- **Monitoring Gaps**: Absence of clear penalties for unregistered operators and inconsistent compliance with vehicle/driver eligibility criteria.

Draft prepared by Ministry of Physical & Transport, Gandaki Province

A. Licensing & Registration

• Ride-hailing platforms must register as a legal business entity with the Transport Management Office and obtain a license under the Gandaki Province Ride-Sharing Procedure, 2081.

• Compliance with provincial transportation laws, taxation (VAT, income tax), and labor regulations (e.g., social security enrollment for drivers) is mandatory.

• Vehicles must be re-registered under a commercial category with a "Ride-Sharing" or "Self-Drive" endorsement on their registration certificates.

• Licenses and registrations for platforms and riders require annual renewal, with fees specified.

B. Eligibility & Requirements for Riders

• Minimum age: Drivers must be at least 18 years old and hold a valid driving license.

• Training: New drivers must undergo orientation on road safety, app usage, and passenger interaction.

• Vehicle eligibility:

Two-wheelers: ≤15 years old, 95–250cc (petrol) or ≥3kW (electric).

Four-wheelers: ≤20 years old, ≥650cc (petrol/diesel) or ≥20kW (electric).

• Insurance: Mandatory commercial insurance covering drivers, passengers, and third parties.

• Fitness tests: Vehicles must pass annual technical inspections.

C. Safety & Security Measures

• Helmets: Compulsory for riders and passengers on two-wheelers.

• GPS tracking: Apps must include real-time ride monitoring and location-sharing features.

• Emergency alerts: Passengers/drivers can trigger safety alerts linked to police and emergency contacts.

• Code of conduct: Drivers violating professional standards face suspensions (3–6 months) or permanent bans.

• Data privacy: Passenger/driver data cannot be shared without consent, except for legal requests.

D. Fare Regulation & Payment Methods

• Fare structure: Government-regulated base fare (minimum 2 km distance) with 10% platform commission cap.

• Digital payments: Mandatory integration of cashless payment options.

• Receipts: Electronic receipts must be issued post-ride.

• Surge pricing: Restricted during emergencies; fares cannot exceed government-approved rates.

E. Designated Service Areas & Operational Boundaries

• Operational zones: Services limited to urban areas approved during registration.

• Restricted areas: Government buildings, airports, and highways may require special permits.

• Intercity services: Only allowed with explicit authorization from transport authorities.

F. Dispute Resolution & Customer Rights

• Grievance redressal: Platforms must operate 24/7 complaint centers and resolve issues within 3 days.

• Cancellation/refunds: Clear policies for penalties and refunds must be disclosed in apps.

• Passenger rights: Users can report misconduct directly to police or via the app's safety features.

G. Compliance & Penalties for Violations

• Unregistered operations: Fines up to NPR 100,000 for platforms; repeat offenders face double fines and license revocation.

• Traffic violations: Reckless driving or overcharging penalties include fines (NPR 5,000–20,000) and vehicle impoundment.

• Data misuse: Unauthorized sharing of user data incurs legal action under cybersecurity laws.

Responsibilities of Ride-Hailing Platforms

• Ensure compliance with provincial regulations and driver training programs.

• Maintain real-time databases of drivers, vehicles, and rides.

• Provide transparent fare structures and emergency response systems.

• Submit annual audit reports to the Transport Management Office.

Environmental and Sustainability Measures

• Electric vehicles (EVs): Priority registration and reduced fees for EVs (25% discount for "black plate" EVs).

• Emission standards: Petrol/diesel vehicles must pass pollution tests annually.

• Sustainability incentives: Potential subsidies for eco-friendly vehicles under provincial green mobility initiatives.

4.3.5 Traffic Police, Ram Shah Patha, Kathmandu

Understanding Ride-Hailing Services:

Ride-hailing platforms like Pathao, In-Drive and Tootle are commonly utilized in the Kathmandu Valley for both passenger transportation and food delivery. Although these services provide ease of access, they also pose enforcement challenges for traffic authorities due to the lack of specific regulations. The majority of ride-hailing vehicles consist of motorcycles and scooters, whose operators often break traffic laws, engage in reckless overtaking, and contribute to traffic jams.

Managing Security Issues and Accidents:

The safety of drivers and passengers using ride-hailing services is not specifically regulated. Although they don't have a system in place to keep an eye on ride-hailing activity, traffic police enforce general traffic laws. Traffic officers do not have jurisdiction over cases of violence, theft, or harassment involving ride-hailing users; instead, these cases are referred to Nepal Police. Although ride-hailing drivers who break traffic laws are fined, enforcement frequently has an impact on the general public, sparking arguments and demonstrations.

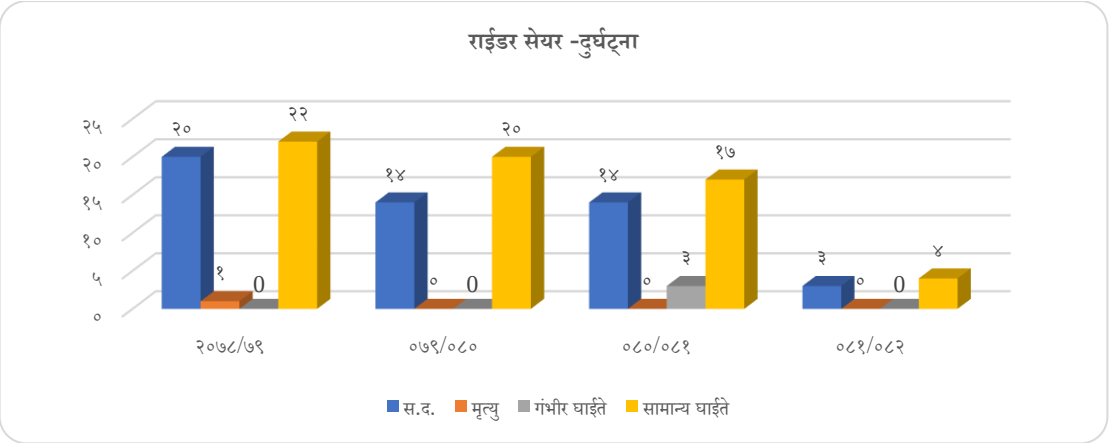


Figure 35: Ride Sharing Related Accidents in Last 4 Years

Recent Incidents involving Ride-Hailing are as follows:

2078/79: 22 minor injuries, 1 fatality, and 20 accidents.

2079/80: 20 minor injuries, 14 accidents, and no fatalities.

2080–81: 14 accidents, 3 serious injuries, and 17 minor injuries occurred.

2081/82 (continuing): 4 minor injuries, 3 accidents.

Despite the low number of fatalities, the increasing trend in serious injuries emphasizes the urgent need for better safety regulations.

Monitoring and Surveillance:

Due to their lack of GPS tracking, ride-hailing services cannot be monitored in real time. Due to their classification as private transportation, these cars are exempt from additional safety inspections beyond a review of their licenses and bluebooks. Due to its high vehicle density and expanding population, the Kathmandu Valley experiences extreme traffic congestion: Population: 3.02 million permanent residents, 5 million mobile residents.1.94 million vehicles are registered (of which 1.55 million are primarily two-wheelers). The road's 2,322.33 km length is insufficient for the weight of the vehicles. There are 1,835 active traffic police officers who, on average, oversee 1,059 vehicles. With increasing platform drivers' day by day, it is nearly becoming impossible to manage only Pathao has the 200,000+ drivers and new this food delivery also increasing while even by these platforms also now starting services like food and other delivery system. Traffic management is challenging due to a lack of staff and road capacity, which raises safety concerns and congestion.

Fines and Violations:

Ride-hailing drivers frequently violate traffic laws in high-density areas like bus terminals, Thamel, and the airport. Common violations include illegal parking, speeding, and reckless overtaking, contributing to traffic congestion and road safety risks.

- Ride-Hailing Fines in Recent Years
- **2078/79:** 3,899 fines issued.
- **2079/80:** 28,546 fines issued.
- **2080/81:** 29,546 fines issued.
- **2081/82** (ongoing): 7,573 fines issued.

Penalties peaked in 2079/80 and 2080/81, especially in Falgun and Chaitra, but have dropped significantly in 2081/82—due to order from the court. Here is the list of all the recorded fine issued in month wise:

Table 15: Ride Sharing Related Fine & Violations Record

महिना	राईडर सेयर कारबाही			
	आ.ब. २०७८/७९	आ.ब. २०७९/८०	आ.ब. २०८०/८१	आ.ब. २०८१/८२ (हाल सम्म)
श्रावण	१४७५	०	२७२१	२३८९
भाद्र	२४२१	०	२३०७	८११
आश्विन	०	०	१४२५	३३७
कार्तिक	०	०	१२६०	५५५
मंसिर	३	४३६	१५६६	१३९०
पुष	०	१५४२	१४७९	१८०६
माघ	०	२२१२	१६१८	२८५
फाल्गुन	०	७३६२	१४७०	०
चैत्र	०	६००६	३९६२	०
बैशाख	०	४१७९	४७४५	०
जेठ	०	३६७१	४०६७	०
असार	०	३१३८	२९२६	०
	३८९९	**२८५४६**	**२९५४६**	**७५७३**

Policy and Regulation: There is limited cooperation between traffic police and the Ministry of Physical Infrastructure and Transport (MoPIT) or other Department of Transport Management (DOTM) concerning the regulations of ride-hailing services. The lack of a clear legal framework renders enforcement problematic. To enhance oversight, policymakers ought to establish distinct identification systems for ride-hailing vehicles, mandate driver training programs, and implement stricter registration requirements for ride-hailing platforms. More stringent penalties and improved monitoring strategies are essential to ensure adherence to traffic laws.

Technology and Training:

Presently, there is no specialized technology employed to oversee ride-hailing services. Traffic police depend on traditional enforcement techniques and monitoring from traffic control centers. There are no specific tools available to detect or track traffic violations committed by ride-hailing operators. Moreover, while traffic officers receive general instruction on traffic management, they lack specialized training to tackle challenges related to ride-hailing. Although public road safety awareness initiatives are conducted, there are no focused awareness campaigns aimed specifically at ride-hailing drivers.

Public Feedback and Stakeholder Collaboration:

Traffic police manage public grievances regarding traffic violations, while complaints related to harassment or misconduct are referred to Nepal Police. Nevertheless, there is no dedicated complaint system for ride-hailing users. Additionally, there is a lack of formal collaboration between traffic authorities and ride-hailing companies. Implementing organized discussions and regular meetings between these stakeholders could contribute to better regulatory measures and enhance overall public safety.

4.3.6 Kathmandu Valley Police Office, Ranipokhari, Kathmandu District Police Range, Bhadrakali, Kathmandu

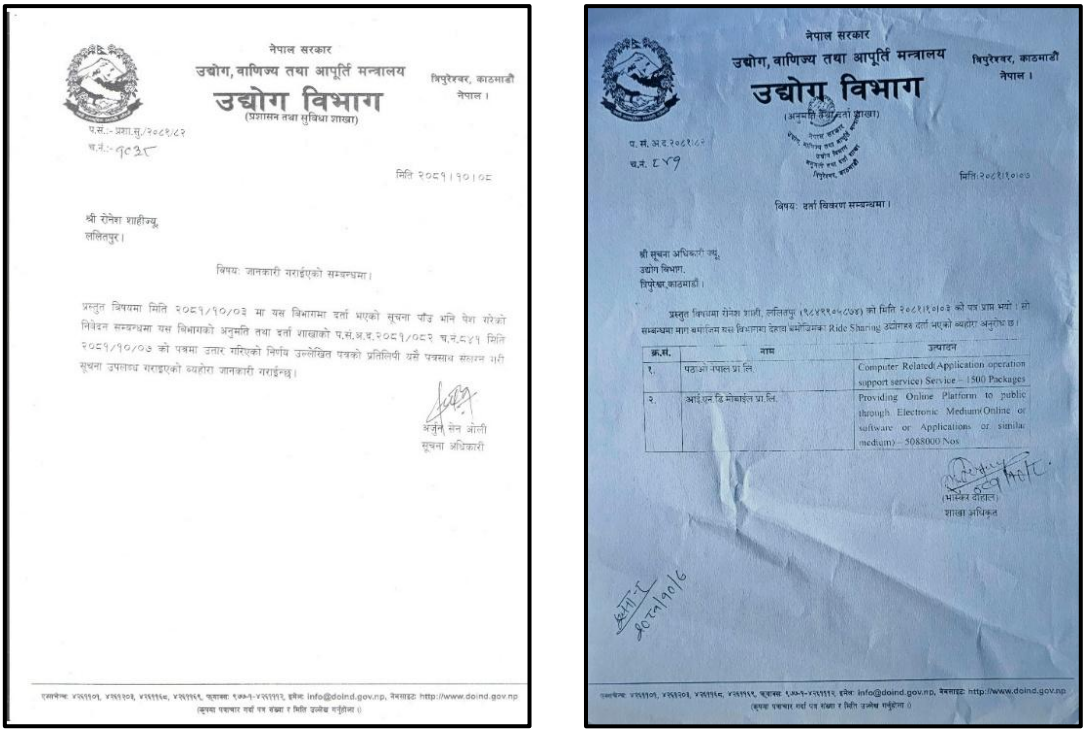
During a visit to the Kathmandu Valley Police Office in Ranipokhari, Kathmandu, for an interview about ride-hailing incidents, officials specified that their responsibilities are limited to monitoring CCTV footage and that they do not handle or record information related to ride-hailing cases. They suggested obtaining information from the District Police Range in Kathmandu instead.

At the District Police Range, the Deputy Superintendent of Police (DSP), who has been in position for ten months, indicated that there are no specific records kept for ride-hailing services. Rather, legal actions are pursued against motorcyclists for criminal behavior or misconduct, without categorizing these under ride-sharing. The lack of data suggests that ride-hailing operations are not officially recognized or recorded as a separate category within the existing legal and regulatory framework in the Kathmandu Valley.

4.3.7 Department of Industry, Tripureshwor, Kathmandu

Ride-sharing services in Nepal were officially acknowledged as a service-oriented sector under the Industrial Enterprises Act, 2020 (2076), starting February 1, 2024. This modification enables firms to register legally, supporting their business activities. An

information request indicated that only two companies, Pathao and In-Drive, are officially recognized in the ride-hailing sector. However, their registered titles and business goals do not correspond with their actual operations, as In-Drive is registered under an entirely different name. Additionally, In-Drive's office location is unknown, and there is no publicly available contact information.Information Officer Arjun Sen Oli verified that the Department of Industry holds the power to impose regulations mandating companies to maintain a contact office, although no actions have been taken due to a lack of formal grievances. This underscores a gap in enforcement, where legal recognition is present, yet oversight is inadequate. The deficiency in transparency regarding registration and classification raises issues about effective regulation and accountability within Nepal's ride-hailing sector.



नेपाल सरकार
उद्योग, वाणिज्य तथा आपूर्ति मन्त्रालय
उद्योग विभाग
(प्रशासन तथा सुविधा शाखा)
त्रिपुरेश्वर, काठमाडौं
नेपाल ।

श्री रोनेश शाहीज्यू,
ललितपुर।

विषय: जानकारी गराईएको सम्बन्धमा।

नेपाल सरकार
उद्योग, वाणिज्य तथा आपूर्ति मन्त्रालय
उद्योग विभाग
त्रिपुरेश्वर, काठमाडौं
नेपाल ।

विषय: दर्ता विवरण सम्बन्धमा ।

क्र.सं.	नाम	उत्पादन
१.	पठाओ नेपाल प्रा.लि.	Computer Related(Application operation support service) Service – 1500 Packages
२.	आई.एन.डि मोबाईल प्रा.लि.	Providing Online Platform to public through Electronic Medium(Online or software or Applications or similar medium) – 5088000 Nos

Figure 36: Official Letter from Department of Industry for RFI

4.3.8 Office of the Company Registrar

A recent Request for Information (RFI) aimed to identify ride-hailing firms that are registered with the company registrar, especially those with capital below Rs 100 million. However, the chaotic record-keeping practices complicated the acquisition of accurate and thorough data. The registrar's office did not have a structured classification system in place, leading them to be unable to verify Pathao's registration. Computer engineer

Bhupendra Shrestha pointed out that the registrar's data management system was not optimized for effective name searches or categorization, rendering data retrieval virtually impossible. Acknowledging this issue, an independent compilation of ride-hailing companies was created using online resources and was submitted for validation. Out of the 16 companies included in the list, only 11 were confirmed as registered, while the registration status of the remaining companies was uncertain. Here is the list of found companies.

Table 16: List of Registered RHS in Nepal

S/No.	Company Name (English)	Company Name (Nepali)	Registration Number	Registration Date	Full Address	Online Status
1	**Pathao Nepal**	पठाओ नेपाल	192909	3/22/2075	काठमाण्डौं महानगरपालिका-१०,काठमाण्डौ,३	Registered
2	**I.N.D. Mobile**	आई.एन.डि. मोवाईल	333368	12/20/2080	काठमाण्डौं महानगरपालिका-२८,काठमाण्डौ,बागमती	Registered
3	**Tootle Nepal**	टूटल नेपाल	259504	12/6/2077	काठमाण्डौं महानगरपालिका-९,काठमाण्डौ,बागमती	Registered
4	**Jum Jum treks**	जम् जम् ट्रेक्स	332434	12/7/2080	काठमाण्डौं महानगरपालिका-३१,काठमाण्डौ,बागमती	Registered
5	**Sarathi**	सारथी	149440	2/4/2073	ललितपुर उप म.न.पा.-५,ललितपुर,बाग्मती	Registered
6	**Edrive Nepal Company**	इड्राइभ नेपाल कम्पनी	314480	3/10/2080	काठमाण्डौं महानगरपालिका-१,काठमाण्डौ,बागमती	Registered
7	**Taximandu Service**	ट्याक्सीमाण्डु सर्भिस	221724	5/2/2076	काठमाण्डौं महानगरपालिका-४,काठमाण्डौ,बागमती	Registered
8	**Pokhara Taxi Bewasaya**	**पोखरा ट्याक्सि व्यवसाय**	**200770**	**6/22/2075**	**पोखरा लेखनाथ महानगरपालिका-८,कास्की,४**	***DeRegistered***
9	**Metro Taxi**	**मेट्रो टयाक्सी**	**193211**	**2075-03-32**	**काठमाण्डौं महानगरपालिका-१३,काठमाण्डौ,३**	***DeRegistered***
10	**Lozoom Commute Services**	लुजुम कम्युट सर्भिसेज	216639	2/20/2076	टोखा नगरपालिका-६,काठमाण्डौ,३	Registered

11	**Sajilo Saathi**	सजिलो साथी	281259	9/20/2078	काठमाण्डौं महानगरपालिका-३२,काठमाण्डौ,बागमती	Registered

4.3.9 Service Providers Interview: Tootle

Background Information:

The company provides a comprehensive range of services, including bike-hailing, car-hailing, food delivery, and parcel services. Their goal is to offer a reliable, affordable, and convenient solution for transportation and delivery needs in Nepal, bridging gaps in traditional services. They have been operating in Nepal for about a year, taking over Tootle's operations, and have streamlined services under the new management by the team at ZAPS. With around 65,000 registered drivers and over 100,000 app downloads on the Play Store, they cater primarily to the Kathmandu Valley, a densely populated urban area. Although they do not have partnerships with local government or agencies, they strive to ensure compliance with existing regulations. The operational model involves a "hunt system" where drivers remain online to be detected by users looking for rides, with incentives like petrol-free servicing for regular registered drivers and TDS deductions on earnings.

Legal and Regulatory Framework:

The company is not aware of any specific laws governing ride-hailing services in Nepal, which creates certain challenges. The absence of laws designed for this industry leaves several gaps in addressing operational and business needs. Their primary requirement is to register with the Department of Industry, beyond which there are no specific regulations for ride-hailing platforms. Challenges have included vehicle detainments during a period when services were banned, resolved by the Patan High Court. The lack of clear and specific laws makes it difficult to navigate the regulatory landscape, leading to operational hurdles and uncertainty.

Licensing and Permits:

Drivers are required to have valid insurance, up-to-date bluebooks, and valid licenses. The platform tracks document expiry dates and notifies drivers to ensure compliance. Currently, the process for obtaining and renewing operational permits involves standard

company registration, with no additional route-specific permissions required. Early delays due to unclear regulations have been mitigated, allowing smoother operations now.

Market Dynamics, Safety, and Enforcement:

For fare structures, the company follows traditional taxi fare structures for four-wheelers and maintains an internal fare policy for two-wheelers to remain competitive. Safety is prioritized by prohibiting offline rides, offering insurance for app-based trips, monitoring driver behavior, and detecting unauthorized mobile device use. Features like allowing female users to select female drivers enhance safety. While they believe fair competition is promoted, the lack of specific laws can sometimes disadvantage ride-hailing services. Past incidents of vehicle detainment have been resolved by the Patan High Court. The company ensures compliance with traffic rules and platform policies through strict adherence, with verified complaints leading to driver bans. Users can lodge complaints through the app, with transparency in driver details, and major concerns are escalated to the police.

Challenges and Gaps in the Framework:

The absence of specific guidelines for ride-hailing platforms is the biggest challenge, leading to operational and compliance uncertainties. Previously, unclear regulations hindered the adoption of technologies like GPS tracking and digital payments, which have now been integrated without major issues. There has been little to no collaboration with regulatory authorities, suggesting a need for structured partnerships.

Recommendations and Future Directions:

To create a more supportive environment, the company recommends introducing clear operational guidelines, addressing safety concerns, and standardizing requirements for digital platforms. Specific guidelines for digital platforms should include features that ensure compliance and safety, such as options for female users to select female drivers and monitoring systems.

Open-Ended Feedback:

The ride-hailing sector has immense potential to revolutionize transportation in Nepal. Addressing regulatory gaps and fostering collaboration between platforms and authorities can create a system benefiting users, drivers, and the economy. The company is proud to

have bridged transportation gaps, reaching remote areas, and looks forward to further contributions to the sector.

4.3.10 Service Providers Interview: Pathao

Organizational Overview:

The company was established on September 18th with the goal of addressing transportation challenges in the valley. In 2020, it expanded its operations to include food delivery services. Since then, the company has steadily grown its services, adapting to market needs and customer demands.

Currently, the platform hosts over 200,000 registered riders. On the user side, the mobile application has been downloaded more than 600,000 times on the Play Store.

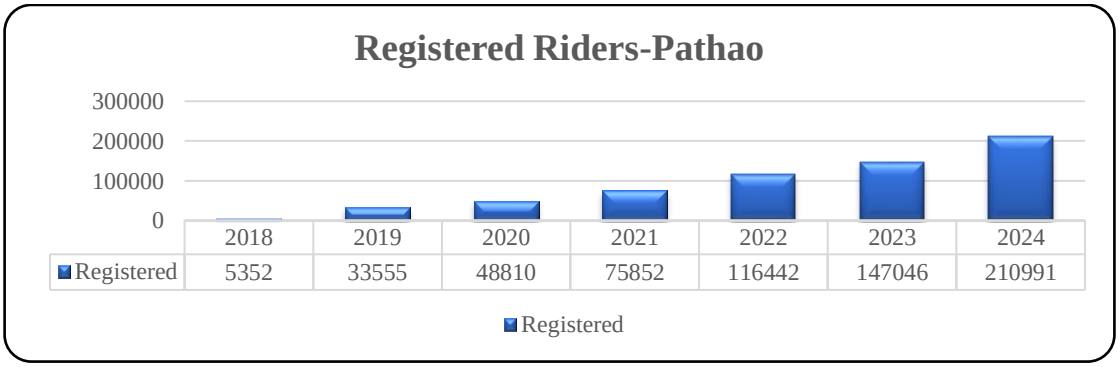


Figure 37: Registered Riders Pathao in bar diagram

Current Operations:

Current operations in cities across Nepal Answer: They operate in 21 cities across Nepal, tailoring services to local contexts. For example, in Chitwan, tuk-tuks have been introduced as a mode of transportation to align with regional needs. Despite their significant market presence, they do not currently partner with any government agencies or local bodies for operational support or compliance.

Legal and Regulatory Framework:

Nepal lacks clear ride-hailing laws, creating a gray area for platforms. The Motor Vehicle and Transport Management Act (2049) technically restricts operations, though Bagmati and Gandaki Provinces have introduced some regulations. Legal hurdles, including driver detainments, were resolved after the Patan High Court's ruling in favor of ride-hailing.

The company operates under 100% Foreign Direct Investment (FDI) and is registered with the Department of Industry, but there are no specific legal requirements for ride-hailing.

Licensing and Permits

Driver and company licensing: Drivers must possess a valid driving license, an updated bluebook for their vehicle, and third-party insurance to operate on the platform. A one-day training program on platform usage is provided to help drivers meet these requirements, costing NPR 2,500, which is reimbursed through structured earnings

Operational permits: There is no structured process for obtaining operational permits for ride-hailing services in Nepal, leading to delays and inefficiencies in obtaining necessary approvals.

Market Dynamics and Enforcement:

Fair Competition Issues:

- *Tensions exist with taxi unions, who see ride-hailing as a threat.*

Regulatory Enforcement:

- *Past detainments of drivers due to unclear policies, later resolved by court rulings.*
- *The company collaborates with traffic authorities for compliance.*

Safety & Monitoring:

- *Insurance coverage (up to NPR 1,000,000 for accidents).*
- *24/7 customer support & emergency response team.*

Real-time location sharing for security.

- *Driver bans for severe violations; training for minor offenses.*

Challenges and Gaps in the Framework:

Operational challenges: The primary challenges faced include the absence of a structured legal framework for ride-hailing services, offline riders, and human behavioral factors making regulation and enforcement difficult

Outdated or unnecessary regulations: Certain government-imposed fare structures for taxis are considered outdated. Taxi drivers complain about the regulated fare rates being too low, affecting their earnings. However, they have no direct influence over these government policies.

Technology and innovation: The lack of clear regulations hampers the adoption of new technologies such as digital payments, GPS tracking, and enhanced safety features.

Collaboration with authorities: While maintaining cooperative relationships with traffic police and Nepal Police, interactions with the Department of Transport Management have

been limited. Some proposed guidelines, such as a 15km ride distance limit, mandatory helmets for all passengers, and a 10-hour daily driving cap, have raised feasibility concerns.

Recommendations and Future Directions:

Policy suggestions: A comprehensive regulatory framework is needed to ensure smoother operations for ride-hailing services. The absence of legal clarity creates operational inefficiencies that could be resolved with appropriate legislation.

International best practices: Globally, ride-hailing services are recognized as legal entities solving transportation challenges. Nepal could benefit from adopting similar models, providing legal recognition to such services while ensuring balanced regulations for traditional and modern transport providers.

Technology integration: To improve safety and compliance, their platform leverages technology, including real-time monitoring and algorithm-based tracking. A centralized regulatory database and background verification system for drivers would enhance oversight.

Additional Comments:

Regulations should be flexible to accommodate the gig economy nature of ride-hailing services. Their platform has created transitional job opportunities, providing supplementary income for many individuals. The government should support these platforms rather than impose restrictive policies. They promote eco-friendly transportation methods, such as including bicycle couriers in their food delivery service to reduce carbon emissions. Drivers earn NPR 50,000–60,000 per month on average, demonstrating the economic potential of this sector. A collaborative approach between regulators and service providers can lead to a structured and efficient ride-hailing system that benefits both users and operators.

4.3.11 Platform Riders: Pathao & In-Drive

Absence of Legal Framework and Regulation:

Both Saroj Rai and Naren Rai, motorcycle riders for In-Drive, are not informed about the specific regulations that pertain to ride-hailing services in Nepal. They point out the lack of governmental supervision, legal acknowledgment, and structured compliance protocols, such as vehicle inspections, driver training, or background vetting. Ride-

hailing companies, especially In-Drive, offer no direction regarding regulations, and drivers function under minimal requirements, mainly needing a bike and a valid license.

Safety and Accountability Shortcomings:

No platform imposes safety regulations beyond standard traffic rules, and there are no insurance policies available to cover damages or accidents. Drivers also do not have a formal process to lodge complaints. Both Saroj and Naren remember episodes where passengers tricked them into providing unpaid rides by promising digital payments, and they had no way to report or recover their losses. In addition, ride-hailing drivers occasionally encounter resistance from taxi drivers at authorized taxi stands.

Economic and Employment Issues:

The unregulated situation of ride-hailing leads to financial insecurity for drivers. Naren mentions that the irregularity of ride availability and the absence of organized commission structures make their earnings unpredictable. Furthermore, In-Drive does not provide incentives or financial safeguards, which leaves drivers exposed to varying incomes and job instability.

Call for Government Recognition and Reform:

Both drivers emphasize the importance of governmental action to officially recognize ride-hailing services. They suggest:

- Legal acknowledgment of ride-hailing as a legitimate profession.
- Compulsory insurance for both drivers and passengers.
- Designated parking and waiting zones to minimize disputes.
- Enhanced accountability from platforms, including customer service and conflict resolution.
- Equitable commission frameworks to guarantee steady earnings.

4.3.12 User's Issues & Regulatory Perspective Regarding RHS

Responses from 548 user's major issues are faced by ride-hailing users. Drive cancellations are the most significant problem, reported by approximately 30% of users, followed by unexpected fare surges (around 25%), offline ride requests (about 20%), safety concerns such as harassment and reckless driving (approximately 18%), and other issues (around 5%).

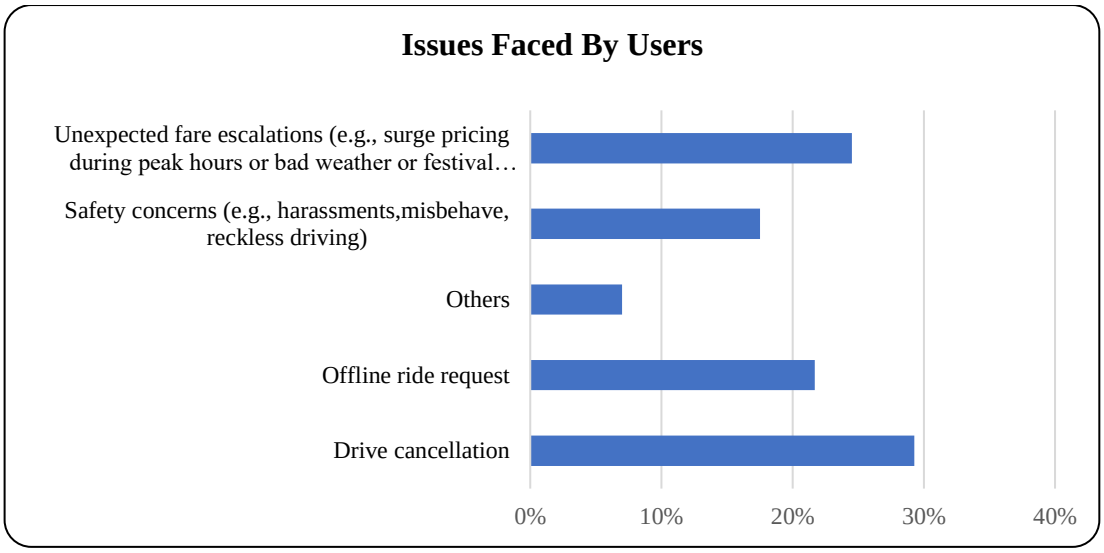


Figure 38: Issues Faced by RHS Users

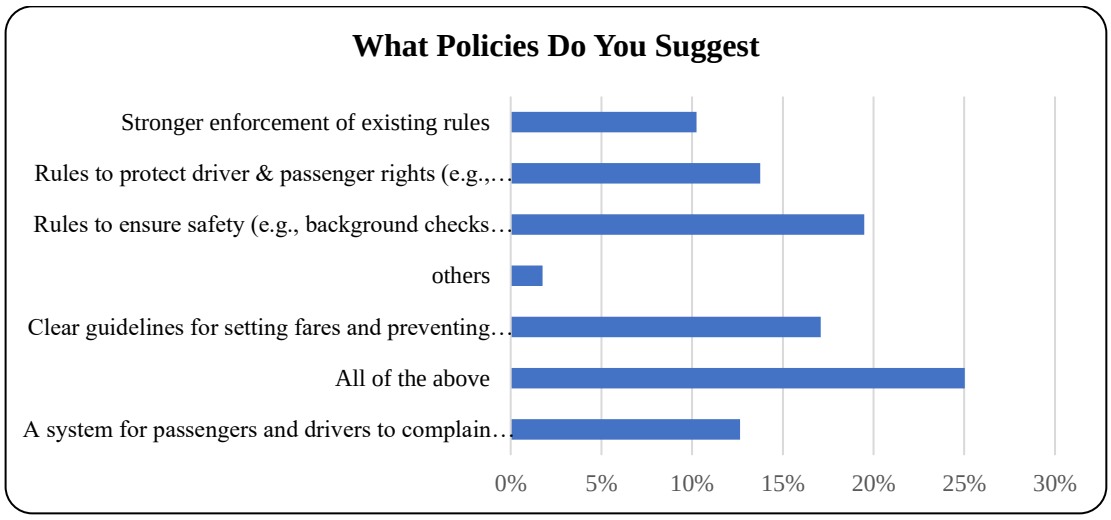


Figure 39: Policy Suggested by RHS Users

Policies to improve ride-hailing services. The most favored option, chosen by nearly 30% of respondents, is implementing all the proposed measures. About 20% support clearer fare guidelines, while around 18% advocate for stricter safety measures like background checks. Around 15% emphasize the need for a passenger-driver complaint system, 12% favor protecting driver and passenger rights, and about 5% call for stronger enforcement of existing rules. Only a small percentage (under 5%) suggested other policies.

4.3.13 Interpretation of Findings: Regulatory Gaps and Challenges in Nepal's Ride-Hailing Sector

Table 17: Regulating Bodies Draft Policies Interpretations

Parameter	Ministry of Physical Infrastructure and Transport (MOPIT)	Department of Transport Management (DoTM)	Ministry of Labour, Employment and Transport, Hetauda	Ministry of Physical Infrastructure and Transport (MOPIT), Gandaki
Legal framework	• Conflicts exist between the 1993 Motor Vehicles Act and provincial regulations. • Draft bill pending approval to revise ride-hailing legal structure.	• Progress is slow due to jurisdictional conflicts and lack of accurate data on the number of platforms operating in the market.	• Licensing prerequisites: drivers aged 21-60, valid passenger permit, at least one year of driving experience post-licensure. • Registration for ride-hailing vehicles distinct from private vehicle registration, requiring a green bluebook for commercial use (awaiting Cabinet approval)	• Governed by the Gandaki Province Ride-Sharing Procedure, 2081, under Section 13 of the Vehicle and Transport Management Act, 2076. Service providers must register with the Transport Office and re-register within 30 days of enactment.
Safety of riders and passengers	• GPS tracking, background checks for drivers, and vehicle inspections are required. • A centralized data system is needed for effective monitoring and regulation.	• Comprehensive insurance for vehicles and passengers, and tracking systems for monitoring speed and routes.	• Security features such as GPS tracking, real-time location sharing, and visible identification of drivers (photo, name, vehicle information). • Tracking systems for monitoring speed and routes	• Mandates GPS tracking, emergency buttons, real-time ride monitoring, and mandatory helmets for two-wheeler passengers, but weak enforcement remains a concern.

Role of authorities	• A nine-member committee established to tackle regulatory overlaps • Ministry working on a cohesive federal framework	• Monitoring systems and mechanisms to be established once guidelines are approved.	• TMO (Traffic Management Office) is responsible for drafting and enforcing regulations. • Regulatory committee to determine standardized fare frameworks	• Transport Office oversees licensing and registration, while monitoring and enforcement mechanisms are yet to be fully implemented.
Stakeholder Engagement	• Stakeholders' participations lack.	• Only Pathao engaged in consultations; other platforms disengaged.	• No formal dispute resolution; minimal engagement with drivers/passengers.	• Stakeholder input ignored in draft policies; no collaboration with ride-hailing platforms.
Enforcement & Monitoring	• Lack the clear enforcement and monitoring act	• No monitoring systems; reliance on draft guidelines.	• Monitoring gaps due to pending laws; vehicle/driver eligibility inconsistently enforced.	• Data storage required but no guidelines for utilization; enforcement mechanisms undefined.
Regulatory gaps	• Focus is on mass transit solutions, neglecting single-vehicle ride-hailing. • Lack of coordination and clarity between federal and provincial laws complicates enforcement	• Rapid changes in the ride-hailing industry make it difficult to create comprehensive regulations • Current draft guidelines lack legal enforcement mechanisms	• No established dispute resolution system for conflicts among drivers, passengers, and platforms. • Existing policies do not coordinate ride-hailing services with public transportation systems. • Lack of a clear legal distinction between ride-hailing services and traditional taxis.	• Regulatory uncertainty due to delayed approval of the draft. • No formal dispute resolution system, fare standardization, or clear distinction between private and commercial vehicle

Operational boundaries	• No clear act	• Jurisdictional conflicts with provinces hinder unified regulations; no data-sharing mechanisms.	• Operational boundaries unclear; inter-provincial coordination absent.	• Overlaps with federal laws create ambiguity; no integration with public transport systems.
Economic & Operational Gaps	• No clear act	• Fare structures unregulated; rapid tech changes outpace policy development.	• Unregulated fare fluctuations; no incentives for eco-friendly vehicles.	• Drivers face financial insecurity; no insurance mandates or commission structures.
Regulation Inconsistencies'	• Guiding the act	• 3 km min. and 20% commission • Data security it should be stored in Nepal • Max 150KM distance for ride services	• 2 km and 10% &10% commission and SSF • Data security no strict policies • While Bagmati says 50Km max distance	• 2Km and 10% capped commission • Restrict data sharing
Future outlook and recommendation	• Aim to create a regulated, secure ride-hailing system enhancing urban mobility. • Recommendations: consolidated legal framework, precise guidelines, centralized database, stricter compliance measures.	• Anticipated growth of ride-hailing services. So, need for robust regulations to prevent stress on Kathmandu's transportation infrastructure. • Aim to enforce stricter regulations over the next five years to enhance public transport and address sustainability concerns.	• Enforcement of Ride Sharing and Pay Bike Karya Bidhi 2080 to provide legal clarity, ensure safety, and standardize fare structures. • Future regulations should balance the growth of ride-hailing services with sustainable urban mobility solutions, ensuring these services enhance traditional public transportation.	• Calls for swift enactment of regulations, stronger enforcement of safety measures, • Better integration with public transport for sustainable urban mobility.

4.3.14 Interpretation of Law Enforcing Bodies, Registration Authorities, Service Providers, Drivers & Users in Nepal's Ride-Hailing Industry

Police & Traffic Enforcement: Regulatory Challenges and Gaps:

The functions of traffic police regarding ride-hailing enforcement are restricted since their jurisdiction mainly focuses on road safety and traffic offenses instead of regulations specific to the platform. Significant obstacles include:

- **Absence of a legal framework for enforcing ride-hailing rules**: Traffic police can impose fines for traffic infractions (e.g., illegal parking, reckless driving) but lack authority to address platform-specific violations (e.g., unregistered operations).
- **Frequent driver detentions due to legal uncertainties**: Drivers face penalties for operating without commercial registration, as ride-hailing lacks a clear legal classification (pending draft laws).
- **Restrained monitoring capabilities**: Despite requirements for GPS tracking and route supervision, enforcement is weak due to inadequate real-time surveillance systems (no specialized tools).
- **Overwhelmed enforcement personnel**: Kathmandu Valley has 1.9 million vehicles (77% two-wheelers) and only 1,835 traffic officers (1:1,059 ratio), hindering oversight.
- **No collaboration with ride-hailing companies**: Platforms monitor trip data but lack agreements to share this data with authorities for enforcement.

Registration Authorities & Industry Formalization:

The lack of standardized registration for ride-hailing platforms, drivers, and vehicles has resulted in operational inconsistencies. Key issues include:

Legal Recognition vs. Operational Reality:

- Ride-hailing services are legally recognized under Nepal's *Industrial Enterprises Act, 2020*, but **only Pathao and In-Drive** are officially registered.
- **In-Drive's registration mismatches** its operations (e.g., unclear office location, contact details, and business name discrepancies), highlighting **regulatory opacity**.

Enforcement Gaps:

- The Department of Industry has authority to mandate ride-hailing platforms to maintain contact offices but **lacks proactive enforcement in case of *In-Drive***, relying on formal complaints (which are absent).
- The Department of Industry has authority to mandate ride-hailing platforms to maintain contact offices but **lacks proactive enforcement in case of *In-Drive***, relying on formal complaints (which are absent).
- This reflects **weak oversight** despite legal frameworks.

Chaotic Registration Practices:

- The Company Registrar's **disorganized record-keeping** and **outdated data systems** hinder verification of ride-hailing companies (e.g., Pathao's registration status was unverifiable).

Industry Formalization Challenges:

- Ride-hailing platforms register as **generic IT/service entities** (not transport providers), bypassing sector-specific regulations.
- **Misclassification** (e.g., In-Drive's registration under a different name) complicates accountability and regulatory control.

Service Providers:

Ride-hailing platforms like Pathao, In-Drive, and Tootle have seen rapid growth, Pathao with over 200,000+ registered riders within 7 years from operations and expanding services into food and parcel delivery. However, they face major operational and legal hurdles:

- **Weak regulatory engagement**: Only Pathao has actively participated in policy discussions, while other platforms remain disengaged.
- **Legal gray areas**: Platforms operate without clear ride-hailing-specific regulations, making compliance uncertain.
- **Economic instability**: Drivers lack employment protections, facing income fluctuations, surge pricing issues, and no structured commission models.
- S**ervice reliability issues**: Frequent offline ride requests, last-minute cancellations, and lack of complaint resolution mechanisms create user dissatisfaction.

Drivers & Users:

Despite its rapid expansion, the ride-hailing sector fails to provide adequate protections for both drivers and users, leading to significant service inconsistencies.

Drivers' Challenges

- **No legal recognition as employees:** Drivers are treated as independent contractors, leaving them without labor protections, including fixed wages, job security, or benefits.
- **Unregulated commission structures:** Companies change commission rates frequently, affecting income stability for drivers.
- **Lack of insurance protections:** Many drivers operate without health, accident, or vehicle insurance, making them vulnerable to financial losses in case of accidents.
- **Unfair penalties and detainments:** Due to legal ambiguities, traffic police frequently detain ride-hailing drivers, disrupting earnings.
- **High operational costs:** Fuel price hikes, maintenance expenses, and commission deductions reduce profit margins, making ride-hailing less sustainable for long-term drivers.

Users' Concerns & Service Deficiencies:

- **Frequent ride cancellations (29%) and offline bookings (22%)**: Many drivers try to avoid digital bookings to negotiate fares offline, reducing platform reliability.
- **Unregulated surge pricing (25%):** Prices fluctuate unpredictably, and lack of fare transparency leads to dissatisfaction.
- **Safety risks due to weak enforcement (18%):** While platforms mandate background checks, loopholes exist, with users facing issues like harassment and misconduct.
- **No formal complaint resolution system:** Platform like In-Drive lack a direct mechanism to report safety concerns or service failures, with platforms offering slow responses.
- **Uncertainty in liability for accidents:** Platform like In-Drive if accident occurs, liability disputes arise between drivers, users, and platforms, with no legal protection for affected parties.

Growth vs. Deficiency in Regulation & Oversight

Nepal's ride-hailing industry is rapidly expanding, but regulatory shortcomings continue to hinder its sustainable integration into urban mobility. The lack of coordinated oversight has resulted in:

- Conflicting federal and provincial laws, creating jurisdictional disputes over licensing and enforcement.
- No price regulation, leading to market instability and competition issues with traditional taxis.
- Poor service quality control, as platforms operate with minimal accountability.
- Failure to integrate with public transport, missing an opportunity to enhance last-mile connectivity.
- No environmental incentives, despite increasing congestion and pollution concerns.

4.3.15 Regulatory Gaps in Nepal's Ride-Hailing Sector

Absence of Formal Regulations:

The ride-hailing sector in Nepal functions without proper legal structure since the Motor Vehicle and Transport Management Act (1993) served before modern ride-hailing innovations appeared and did not cover these specific operational aspects. The draft National Directive 2080 presents safety rules (such as helmet mandates along with insurance requirements and GPS requirements) yet federal-government vs provincial-government disputes prevent their execution. Provincial regulations in Bagmati and Gandaki stand in opposition to federal laws because these jurisdictions generate unclear conditions regarding vehicle licenses and operational jurisdiction. Tootle and Pathao face risks from non-binding national standards because this regulatory stagnation allows authorities to impose arbitrary penalties from vehicle detainments.

Enforcement Challenges and Jurisdictional Overlaps:

The absence of a cohesive federal framework exacerbates enforcement inefficiencies. Provincial government bodies continue writing their own independent ride-sharing rules similarly through the Bagmati Ride-Sharing Act and Gandaki Ride-Sharing Procedure 2081 although these conflicting regulations delay proper oversight coordination. The current laws restrict traffic police from handling ride-hailing

violations such as unregistered operations and surge pricing because they concentrate on normal traffic offenses instead. The current regulatory void provides space for dangerous driving incidents together with incidents from uninsured drivers and unlawful price changes that endanger passenger safety and reduce service dependability.

Safety and Accountability Deficits:

The current safety protocols exist only as inspirational guidelines instead of enforceable standards. Tootle requires driver documentation for both valid licenses and bluebooks yet Pathao provides accident insurance (maximum of NPR 1,000,000) but both companies operate through self-regulation without government verification. Believed safety protocols including both GPS tracking systems and driver screening process exist only on paperwork because they lack real enforcement methods. Women riders and other passengers experience security risks while using scooters and bicycles for transportation but there is no official dispute resolution process to charge those in charge with responsibility.

Data Governance and Technological Shortcomings:

The inability of authorities to receive data exchanges from ride-hailing companies blocks their capacity to build policies based on solid evidence. Pathao relies on algorithmic systems to track driver activities but the government faces data accessibility barriers that suggest its inability to manage transportation flow or set fares. Standardized GPS integration with digital payment systems fails to receive attention in draft policies which results in decreased transparency along with diminished accountability.

Stakeholder Disengagement and Equity Gaps:

The process of developing regulations faces profound problems because officials in charge do not work adequately with industry professionals. Only Pathao takes part in policy discussions yet the other platforms put their expansion needs ahead of regulatory cooperation. The disengagement from stakeholders fosters critical gaps which include commission systems without regulation combined with transportation costs that remain out of reach for poor users of public services.

Traffic Mismanagement Issues: The rapid expansion of ride-hailing platforms has significantly strained Kathmandu Valley's already limited traffic infrastructure and

management capacity. With over 200,000 registered riders on Pathao alone and the introduction of additional services like food and parcel delivery, the number of vehicles on the road—particularly two-wheelers—has increased drastically. This surge has not been matched by corresponding upgrades in traffic infrastructure or regulatory oversight. Kathmandu Valley, with a permanent population of 3.02 million and a mobile population nearing 5 million, has only 2,322.33 km of road to support 1.94 million registered vehicles, of which 1.55 million are two-wheelers. Such high vehicle density, especially in urban chokepoints like bus terminals, Thamel, and airport areas, has resulted in chronic congestion, illegal parking, and increased traffic violations.

The capacity of traffic management personnel is also overwhelmed. With just 1,835 active traffic police officers in the valley, each officer is, on average, responsible for managing more than 1,050 vehicles—a ratio that renders real-time monitoring and enforcement practically unfeasible. The lack of integration between ride-hailing platforms and traffic authorities exacerbates the problem; there are no centralized systems for GPS tracking, data sharing, or enforcement collaboration. Despite this, traffic police have issued a growing number of fines to ride-hailing drivers: from 3,899 in 2078/79 to a peak of 29,546 in 2080/81. However, these figures declined sharply to 7,573 in 2081/82, largely due to a court ruling that temporarily restricted enforcement actions—highlighting the regulatory confusion. Crucially, the existing legal framework does not distinguish between personal and commercial vehicles in the context of app-based services. Ride-hailing vehicles are technically classified as private, which exempts them from regulatory inspections, operational route restrictions, and commercial licensing norms—yet they continue to function as public transport substitutes. This classification loophole not only undermines enforcement but also contributes to unplanned traffic inflows in sensitive areas, worsening congestion. The absence of a dedicated traffic lane or stop for ride-hailing pickups and drop-offs further intensifies road crowding and disrupts traffic flow.

Similarly, unregulated pick-up and drop-off behavior by ride-hailing vehicles has intensified pressure on already congested urban curb spaces, especially in commercial and transit-heavy zones. Lack of designated zones or digital curb management strategies, resulting in frequent double parking, traffic blockages, and inefficient curb use and traffic congestion. Without a clear policy response that addresses the infrastructure burden, personnel shortages, and regulatory ambiguity around ride-hailing services, Kathmandu's

traffic management challenges will continue to escalate. There is a pressing need for integrated regulation that includes vehicle identification systems, real-time data integration between platforms and traffic police, specialized training for enforcement personnel, and designated zones for ride-hailing operations to mitigate their impact on urban mobility.

Safety, Security & Insurance:

Safety remains a major factor influencing users' willingness to adopt ride-hailing services in Nepal, particularly among women and vulnerable groups. However, the study revealed a concerning rise in safety-related incidents in parallel with the increasing use of these platforms. A major challenge is the absence of a dedicated legal and institutional framework to address these risks—law enforcement agencies currently lack a system to separately classify and track ride-hailing-related complaints, which hampers data-driven policing and timely intervention. Additionally, the study found inconsistent implementation of critical safety features across platforms. While some companies enforce real-time trip tracking, and GPS monitoring, others lag behind, leaving riders more vulnerable to mismatched rides or untraceable routes during emergencies. Driver background checks are not uniformly rigorous, and serious offender accountability remains weak. There is also no unified protocol for permanently banning drivers involved in grave misconduct or criminal offenses.

Helmet use among two-wheeler ride-hailing services is another critical concern. Although mandated by existing law (Section 130(2) of the Road and Transport Management Act-2049 and Section 42(3) of the 2081 Bill), enforcement remains inadequate, with many passengers observed riding without proper protection. Moreover, certain platforms such as In-Drive reportedly lack a formal insurance policy for trips, exposing both drivers and passengers to unmitigated financial and legal risks in case of accidents or theft.

Finally, the lack of efficient grievance redressal mechanisms across platforms has led to user dissatisfaction, with many complaints going unresolved. The absence of gender-sensitive safety features—such as female driver selection, live location sharing, or emergency alert systems—further exacerbates feelings of insecurity, especially for women passengers. These gaps point to a systemic weakness in the governance and operational safety of ride-hailing services in Nepal.

4.4 International Case Studies

4.4.1 Analysis of Travel Behavior and Perceptions Regarding Ride-Hailing Services (RHS) in Bangladesh

Papers Reviewed:

- **Analyzing The Changes in Travel Mode Behavior in Uttara Model Town, Dhaka: A Comparative Study Before and After the Emergence of Ride-Hailing Services- By** (Shuvo et al., 2024)
- **Ride-sharing Service in Bangladesh: Contemporary States and Prospects- By** (Islam et al., 2024)

Travel Behavior and Reasons for RHS Adoption:

Young, tech-savvy individuals, particularly students and professionals aged 20–35, dominate RHS usage due to their access to smartphones and preference for convenience. The primary reasons for adopting RHS include time-saving, as 91% of users prefer RHS over traditional transport for reduced travel time (Islam et al., 2024). Additionally, the convenience and flexibility offered by app-based booking, real-time tracking, and door-to-door service make RHS a popular choice. Users also appreciate the comfort of avoiding overcrowded public transport such as buses and lagunas. Furthermore, the availability of digital payments, promo codes, "pay later" options, and cashless transactions attract users to RHS.

Challenges and Problems:

RHS users face several concerns and challenges. Safety and security issues arise, especially for women who experience harassment and discomfort due to the male-dominated driver pool and the lack of female drivers. Privacy threats, including the misuse of personal data and drivers having access to passenger information, are also significant concerns. The cost of RHS is another challenge, as fares are 2–4 times higher than public transport (Shuvo et al., 2024), limiting affordability for low-income groups. Additionally, users frequently encounter ride cancellations, unprofessional driver behavior, and reluctance from drivers to use apps to avoid platform fees. Traffic congestion is exacerbated by RHS vehicles, particularly in areas like Uttara Model Town. Legal and policy gaps further complicate RHS usage. There is no standardized fare structure, with Uber charges varying by vehicle type while public buses have fixed rates. Safety regulations are lacking, with no mandatory background checks, in-app emergency

features, or quotas for female drivers. Data privacy is another area of concern, as there are no laws governing the protection of user data such as GPS tracking and payment details. Informal operations, where drivers bypass apps to avoid commission fees, lead to unmonitored services.

Suggestions for Improvement:

Several measures can be implemented. For safety and security, introducing female-exclusive driver options and panic buttons in apps, enforcing stricter driver verification processes such as biometric checks and mandatory training, and implementing real-time ride monitoring and user feedback systems are recommended. To enhance affordability, subsidizing fares for low-income users or integrating RHS with public transport subsidies, and expanding promo codes and implementing dynamic pricing during off-peak hours can be effective. Policy and regulation improvements include standardizing fare structures with government-mandated per-km rates, mandating safety features such as in-app SOS buttons and driver dashcams, and promoting gender inclusivity through quotas for female drivers. Enhancing technology and service quality by improving app reliability, reducing server crashes, enhancing GPS accuracy, offering multilingual support, and providing user education on app features are crucial. Infrastructure integration, such as coordinating RHS with metro rail and bus routes to reduce traffic congestion, and designating RHS pickup/drop-off zones in high-demand areas like Mohakhali and Banani, can further improve the service.

Impact of Legal Constraints:

The lack of enforcement of existing laws, such as traffic regulations and digital commerce policies, presents challenges for RHS. Unregistered vehicles, where drivers use informal bikes/cars without proper licenses, are common. Labor exploitation is another issue, with drivers facing high commission fees (20–25%) and receiving minimal benefits. Additionally, there is ambiguity in insurance coverage for RHS-related accidents, leading to uncertainties in accident liability.

Future Directions:

Government action is essential. Developing a national RHS policy addressing safety, pricing, and labor rights, and collaborating with RHS companies to create driver welfare programs such as health insurance, are necessary steps. Corporate responsibility includes investing in driver training programs and incentivizing app compliance through bonuses

for high ratings. Launching awareness campaigns to highlight the benefits of RHS, such as reducing the carbon footprint through carpooling, can also promote the service.

By addressing these challenges through policy reforms, corporate initiatives, and technological upgrades, RHS can evolve into a safer, more affordable, and sustainable component of Bangladesh's urban transportation ecosystem.

Table 18: Key Findings and Recommendations of Case Study

Aspect	Key Findings
User Demographics	Dominated by young, tech-savvy individuals (students/professionals).
Adoption Drivers	Time-saving (91%), convenience, digital payments.
Safety Concerns	Harassment, privacy issues, lack of female drivers.
Cost Issues	RHS 2–4x costlier than public transport.
Legal Gaps	Unregulated fares, unregistered drivers, data privacy risks.
Infrastructure	Traffic congestion worsened by RHS.

4.4.2 Analysis of Travel Behavior and Perceptions Regarding Ride-Hailing Services (RHS) in India

Paper Reviewed:

- **Analyzing User Behavior in Selection of Ride-Hailing Services for Urban Travel in Developing Countries by** (Raj et al., 2022)

Travel Behavior and Perception Towards Ride-Hailing Services (RHS):

The study reveals that RHS adoption in New Delhi is influenced by socio-demographic factors, trip characteristics, and technological familiarity. Younger individuals (18–30 years) exhibit higher RHS usage due to their tech-savviness, flexibility in travel decisions, and lower car ownership. Households with larger sizes prefer RHS for cost-effective shared trips, while higher-income groups show lower adoption due to reliance on personal vehicles. RHS is predominantly used for non-work purposes (e.g., leisure trips on weekends), often to avoid parking hassles in crowded areas like malls or restaurants. Women, particularly, perceive RHS as safer compared to public transport or informal taxis, contributing to their frequent usage. However, RHS adoption remains low overall, with minimal weekday usage (0.9% modal share) and moderate weekend usage (10.1%).

Reasons for RHS Use:

Key drivers for RHS adoption include **convenience**, **comfort**, and **smartphone dependency**. Users value app-based booking, flexible payment options, and door-to-door service. Shared rides appeal to younger demographics for affordability, while non-work trips (e.g., leisure) align with RHS's flexibility. Safety concerns, especially among women, further drive preference for RHS over less secure alternatives like auto-rickshaws or buses. Tech-savvy individuals with higher education levels are more likely to adopt RHS due to familiarity with digital platforms.

Challenges Faced by Users and Service Limitations:

- **Cost Barriers**: Despite convenience, RHS remains expensive for low-income groups, limiting frequent usage.
- **Competition with Sustainable Modes**: RHS draws users away from public transport and intermediate public transport (IPT), exacerbating congestion and reducing transit ridership.
- **Dependency on Smartphones**: Exclusion of non-tech-savvy populations, particularly older adults, creates accessibility gaps.
- **Service Reliability**: Surge pricing and driver refusals, prevalent due to regulatory loopholes, undermine user trust.

Legal Constraints and Policy Gaps:

India's regulatory framework for RHS is fragmented. The Motor Vehicles Act (1988) initially overlooked RHS, and the 2019 Amendment Bill delegated regulation to states, resulting in inconsistent policies. Key gaps include:

- **Unregulated Surge Pricing**: Lack of caps on dynamic pricing leads to user exploitation.
- **Driver Accountability**: Absence of standardized training or background checks raises safety concerns.
- **Integration with Public Transit**: No formal policies promote RHS as a last-mile connectivity solution, missing opportunities to enhance multimodal travel.
- **Vehicle Classification**: Auto-rickshaws and two-wheeler RHS operate in a legal gray area, lacking tailored regulations.

Recommendations for Improvement:

- **Promote Shared Mobility**: Incentivize pooled rides through discounts or tax benefits to reduce costs and congestion.
- **Enhance Safety Measures**: Mandate driver training, real-time ride tracking, and emergency response features in apps.
- **Integrate with Public Transport**: Develop unified apps for seamless transit-RHS connectivity and subsidize first/last-mile RHS trips.
- **Regulate Pricing and Operations**: Cap surge pricing, enforce anti-discrimination policies, and standardize service quality.
- **Support Affordable RHS Variants**: Expand auto-rickshaw and two-wheeler RHS options (e.g., Rapido, Ola Auto) to cater to low-income users.
- **Policy Interventions**: Implement congestion pricing, vehicle registration caps, and dedicated transit lanes to discourage personal vehicle use and prioritize sustainable modes.

Addressing Safety, Accidents, and Law Violations:

While the study does not explicitly analyze accidents or legal violations, the recommendations above indirectly address these issues. For instance, stricter driver vetting and real-time monitoring could reduce accident risks, while standardized regulations would minimize fare manipulation and refusal incidents. Future research should focus on accident data and user-reported safety incidents to refine policies further.

Table 19: Summary Table-Ride-Hailing Services (RHS) in Urban India

Aspects	Key Findings	Recommendations
Travel Behavior	- Younger demographics (18–30 years) and tech-savvy individuals adopt RHS more. - Higher usage for non-work trips (e.g., weekends, leisure). - Women perceive RHS as safer than public transport.	- Incentivize shared/pooled rides for cost-effectiveness. - Target youth with discounted frequent-user programs.
Reasons for RHS Use	- Convenience, comfort, and smartphone dependency drive - Shared rides appeal to affordability-seeking users.	- Integrate RHS with public transit for seamless travel. - Promote app features like real-time tracking.
User Challenges	- High costs limit low-income groups' access. - Competes with public transport, worsening congestion. - non-tech-savvy populations (e.g., elderly) face exclusion.	- Subsidize RHS for low-income users. - Improve public transit reliability to retain ridership.
Legal & Policy Gaps	- Unregulated surge pricing and driver refusal exploit users. - Lack of standardized driver training/background checks. - Absence of RHS-public transit integration policies.	- Cap surge pricing and enforce anti-discrimination policies. - Mandate driver training and safety certifications.
Safety & Security	- Safety concerns (especially for women) drive RHS preference over informal modes. - No explicit data on accidents/law violations.	- Implement real-time ride tracking and emergency buttons in apps. - Strengthen driver vetting processes.
Infrastructure & Sustainability	- RHS draws users from public transport, increasing congestion. - Minimal mode share despite growth.	- Prioritize bus lanes and congestion pricing to deter private vehicles. - Promote auto-rickshaw/two-wheeler RHS for affordability.
Regulatory Frameworks	- Fragmented state-level policies create operational inconsistencies. - Auto-rickshaw/two-wheeler RHS lack tailored regulations.	- Develop national RHS guidelines with uniform standards. - Classify vehicle types (e.g., e-rickshaws) under specific regulations.

CHAPTER: 5 DISCUSSION

Contextualizing Findings with Literature

The findings of this study align closely with existing literature on ride-hailing adoption while offering nuanced insights specific to the Kathmandu Valley context. Below, is the contextualized the results within the theoretical frameworks and regional studies discussed in the literature review.

5.1 Adoption Factors

Socio-Demographic Factors and Technology Adoption

Consistent with Raj et al. (2022), the study confirms that younger (18–35 years), tech-savvy individuals dominate ride-hailing usage in Kathmandu Valley (44.16% aged 18–25; 39.78%, aged 25–30). This aligns with global trends where younger demographics exhibit higher technological proficiency and openness to app-based services (Lavieri & Bhat, 2019). The strong correlation between **Technology Adoption** (EFA loading: 0.791) and variables like "Tech Savviness" underscores the role of digital literacy in RHS adoption, mirroring findings from India (Bhaduri et al., 2022). However, unlike studies in Malaysia (Hassan et al., 2021), **Cost Sensitivity** (EFA loading: 0.653) was secondary to **Service Quality** (28.82% variance) in Nepal, likely due to the dominance of low-cost two-wheeler services (71.53% usage).

Service Quality and Cost Efficiency

The **Service Quality** factor (EFA loading: 0.703) emerged as the strongest predictor of adoption (28.82% variance), driven by **reliability** (0.703), **safety** (0.595), and **availability** (0.604). This mirrors Rayle et al. (2016), who identified service reliability as a key driver in San Francisco. Notably, the strong correlation between service quality and cost efficiency (ρ=0.454 ρ=0.454) suggests users perceive high-quality services as cost-effective, contrasting with Etminani-Ghasrodashti & Hamidi (2019), who highlighted cost as a barrier for low-income groups. In **Kathmandu, affordability plays a crucial role, with 90.5% of respondents emphasizing its importance**, likely due to the competitive pricing of **two-wheeler ride-hailing services**—a feature that distinguishes it from Western contexts where such options are less prevalent.

Built Environment and Proximity to Transit

The influence of urban density and transit accessibility aligns with Acheampong et.al. (2020). Respondents in high-density urban areas (59.31%) favored RHS for short trips (5–9 km: 56%) and traffic avoidance, while suburban users (37.96%) relied on RHS to bridge gaps in public transport—similar to patterns observed in Dhaka and Jakarta (Jaman, 2023). However, unlike U.S. (Rayle et al., 2016), parking scarcity had a weaker influence (19% of vehicle owners), likely due to Nepal's lower 1.64% car ownership (47.45% own no vehicle). Proximity to bus stops (88.5% within walking distance) did not deter RHS use, indicating its role as a complement rather than substitute for public transport, as noted in Vietnam (Nguyen-Phuoc et al., 2020).

Cost Sensitivity and Economic Stratification

While cost ranked third in importance (4.67% variance), its role diverged across income groups. Low-income users (48.18% with no income) relied on ride-hailing for emergencies and short trips (5–7 km), treating it as a situational tool. Conversely, high-income users (20.26%) prioritized comfort for leisure trips (27.74% for 20–25-minute rides), indicating economic stratification in service usage. This mirrors findings in Jakarta (Almunawar et al., 2020), where ride-hailing served both essential and lifestyle-oriented needs.

Safety and Gender Dynamics

Safety concerns, particularly among women, emerged as a critical factor in ride-hailing adoption. While 90.3% of all respondents rated safety as "important" or "very important," female users (37.77% of the sample) disproportionately emphasized safety due to perceived risks in public transport and walking. For instance, survey data relevels **98% of female** respondents prioritized **safety** as a primary adoption driver, aligning with findings from Hamal (2019), who highlighted gender-specific safety challenges in Kathmandu's urban mobility landscape. This contrasts with broader regional studies (e.g., Acheampong et al., 2020 in Ghana), underscoring the localized nature of safety concerns in Nepal's context.

Reasons for Adoption Among Vehicle Owners

The adoption of RHS by vehicle owners (47.08%) reflects a shift in mobility preferences, driven by **emergencies** (24.95%) and **parking scarcity** (19%). This aligns with global trends where RHS provides a flexible alternative in congested cities (Nguyen-Phuoc et

al., 2020; Rayle et al., 2016). The use of RHS to avoid drinking and driving (19%) highlights growing safety consciousness, common in South Asia (Acheampong et al., 2020). Stress reduction (7%) and time-saving (6.75% daily users) emphasize Kathmandu's urban challenges, where chaotic traffic and unreliable transit make RHS attractive. These findings contrast with Western contexts where RHS substitutes public transport (Clewlow & Mishra, 2017), suggesting RHS in Kathmandu complements personal vehicles rather than replacing them.

5.2 Travel Behavior

Trip Purpose: Trip purpose analysis reveals ride-hailing services (RHS) as both a practical and critical mobility solution in Kathmandu Valley. **Work commutes (17.13%)** and **emergency trips (16.48%)** dominate usage, reflecting RHS's role in addressing unreliable public transport and infrastructural gaps (e.g., narrow streets, poor footpaths). The prominence of **transit connections (16.20%)**—such as airport or bus park trips—aligns with findings from **Vietnam and India**, where RHS bridges first/last-mile gaps in fragmented transit systems (Devaraj et al., 2020; Nguyen-Phuoc et al., 2020).

Mode Shift: Ride-hailing has significantly disrupted traditional transport modes, with 68% of users shifting from public transport (buses, microbuses) to app-based services. This substitution stems from dissatisfaction with overcrowding and delays, consistent with trends in Chennai (Devaraj et al., 2020). However, unlike cities with robust metro systems (e.g., Delhi), Kathmandu lacks reliable alternatives, exacerbating dependency on ride-hailing. The 16% reduction in public transport usage post-adoption signals a critical policy gap: without improving transit reliability, ride-hailing risks fragmenting urban mobility.

Leisure Trips: The prominence of **social/leisure trips (15.83% of total trips)** and the self-reported **57.48% increase in such trips** among users underscore ride-hailing's role in facilitating spontaneous urban lifestyles, particularly among younger demographics (83.94% aged 18–30). This cohort leverages app-based convenience to access entertainment hubs, shopping centers, and social gatherings, often during off-peak hours (10.11% night-time usage). While this aligns with global observations of ride-hailing supporting leisure economies (Rayle et al., 2016), Kathmandu's **lower leisure share** contrasts sharply with studies in **Ghana** and the **U.S.**, where leisure trips dominate

ride-hailing usage (Acheampong et al., 2020; Rayle et al., 2016). In Kathmandu, leisure trips via RHS reflect a cultural shift toward tech-enabled spontaneity, particularly among students and young professionals.

Trip Frequency and Spontaneity: Ride-hailing in Kathmandu Valley exhibits **low daily usage (3.28%)** but high **occasional/sporadic adoption (41.24%)**, reflecting its role in facilitating spontaneous, on-demand mobility. This aligns with Hampshire et al. (2016), who linked sporadic use to cost barriers and multi-modal preferences. However, Kathmandu's **17.52% induced trips**—primarily for leisure (57.48% increase), emergencies, and night-time travel (10.11%)—reveal a unique spontaneity driven by infrastructural constraints (e.g., narrow streets) and safety concerns. Younger users (83.94% aged 18–30) dominate this trend, leveraging app-based convenience for unplanned social activities, contrasting with **India and Vietnam**, where ride-hailing substitutes rigid transit schedules (Devaraj et al., 2020; Nguyen-Phuoc et al., 2020). The interplay of **youth tech-savviness**, **urban inefficiencies**, and **safety priorities** (Hamal, 2019) positions ride-hailing as a catalyst for flexible, demand-responsive travel in fragmented cities, diverging from substitution-focused patterns in other Global South contexts.

Short-Distance Dominance and Urban Frictions: Most trips (56%) spanned 5–9 km, with durations of 15–30 minutes (76.09%), reflecting Kathmandu's traffic-choked, narrow-road infrastructure. Two-wheelers (71.53%) dominated due to their agility in congested areas, echoing preferences in Ho Chi Minh City (Nguyen-Phuoc et al., 2020). This underscores ride-hailing's adaptability to hyper-local urban challenges, such as parking shortages and last-mile connectivity gaps. The **decline in walking (50.91%)** contrasts with Hanoi, where ride-hailing increased walking for first-mile connectivity. Kathmandu's lack of pedestrian infrastructure likely exacerbated this trend, diverging from sustainable urban mobility goals observed in European cities.

Peak-hour reliance (22.79% morning trips+ evening trips) mirrors congestion patterns in Indian metros but lacks the congestion-reduction benefits seen in cities with ride-pooling incentives. This paradox—ride-hailing easing individual stress while worsening traffic—echoes challenges in Jakarta and Bangkok, underscoring the need for regulatory frameworks tailored to Kathmandu's unique spatial and economic context.

Multi-Modal Integration and Urban Mobility

Multi-modal use (35.40% combining RHS with public transport) remains underdeveloped compared to cities like Singapore, where integration is policy-driven. Kathmandu's reliance on RHS for **peak-hour commutes** (12.39% morning trips) mirrors congestion patterns in Indian metros but lacks the congestion-reduction benefits seen with ride-pooling incentives. This paradox—RHS easing individual stress while worsening traffic—echoes challenges in Jakarta and Bangkok, underscoring the need for tailored regulatory frameworks.

5.3 Legal and Regulatory Framework Governing Ride-Hailing Services in Nepal

The legal and regulatory framework for ride-hailing services in Nepal remains fragmented and underdeveloped, creating operational ambiguities and systemic challenges. This discussion synthesizes insights from government bodies, service providers, and comparative case studies to critically evaluate existing gaps and propose pathways for reform.

Absence of Formal Regulations

Nepal's ride-hailing sector operates in a legal vacuum, as highlighted by the Department of Transport Management (DoTM), which acknowledges that the *Motor Vehicle and Transport Management Act (1993)* fails to address modern ride-hailing models (DoTM Interview, 2025). While draft guidelines, such as the *National Directive 2080*, propose safety measures (e.g., mandatory helmets, insurance, and tracking systems), jurisdictional disputes between federal and provincial governments have stalled implementation (DoTM Interview, 2025). This regulatory inertia contrasts sharply with Bangladesh, where ride-hailing-specific policies, albeit imperfect, are gradually emerging (Islam et al., 2024; Shuvo et al., 2024). For instance, Bangladesh's efforts to standardize fares and India's 2019 Motor Vehicles Amendment Bill reflect incremental progress, whereas Nepal's draft framework remains non-binding.

Enforcement Challenges and Jurisdictional Overlaps

The lack of a cohesive federal framework exacerbates enforcement inefficiencies. Provincial governments and federal authorities disagree on regulatory jurisdiction, leaving platforms like Tootle and Pathao vulnerable to arbitrary penalties, such as vehicle

detainments (Pathao Interview, 2025). This mirrors challenges in India, where state-level regulatory fragmentation compliance(Raj et al., 2022). In Nepal, the Traffic Police's inability to monitor ride-hailing operations due to outdated laws further amplifies risks, such as traffic violations and uninsured accidents (Traffic Police Report, 2025).

Safety and Accountability Gaps

Safety protocols remain aspirational rather than operational. While platforms like Tootle mandate driver documentation (e.g., valid licenses, bluebooks) and Pathao offers accident insurance (up to NPR 1,000,000), these measures are self-regulated and lack government oversight (Tootle & Pathao Interviews, 2025). Comparatively, Bangladesh's proposed mandates for female driver quotas and India's emphasis on driver background checks highlight systemic solutions absent in Nepal. The DoTM's draft guidelines propose tracking systems, but without enforcement mechanisms, compliance is voluntary, leaving passengers—particularly women—exposed to safety risks (Fieldwork Data, 2025).

Data Sharing and Technological Integration

The absence of data-sharing mechanisms between platforms and authorities undermines evidence-based policymaking. While Pathao uses algorithms to monitor driver behavior, Nepal's government lacks access to real-time operational data, hindering congestion management and fare regulation (Pathao Interview, 2025). This contrasts with Bangladesh, where ride-hailing integration with metro systems is prioritized to reduce traffic (Shuvo et al., 2024). Nepal's draft framework overlooks technological mandates, such as GPS standardization, which are critical for accountability.

Stakeholder Collaboration and Equity Concerns

Limited collaboration between regulators and platforms exacerbates regulatory gaps. Only Pathao engaged in DoTM's guideline discussions, while other operators prioritized business expansion over compliance (DoTM Interview, 2025). This contrasts with India, where platforms like Ola collaborate with states to pilot last-mile connectivity projects (Raj et al., 2022). Additionally, fare unaffordability for low-income users—evident in Bangladesh and India—is unaddressed in Nepal, where data suggest of the study 48% of riders are non-earning students and unemployed (Fieldwork Data, 2025).

CHAPTER: 6 CONCLUSION & RECOMMENDATION

6.1 Conclusion

This study presents details about both motivation factors behind ride-hailing adoption together with its widespread effects on transportation patterns and urban transit systems in Kathmandu Valley. Ridesharing has been mainly adopted by people who are young and digitally inclined because these services deliver both dependability together with security and user-friendly advantage. The affordability of two-wheeler services in Kathmandu makes service quality the most important factor that outweighs cost considerations which dominate Western markets. The adoption of ride-hailing platforms serves both as an enhancer and disruptive force because it enables people with minimal transportation alternatives yet reduce customers from conventional transit systems. Improved individual mobility results from these changes yet there are doubts about long term sustainability.

Ride-hailing is reshaping urban travel behavior by filling critical service gaps, particularly for short-distance and last-mile connectivity. The change in transport systems has caused public transport ridership to decrease because people now try to avoid uncomfortable and problematic bus and microbus services. Ride-hailing has become more convenient than walking, thus people avoid pedestrian trips. Ride-hailing improves accessibility yet its increasing market control threatens to diminish sustainable transport modes demanding policies that establish ride-hailing within a comprehensive urban mobility framework. Gender paradigms affect the riding patterns because women choose this service because it provides both safety measures and flexible scheduling options. The growing involvement of women in ride-hailing services remains threatened by safety issues across urban areas because strong protective measures and inclusive transport guidelines need immediate implementation. Beyond functional travel needs, ride-hailing is also redefining discretionary and lifestyle-oriented mobility. A growing number of users are engaging in leisure trips that would not have otherwise occurred, reinforcing ride-hailing's role in fostering social and economic activity. Induced travel—unplanned or discretionary trips enabled by these services—has expanded mobility access, particularly for those who previously faced transport limitations. Ride-hailing is not just an alternative but a catalyst for new travel patterns, shaping urban experiences in ways beyond

conventional commuting simultaneously leading to increase in the trips which ultimately increase the VKT, traffic congestion and traffic management issues, and parking issues also.

The regulatory framework governing ride-hailing services in Nepal is fragmented, with conflicting federal and provincial policies creating legal ambiguity. The outdated Motor Vehicles and Transport Management Act (1993) does not accommodate app-based mobility, while newer provincial draft policies, such as Bagmati's Ride Sharing and Pay Bike Karya Bidhi 2080, attempt to regulate the sector but lack harmonization with national laws. These inconsistencies result in unclear operational boundaries, uncertain fare structures, and weak enforcement mechanisms. The absence of standardized regulations on fare transparency, safety protocols, and driver classifications exposes users to risks, including unregulated surge pricing, driver misconduct, and a lack of grievance mechanisms. Institutional weaknesses, such as poor record-keeping and misclassification of ride-hailing companies, further hinder effective governance. From an urban transportation planning perspective, these regulatory gaps contribute to uncoordinated mobility services, integration challenges with public transit, and inefficient transport infrastructure development. Without a well-defined legal framework, ride-hailing operates in a gray area, making it difficult to align with long-term sustainable urban mobility goals.

Ultimately, the study reinforces that ride-hailing is not merely a substitute for traditional transport modes but a transformative force reshaping urban travel behavior. A well-balanced regulatory framework must be established because ride-hailing services act simultaneously both as replacement and enhancement for current transportation methods while protecting the interests of all its stakeholders including commuters and drivers and the overall transportation infrastructure.

RHS in Kathmandu filling service gaps rather than competing with formal transit, providing on demand services to commuters due to conveniences, availability, safety, simultaneously creating new demand and increasing leisure trips which is leading to VKT increase, infrastructure strain and its long-term sustainability is major concern.

6.2 Recommendations

Legal and Regulatory Reform:

To support the growing adoption of ride-hailing services and integrate them into urban mobility systems, the Motor Vehicles and Transport Management Act (1993) must be urgently revised by the Ministry of Physical Infrastructure and Transport (MoPIT). A clear legal framework will help resolve inconsistencies across provinces and establish formal recognition of digital ride-hailing platforms. The Department of Transport Management (DoTM) should enforce national directives, while provincial policies—including Bagmati Province's Ride Sharing and Pay Bike Karya Bidhi 2080 and Gandaki Province's Ride-Sharing Procedure 2081, should align with these standards to ensure policy coherence.

Licensing and Operational Guidelines:

Making standardized licensing and onboarding processes is essential. The DoTM should set federal onboarding standards for drivers—such as background checks, identity verification, minimum driving experience, and proof of insurance. Provincial Transport Management Offices should be responsible for licensing, enforcement, and context-specific implementation. Additionally, municipal traffic police and local governments must coordinate with ride-hailing platforms for on-the-ground compliance and monitoring.

Fare Transparency and Surge Pricing Control:

To address user concerns over pricing, the DoTM should mandate platforms to disclose transparent fare breakdowns and regulate surge pricing through pre-approved guidelines. Real-time notifications and caps on price fluctuations during peak hours should be enforced.

Safety, Security, and Insurance:

Safety concerns, especially among women and vulnerable users, significantly affect ride-hailing adoption. The Nepal Police should establish a dedicated case classification for ride-hailing incidents to improve incident tracking and response. Platforms must implement OTP-based ride verification, GPS tracking, and SOS alert features, monitored by the DoTM. Helmet use for two-wheelers riders and passengers should be strictly enforced by traffic police under existing laws. In addition, reckless driving behaviors by

ride-hailing drivers must be strictly monitored. The Traffic Police, in collaboration with ride-hailing platforms, should routinely inspect, record, and take disciplinary action, including temporary suspension or permanent banning, against drivers involved in dangerous driving. Comprehensive insurance coverage for both drivers and passengers must be mandate, and compliance monitored by platforms and regulatory bodies.

Grievance Redressal and Gender-Sensitive Features:

Platforms should be required by the Department of Transport Management (DoTM) to establish and maintain robust grievance redressal mechanisms within their apps, allowing users to report incidents and receive timely resolutions. In addition, DoTM should supervise the incorporation of gender-sensitive features—such as optional selection of female drivers, live location sharing, and emergency contact alerts—directly into the platforms.

Curbside and Parking Management:

Municipalities, under the coordination of the Ministry of Urban Development, local metropolitan offices, and respective Provincial Transport Management Offices, should implement Smart Curbside Management Plans. These should designate geofenced pick-up and drop-off zones in high-demand areas (e.g., hospitals, commercial centers, and transit hubs), introduce digital queue systems, and issue time-restricted parking permits to reduce congestion. Ride-hailing platforms should be mandated to integrate curbside zone data within their apps and contribute to a curb usage fund dedicated to improving local traffic infrastructure.

Integration with Public Transit:

To promote multimodal mobility, the **provincial transport management office**, in coordination with the **local authorities**, should work with ride-hailing platforms and public transport operators to establish clearly marked RHS pick-up/drop-off zones at major transit hubs such as bus parks, microbus stands, and tempo stations. These zones should be integrated within the ride-hailing apps for better navigation and traffic flow. Platforms should also offer discounted shared rides for last-mile connectivity during peak commuting hours, incentivized through government-supported programs. Authorities should enforce integration of ride-hailing services with public transit ticketing systems using QR codes or smartcards, while also mandating anonymized real-time data sharing

from platforms to support multimodal planning and reduce congestion. Pilot initiatives for co-location and co-branding at key transfer points should be jointly overseen by DoTM and local transport authorities.

Traffic Management and Route Optimization:

The rise in ride-hailing vehicles, particularly two-wheelers, has significantly contributed to urban congestion in cities like Kathmandu. To mitigate this, the Department of Roads, Traffic Police, and Department of Transport Management (DoTM) should adopt a coordinated, data-driven traffic management strategy. Ride-hailing platforms must be mandated to share anonymized real-time trip data with these agencies to support dynamic traffic signal timing, congestion zone mapping, and optimal route planning. During peak hours, shared ride options should be prioritized and incentivized to reduce the total number of vehicles on the road. Additionally, time-restricted entry regulations should be enforced in high-density corridors, and platforms must cooperate in regulating reckless drivers by promptly suspending violators, while the Traffic Police should routinely monitor and penalize infractions to ensure public safety.

Data Governance and Transparency:

Establish a government-regulated centralized data-sharing system where ride-hailing platforms are legally required to submit anonymized data on ride frequency, trip routes, durations, and peak usage times. This data should support urban transport planning while ensuring user privacy. Introduce strict monitoring mechanisms to oversee how and where platforms store user data, including regular audits. Data storage should comply with national privacy regulations, and unauthorized third-party sharing must be prohibited.

Multi-Stakeholder Governance:

To ensure inclusive, adaptive policy development, a national taskforce should be established by MoPIT and coordinated by DoTM, including representatives from federal and provincial government agencies, ride-hailing platforms, driver associations, urban planners, and user groups. Provincial Transport Management Offices should be actively involved to ensure that local enforcement challenges and insights are incorporated into national policy discussions. This body should oversee conflict resolution, feedback integration, and regulatory updates, enabling coherent and responsive governance across all levels.

Environmental Sustainability and Electric Vehicle Integration:

To address environmental sustainability concerns and reduce congestion, policies should be introduced to incentivize the use of electric vehicles (EVs) in ride-hailing fleets. This could include tax breaks, subsidies, or reduced licensing fees for ride-hailing platforms that operate EVs.

6.3 Further Research

Future research on ride-hailing should expand beyond younger users to analyze adoption factors across all age groups. Integrating real-time traffic data from ride-hailing platforms can enhance spatial analysis and improve traffic management. Additionally, studies should examine how ride-hailing interacts with traditional transportation systems and assess the environmental impact of the growing use of two-wheelers. A long-term analysis of demographic and economic trends can help understand shifts in commuting behavior, while evaluating the sustainability of two-wheeler ride-hailing is crucial for assessing its future feasibility. Since this study relies on self-reported data, real traffic studies and mixed-method cross-validation are necessary for more accurate insights.

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APPENDIX- I: QUESTIONNAIRE SURVEY USERS

RIDE HAILING ADOPTION FACTORS AND TRAVEL BEHAVIOR: A CASE STUDY OF KATHMANDU VALLEY

Ride Hailing Services, or online ride services means Pathao, Tootle, In-Drive, Jum Jum, etc. platforms that we use in our daily lives for modes of transport. अनलाइन सवारी सेवाहरू भनेको हाम्री हाम्रो दैनिक जीवनमा प्रयोग गर्ने यातायातका लागि Pathao, Tootle, In-Drive, Jum Jum, आदि प्लेटफर्महरू हुन्

Namaste, I am Ronesh Shahi. I am conducting a quick survey for my thesis in M.Sc. Urban Planning on study about online ride service adoption and travel behavior. I humbly request all of you to fill out this form. The survey is brief, and all responses will remain anonymous and used solely for academic purposes. Thank you for taking the time to participate!

Sociodemographic section

Name
Optional

What is your age group? तपाईंको उमेर कति हो?

- ◯ Below 18
- ◯ 18-25
- ◯ 25-30
- ◯ 30-35
- ◯ 35-40
- ◯ 40-45
- ◯ Above 45

What is your gender? तपाईंको लिंग के हो ?

- ◯ Male
- ◯ Female
- ◯ Others

What is your profession? तपाईंको पेशा के हो?

- ◯ Student
- ◯ Government employee
- ◯ Private sector
- ◯ Self employed
- ◯ Unemployed

What is your education level? तपाईंको शैक्षिक स्तर के हो?

- ◯ School Level
- ◯ Secondary Level (+2)
- ◯ Graduate (Bachelor Degree)
- ◯ Post-Graduate (Master Level)
- ◯ No Formal Education

If employed, what is your monthly income? रोजगारीमा हुनुहुन्छ भने तपाईको मासिक आम्दानी कति हो?

- ◯ Below NPR 15000
- ◯ 15000-25000
- ◯ 25000-35000
- ◯ 35000-45000
- ◯ More than 45000

Do you have a driver's license? तपाईंको ड्राइभर लाइसेन्स छ?

- ◯ Yes
- ◯ No

Do you own any personal vehicles? तपाईंको आफ्नै व्यक्तिगत सवारी साधन छ ?

- ◯ Two wheeler (motorcycle, scooter)
- ◯ Four Wheeler (car, van, jeep etc.)
- ◯ Both
- ◯ None

Do you use online ride services? के तपाईं अनलाइन सवारी सेवाहरू प्रयोग गर्नुहुन्छ?

- ◯ Yes
- ◯ No

Adoption Factors

Which online ride services platform do you use more often ? तपाईं कुन अनलाइन सवारी सेवा प्लेटफर्म बढी प्रयोग गर्नुहुन्छ?

(Select all that apply) (उपयुक्त सबै छनोट गर्नुहोस्)

- ☐ Pathao
- ☐ In-Drive
- ☐ Tootle
- ☐ Jum Jum
- ☐ Sajilo
- ☐ Others

Which online ride services do you use more often? तपाईं कुन अनलाइन सवारी सेवाहरू बढी प्रयोग गर्नुहुन्छ?

- ◯ Two wheeler (bike,scooter)
- ◯ Four wheeler (car, taxi)
- ◯ Both

What is the main purpose of your online ride services? तपाईंले अनलाइन सवारी सेवाहरू प्रयोग गर्ने मुख्य उद्देश्य के हो?

(Select all that apply) (उपयुक्त सबै छनोट गर्नुहोस्)

- ☐ School/ College
- ☐ Work / Office
- ☐ Home
- ☐ Social or Leisure (e.g. shopping, entertainment)
- ☐ Emergencies (Clinic, Hospital)
- ☐ Airport/ Buspark/ Bus Stop
- ☐ Others

How important are the following factors in your decision to choose online ride services compared to best alternative? अनलाइन सवारी सेवाहरू छनोट गर्न तपाईंको निर्णयमा सबैभन्दा राम्रो विकल्पको तुलनामा निम्न कारकहरू कति महत्वपूर्ण छन्?	Not Important	Least Important	Important	Most Important
Convenience (e.g., ease of booking & Payment, flexibility)	◯	◯	◯	◯
Cost (e.g., trip cost, value for money)	◯	◯	◯	◯
Reliability (e.g., on-time service)	◯	◯	◯	◯
Safety (e.g., driver trustworthiness, route tracking)	◯	◯	◯	◯
Availability (e.g., 24/7 access)	◯	◯	◯	◯
Waiting Time (e.g., time taken for a vehicle to arrive)	◯	◯	◯	◯
Comfort (e.g., vehicle condition, seating)	◯	◯	◯	◯

Trip Information

How many days a week do you use online ride services? तपाई हप्तामा कति दिन अनलाइन सवारी सेवा प्रयोग गर्नुहुन्छ?

- ◯ Sometimes
- ◯ 2-3 Times of weeks
- ◯ 3- 5 times of weeks
- ◯ Daily
- ◯ Multiples times within days
- ◯ Rarely

When do you mostly use online ride services? तपाई प्राय: कुन समयमा अनलाइन सवारी सेवा प्रयोग गर्नुहुन्छ?

(Select all that apply) (उपयुक्त सबै छनोट गर्नुहोस्)

- ☐ 6 AM -8 AM (Morning)
- ☐ 8 AM-11 AM (Morning)
- ☐ 11 AM- 4 PM (Day Time)
- ☐ 4 PM-6 PM (Evening)
- ☐ 6 PM- 11 PM (Night)
- ☐ Not fixed time (as per need)

How long are your average online ride trips? तपाईका औसत अनलाइन सवारी सेवा यात्राको अवधि कति छ?

- ◯ 10–15 Minutes
- ◯ 15–20 Minutes
- ◯ 20–25 Minutes
- ◯ 25–30 Minutes
- ◯ More than 30 Minutes

How far do you usually travel using online ride services? तपाई अनलाइन सवारी सेवा प्रयोग गरेर कति दूरी यात्रा गर्नुहुन्छ?

- ◯ 3–5 Kilometers
- ◯ 5–7 Kilometers
- ◯ 7-9 Kilometers
- ◯ 9-12 Kilometers
- ◯ More than 12 Kilometers

Where do you usually start and end your online ride trips? तपाईका अनलाइन सवारी यात्राहरू प्राय: कहाँबाट सुरु र समाप्त हुन्छन्? (for eg. Anamnagar to Koteshwor)

_____

What was your main mode of transportation before you started using online ride services? अनलाइन सवारी सेवा प्रयोग गर्नुभन्दा पहिले तपाईको प्राथमिक यातायात के थियो?

- ◯ Public transport (bus, micro, tempo)
- ◯ Private vehicle (car, motorcycle)
- ◯ Walking
- ◯ Cycling
- ◯ Taxi
- ◯ Others

What do you use as an alternative when you don't use online ride services? अनलाइन सवारी सेवा प्रयोग नगर्दा तपाई कुन विकल्प प्रयोग गर्नुहुन्छ?

(Select all that apply) (उपयुक्त सबै छनोट गर्नुहोस्)

- ☐ Public transport (bus, micro, tempo)
- ☐ Private vehicle (car, motorcycle)
- ☐ Walking
- ☐ Cycling
- ☐ Taxi
- ☐ Others

Would you have made your recent trip if online ride services were unavailable? यदि अनलाइन सवारी सेवा उपलब्ध नभएको भए, के तपाईले हालको यात्रा गर्नुहुन्थ्यो?

- ◯ Yes
- ◯ No

Since using online ride services how has your.....अनलाइन सवारी सेवा प्रयोग गर्न थालेदेखि तपाईको ..... *select whether it is increasing, decreasing or there is no change in you habit*	Increased	Decreased	No change
travel time (waiting+vehicle time) changed? यात्रा समय (पर्खने समय र सवारीको समय सहित) कस्तो परिवर्तन भएको छ?	◯	◯	◯
public transportation use changed? सार्वजनिक यातायात प्रयोगमा कस्तो परिवर्तन आएको छ?	◯	◯	◯
habit of walking short distances changed? छोटो दुरी हिँड्ने तरिका कस्तो परिवर्तन गरेको छ?	◯	◯	◯

Has online ride services increased your leisure trips (e.g., for entertainment or shopping)? के अनलाइन सवारी सेवाले तपाईको मनोरञ्जनका यात्रामा वृद्धि गरेको छ?

- ◯ Yes
- ◯ No

If you do own vehicle, Why do you choose online ride services instead of driving yourself? आफ्ने साधन भए, तपाईले आफैं सवारी चलाउनुको सट्टा किन अनलाइन सवारी सेवा प्रयोग गर्नुहुन्छ?

- ☐ No parking available
- ☐ Often running late
- ☐ To avoid drink and drive
- ☐ For pick-up and drop-off
- ☐ Driving is stressful
- ☐ For Emergencies
- ☐ Others

Have you ever faced issues related to safety or others while using online ride services?तपाईंले अनलाइन सवारी सेवाहरू प्रयोग गर्दा कहिल्यै सुरक्षा सम्बन्धी समस्या वा अरु समस्या अनुभव गर्नुभएको छ?

(Select all that apply) (उपयुक्त सबै छनोट गर्नुहोस्)

- ☐ Safety concerns (e.g., harassments,misbehave, reckless driving)
- ☐ Unexpected fare escalations (e.g., surge pricing during peak hours or bad weather or festival season)
- ☐ Drive cancellation
- ☐ Offline ride request
- ☐ Others

What do you think is missing or needs improvement in the current rules for ride-hailing services in Nepal?तपाईंको विचारमा नेपालमा राइड-हेलिंग सेवाका लागि नियममा के छैन वा के सुधार गर्न आवश्यक छ?
(Select all that apply) (उपयुक्त सबै छनोट गर्नुहोस्)

- [ ] Rules to ensure safety (e.g., background checks for drivers or vehicles)
- [ ] Clear guidelines for setting fares and preventing overcharging
- [ ] A system for passengers and drivers to complain about issues
- [ ] Rules to protect driver & passenger rights (e.g., fair pay and benefits)
- [ ] Stronger enforcement of existing rules
- [ ] All of the above
- [ ] others

Do you combine online ride services with other transport (e.g., public transit) in a single trip? के तपाईं एकै यात्रामा अनलाइन सवारी सेवाहरू अन्य यातायात (जस्तै, सार्वजनिक यातायात) सँग जोड्ने गर्नुहुन्छ

- ◯ Yes
- ◯ No

Which other modes of transport do you combine with online ride services? तपाईले कुन यातायातलाई अनलाइन सवारी सेवाहरू सँग जोड्नुहुन्छ?

- ◯ Public Transport
- ◯ Private Car, Bike
- ◯ Walking
- ◯ Cycling

Built Environment & User's Perceptions

Is there public transport (bus, micro, tempo) within 800m of your home? के तपाईको घरबाट ८०० मिटर भित्र सार्वजनिक यातायात छ?

- ◯ Yes
- ◯ No

What type of area do you live in?तपाईं कुन प्रकारको क्षेत्रमा बस्नुहुन्छ?

- ◯ High-density urban area (crowded streets, many buildings)
- ◯ Suburban area (moderate density)
- ◯ Rural area (low density)

How much do you agree with these statements?1 = strongly disagree, 4 = strongly agree तपाई यी कथनहरूसँग कति सहमत हुनुहुन्छ? (1 =पूर्ण असहमत, 4 = पूर्ण सहमत):	Strongly Diasagree	Disagree	Agree	Strongly Agree
I feel comfortable & safe traveling on public transport.	◯	◯	◯	◯
Public transport is less stressful than driving.	◯	◯	◯	◯
I can travel faster in my personal vehicle.	◯	◯	◯	◯
I feel safer & more convenient in my personal vehicle.	◯	◯	◯	◯
I like using online services (e.g., net banking, shopping).	◯	◯	◯	◯
I like trying new technologies.	◯	◯	◯	◯
Public opinion affects my decision to use ride-hailing services.	◯	◯	◯	◯
Affordability plays a significant role in my decision to use online ride services over other modes of transport	◯	◯	◯	◯

What motivates you to use online ride services in Kathmandu Valley? तपाईलाई काठमाडौं उपत्यकामा अनलाइन सवारी सेवा प्रयोग गर्न के प्रेरणा दिन्छ?

_____

Any additional comments on how online ride has changed your travel habits? अनलाइन सवारी सेवाले तपाईको यात्रा बानी कसरी परिवर्तन गरेको छ भन्नेमा कुनै टिप्पणी छ?

_____

Figure 40: Questionnaire Survey -At Nims Institute, Putalisadak

Figure 41: Questionnaire Survey-At Pulchwok Campus

- **Age Group's**

The age distribution of a sample consisting of 548 Most respondents (44.16%, 242) are aged 18-25, followed by 25-30 (39.78%, 218). A smaller share falls in 30-35 (12.04%, 66), while only a few are 35-40 (1.64%, 9), below 18 (1.64%, 9), 40-45 (0.55%, 3), or above 45 (0.18%, 1).

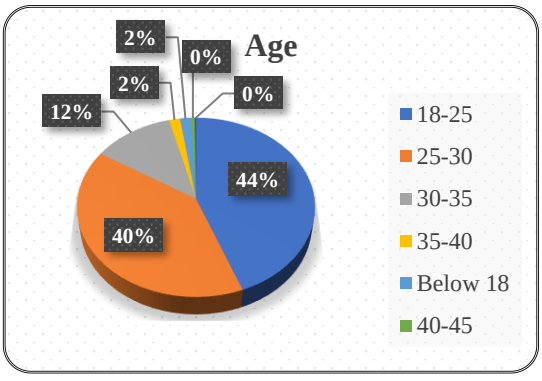


Figure 42: Age

- **Gender:**

The gender distribution of ride-hailing service users shows that **341 respondents (62.23%)** are **male**, while **207 respondents (37.77%)** are **female**.

Gender:

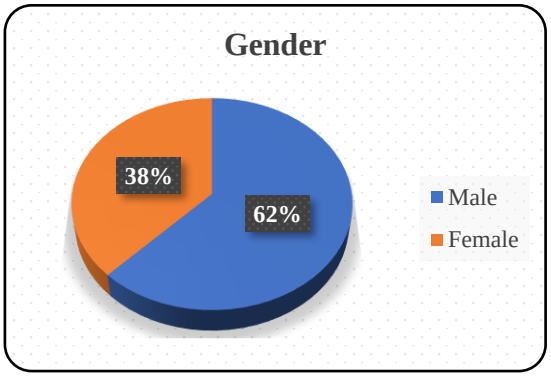


Figure 43: Gender

- **Education:**

290 (52.92%) hold a Bachelor's degree, followed by 141 (25.73%) with a Master's degree. Additionally, 116 (21.17%) have completed Secondary Level (+2), while only 1 respondent (0.18%) has a School Level education.

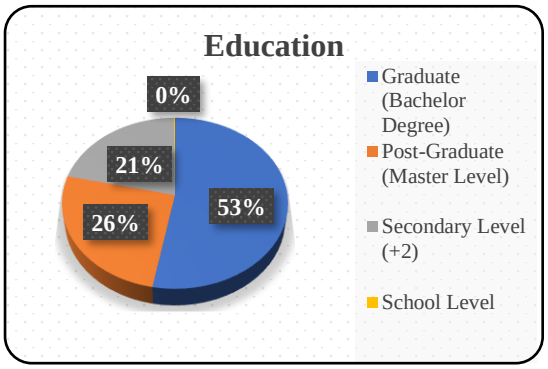


Figure 44: Education

- **Income:**

Nearly half of RHS users (48%, 264) reported no income, likely students. Others earn: 1% (7) below NPR 15K, 5% (29) between 15K-25K, 10% (55) between 25K-35K, 15% (82) between 35K-45K, and 20% (111) above 45K.

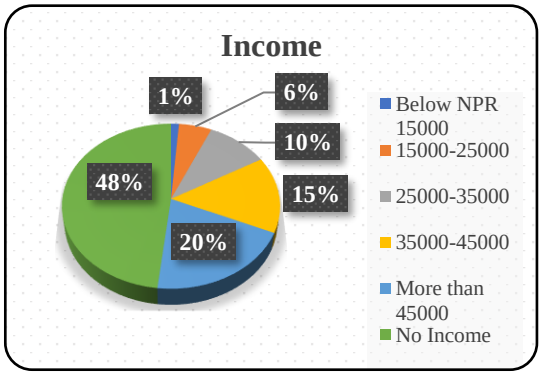


Figure 45: Income of Respondents

- **Driver license& Vehicle Ownership:**

About 59.31% (325) of ride-hailing users have a driver's license, while 40.69% (223) do not. Regarding vehicle ownership, 47.08% (258) own two-wheelers, 1.64% (9) own four-wheelers, 3.83% (21) have both, and 47.45% (260) do not own any vehicle.

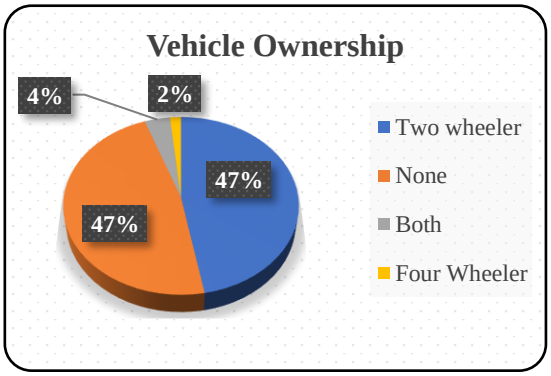


Figure 46: Vehicle Ownership

- **Ride hailing Mode**

The distribution of ride-hailing users based on their preferred vehicle type. Out of 548 total respondents, 71.53% (392) use two-wheelers, 20.62% (113) use both two-wheelers and four-wheelers, and 7.85% (43) use four-wheelers exclusively.

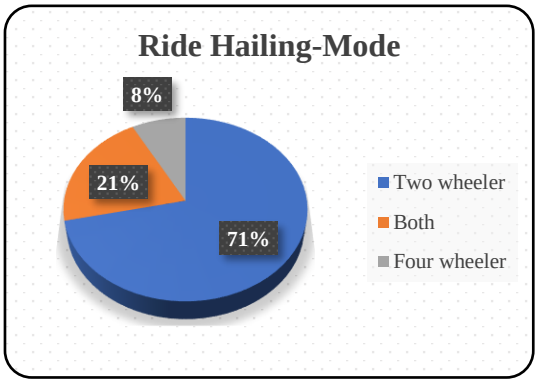


Figure 47: Ride Hailing Mode

- **Impact on travel time due RHS adoption:**

Among 548 respondents, **69.71%** (382) reported a **decrease** in travel time, **15.69%** (86) experienced an **increase**, while **14.60%** (80) saw **no change**. This indicates that the majority perceive ride-hailing services as improving travel efficiency.

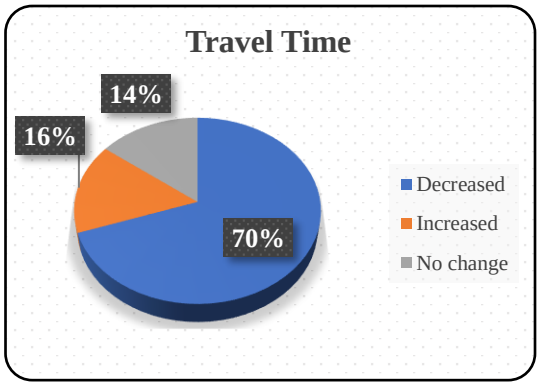


Figure 48: Travel Time

- **Impact on Use of Public Transportation Due Ride Hailing Adoption:**

Among 548 respondents, **66.61%** (365) reported a **decrease** in their use of public transportation, **22.81%** (125) saw an **increase**, and **10.58%** (58) experienced **no change**. This suggests that ride-hailing services have led to a significant shift away from public transport for many users.

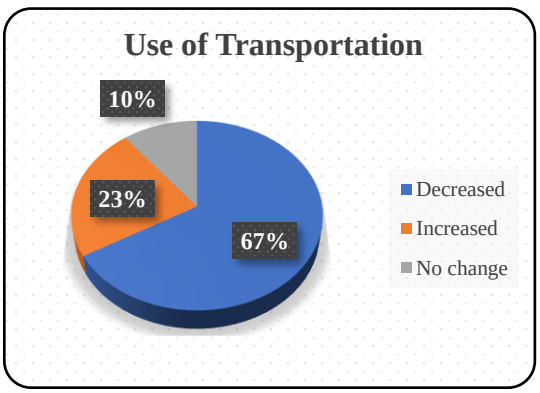


Figure 49: Changed in Use of Transportation

- **Impact on habit of walking due ride hailing adoption:**

Out of 548 respondents, 50.91% (279) reported a decrease in their walking habits, 36.68% (201) experienced an increase, and 12.41% (68) saw no change. This indicates that while many people walk less due to ride-hailing services, a notable portion has increased their walking, possibly due to first-mile/last-mile connectivity.

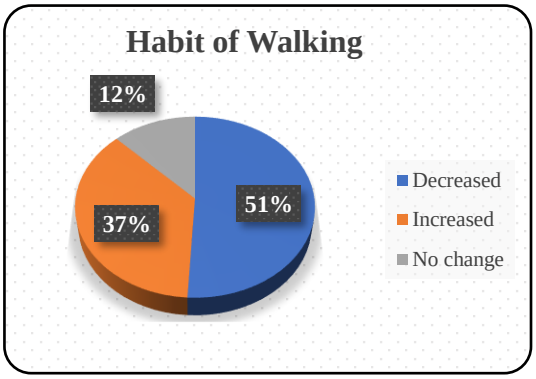


Figure 50: Changed in Habit of Walking

- **Multi-mode uses:**

Multiple modes of transportation with ride-hailing services (RHS). Among 548 respondents, **64.60%** (354) do **not** use multiple modes, while **35.40%** (194) do. This suggests that a significant portion of users rely solely on ride-hailing, while others integrate it with other transport options.

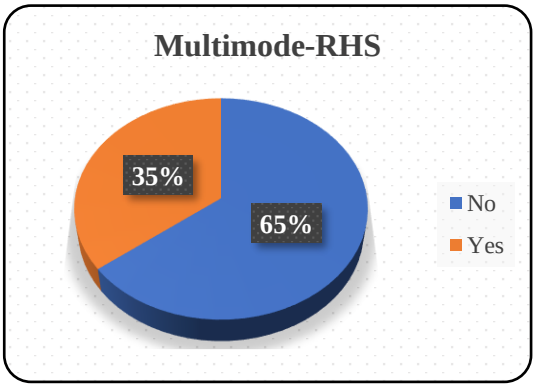


Figure 51: Multi Mode

- **Proximity to Public Transport Station:**

Whether respondents have a **public transportation stop (bus, micro, tempo, etc.) within an 800m radius**. Among 548 respondents, **88.50%** (485) have access to a nearby stop, while **11.50%** (63) do not. This suggests that most users live in areas with relatively accessible public transport options.

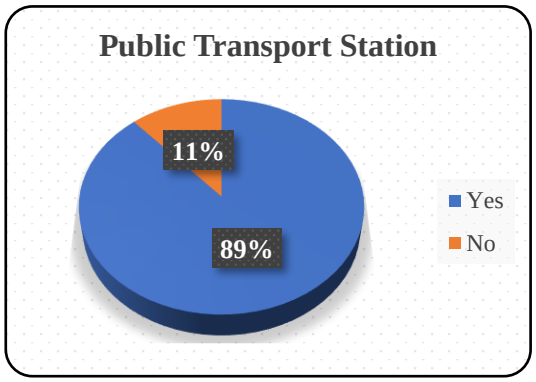


Figure 52: Proximity to Transport Station

APPENDIX- II: STAKEHOLDERS INTERVIEWS

- **Regulatory & Policy Formulation Body: Ministry of Physical Infrastructure and Transport (MoPIT)**

Name: Sankar Singh Dhami

Position/Title: Senior Divisional Engineer (SDE)

Department: Transport Management

Years of Experience in Transport Regulation: 15

Figure 53: Interview with Representative of MoPIT

1. Overview of Laws and Guidelines

A. Can you describe the current legal and regulatory framework governing ride-hailing services in Nepal?

Recently, we have revised our Act, but it is still in the draft phase, awaiting review by the Law Ministry. Once approved, it will be presented in the House. Additionally, draft guidelines have been submitted to the Department of Transport Management.

B. How does the Ministry address the contradictions between Section 8(2) of the Motor Vehicles and Transport Management Act, 1993, and recent progressive provincial laws?

There is a conflict regarding ride-hailing services, especially when vehicles registered for one purpose are used for another. We have consulted with provinces on this issue. They

have created their own Acts and regulations, but discrepancies persist. After discussions, the regulations were sent back for revision, and the conflict still exists.

2. Progress on Federal Law Development

A. The Ministry is reportedly working on nationwide guidelines for ride-sharing services. What stage is this process in, and what are the key considerations included in the draft?

The process is still in the draft stage. Recently, the Supreme Court ruled that ride-sharing services must be viewed in light of the right to employment, consumer rights, entrepreneurship, and economic prosperity. It emphasized that obstructing ride-sharing services due to the absence of laws affects private vehicle drivers' livelihoods and violates their dignity, employment, and labor rights. The Court also directed the government to classify ride-sharing as a service-based industry under the Industrial Enterprises Act and establish clear legal provisions for registration, licensing, and monitoring. Currently, we are revising the Industrial Enterprises Act 2020 to recognize ride-hailing services. The draft Act has been sent to the Law Ministry and will be tabled in the House of Representatives for further progress.

B. What challenges has the Ministry encountered in drafting federal laws that align with both provincial regulations and the Motor Vehicles Act, 1993?

There is no universally accepted framework. While efforts have been made, public demand has highlighted the need for an effective law, but repetitive attempts have delayed progress.

3. Role of Provinces

A. How does MoPIT coordinate with provincial governments, such as Bagmati and Gandaki Provinces, which have recognized ride-sharing services?

A committee of nine members, including secretaries and deputy secretaries from respective ministries, has been formed. Discussions are ongoing to address coordination.

B. Do you see a need for a unified federal framework to prevent legal inconsistencies across provinces?

Yes, we acknowledge the need for a unified framework. We have already submitted the draft law to the Law Ministry for further discussions.

4. Challenges in Regulation

A. What gaps do you identify in the existing federal and provincial regulations for ride-hailing services? The situation is complicated. Our primary focus is on mass transit, but the Supreme Court has directed us to recognize ride-sharing services as a public right to work. This creates challenges in balancing priorities.

B. How does the Ministry address enforcement issues, particularly concerning private vehicles operating under ride-sharing apps?

Discussions are ongoing, but frequent changes in government have created hurdles. Additionally, registration issues with the Department of Industry need to be amended for better enforcement.

5. Addressing the 2020 Patan High Court Judgment

A. The Patan High Court judgment emphasized adaptable legal frameworks for ride-sharing. How has MoPIT incorporated this directive into its regulatory efforts?

We have acknowledged the directive and are currently working on incorporating it into our policies and regulations.

6. Integration with Urban Transportation

A. How does MoPIT view the role of ride-hailing services in Nepal's urban transportation system?

Ride-hailing services are convenient and accessible for the public. However, they also contribute to congestion as road capacity is limited. Our focus remains on mass transportation rather than individual vehicles.

B. Are there plans to integrate ride-hailing services with public transportation (e.g., buses, trains)?

Not at the moment, as we are still in the process of formulating related laws and regulations.

C. Do you think ride-hailing services complement or compete with existing public transport systems?

They are complementary to some extent but also compete with public transport by increasing the use of private vehicles and reducing public vehicle ridership.

7. Safety and Oversight

A. What steps is the Ministry taking to ensure public safety and regulatory compliance in ride-sharing services?

We are drafting Acts and regulations to address safety and compliance issues through the Department of Transport Management.

B. Are there plans to include stricter oversight mechanisms such as GPS tracking, driver background checks, and vehicle inspections in the proposed guidelines?

Yes, such measures will be discussed during the finalization of the regulations.

8. Data Collection and Use

A. Does MoPIT maintain any data related to ride-hailing services (e.g., the number of vehicles, drivers, trips)?

No, due to the lack of formal laws and policies, we cannot enforce data collection.

B. How is this data collected and used for policy development?

No work has been done in this regard so far.

C. Do you collaborate with ride-hailing companies to access operational data for planning purposes?

No collaboration has occurred yet.

D. Is there a need for a centralized database to monitor and regulate ride-hailing services?

Yes, there is a need, and we are working toward this.

9. Recognition as a Service-Oriented Industry

A. The Industrial Enterprises Act, 2020, recently recognized ride-sharing as a service-oriented industry. How does MoPIT plan to integrate this recognition into its transportation policies?

We have contributed to its recognition, and further plans will be discussed as policies evolve.

B. What role does MoPIT see for foreign investment in the ride-sharing sector?

Foreign investments are coordinated through the Department of Industry. Further details can be obtained from them.

10. Economic and Urban Mobility Impacts

A. How does the Ministry view the potential of ride-hailing services to improve urban mobility and reduce congestion in Nepal's cities?

While they improve accessibility and reliability, they also increase congestion because of the limited road capacity and the growing number of vehicles.

B. Are there plans to incentivize the adoption of environmentally friendly vehicles in ride-hailing sector?

Not yet.

11. Collaboration with Ride-Hailing Platforms

A. How does the Ministry engage with ride-hailing platforms like Pathao and Tootle during the policy formulation process?

No collaboration has taken place yet.

B. What mechanisms are in place to gather feedback from these platforms and other stakeholders?

None, due to the lack of formal laws.

12. Balancing Stakeholder Interests

A. How does the Ministry aim to balance the interests of traditional transport providers, ride-hailing platforms, and users in its policy decisions?

We are still in the process of drafting the Act and discussing these issues.

13. Vision for Ride-Hailing Services

A. What is MoPIT's vision for the future of ride-hailing services in Nepal?

Our focus is on mass transportation development, ensuring safety and privacy while addressing regulatory challenges. Ride-hailing services need to be regulated appropriately.

B. Are their international best practices that the Ministry plans to adopt or adapt for Nepal's context?

Not yet.

Recommendations for Policy Improvement

What legislative or procedural amendments do you think are critical for ensuring the smooth operation of ride-hailing services in Nepal?

We need to align ride-hailing services with existing laws and regulations. Without proper legal frameworks, enforcement remains challenging. Issues such as offline rides and unpaid taxes also need to be addressed.

- **Regulatory & Policy Formulation Body: Department of Transport Management (DoTM)**

Name: Er. Shreekant Yadav, Er. Sanjay Thing
Position/Title: Director, Information Technology Section
Department: Administrative

1. Can you provide an overview of the current guidelines or proposed regulatory framework for ride-hailing services in Nepal?

Figure 54: Interview with Department of Transport Management office

The Motor Vehicle and Transport Management Act clearly states that vehicles registered for a specific purpose cannot be used for another. While we've proposed a draft framework for regulating ride-hailing services, the process has stalled due to jurisdictional conflicts between the provinces and the federal government. So far, we've made several attempts to address these issues, but without a formal agreement between the authorities, the draft remains unimplemented. Currently, there are no concrete guidelines or regulations governing this industry, leaving the sector largely unmanaged and operating in a legal gray area.

2. How does the DoTM view the role of ride-hailing platforms in improving Kathmandu Valley's transportation system?

Ride-hailing platforms have undoubtedly brought significant improvements to the transportation system. They've made commuting more convenient and accessible for the general public. For instance, people can easily get a ride home even during late hours, which wasn't always possible before. Additionally, these platforms have created job opportunities, particularly for young individuals looking for side income. Even the courts

have acknowledged the importance of this industry and directed us to prepare regulations. However, while we appreciate the benefits, we're also aware of the challenges, such as the lack of proper standards and the potential for increased congestion.

3. Are there any specific proposed guidelines for ride-hailing services in Nepal? If yes, what are the main components of these guidelines?

Yes, we're actively working on a draft framework. The initial draft was prepared back in 2078 by Ram Chandra Poudel and has since been revised in 2079 and 2080. The latest version, titled **"National Directive 2080 regarding the regulation of vehicles used in public transportation" (सार्वजनिक यातायातमा प्रयोग हुने दुइ पाङ्ग्रे सवारीसाधनहरूको नियमन सम्बन्धी राष्ट्रिय निर्देशिका, २०८०)**, includes several key provisions. These include safety measures like mandatory helmet use for passengers, insurance coverage for vehicles and riders, and tracking systems to monitor speed and route deviations. Additionally, the guidelines focus on allowing single-passenger services while excluding children under 10 years of age.

4. What are the key challenges faced in proposing or implementing guidelines for ride-hailing services?

Formulating these guidelines has been a complex process. The draft has been sent to the ministry multiple times, but disagreements between the federal and provincial governments over who should have authority have delayed progress. Another major challenge is the lack of accurate data. We don't have a clear picture of how many platforms are currently operating or the extent of their activities. Public perception is another factor—while many people rely on these services for convenience or pocket money, others are skeptical of their impact on traffic congestion and traditional transportation systems.

5. How does the DoTM ensure that ride-hailing platforms comply with the proposed guidelines or existing transportation rules?

At this stage, we lack any formal compliance mechanisms because the regulations are not yet finalized. Once the draft is approved, we'll establish clear standards and monitoring systems. For now, there are no specific rules or penalties in place to regulate ride-hailing platforms, which makes enforcement almost impossible.

6. What gaps do you perceive in the current proposed guidelines for regulating ride-hailing services?

The biggest gap is that the guidelines are still in draft form, meaning there's no legal foundation to enforce anything yet. Another issue is that this is a relatively new field, and the technology is constantly evolving. We're still exploring what works and what doesn't, and that makes it difficult to create comprehensive regulations. For example, there are no route permits or penalties for non-compliance at the moment, and the platforms are operating independently without much oversight.

7. How do ride-hailing services align with or create challenges for traditional public transportation systems?

Ride-hailing services have created friction with traditional transportation systems, particularly taxis. For instance, taxi operators often complain about the unfair advantages enjoyed by ride-hailing platforms, such as the lack of permit fees and other operational costs. There have been strikes and protests from taxi drivers in the past. While the Patan High Court has supported certain laws favoring taxis, the ride-hailing sector continues to operate without clear regulations, adding to the tension.

9. What mechanisms does the DoTM currently use to monitor ride-hailing platforms' operations?

We currently have no mechanisms in place to monitor these platforms. Since they're technically operating outside the legal framework, formal recognition and monitoring will only begin after the draft is approved.

10. How important is data sharing between ride-hailing companies and the government for governance, and how is it being managed?

Data sharing is crucial, but unfortunately, there's no system for it right now. Without accurate data, it's challenging to make informed decisions or enforce regulations effectively.

11. Are there any safety and service quality standards outlined in the proposed guidelines for ride-hailing services?

Yes, the proposed guidelines emphasize safety and service quality. They mandate the use of helmets, tracking systems to monitor vehicles, and comprehensive insurance coverage

for all parties involved. These measures aim to ensure both the safety of passengers and the accountability of service providers.

12. What reforms or improvements do you believe are necessary to better regulate ride-hailing services in Nepal?

First, we need a comprehensive database of all operators and their activities. The current lack of information makes regulation difficult. Once the platforms are brought under formal jurisdiction, further amendments can be made based on practical needs and feedback.

13. How do you see the role of ride-hailing services evolving in Kathmandu Valley's transportation system over the next five years?

While these services provide convenience, they're not sustainable in the long run if left unchecked. The increased reliance on two-wheelers contributes to traffic congestion and worsens road conditions. Over the next five years, we need to focus on regulating these platforms to ensure they complement, rather than compete with, the broader transportation system.

14. How does the DoTMs collaborate with ride-hailing companies to address regulatory and operational issues?

When drafting the guidelines, we invited all stakeholders for discussions. However, only Pathao participated, while other platforms, including In-Drive, were absent.

15. What is the level of involvement of ride-hailing companies in formulating and refining proposed guidelines?

Only Pathao has actively engaged with us during this process. According to our estimates, there are 21 platforms operating in this space, but most are focused on business growth rather than regulatory discussions.

16. Can you share any examples of challenges or conflicts faced by the DoTM while managing ride-hailing platforms and how they were addressed?

Once, during Chhath, I booked an In-Drive ride. Out of curiosity, I asked the driver about his main job. He said he ran a small shop and used ride-hailing to earn an extra 300–400 rupees per ride. This highlights a major issue: people are casually entering the market without regulations, creating unnecessary traffic and simultaneously traditional transport operators demand that ride-hailing vehicles use black number plates and follow the same

rules—such as road permits and tax payments. While this ensures regulatory fairness, it could discourage part-time drivers due to the high cost and complex renewal process. This may reduce the number of active ride-hailing drivers, limiting service availability.Until proper laws are in place, this remains a significant challenge for us to manage.

- **Regulatory and Policy Formulation Body: Ministry of Labour, Employment and Transport, Hetauda (Provincial Ministry)**

Name: Ram Sundar Kusi
Position/Title: Senior Divisional Engineer (SDE)
Department: Transport Management
Years of Experience in Transport Regulation: 12

1. What are the current laws or regulations governing ride-hailing services in Bagmati Province?

The Bagmati Province Vehicle and Transportation Management Act, 2019 (2075), implemented on 1 February 2019, was the first provincial legislation to recognize the ride-sharing business. Section 13(4) permits private vehicles with standard number plates to operate in public transportation through ride-sharing apps. Recently, the Ride Sharing and Pay Bike Karya Bidhi 2080 (Ride Sharing Service Operation Directives, 2080) was drafted, but it has been returned from the cabinet discussion table.

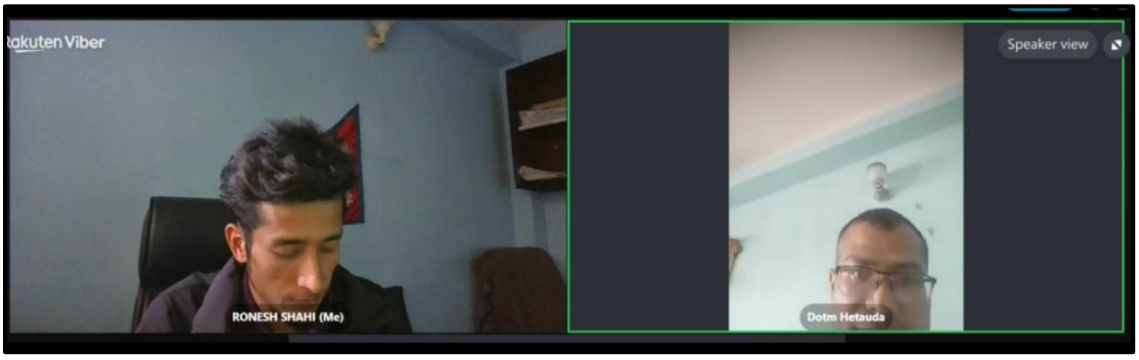


Figure 55: Interview with Bagmati Province Transport Ministry (Online Viber)

2. Are there specific provisions for licensing ride-hailing platforms, vehicles, and drivers?

Yes, the draft outlines:

- Minimum one year of experience after obtaining a driver's license.
- Ride distances should be limited to 50 km from start to end.

- Restrictions for underaged passengers (below 10 years) unless accompanied by an adult.
- Drivers must be aged between 21 and 60, and have a permit to carry passengers.

3. How does the current framework address the distinction between private and commercial vehicles used for ride-hailing?

Private vehicles pay standard taxes (e.g., bike renewal charges) or fees for a bluebook/vehicle permit. For ride-sharing, additional registration and a "green bluebook" are required. However, these provisions are pending cabinet approval.

4. What challenges do you face in monitoring and enforcing ride-hailing regulations?

Monitoring and enforcement are impossible without proper laws or regulations.

5. Are there issues related to fare standardization and transparency in pricing?

The draft proposes:

- A minimum fare for the first 2 km.
- Fare regulation through a dedicated committee after the directives are passed.

6. How effectively are safety and security standards being implemented for ride-hailing services?

- Registered drivers must deliver riders to their destinations.
- Misbehavior or attempts thereof result in penalties as per law.
- Platforms must provide:
- Complaint portals for users.
- Driver identification (photo, name, vehicle details).

GPS tracking and real-time location sharing for user safety.

7. What are the key gaps in the current regulatory framework that need to be addressed?

Ride-sharing is recognized, but no formalized regulations exist yet.

8. Are there adequate mechanisms to handle disputes between ride-hailing platforms, drivers, and passengers?

Not yet. The draft mentions maintaining data related to riders, drivers, and platforms, but no dispute resolution mechanism is formalized.

9. Is there a provision for integrating ride-hailing with other public transportation systems?

No, integration with other transportation systems has not been considered yet.

10. How are ride-hailing platforms being regulated to ensure compliance with data privacy and cybersecurity standards?

Platforms must:

- Register with the Ministry of Transport.
- Retain trip-related data for at least three months.
- Ensure user safety through tracking and secure software systems.

11. Are there guidelines for using ride-hailing data for urban planning or transportation policy development?

No guidelines exist yet. Data-sharing policies are under consideration.

12. What measures can be taken to improve the regulatory framework for ride-hailing services in Bagmati Province?

- Expedite the approval of the draft regulations.
- Revise regulations to ensure clarity and enforceability.
- Incorporate provisions for safety, pricing, and dispute resolution.

13. How do you see the role of the provincial government in ensuring a balanced approach to ride-hailing regulation?

The government plays a crucial role in balancing public acceptance, traffic concerns, and sustainable urban transportation initiatives.

14. What about collaboration while making the guidelines with stakeholders?

There hasn't been significant collaboration yet. Stakeholders and ministries should be actively involved to address public complaints and regulatory challenges.

15. Are there plans to introduce new legislation or update existing laws to accommodate the evolving ride-hailing landscape?

Yes, the draft will be revised and amended periodically to address evolving needs.

16. Should there be a focus on mass transportation for a sustainable future?

Yes, mass transportation should be emphasized to address increasing traffic congestion. However, public acceptance of ride-sharing services should also be considered during the transition.

- **Ministry of Physical Infrastructure Development and Transport Management, Gandaki Province (Provincial Ministry)**

Name: Kamala Dware

Position/Title: Officer Level

Department: Transport Branch

Years of Experience in Transport Regulation: 3 yrs.

A. Current Legal Framework

1. What are the current laws or regulations governing ride-hailing services in Gandaki Province?

Currently, there are no specific laws or regulations for ride-hailing services in Gandaki Province. However, we are in the process of drafting the Gandaki Province Ride-Sharing (Regulation and Management) Guidelines, 2081. This draft is still under discussion and has not yet been sent to the law ministry for approval.

2. Are there specific provisions for licensing ride-hailing platforms, vehicles, and drivers?

As of now, there are no licensing provisions in place. However, our draft includes various rules and regulations regarding the registration and licensing of both vehicles and drivers. Once finalized, these will provide a structured framework for ride-hailing operations.

3. How does the current framework distinguish between private and commercial vehicles used for ride-hailing?

The distinction between private and commercial vehicles is still under debate in our drafting process. One proposal suggests introducing black number plates for ride-hailing vehicles, but this has led to discussions and concerns. Finding a clear and practical solution remains a key challenge for us.

B. Challenges in Implementation

4. What challenges do you face in monitoring and enforcing ride-hailing regulations?

The biggest challenge is the absence of specific laws and policies. Because of this, issues like price discrepancies within Pokhara city remain unregulated. Our draft does propose ways to regulate fares and overall operations, but enforcement will only be possible once legal provisions are in place.

5. Are there issues related to fare standardization and pricing transparency?

Yes, we have received complaints about inconsistent pricing. However, without a clear regulatory framework, we cannot enforce standard pricing guidelines at this time.

6. How effectively are safety and security standards being implemented for ride-hailing services?

Currently, there are no formal safety and security regulations. However, our draft guidelines include provisions for an emergency button in the ride-hailing app, along with visible driver details for passengers. Additionally, passengers will have the ability to file complaints if any issues arise.

C. Regulatory Gaps and Limitations

7. What are the key gaps in the current regulatory framework that need to be addressed?

The biggest gap is the lack of a federal policy. Without a national framework, we face challenges in implementing provincial regulations effectively.

8. Are there adequate mechanisms to handle disputes between ride-hailing platforms, drivers, and passengers?

Our draft includes a mechanism for resolving disputes within a set time frame. If an issue arises, the platform will be required to address it, and in case of further complications, the concerned regulatory authority will step in.

9. Is there a plan to integrate ride-hailing services with public transportation?

No formal plans have been made yet. However, since the public has widely accepted ride-hailing, efforts may be needed to integrate it with public transportation in the future.

D. Digital and Technological Considerations

10. How are ride-hailing platforms being regulated to ensure compliance with data privacy and cybersecurity standards?

Our draft states that service providers cannot share passenger data without written consent, except when required by government authorities.

11. Are there guidelines for using ride-hailing data for urban planning or transportation policy development?

No, there are currently no guidelines in place for this.

E. Recommendations and Future Directions

12. What measures can be taken to improve the regulatory framework for ride-hailing services in Bagmati Province?

Our first priority is to establish regulations. Once that is done, we can refine and adapt them as needed.

13. What role does the provincial government play in ensuring a balanced approach to ride-hailing regulation?

The provincial government plays a crucial role, as transportation falls under its jurisdiction. Our goal is to provide clear and effective guidelines for the sector.

14. Are stakeholders involved in drafting the guidelines?

Yes, we are actively working with public vehicle operators and other stakeholders. However, there is still debate—especially from public transport operators who argue that ride-hailing services should also use black plate numbers.

15. Are there plans to introduce new legislation or update existing laws to adapt to the evolving ride-hailing industry?

Our current focus is on finalizing and implementing the draft guidelines.

16. Should the focus be on mass transportation for a sustainable future?

Yes, our ultimate goal is to promote green and efficient mass transportation. However, given the widespread public acceptance of ride-hailing, we need to regulate it first. Over time, stricter regulations—such as taxation and licensing fees—may reduce the number of freelance drivers and shift the focus back to mass transit solutions.

- **Law Enforcing Body: Traffic Police, Ram Shah Patha, Kathmandu**

Name: Sabindra Thakur

Position/Title: Assistant Sub-Inspector (ASI)

Department: Traffic Police

Years of Experience: 8 years

1. How familiar are you with the operations of ride-hailing services (e.g., Pathao, Tootle) in your jurisdiction?

"Yes, we are familiar with the services provided by ride-hailing platforms like Pathao and Tootle in the Kathmandu Valley. However, our understanding is more general, as there are no specific legal frameworks or regulations to enforce them. This creates challenges in managing their operations effectively."

2. In your view, what role do ride-hailing services play in Nepal's urban transportation system?

"Ride-hailing services are filling a gap in urban transportation by providing options for both passenger transport and food delivery. However, they have also introduced challenges. Two-wheelers, which dominate these platforms, are often the biggest rule violators. They overtake recklessly, use unauthorized shortcuts, and contribute to increasing traffic violations and congestion in the city."

Figure 56: Interview with Traffic Office

3. What specific measures have been implemented to ensure the safety of ride-hailing passengers and drivers?

"Currently, there are no specific acts or regulations in place. We address violations like improper parking or riding without helmets. We recently restricted mobile phone usage on bikes for safety, but it had to be removed due to logistical issues."

4. How do you handle cases of harassment or assaults reported by ride-hailing passengers or drivers?

"Such cases are outside our jurisdiction. If a passenger or driver reports harassment or assault, we direct them to Nepal Police for further action."

5. Are there any mechanisms to verify the background of ride-hailing drivers for public safety?

"No, there are no mechanisms from our side. Background checks seem to be managed by the platforms themselves."

6. Are ride-hailing vehicles required to have GPS or other tracking systems for monitoring?

"Yes, ideally they should, but currently, no mechanisms are in place for this from our side."

7. How do you ensure compliance with vehicle safety standards for ride-hailing services?

"There are no separate safety standards for ride-hailing services. We follow general traffic rules, such as checking the vehicle's bluebook and driver's license to ensure compliance."

8. What are the most common traffic rule violations committed by ride-hailing drivers?

"The most common violations include waiting offline in crowded areas like bus parks, Thamel, and the airport. Other issues involve lane discipline, speeding, and reckless overtaking."

9. Are ride-hailing services contributing to issues like over-speeding, illegal parking, or congestion?

"Yes, absolutely. They contribute significantly to these issues. Kathmandu roads are narrow, and with the increasing number of two-wheelers, the situation is worsening. With increasing platform drivers' day by day, it is nearly becoming impossible to manage only pathao has the 200,000+ drivers and new this food delivery also increasing while even by these platforms also now starting services like food and other delivery system."

10. How do you enforce fines for violations by ride-hailing drivers?

"We treat them the same as any other road user. Fines are imposed based on traffic rule violations."

11. Are their instances where ride-hailing companies are penalized for non-compliance with traffic laws?

"No, there haven't been any instances of penalizing companies. We currently focus on individual drivers."

12. Challenges in Enforcement

"The main challenge is the shortage of manpower. With the growing number of vehicles, it's difficult to monitor everything effectively."

13. How do traffic police collaborate with MoPIT to enforce regulations for ride-hailing services?

"So far, we haven't had significant collaboration. The Department of Transport Management has conducted some discussions, but there's no concrete plan yet."

14. Are their gaps in existing policies that hinder enforcement efforts?

"Yes, the lack of specific acts and regulations for ride-hailing services is a major gap."

15. What additional policies or regulations do you think are necessary to improve the management of ride-hailing services?

"Policies should include proper identification mechanisms for ride-hailing vehicles, training programs for drivers, and stricter controls on platform registration."

16. Do you think stricter penalties or better monitoring mechanisms are required?

"Yes, stricter penalties and advanced monitoring mechanisms are essential for better traffic management."

17. What technologies (e.g., apps, automated systems) are being used to monitor and manage ride-hailing services?

"Currently, we rely on manual monitoring and interventions. No specific technology has been developed for ride-hailing services."

18. Are traffic police equipped with tools to detect and track violations by ride-hailing drivers?

"No, we don't have such tools yet."

19. Do traffic police receive training to handle the unique challenges posed by ride-hailing services?

"Not specifically for ride-hailing, but we do receive general traffic management training."

20. Are awareness campaigns conducted for ride-hailing drivers to promote road safety and compliance?

"There are no specific campaigns for ride-hailing drivers, but we conduct general road safety campaigns that include them."

21. How do traffic police handle complaints from the public regarding ride-hailing services?

"If it's related to traffic violations, we address them. For other issues like harassment, we redirect the complaints to Nepal Police."

22. Are their dedicated channels for passengers or drivers to report grievances?

"No, there are no dedicated channels for ride-hailing complaints yet."

23. How do traffic police collaborate with ride-hailing companies to address operational or regulatory issues?

"There hasn't been any collaboration so far, but such partnerships are needed for better traffic management."

24. Are their regular meetings or consultations between traffic police and ride-hailing companies?

"No, but we believe regular consultations are necessary to ensure effective management and public safety."

- **Law Enforcing Body: Kathmandu Valley Police Office, Ranipokhari, Kathmandu District Police Range, Bhadrakali, Kathmandu**

When I arrived at the Kathmandu Valley Police Office in Ranipokhari, Kathmandu, for an interview, the officials informed me that they only oversee CCTV footage and do not keep or manage any case-related information concerning ride-hailing incidents. They clarified that their main role is surveillance rather than the documentation of specific cases involving ride-hailing services. Instead, they recommended that I go to the District Police Range in Kathmandu, which is the appropriate authority for such issues. Acting on their advice, I proceeded to the District Police Range in Kathmandu, where I spoke with the Deputy Superintendent of Police (DSP). Upon my inquiry about data related to ride-hailing services, he mentioned that he had been stationed there for ten months and said, "We don't have the type of data you are seeking. Instead, we address actions against motorcyclists for criminal activities or misconduct rather than classifying them under ride-sharing." His answer suggested that the police mainly handle legal infractions involving motorcyclists but do not keep separate records pertaining to ride-hailing services.

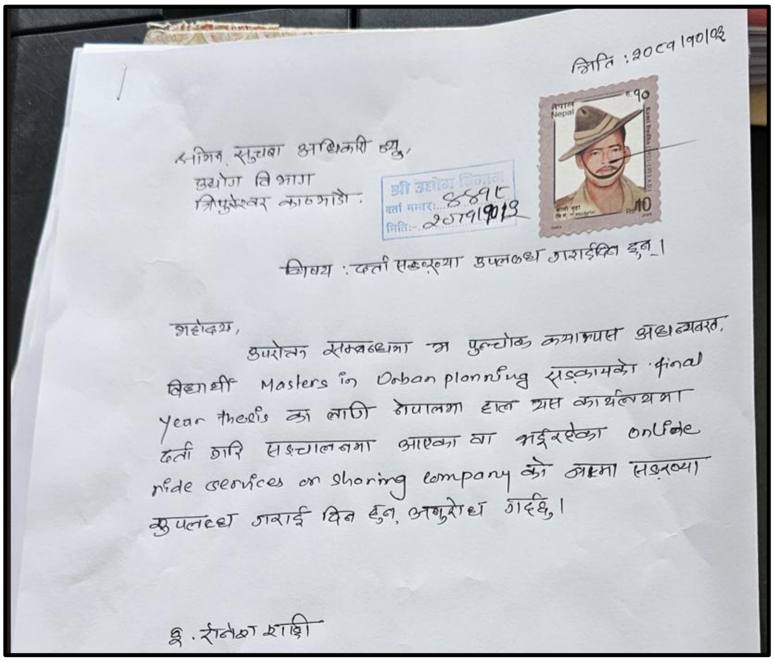
Figure 57: District Police Range, Kathmandu

Consequently, I was unable to obtain any pertinent data for my thesis from either office. This indicates that ride-hailing activities may not be formally acknowledged or documented as a separate category within the existing law enforcement framework in the Kathmandu Valley.

➢ **Department of Industry, Tripureshwor, Kathmandu**

Figure 58: Department of Industry

To register various industries in Nepal that have an investment exceeding Rs 100 million, they are required to register with the Department of Industry. Recently, the Ministry of Physical Infrastructure and Transport (MoPIT) worked on updating the Industrial Enterprises Act, 2020 (2076). As of February 1, 2024, the government has officially classified ride-sharing services as a service-oriented industry under this act. This amendment, published in the Nepal Gazette, has granted legal recognition to ride-sharing companies, facilitating their registration and legal operation.


मिति :२०८१/१०/०३

सूचना अधिकारी ज्यू,
उद्योग विभाग
त्रिपुरेश्वर काठमाडौं।

श्री उद्योग विभाग
दर्ता नम्बर: ४४१५
मिति: २०८१/१०/१३

विषय : दर्ता संख्या उपलब्ध गराइदिनु हुन ।

महोदय,
उपरोक्त सम्बन्धमा म पुल्चोक क्याम्पस अध्ययनरत विद्यार्थी Masters in Urban planning संकायको final year thesis का लागि नेपालमा हाल यस कार्यालयमा दर्ता भरि सञ्चालनमा आएका वा गईरहेका online ride services or sharing company को जम्मा संख्या उपलब्ध गराई दिनु हुन, अनुरोध गर्दछु।

द. रोनिका शाही

Figure 59: Request for Information Letter

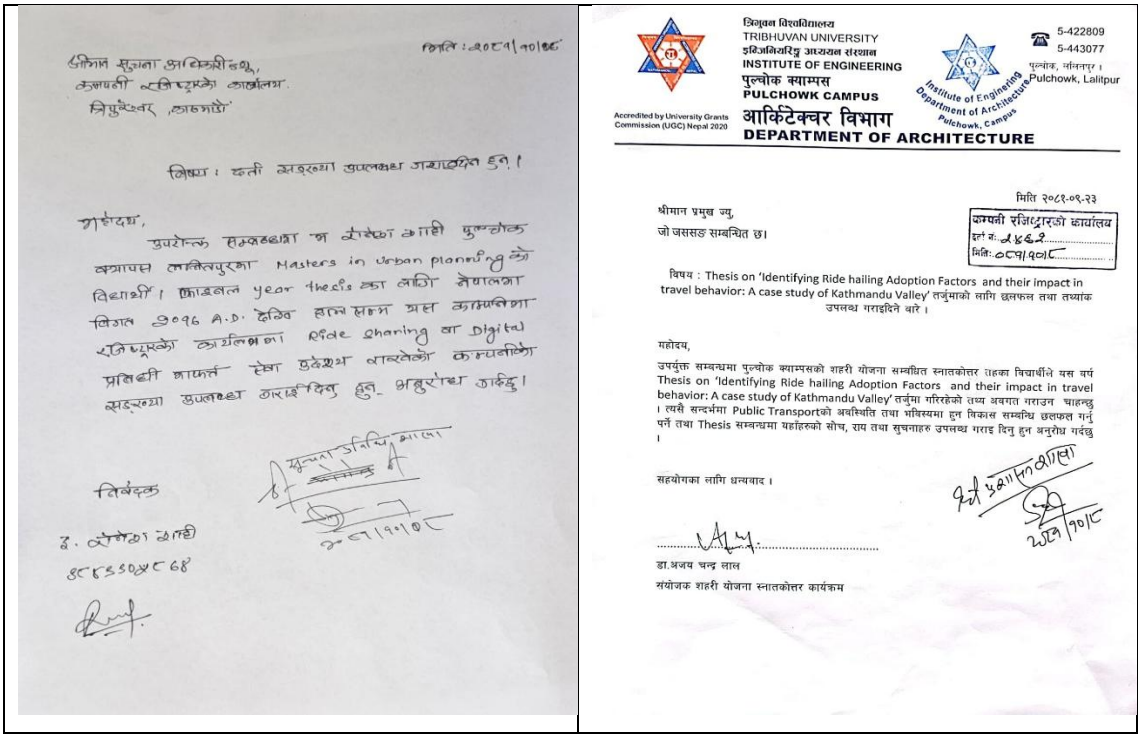
In light of this development, I submitted a request for information to obtain details about all companies registered with the intent to provide services to the public via online platforms. After a week, I discovered that only two companies were officially recognized under ride-hailing services: Pathao and In-Drive. However, during the registration process, their official names and declared business objectives did not align with their current operations. Notably, In-Drive was registered under an entirely different

name, complicating the tracking of its legal identity as a ride-hailing service. Informed by my research and inquiries, In-Drive is a popular ride-hailing service that many urban commuters in the Kathmandu Valley depend on. Nonetheless, the location of its office remains unknown, and even its drivers are not aware of where it is situated. Additionally, there isn't an official contact number available for the organization. I had a conversation with Information Officer **Arjun Sen Oli** regarding this matter. I pointed out that other government offices lack the authority to act against the company due to the absence of laws and regulations. However, since his office possesses the legal power to impose penalties on companies that fail to adhere to regulations, I inquired whether they had taken any measures against In-Drive. He stated, "Yes, we hold the authority to mandate that companies maintain a contact office or location. However, we have not taken any action thus far because no complaints have been filed." This illustrates a significant enforcement gap, where despite the existence of laws, intervention only occurs when a complaint is made. In the absence of proper oversight, companies can function without accountability, complicating the regulation and management of ride-hailing services effectively. This indicates that ride-sharing is now legally acknowledged, but the registration and classification process remains ambiguous. Numerous companies may be functioning under various names or categories, which could create confusion regarding regulation and oversight. This situation also prompts concerns about the transparency and organization of the system concerning the legal recognition of new digital platforms such as ride-hailing services.

- **Office of the Company Registrar**

I recently filed a Request for Information (RFI) to gather a comprehensive list of ride-hailing or ride-sharing companies registered with the company registrar, specifically those with a capital of less than 100 million Rs. However, I encountered substantial difficulties due to the disorganized state of their record-keeping systems. It soon became apparent that the registrar's office did not maintain organized and classified data, which made it exceedingly challenging for them to provide precise and comprehensive information. In fact, they even lacked a definitive record indicating that Pathao, a prominent ride-hailing platform, was registered with them. I spoke with Bhupendra Shrestha, a computer engineer, who noted that the registrar's office struggled to search for company names effectively, as their data collection system wasn't structured for proper

categorization. Without such fundamental infrastructure, fulfilling the goals of my study seems nearly impossible. Bhupendra pointed out that without organized data, it would be exceedingly difficult to gather any valuable insights regarding the ride-hailing sector. I took the initiative to create a list of ride-hailing companies that I had discovered through online resources. I forwarded this list to the registrar's office and asked them to confirm whether these companies were indeed registered with them. Although this was an additional step on my part, I considered it essential for advancing my research, given the absence of structured data accessible to them.



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TRIBHUVAN UNIVERSITY
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INSTITUTE OF ENGINEERING
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5-422809
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पुल्चोक, ललितपुर ।
Pulchowk, Lalitpur

मिति २०८१-०९-२३

श्रीमान प्रमुख ज्यु,
जो जससङ सम्बन्धित छ।

कम्पनी रजिष्ट्रारको कार्यालय
मिति: ०८१/१०/८

विषय : Thesis on 'Identifying Ride hailing Adoption Factors and their impact in travel behavior: A case study of Kathmandu Valley' तर्जुमाको लागि छलफल तथा तथ्यांक उपलब्ध गराइदिने बारे ।

महोदय,

उपर्युक्त सम्बन्धमा पुल्चोक क्याम्पसको शहरी योजना सम्बन्धित स्नातकोत्तर तहका विद्यार्थीले यस वर्ष Thesis on 'Identifying Ride hailing Adoption Factors and their impact in travel behavior: A case study of Kathmandu Valley' तर्जुमा गरिरहेको तथ्य अवगत गराउन चाहन्छु । त्यसै सन्दर्भमा Public Transportको अवस्थिति तथा भविस्यमा हुन विकास सम्बन्धि छलफल गर्नु पर्ने तथा Thesis सम्बन्धमा यहाँहरुको सोच, राय तथा सुचनाहरु उपलब्ध गराइ दिनु हुन अनुरोध गर्दछु ।

सहयोगका लागि धन्यवाद ।

डा.अजय चन्द्र लाल
संयोजक शहरी योजना स्नातकोत्तर कार्यक्रम

Figure 60: Request for Information Regarding Registered RHS in Nepal

I had provided the total 16 company but only 11 company were found others status still unknown. It is becoming increasingly evident that the data infrastructure surrounding the ride-hailing industry, especially in Nepal, requires a substantial revamp if we aim to comprehend and assess its growth and effects effectively.

- **<u>Service Providers Interview: Tootle</u>**

Section 1: Background Information

This general section can't be answered by due to company policies)

Figure 61: Interview at Tootle office

1. Can you provide a brief overview of your company, including the types of services you offer (e.g., bike-hailing, car-hailing, delivery)? We provide a comprehensive range of services, including bike-hailing, car-hailing, food delivery, and parcel services. Our goal is to offer a reliable, affordable, and convenient solution for transportation and delivery needs in Nepal. By bridging gaps in traditional services, we're helping make every day commuting and logistics simpler for users.

2. How long have you been operating in Nepal? We've been operating in Nepal for about a year now, taking over Tootle's operations. Under the new management by our team at ZAPS, we've been able to streamline services and enhance user experience.

3. What is the approximate size of your driver and user base? Currently, we have around 65,000 registered drivers, making us one of the largest platforms in the market. Our app has been downloaded over 100,000 times on the Play Store, showcasing the significant demand for our services.

4. What regions or cities in Nepal does your platform primarily serve?

Our operations are currently focused on the Kathmandu Valley. This allows us to cater to a densely populated urban area where transportation demand is high.

5. Do you partner with local government or agencies for operational support or compliance?

No, we do not have partnerships with local government or agencies as of now. However, we strive to ensure that our operations remain compliant with existing regulations.

6. Can you explain your operational model?

We use a "hunt system" where drivers remain online to be detected by users looking for rides. We provide incentives like petrol-free servicing to regular registered drivers, and TDS (Tax Deducted at Source) deductions are applied to their earnings. However, non-registered or "freelancer" drivers do not receive these benefits. This system helps us maintain a structured approach while promoting accountability among drivers.

Section 2: Legal and Regulatory Framework

1. Are you aware of any specific laws or policies that regulate ride-hailing services in Nepal? Currently, we are not aware of any specific laws governing ride-hailing services in Nepal. The sector operates without a dedicated legal framework, which creates certain challenges.

2. Do you believe these laws adequately cover the operational and business aspects of ride-hailing services? No, because there aren't any laws specifically designed for this industry, which leaves several gaps in addressing operational and business needs.

3. What legal or regulatory requirements does your company have to fulfill to operate in Nepal? The primary requirement is to register with the Department of Industry. Beyond that, there are no specific regulations tailored to ride-hailing platforms.

4. Have you faced challenges in meeting these requirements?

Yes, there were challenges in the past. For instance, during a period when ride-hailing services were banned, some of our vehicles were detained. It wasn't until the Patan High Court intervened that we were allowed to resume operations.

5. Are the existing laws and regulations clear and straightforward to follow? No, the absence of clear and specific laws for ride-hailing services makes it difficult to navigate the regulatory landscape.

6. Have you encountered instances where legal ambiguities or unclear regulations created challenges for your operations?

Yes, the lack of policies has led to operational hurdles. For example, our drivers faced vehicle detainment due to unclear regulations, causing disruptions and uncertainty.

Section 3: Licensing and Permits

1. Are your drivers required to obtain specific permits or licenses to operate? Yes, all drivers need valid insurance for their vehicles, up-to-date bluebooks, and valid licenses. Our system tracks document expiry dates and sends notifications to drivers to ensure they remain compliant.

2. Have you experienced delays or inefficiencies in the licensing process? In the early days, delays were common due to unclear regulations. However, the situation has improved, and we are now operating smoothly.

Section 4: Market Dynamics, Safety, and Enforcement

1. How do you decide your fare structures?

For four-wheelers, we follow the traditional taxi fare structures to ensure fairness. For two-wheelers, our fare policy is internal and tailored to remain competitive while providing value to users.

2. How do you manage safety on your platform?

We prioritize safety by strictly prohibiting offline rides and offering insurance that covers only app-based trips. Additionally, we monitor driver behavior through our system and conduct follow-ups with users and drivers in case of delays. Our platform also detects unauthorized use of mobile devices by drivers, ensuring accountability and top of that we have features like allowing female users to select female drivers and ensuring rider safety through monitoring systems

3. Do you believe the regulatory framework ensures fair competition between ride-hailing services and traditional transportation services? Why or why not?

Yes, we believe fair competition is promoted, but the absence of specific laws sometimes puts ride-hailing services at a disadvantage compared to traditional transportation systems.

4. Have there been instances where regulatory enforcement (e.g., fines, detainment) affected your drivers or operations?

Yes, there were incidents of vehicle detainment in the past due to the lack of clear policies. However, the Patan High Court's intervention resolved this issue.

5. How do you ensure that your drivers comply with traffic rules and platform policies?

We have a strict policy of adhering to traffic rules and ensuring safety. Verified complaints from users can lead to a driver being banned from the platform.

6. Are there mechanisms in place to address violations or complaints involving your drivers?Yes, users can lodge complaints through the app. Driver details, including bike number, name, and photo, are visible to make this process transparent. Minor issues are resolved internally, while major concerns are escalated to the police.

Section 5: Challenges and Gaps in the Framework

1. What are the main challenges your platform faces due to the current regulatory framework?

The absence of specific guidelines for ride-hailing platforms remains the biggest challenge, leading to uncertainties in operations and compliance.

2. Do existing regulations hinder the adoption of new technologies, such as digital payments, GPS tracking, or safety features? Previously, the lack of clarity hindered technological adoption. Now, we've been able to integrate features like GPS tracking and digital payments without major issues.

3. How effective is the collaboration between your platform and regulatory authorities?

So far, there has been little to no collaboration. Establishing a structured partnership could benefit both sides.

Section 6: Recommendations and Future Directions

1. What changes or improvements would you recommend to make the legal and regulatory framework more supportive of ride-hailing services?

Introducing clear operational guidelines, addressing safety concerns, and standardizing requirements for digital platforms would create a more supportive environment.

Section 7: Open-Ended Feedback

1. Is there anything else you'd like to share about the challenges or opportunities in regulating ride-hailing services in Nepal?

The ride-hailing sector has immense potential to revolutionize transportation in Nepal. By addressing regulatory gaps and fostering collaboration between platforms and authorities, we can create a system that benefits users, drivers, and the overall economy. We're proud to have bridged gaps in transportation, even reaching remote areas, and look forward to contributing more to this sector.

- **<u>Service Providers Interview: Pathao</u>**

Name: Sudin Tamrakar
Position/Title: Operational Manager
Department: Administrative
Years of Experience: 7

Figure 62: Interview with Representative of Pathao

Section A: Background Information

1. **Organizational Overview**

a. Can you provide a brief overview of your company, including the types

of services you offer (e.g., bike-hailing, car-hailing, delivery)?

We started the company on September 18th to address transportation issues in the valley. Later, in 2020, we expanded into food delivery services. Currently, we are growing steadily.

b. How long have you been operating in Nepal?

It has been nearly 7 years.

c. What is the approximate size of your driver and user base?

On our platform, we have over 200,000 registered riders. In terms of users, there are more than 600,000 downloads on the Play Store.

2. Current Operations

a. What regions or cities in Nepal does your platform primarily serve?

We currently operate in 21 cities across Nepal. Our services are context-specific—for instance, in Chitwan, we offer tuk-tuks as a mode of transportation.

b. Do you partner with local governments or agencies for operational support or compliance?

No, we do not partner with local or government agencies.

Section B: Legal and Regulatory Framework

3. Understanding of Laws

a. Are you aware of any specific laws or policies that regulate ride-hailing services in Nepal?

To the best of my knowledge, there are no specific laws or regulations. The Motor Vehicle and Management Act 2049 restricts us from operating services.

b. Do you believe these laws adequately cover the operational and business aspects of ride-hailing services?

No, I don't believe so. In the past, there were protests related to our platform, and only after the Patan High Court intervened did we resolve the issues. While Gandaki and Bagmati provinces have issued regulations, there are still some difficulties.

4. Compliance with Existing Regulations

a. What legal or regulatory requirements does your company have to fulfill to operate in Nepal?

We are registered through 100% Foreign Direct Investment (FDI) under the Department of Industry, and that's how we operate.

b. Have you faced challenges in meeting these requirements? If yes, please explain.

Yes, initially, the lack of regulations caused many issues. However, operations are smoother now.

5. Clarity and Transparency

a. Are the existing laws and regulations clear and straightforward to follow?

No, there is a gap in the legal and regulatory framework.

b. Have you encountered instances where legal ambiguities or unclear regulations created challenges for your operations?

Yes, in the absence of clear laws, many of our platform riders were detained by traffic police in the early days. This was later resolved after the Patan High Court's notice.

Section C: Licensing and Permits

6. Driver and Company Licensing

a. Are your drivers required to obtain specific permits or licenses to operate?

Yes, registered riders or drivers must have a valid license, an up-to-date bluebook, and third-party insurance.

b. How do you assist your drivers in meeting licensing or compliance requirements?

We provide a one-day training on using our platform, charging NPR 2,500, which is refunded in a broken-down format during the riding process.

7. Operational Permits

a. What is the process for your platform to obtain and renew operational permits?

There is no such process.

b. Have you experienced delays or inefficiencies in the licensing process?

Yes, due to the lack of regulations.

Section D: Market Dynamics and Enforcement

8. Fair Competition

a. Do you believe the regulatory framework ensures fair competition between ride-hailing services and traditional transportation services? Why or why not?

There are conflicts, especially with the taxi industry. For example, EV taxis cost around NPR 42 lakh, which is unaffordable for many drivers. Taxi committees have also posed challenges, such as threatening drivers who register on our platform.

9. Regulatory Enforcement

a. Have there been instances where regulatory enforcement (e.g., fines, detainment) affected your drivers or operations?

Yes, in the past, traffic police detained many of our platform drivers due to unclear regulations. This issue was resolved after the Patan High Court's intervention.

b. How cooperative is your company in resolving such issues with regulatory authorities?

We cooperate with government bodies to resolve any arising issues.

10. Monitoring and Accountability

a. How do you ensure that your drivers comply with traffic rules and platform policies?

Since drivers already go through government-mandated testing (e.g., physical tests, biometrics) to get a license, we don't have specific mechanisms.

b. Are their mechanisms in place to address violations or complaints involving your drivers?

Yes, there is a complaints mechanism in place.

c. How do you handle security issues related to customers?

We provide insurance coverage for both riders and drivers: up to NPR 1,000,000 for accidents and NPR 100,000 for medical expenses. In harassment or serious cases, we ban offenders permanently and involve the police. For minor issues, we provide training and follow up. Additionally, we have a quick response team for accidents and a 24-hour service center for customer complaints. Our app also includes location-sharing features.

Section E: Challenges and Gaps in the Framework

11. Operational Challenges

a. What are the main challenges your platform faces due to the current regulatory framework?

The absence of specific laws creates difficulties. Offline riders and uncontrollable human behaviors also pose challenges.

b. Are there any rules or requirements you consider outdated or unnecessary?

Yes, the fare for taxis is too low, leading to frequent complaints from drivers. However, we cannot address this due to government regulations.

12. Technology and Innovation

a. Do exist regulations hinder the adoption of new technologies, such as digital payments, GPS tracking, or safety features?

Yes, the lack of proper regulations creates obstacles for operations.

13. Collaboration with Authorities

a. How effective is the collaboration between your platform and regulatory authorities?

We collaborate with traffic and Nepal police. However, discussions with the Department of Transport and Management revealed some unfeasible guidelines, such as a 15km distance limit, helmet requirements for users, and a 10-hour app usage limit for drivers.

Section F: Recommendations and Future Directions

14. Policy Suggestions

a. What changes or improvements would you recommend to make the legal and regulatory framework more supportive of ride-hailing services?

There should be clear laws to make operations easier.

15. International Best Practices

a. Are there any international regulatory models or practices Nepal could adopt to better manage ride-hailing services?

Yes, granting legal status to our platform would help as we are solving transportation issues

16. Technology Integration

a. How can technology (e.g., real-time monitoring, driver background checks) be better utilized to improve compliance and safety in the ride-hailing industry?

We use algorithms to monitor drivers and ensure compliance.

Section G: Additional Comments

17. Open-Ended Feedback

a. Is there anything else you'd like to share about the challenges or opportunities in regulating ride-hailing services in Nepal?

There should be regulations that are flexible for operations. Our platform provides transitional jobs, generating part-time income for many individuals. The government should also ease our operations.

In terms of sustainability, we use cycles for food delivery to promote green transportation. Many drivers earn NPR 50,000–60,000 monthly.

- **Platform Riders: Pathao & In-Drive**

Name: Saroj Rai

Age: 31

Gender: Male

Understanding the Legal Framework

Saroj does not have any knowledge of specific laws governing ride-hailing services in Nepal and believes that such regulations are currently nonexistent. He recalls previous disputes with taxi operators but has not encountered any legal guidelines that address ride-hailing. He also notes the lack of mechanisms for drivers to report issues they experience while working. Concerning compliance, he states that In-drive does not offer any training or information regarding government regulations. He has neither visited nor heard of any official offices associated with the platform. There are no distinct standards necessary to become a driver; merely logging into the system allows him to start working. Unlike other platforms, there is no process for vehicle inspection, driver training, or background checks. When asked about safety protocols, he observes that aside from general traffic laws, there are no explicit safety requirements in effect. Furthermore, there is no insurance policy to cover damages in the event of an accident.

Identifying Gaps and Challenges

Saroj highlights that the most significant challenge is the total lack of legal regulations overseeing ride-hailing services. He does not need to submit any documentation or fulfill official criteria to drive for Indrive—possessing a bike and a driving license is adequate. He shares a personal incident where a passenger deceived him into giving money by promising digital payment. The passenger ultimately vanished, leaving him with no means to recover his fare. Since he is unaware of where to lodge complaints or seek assistance, he believes there should be consequences for such incidents. However, he has not encountered any fines, detentions, or disputes with law enforcement. He also mentions that while traditional taxi drivers do not actively create confrontations, they occasionally obstruct ride-hailing drivers from waiting at designated taxi stands.

Future Directions and Recommendations

Saroj recommends that the government should legalize ride-hailing services or offer alternative job opportunities, as many individuals rely on this industry for their income. He stresses the necessity for appropriate insurance policies and a specific avenue for drivers to file complaints. Additionally, he believes that although technology has made

ride-hailing convenient and provided job opportunities, there is a pressing need for regulatory enhancements. To improve safety, he suggests implementing insurance coverage and stronger accountability measures to protect both drivers and passengers. Finally, he underscores the importance of job security and fair working conditions, asserting that ride-hailing services should be formally acknowledged and regulated.

Name: Naren rai

Age: 34

Gender: Male

Overview and Employment Background

The individual is a motorbike driver for In-Drive and has been active in the ride-hailing sector for two years, relying on it for income. He mentions that his work is predominantly unregulated, which raises concerns about his job security and legal status.

Knowledge and Adherence to Regulations

The individual is not aware of any particular laws governing ride-hailing services in Nepal and believes there is no established legal framework. He notes the absence of official requirements such as vehicle inspections, driver education, or background checks. In contrast to other platforms that provide training, In-Drive does not offer any insights regarding legal adherence, and he has never encountered or learned of an official office related to the service.

Issues and Deficiencies in the Regulatory Framework

Because ride-hailing services lack legal recognition, the individual struggles to resolve customer complaints or safety issues. He recounted an experience in which a passenger tricked him into giving money under the guise of digital payment but failed to compensate him. There was no mechanism in place for reporting or recovering the loss. Furthermore, the lack of designated parking or waiting areas for ride-hailing drivers sometimes results in minor clashes with taxi drivers when they linger near their designated spots.

Importance of Legal Acknowledgment and Protection

The individual emphasizes the critical need for legal acknowledgment of ride-hailing services. He argues that the government should either legitimize the industry or offer alternative employment options. Additionally, he points out that there is no insurance

coverage in place, leaving both drivers and passengers at risk in the event of accidents or disputes.

Impact of Technology and Platform Responsibility

While technology has enhanced the accessibility and convenience of ride-hailing, the individual observes that accountability on the part of platforms is lacking. Specifically, In-Drive does not have a physical presence or organized support system in Nepal, making it challenging for drivers to file complaints or receive assistance. Moreover, instances of imprecise navigation in the app sometimes result in delays, customer dissatisfaction, and cancellations.

Economic Struggles and Platform Policies

The individual shares concerns regarding financial stability, indicating that achieving a consistent income is challenging due to variable ride availability. Unlike platforms that implement organized commission structures, In-Drive fails to provide reliable incentives. The uncertainty of job security and fluctuating earnings complicates drivers' ability to depend on ride-hailing for long-term employment.

Suggestions for Future Enhancements

To enhance the ride-hailing sector in Nepal, the individual proposes the following:

- Government acknowledgment and the establishment of a legal framework to legitimize ride-hailing as a profession.
- Compulsory insurance policies for both drivers and riders.
- Dedicated parking or waiting locations to reduce conflicts and penalties.
- Enhanced accountability of platforms, including customer support for resolving disputes.
- Equitable commission structures to guarantee sustainable income for drivers.

He believes that without adequate regulation, ride-hailing drivers will continue to confront legal ambiguities, financial challenges, and safety hazards. He encourages collaboration among the government, ride-hailing companies, and stakeholders to establish ride-hailing as a legally recognized and sustainable profession in Nepal.

APPENDIX- III: CONFERENCE PAPER: IOE GRADUATE CONFERENCE

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Tribhuvan University
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Institute of Engineering
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GPO Box- 280, Thapathali, Kathmandu
Tel: 01-5339766
E-mail: info@tcioe.edu.np
Website: www.tcioe.edu.np
गोश्वारा पो. नं. २८०, थापाथली, काठमाडौं
फोन: ०१-५३३५७६६

Date: April 21, 2025

To Whom It May Concern:

This is to certify that the paper titled **"Regulatory Gap and Youth-Driven Adoption: A Study of Ride-Hailing Services in Kathmandu Valley, Nepal"** (Submission# **305**) submitted by **Ronesh Shahi** as the first author, which had been accepted for presentation after the peer-review process, has successfully been presented at the 16th IOE Graduate Conference held during April 18 - 20, 2025. Kindly note that the final revision of the papers and publication process of the conference proceedings is still underway and hence inclusion of the accepted manuscript in the conference proceedings is contingent upon timely response to further edits during the publication process.

INSTITUTE OF ENGINEERING
16th IOE Graduate Conference
THAPATHALI CAMPUS

Dr. Raj Kumar Chaulagain,
Convener,
16th IOE Graduate Conference

Regulatory Gap and Youth-Driven Adoption: A Study of Ride-Hailing Services in Kathmandu Valley, Nepal

Ronesh Shahi [a], Prof. Padma B Shahi [b]

[a] *Department of Architecture, Pulchowk Campus, IOE, Tribhuvan University, Nepal*
[b] *Visiting Faculty Member, Department of Architecture, Pulchowk Campus, IOE, Tribhuvan University, Nepal*
[a] *079msurp014.ronesh@pcampus.edu.np* , [b] *pb_shahi@yahoo.com*

Abstract
This mixed-method study investigates the rapid adoption of ride-hailing services (RHS) in Kathmandu Valley, Nepal, and the regulatory challenges undermining their sustainable integration. Combining surveys of 548 users and stakeholder interviews, the research identifies service quality (reliability, safety, convenience), technology adoption (digital literacy, app usage), and cost sensitivity as primary adoption drivers. Findings reveal that 84% of users are aged 18–30, with 53% holding postgraduate degrees, highlighting youth and tech-savviness as critical factors. Service quality emerges as the dominant driver (28.82% variance), addressing last-mile gaps and overcrowded public transit despite 88.5% of users living near bus stops.
Regulatory analysis exposes systemic fragmentation: federal laws (e.g., Motor Vehicles Act, 1993) clash with provincial policies, creating ambiguities in operational boundaries and fare structures. However, regulatory gaps, outdated policies, and institutional inertia create legal uncertainties, affecting enforcement and user security. Weak enforcement, exclusion of stakeholders (drivers, passengers), and unaddressed safety risks (18% harassment reports, 20% offline rides) exacerbate vulnerabilities. Provincial initiatives like Bagmati's "green bluebook" lack federal backing, while data governance gaps enable unsafe practices.The study underscores the urgent need for harmonized federal-provincial regulations, inclusive policymaking, and robust enforcement to align RHS growth with equitable urban mobility goals. Without adaptive governance, Kathmandu risks perpetuating a precarious transport ecosystem, mirroring broader Global South challenges in balancing innovation and institutional accountability.

Keywords
Ride-Hailing Services, Regulatory Framework, Youth Adoption, Urban Mobility, Technology Adoption, Kathmandu Valley

1. Introduction

Ride-hailing services (RHS) provide real-time transportation solutions through smartphone applications, linking passengers to nearby drivers [1]. These platforms, including Uber, Lyft, In-Drive and Didi Chuxing, have transformed traditional taxi services and public transport globally [2, 3]. The rise of RHS in developing nations is driven by inadequate public transportation, traffic congestion, and safety concerns[4]. However, their rapid expansion introduces regulatory challenges, especially in urbanizing regions with unique socio-economic conditions [5, 6].

In South Asia, cities like Kathmandu and Dhaka face severe transportation issues, with motorcycles constituting 79% of Kathmandu's vehicle fleet [7]. The public transit system in Kathmandu Valley, dominated by overcrowded micro buses, fails to meet the growing mobility needs, exacerbating congestion and pollution [8, 9]. Since their introduction between 2016 and 2018, ride-hailing platforms such as Pathao and Tootle have gained immense popularity by offering safer, faster, and more reliable commuting alternatives [10]. These services now facilitate 150,000 daily rides for 95,000 registered users [11]. According to Pathao's operational manager, Sudin Tamarakar, the number of registered riders reached 210,991 in 2025. This surge highlights the significant reliance of urban commuters on RHS due to inadequate public transport infrastructure.

Existing studies highlight RHS as both a mobility enhancer and a congestion contributor [2, 3]. While they provide increased accessibility, convenience, and cost-effectiveness, they also raise concerns about road congestion and regulatory uncertainties. However, empirical insights into socio-demographic adoption drivers remain limited, particularly in Kathmandu, where informal transport dominates and motorcycles are a primary mode of travel. While safety and cost influence adoption in developing countries [12], their relevance in Kathmandu's context is underexplored [13]. Different demographic groups exhibit varying preferences and behaviors regarding RHS adoption. Factors such as age, gender, income, and occupation significantly shape individuals' perceptions and usage patterns [2].[4] emphasize that RHS adoption varies across countries due to socio-economic and cultural differences, necessitating localized research to understand its impact. Unlike global platforms that have been extensively studied, local services such as Pathao and Tootle remain largely unexplored, particularly concerning their socio-economic and regulatory impact. Additionally, the broader implications of the digital platform economy in Nepal remain under-researched despite the sector's rapid growth and consumer dependency on ride-hailing services.

Regulatory gaps further hinder RHS adoption. Nepal's Industrial Enterprises Act, 2020 recognized RHS as a service industry but left critical areas like fare transparency, driver licensing, and passenger safety unregulated [11]. Conflicts between traditional taxi operators and RHS platforms persist due to fare discrepancies and unregistered vehicles [14]. The absence of clear policies creates legal uncertainty for service

providers, exposing both drivers and passengers to potential risks [11]. The distinct socioeconomic and spatial elements of Kathmandu, including limited road infrastructure, high population density, and the dominance of two-wheelers, necessitate further research to ensure the effective integration of RHS into the city's transport system.

Research Questions: This study examines the adoption of ride-hailing services (RHS) in Kathmandu Valley, focusing on the factors influencing their rapid uptake among youth and the regulatory gap surrounding their governance. The findings aim to provide insights for policymakers to enhance sustainability and accessibility, ensuring RHS contributes to a more efficient and equitable urban transportation system. Specifically, the study seeks to answer two key questions:

1. What are the key factors driving adoption of ride-hailing services in Kathmandu Valley?
2. What are the current regulatory gaps in the ride-hailing regulatory framework?

2. Literature Review

Ride-hailing has emerged as a vital mode of transit in cities with few open transportation options. In South and Southeast Asian cities with disjointed public transportation infrastructures (e.g., Dhaka, Hanoi, Kuala Lumpur), ride-hailing services (RHS) frequently bridge the gap between formal travel and private vehicle use by offering first- and last-mile networks [15, 16, 17].

2.1 Adoption Factors of Ride-Hailing Services

The analysis of previous research investigates significant elements which affect the adoption of ride-hailing service. Growing trends in ride-hailing services result from multiple socio-cultural factors which affect developing nations particularly [4]. This part analyzes important determinants that explain how adoption patterns operate within motorcycle-heavy areas such as Kathmandu Valley through research on regional and international levels.

2.1.1 Socio-Demographic Drivers

Users between 18 to 35 years of age adopt ride-hailing services more frequently since they understand technology well and need to travel around the city [18, 19]. Middle-income workers seek motorcycles primarily because of their cost-saving benefits yet higher income users choose them because of ease [2]. Students and young professionals in Kathmandu prefer motorcycle-based RHS because they offer affordable rates [20]. The safety concerns of women remain while they value the accessibility option of using shared bikes [13].

2.1.2 Attitudinal Characteristics

Tech-savvy individuals, particularly younger, educated users comfortable with mobile platforms and digital payments, are more likely to adopt ride-hailing services [18, 19, 17]. Ride-sharing services gain adopters because customers want diversity in transportation options which includes standard to luxurious vehicle selections [19]. Additionally, a variety-seeking lifestyle influences adoption, as users prefer diverse ride options [19]. Social influence also plays a crucial role, with family, friends, and public figures shaping attitudes toward ride-hailing in Indonesia and Malaysia, especially among younger users [21, 22].

2.1.3 Built Environment and Infrastructure

The demand for RHS increases when cities achieve high residential density patterns and combine multiple land uses as demonstrated in Hanoi and Malaysia according to [16]. The deficient road conditions of Kathmandu restrict four-wheeler shared ride services which leads people to use motorcycles in its limited streets [20]. Users near public transportation hubs integrate different modes because they commute between bus lines and RHS services for their initial and final travel requirements [23].

2.1.4 Perceived Benefits

The ride-hailing services (RHS) benefits South and Southeast Asian regions by eliminating transportation problems in urban areas. Pathao alongside other RHS operators in Bangladesh have become essential for corporate workers in Dhaka because they deliver better time management as well as lower prices than taxis according to research by [24]. Indian riders consider RHS costs against unpredictable public transit to decide whether to use the service mostly in cities such as Bengaluru [17]. Real-time tracking and cashless payment functions within Grab enhance user security which appeals to women throughout Malaysia and Indonesia [25]. RHS services in Vietnam address transit desert areas but driver safety problems continue to exist thanks to verification systems [2]. Regions across the world support the expansion of RHS through their ability to integrate mobile booking services with flexible pricing and cost-efficient ride-sharing that addresses short-duration journeys even though safety and fare regulation standards have not yet been fully established.

2.2 Legal & Regulatory Aspect

2.2.1 Fragmented Regulatory Frameworks

The inability to establish cohesive national policies causes developing nations to maintain disordered regulatory systems. Indian ride-hailing operations encounter obstacles due to various unclear state regulations which control both fare rates and authentication procedures and safety protocols [5].

2.2.2 Safety and Labor In-formalization

Two-wheeler ride-hailing amplifies safety risks. The minimal regulation of motorcycle taxis in Southeast Asia continues because there are no established policies about vehicular standards or motorcyclist helmet requirements. The Taxi Industry Transformation Program of Malaysia does not enforce its driver training initiatives effectively which has resulted in higher traffic accidents based on findings from [16]. The drivers from Bangladesh remain without social security benefits and fair wage protection due to their limited access despite [15].

2.2.3 Conflict with Traditional Transport

The regulatory procedure encounters persistent obstacles when it seeks to implement modern advances into preserving operations within established sectors. Vietnamese traditional bikers became hostile towards Grab Bike and similar motorcycle services which hindered their operational profits [25]. The Philippines made a decision to stop ride-hailing legalization to protect jeepney operators which resulted in delayed establishment of clear regulatory norms as per [22].

2.2.4 Data Privacy and Infrastructure Gaps

Rising markets face various barriers that prevent them from achieving sustained data governance quality. The local platforms of India and Indonesia store their data overseas which generates data privacy concerns according to[26, 22]. Inadequate infrastructure in cities like Dhaka and Jakarta exacerbates congestion, undermining ride-hailing efficiency despite regulatory efforts [15].

2.2.5 Existing Regulatory Context of Nepal

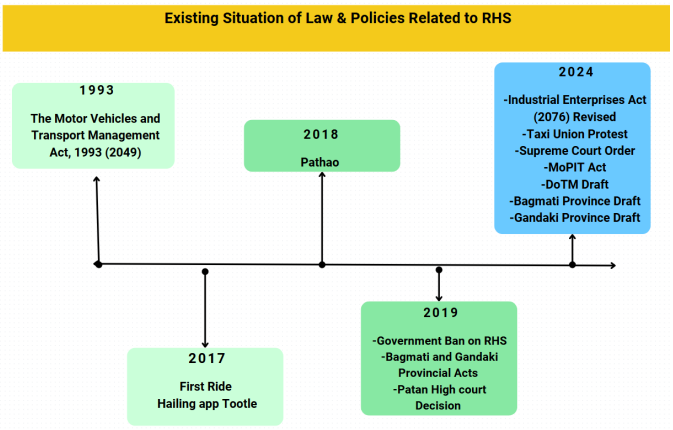

Figure 1: Regulatory Situation of Nepal Regarding RHS

Tootle started providing ride-sharing services in 2017 during an approval gap caused by the Motor Vehicles and Transport Management Act Section 8(2) from 1993 that prevented personal vehicles from public transportation participation therefore resulting in clashes with traditional taxi carriers. Standard plate private vehicles obtained approval from the Bagmati Province Government through the Vehicle and Transportation Management Act of 2019 , but this legislation did not include distinct provisions for ride-sharing two-wheelers (Section 13(4)). Gandaki Province's Transportation Management Regulation Act, 2019 accepts ride-sharing operations (Section 13(4)) but fails to ruled detailed regulations for smooth operations. In 2020 Patan High Court issued a judgment that highlighted the need for federal reforms because provincial laws should align with the outdated 1993 Act (Akhil Nepal Labor Taxi District Committee v. MoPIT; Patan High Court, 2020) [27]. The Government of Nepal (2024) introduced ride-sharing as a service industry through the amendment to the Industrial Enterprises Act in 2020 but the change did not resolve operational uncertainties. Proper standards need federal amendments to match draft federal guidelines with Section 8(2) of the 1993 Act. The acceptance of ride-sharing services depends strongly on federal alignment since this implementation defines potential market growth and ensures user protection and preserves stakeholder equity [27].

3. Methodology

The research method involves both quantitative surveys together with qualitative interview data collection procedures. The population between 18–45 years in Kathmandu Valley received stratified random sampling distribution. A total of 385 respondents formed the minimum sample count according to Cochran's formula for research with a confidence level of 95%. The study drew its data from trustworthy sources by implementing survey questions that promoted precision of results. The results were collected through a 4-point Likert scale adopted from known research frameworks [12, 28]. This scale evaluated essential aspects such as socioeconomic classes and vehicle possession and adoption factors (price, safety, convenience) & Attitudinal characteristics. A total of 20 respondents took part in a questionnaire pretest survey to evaluate both the consistency and readability of the questionnaire before its official distribution.

A detailed analysis of the data focused on ensuring its valid and reliable results through missing value checks and duplication and entry error assessments. The analysis of quantitative data through SPSS software utilized Exploratory Factor Analysis (EFA) utilizing varimax rotation procedures. The reliability of constructs was confirmed through both Kaiser-Meyer-Olkin (KMO) measure results and Bartlett's test.

The investigation of the second research question required a series of qualitative interviews with officials representing MoPIT and DoTM and Traffic Police and service operators from Pathao and Tootle and a sample of riders themselves. The interviews evaluated policy obstacles that included gaps in regulations together with enforcement problems and operational issues.

Study Area : The Kathmandu Valley is home to 2,996,341 people [29]. The Kathmandu Valley, one of Nepal's most populated regions and a hub for both cultural and economic activity, offers a range of transportation choices, including taxis, public buses, micro buses, and new ride-hailing services. Because of this setting, it's a good place to study mobility patterns and transportation use. Young urban commuters, particularly those enrolled in college and working in offices, will be the focus of the study since they frequently use several modes of transportation and have higher mobility demands.

4. Finding & Analysis

In this chapter, the findings from the questionnaire and interviews are analyzed. Of the total of 656 survey responses collected through online and offline questionnaires survey, only 548 responses **(N=548)** from individuals who have previously used or are currently using ride-hailing services were considered for further analysis. This approach ensures a deeper understanding of the factors influencing the adoption of ride-hailing services.

4.1 Adoption Factors-Questionnaire Survey

4.1.1 Socio-Demographic Factors

Table 1: Socio-Demographic Statistics

Variable	Key Statistic
Age	84% aged 18–30 (44% 18–25; 40% 25–30)
Gender	62% male, 38% female
Profession	45% students, 34% private sector
Education	53% postgraduates, 26% graduates
Income	54% students & unemployed
Vehicle	47% own no vehicle (n=260)
License	59% hold a driver's license (n=325)

Table: 1 represents the socio-demographic profile of ride-hailing users in Kathmandu Valley reveals strong youth adoption, with 44.16% aged 18-25 and 39.78% aged 25-30. Men (62.23%) use the service more than women (37.77%) despite a nearly equal population. Ride-hailing is particularly popular among students (44.71%) and private-sector employees (34.31%), with postgraduate degree holders comprising 52.92% of users. Nearly half (48.18%) of users are (student & unemployed), yet 20.26% earn over NPR 45,000 monthly. Ride-hailing serves as necessary transportation for those who do not own vehicles because 47.45% of respondents lack vehicle ownership but 47.08% still have two-wheelers which they sometimes use with ride-hailing. User preference for ride-hailing persists despite the fact that most (59.31%) people hold valid driver's licenses because of the combination of urban traffic conditions and convenience. Statistics show that the majority of users from Kathmandu valley use this digital mobility option which verifies its status as a fundamental transport solution served by urban metropolitan youth who are tech-proficient and hold a high education level.

4.1.2 Built Environment & Infrastructure Factors:

From survey data majority of ride-hailing users (88.5%) reside within 800 meters of public transit stations, indicating they have convenient access to buses and other forms of public transportation. Nevertheless, 11.5% of users lack straight forward access to transit and depend on ride-hailing services. With 59.31% of users living in metropolitan areas (higher population densities) having multiple transportation option, while 37.96% of users located in suburban areas and 2.74% in rural settings regions encounter difficulties due to lower transportation options. Despite good access to public transit, ride-hailing remains popular because it offers a more efficient option, as traditional public transit is often overcrowded, unreliable, and lacks last-mile connections.

4.1.3 Vehicle Ownership and Uses of RHS:

Survey data revels vehicle owners opt for ride-hailing services primarily during emergencies (24.95%) and to avoid parking challenges (18.58%) or drinking-and-driving risks (18.58%). Additional drivers include convenience for pick-ups/drop-offs (10.20%), stress reduction in traffic (6.92%), and time-saving for those frequently late (6.01%). Even vehicle owners rely on ride-hailing for urgent travel, parking challenges, and avoiding drinking-and-driving risks. It also offers convenience for pick-ups/drop-offs, stress-free commuting in traffic, and a time-saving option for those often running late. This highlights ride-hailing as a practical solution for urban mobility challenges rather than just a substitute for vehicle ownership.

4.1.4 Perceived Benefits Factors & Attitudinal Characteristics:

Table 2: Perceived Benefits and Attitudinal Characteristics

Perceived Benefit Factor	Importance Level			
	Not Imp.	Least Imp.	Imp.	Most Imp.
Convenience	1.09%	5.11%	55.47%	38.32%
Cost	1.82%	9.49%	45.62%	43.07%
Reliability	1.09%	5.11%	52.92%	40.88%
Safety	1.46%	5.66%	64.42%	28.47%
Availability	1.64%	6.20%	47.99%	44.16%
Waiting Time	2.92%	10.95%	49.64%	36.50%
Comfort	2.55%	9.85%	45.26%	42.34%

Attitudinal Character	Agreement Level			
	Strongly disagree	Disagree	Agree	Strongly agree
Online services	4.38%	9.67%	54.74%	31.20%
New tech.	2.92%	8.58%	54.56%	33.94%
Public opinion	9.49%	30.11%	45.26%	15.15%
Affordability	2.37%	7.12%	56.93%	33.58%

The data highlights key factors influencing the adoption of ride-hailing services. Convenience, cost, reliability, and safety are perceived as the most important benefits, with the majority of respondents rating them as "important" or "most important." Availability, waiting time, and comfort also play significant roles. Attitudinal factors show that a majority of respondents enjoy using online services and trying new technologies. Public opinion and affordability significantly influence their decision to use ride-hailing services over other modes of transport, with many agreeing that these factors are crucial in their decision-making.

Explanatory Factor Analysis (EFA)

Explanatory Factor Analysis (EFA) is conducted to identify underlying relationships among observed variables and reduce a large set of variables into fewer latent factors. It helps group correlated variables, making it easier to interpret the data structure and understand which factors influence the adoption of ride-hailing services.

Factor Analysis Adequacy: The Kaiser-Meyer-Olkin (KMO) measure (0.784) indicates that the sample size is adequate for factor analysis. Bartlett's Test of Sphericity (χ^2 = 1090.807, p < .001) confirms that the variables have significant correlations, making them suitable for factor analysis. Extraction Method used is Principal Axis Factoring.

Total variance Explained: Three factors were extracted, explaining a total of **44.25% of the variance** in the dataset. The first factor explains the highest variance (28.82%), followed by the second (10.76%) and third (4.67%).

Factor Loadings: The factor loadings show how strongly each variable is associated with a particular factor.

Table 3: Factor Loadings (Pattern Matrix)

Variables	Factor		
	1	2	3
Reliability	0.703		
Comfort	0.625		
Availability	0.604		
Safety	0.595		0.333
Waiting Time	0.537		
I like using online		0.791	
I like trying new technologies		0.653	
Cost			0.653
Affordability		0.337	0.363

Factor 1 includes variables related to **service quality (e.g., reliability, comfort, and availability)**, Factor 2 captures **technology adoption preferences**, and Factor 3 is related to **cost considerations**. The rotation method *Oblimin with Kaiser Normalization* was used, allowing for correlations between factors.

Service Quality (28.82% Variance): Service quality emerges as the most significant driver of ride-hailing adoption, encompassing **reliability, safety, comfort, availability, and waiting time**.

- **Reliability (0.703 Factor Loading):** Timely service and consistent availability make ride-hailing preferable over public transport, which is often delayed and unpredictable.
- **Safety (0.595):** Users value driver trustworthiness and route tracking, particularly in an urban setting where personal security is a concern.
- **Comfort (0.625):** Well-maintained vehicles and comfortable seating add to the appeal of ride-hailing compared to overcrowded public transport.
- **Availability (0.604):** The 24/7 accessibility of ride-hailing services meets the mobility needs of users across different time like on demand services.
- **Waiting Time (0.537):** The shorter wait times for ride-hailing vehicles compared to traditional taxis or public transport enhance convenience and time efficiency.

Technology Adoption (10.76% Variance): Digital proficiency and preference for online services significantly influence ride-hailing adoption.

- **Preference for Online Services (0.791):** Users who frequently engage in net banking, online shopping, and other digital transactions are more inclined to use app-based ride-hailing services.
- **Interest in New Technology (0.653):** Tech-savvy individuals, particularly those with higher education levels (postgraduates constitute 52.92% of users), are more receptive to digital transport solutions.

Ride-hailing serves as a tech-driven complement rather than a full substitute for existing transport options. The findings suggest that Kathmandu's urban residents prefer digital convenience for transportation, similar to their other online engagements.

Cost Sensitivity (4.67% Variance): Affordability remains a secondary but crucial factor affecting ride-hailing usage.

- **Trip Cost Consideration (0.653):** Users weigh the price of rides against the perceived value, preferring ride-hailing when costs are justifiable.
- **Affordability Concern (0.363):** Budget-conscious users, particularly students (44.71% of the sample), prioritize cost-effective transport options.

Although cost plays a role, it does not override the demand for service quality. It indicates that even price-conscious users value convenience, reliability, and safety when making travel decisions.

4.2 Findings and Analysis on Regulatory Gap of Ride-Hailing Services

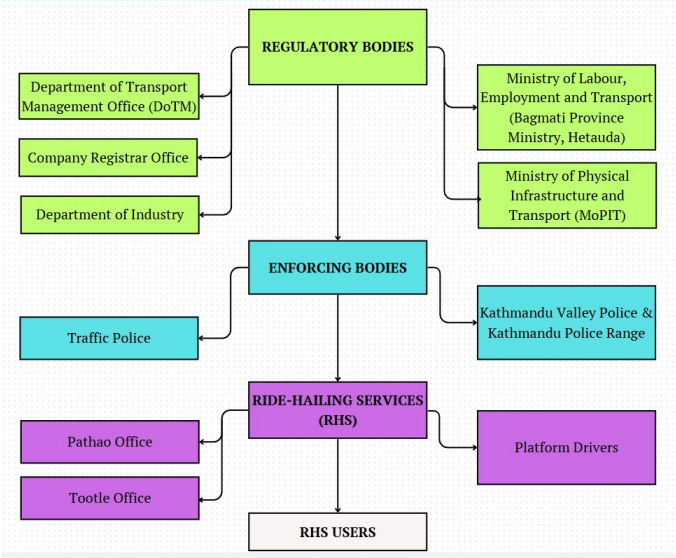

Figure 2: Interviewed Stakeholders of RHS

Interviews were conducted with various stakeholders involved in ride-hailing services, including regulatory bodies, enforcement agencies, ride-hailing service (RHS) platform users, and other relevant actors. These interviews were carried out in person, providing valuable qualitative insights. Furthermore, draft regulations prepared by regulatory bodies were also analyzed to understand the evolving legal framework. The findings and analysis are categorized under different stakeholders for clarity and structured analysis.

Regulatory Bodies: The federal *Motor Vehicles and Transport Management Act (1993)* prohibits private vehicles from commercial use, creating legal ambiguity for platforms like Pathao and In-Drive. The *Ministry of Physical Infrastructure and Transport (MoPIT)* has already recognized RHS under the *Industrial Enterprises Act* and recently drafted a federal bill proposing operational and regulation of ride-hailing services, along with driver licensing and safety mandates (background checks, centralized databases). However, delays in federal approval and poor coordination with provinces leave key provisions (e.g., fare caps, insurance mandates) unenforced, making platforms vulnerable to arbitrary enforcement. Similarly, the *Department of Transport*

Management's (DoTM) draft National Directive 2080 outlines licensing, vehicle fitness, and safety rules but approval is in pending stage. At the provincial level, *Bagmati Province's draft "Ride Sharing and Pay Bike Karya Bidhi 2080"* seeks to legalize ride-hailing through commercial registration (e.g., "green bluebook"), GPS tracking, and fare regulation. However, weak enforcement mechanisms result in inconsistent compliance. Conflicting operational boundaries further complicate regulation, such as Bagmati's 50 km ride limit versus the federal 15 km limit and Bagmati's 10% commission cap versus unregulated surge pricing. Proposed three-to-six-month data retention policies by DoTM and Bagmati Province lack clear cybersecurity protocols, exposing passenger and driver data to misuse. Ride-hailing platforms are required to share trip and operational data, but no unified data governance policy exists to regulate storage duration, access control, or cybersecurity safeguards. Nepal's cybersecurity laws do not explicitly cover ride-hailing services, leaving real-time location, trip history, and personal details at risk without a strong monitoring authority. Additionally, there is no centralized system to track ride-hailing operations, complicating regulatory oversight.

Excluding key stakeholders such as drivers, passengers, and traditional transport operators during the development of draft regulations leads to a lack of their participation. The *DoTM's* discussions have primarily involved Pathao, excluding other operators like In-Drive and Tootle. As a result, concerns such as driver commission structures, social security provisions, and insurance policies remain inadequately addressed.

The *Department of Industry* classifies ride-hailing under the service sector but fails to regulate platforms like In-Drive, which operate with opaque registration details. The *Company Registrar's Office* has outdated records, leaving 5 out of 16 ride-hailing companies unverified, including Pathao. Misclassifying platforms as "IT entities" instead of transport providers. These gaps underscore the urgent need for a harmonized federal law, enforceable provincial alignment, and robust stakeholder engagement to balance innovation with sustainable urban mobility.

Law Enforcement Agencies: Nepal's ride-hailing enforcement remains weak due to limited institutional capacity and outdated traffic surveillance. The *Metropolitan Traffic Police Division (MTPD)* enforces only general traffic laws, lacking exclusive jurisdiction over ride-hailing violations, leading to inconsistent enforcement. In fiscal year 2079/80, authorities issued 28,546 fines, but unauthorized ride-sharing persists due to the absence of a standardized rules and regulations.Safety concerns are rising, with reckless driving and accidents increasing. In 2078/79, 20 accidents resulted in one fatality; by 2080/81, severe injuries had grown. Similarly, most common traffic violations are illegal parking, speeding, and reckless overtaking in high-density areas like bus stops, Thamel, and the airport. Fines peaked in 2079/80 and 2080/81 but dropped in 2081/82 due to a court order. Weak coordination between *MoPIT*, *DoTM*, and traffic police further hinders regulation.The lack of real-time monitoring further complicates monitoring. Ride-hailing vehicles are tracked through GPS tracking only by platform but law enforcement lacks adequate system to track it. Kathmandu Valley's Road infrastructure is inadequate for its 1.94 million registered vehicles, and its 1,835 traffic police officers oversee an average of 1,059 vehicles each, making enforcement difficult.

The *Kathmandu Valley Police Office* and *District Police Range* do not maintain specific ride-hailing records, treating cases under general traffic or criminal offenses. This suggest Weak enforcement, outdated regulations, and poor coordination among authorities make ride-hailing oversight ineffective. Limited resources, lack of real-time monitoring, and rising safety concerns further worsen the situation.

Ride hailing Platform & Drivers: Nepal's ride-hailing sector operates in a regulatory vacuum, with no clear laws governing the industry, leading to significant compliance challenges for platforms like Tootle and Pathao. The absence of specific regulations results in gaps in vehicle and driver oversight, insurance requirements, and licensing procedures. While drivers must have valid licenses and insurance, there is no standardized process for obtaining operational permits. This lack of regulation leads to conflicts between ride-hailing services and traditional taxi operators, who argue that ride-hailing platforms undercut fares, operate without proper commercial licenses, and tax evades. Government interventions leading to periodic crackdowns on ride-hailing services, yet without clear policies integrating both traditional and digital transport models, these disputes persist.

Similarly, safety regulations remain inadequate, particularly for platforms like In-Drive, where drivers operate with no insurance coverage, exposing both themselves and passengers to financial and health risks. In-Drive also lacks a physical contact office, and issues are resolved only through online or digital means, making it difficult for drivers to reclaim financial and other dispute-related issues. Drivers also face financial instability due to fluctuating commission rates proposed by platform, absence of fixed income, and lack of social security benefits. The draft policies proposed by the DoTM aim to address these issues by mandating driver registration, commercial licensing, and social security enrollment, but lack of approved regulations it leaves platforms drivers in a risky position. Without structured policies ensuring accountability, fair competition, and worker protections, ride-hailing services providers are operating by self-regulated policies.

User's Concerns: Survey data revels that passengers frequently experience service-related issues, including driver cancellations, sudden fare surges, and unregulated offline ride requests. According to the survey responses around 29.27% of users report ride cancellations as a major problem, followed by unexpected price surge (24.52%), offline ride request about 21.69% and safety concerns such as reckless driving and harassment (17.51%). This suggests that the issues are exacerbated by the lack of a standardized fare mechanism, absence of proper grievance redressal systems, monitoring and lack of enforcement of service quality standards.

Similarly survey data reveals, public demand for policy improvements in the ride-hailing sector is strong, with 25.02% of users supporting comprehensive regulatory reforms addressing multiple concerns. Key recommendations include implementing stronger safety measures (19.48%), such as background checks for drivers, and establishing clear

fare-setting guidelines (17.08%) to prevent price surging. Additionally, 13.76% advocate for formal driver and passenger rights protections, including fair pay and benefits, while 12.65% emphasize the need for a structured complaint system. Stricter enforcement of existing rules is supported by 10.25% of users, highlighting the necessity for regulatory oversight. This suggest that there is lack of proper rules and regulations guiding the RHS platform.

5. Discussion

Adoption Factors

The results of this study provide an in-depth understanding of the factors influencing the adoption of ride-hailing services in Kathmandu Valley is primarily driven by three key factors: **Service Quality, Technology Adoption,** and **Cost Sensitivity**.

Service Quality (28.82% variance) emerges as the most significant factor, highlighting users' prioritization of convenience, reliability, safety, availability, waiting time, and comfort. With Kathmandu's, traditional public transport system characterized by overcrowding and inefficiencies, ride-hailing serves as a more reliable and efficient alternative. Despite 88.5% of users living near transit stops, ride-hailing is preferred for last-mile connectivity and time savings. Safety concerns, particularly among women (37.77% of users), further reinforce this preference, as features like GPS tracking and driver verification offer reassurance.
Technology Adoption (10.76% variance) underscores the role of digital integration in everyday life. The educated and tech-savvy population—52.92% of users being postgraduates—finds ride-hailing a natural extension of digital convenience, similar to online banking or e-commerce. High urban density (59.31%) also facilitates app-based mobility, making ride-hailing services easily accessible.
Cost Sensitivity (4.67% variance) indicates that while affordability matters, quality often outweighs price considerations. Students (44.71% of users) and other regular commuters prefer reliable transport over lower fares.
Even vehicle owners (47.08% two-wheelers) turn to ride-hailing for specific needs, such as avoiding parking issues, navigating congested areas, or mitigating risks like drunk driving.

Regulatory Gaps

The findings of the study revels that the Nepal's ride-hailing sector is crippled by systemic regulatory gaps rooted in **legal fragmentation, institutional inertia,** and **exclusionary governance**. The federal Motor Vehicles Act (1993), which prohibits private vehicles from commercial use, directly conflicts with provincial efforts like Bagmati's Ride Sharing and Pay Bike Karya Bidhi 2080, creating ambiguity over operational boundaries (e.g., 50 km vs. 15 km ride limits) and fare structures (e.g., 10% commission caps vs. unregulated surges). Draft policies, such as MoPIT's federal bill and DoTM's National Directive 2080, remain unenforced, failing to implement critical mandates like GPS tracking, driver training, or cyber security protocols, leaving platforms like In-Drive to operate with opaque registrations and no physical offices. **Institutional weaknesses** such as misclassify ride-hailing as "IT entities" and chaotic record-keeping, with 5 of 16 companies unverified. Enforcement agencies, constrained by outdated laws and jurisdiction gaps, struggle to monitor violations (e.g., surge pricing, unregistered drivers), exacerbating safety risks (20 accidents in 2078/79) and user dissatisfaction (29.27% cancellations, 24.52% fare surges). **Exclusion** of drivers, passengers, and traditional taxi unions from policymaking discussion perpetuates labor insecurity and sectoral conflicts, while unregulated data practices expose sensitive users' information. These gaps reflect Nepal's broader governance challenges—poor federal-provincial coordination, delayed approvals, monitoring gap and institutional rigidity.

6. Conclusion

This study concludes that Service Quality remains the primary factor in ride-hailing adoption, while Technology Adoption and Cost Sensitivity influence user behavior by shaping preferences for reliability, safety, availability, waiting time, and comfort. As a result, users opt for ride-hailing services over traditional public transport, particularly for navigating the city's narrow streets and avoiding urban congestion. People with higher education levels who are familiar with technology choose ride-hailing for its efficiency and convenience. Even vehicle owners use ride-hailing strategically to bypass parking difficulties and traffic challenges, reinforcing its role as a preferred urban mobility solution for users in Kathmandu Valley.

However, Nepal's regulatory framework remains fragmented and outdated, creating legal ambiguities and enforcement challenge. Conflicting federal and provincial policies, weak institutional oversight, and the exclusion of key stakeholders hinder effective governance, leaving drivers and passengers vulnerable to risks like uninsured rides and fare surges and creating legal vacuum.
Nepal must harmonize federal and provincial laws, enforce safety and fare regulations, and ensure inclusive governance by involving drivers, passengers, and traditional transport operators. Addressing these gaps will not only enhance service reliability but also integrate ride-hailing into a more sustainable and equitable urban mobility system.

Limitations & Future Studies

Geographic focus on Kathmandu Valley, sample bias toward younger, educated users, and reliance on self-reported data limit generalizability. Future research should explore RHS impacts in other Nepalese regions, evaluate policy reforms, and assess long-term transportation trends.

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