**REVIEW OF RELATED LITERATURE AND STUDIES**

This chapter discusses concepts, theses, dissertations, generalizations, conclusions, techniques, and other related topics. Those discussed in this chapter will aid in familiarizing information that is related and relevant to the current study.

**THEORETICAL BACKGROUND**

The development of a web-based tricycle management system and booking application in Ormoc City can be seen in the context of the broader trend toward the use of information and communication technologies (ICT) to improve the efficiency and effectiveness of transportation services. This trend is driven by a variety of factors, including the increasing demand for convenient and reliable transportation options, the need to reduce costs and improve operational efficiency, and the potential to generate new sources of revenue through innovative business models.

In the specific context of tricycle transportation, the use of a web-based management system and booking application can help to address several key challenges and opportunities. For example, such a system can help to easily book tricycle rides through an online platform. This aligns with the trend toward digital transformation in the transportation industry, which has been driven by advances in technology such as the internet of things (IoT) and automation (Capgemini Engineering, 2020). The use of digital platforms for booking can improve the convenience and efficiency of transportation services for both passengers and operators. This can in turn lead to increased income for drivers and more convenient and reliable transportation for passengers (Deloitte, 2018).

In addition, web-based management systems, which use internet technology to access and manage data and processes, have the potential to improve efficiency, reduce errors, and increase accessibility for both businesses and customers (Sekirov, 2022). Also, the help of transportation management system (TMS) can help to track and monitor the performance and utilization of the tricycle fleet, enabling managers to optimize routes and schedules and to identify opportunities for cost savings and efficiency improvements (Essex & Kakade, 2020).

The implementation of a web-based tricycle management and booking application has the

potential to bring numerous benefits to the tricycle industry in Ormoc City while also leveraging the broader trend toward the use of ICT in transportation services. By streamlining operations and improving efficiency, tricycle drivers may be able to increase their income and provide a better service to passengers. The use of digital platforms may also attract a new generation of tech-savvy customers who prefer the convenience of online booking.

**RELATED LITERATURE**

The increasing demand for efficient and convenient transportation has led to the development of various systems and technologies aimed at improving the management and operation of various transportation services. Tricycles, in particular, play a significant role in providing transportation services in various cities and towns, particularly in developing countries. In this regard, the goal of this research is to develop a web-based tricycle management system and booking application that aims to improve the efficiency of tricycle operations and increase the income of tricycle drivers in Ormoc City. This system will provide a platform for tricycle operators to manage the tricycle units they own, as well as for passengers to easily book and track their rides.

**Local**

Tricycles have a long history in the Philippines, with their use dating back to the early 1900s as a means of transportation for goods and people (Tricycles Philippines, 2020). It is motorcycle-based vehicles with a sidecar, are a common form of transportation in the Philippines, particularly in smaller cities and rural areas. They are often used as a cheaper and more flexible alternative to taxis and can be found in many parts of the country, including Ormoc City.

However, tricycle operators often face several challenges. One challenge is the lack of a centralized system for managing and dispatching tricycle rides. This can lead to inefficiencies and difficulties for both drivers and passengers. Some tricycle drivers and operators have resorted to using web-based management systems and ride-hailing apps, to address this issue (Dela Rosa and De Los Santos, 2018).

The proposed "Web-based Tricycle Management System and Booking Application in Ormoc City" have the potential to provide several benefits. According to the PDF, "Why Choose a Web-Based Management System” (2018), web-based systems allow for easy data sharing and collaboration, as well as the ability to access the system from any location with an internet connection. Also, web-based systems can be more secure and cost-effective compared to traditional desktop applications. Additionally, it can provide real-time tracking and monitoring of the tricycles, allowing for efficient dispatch and improved operational efficiency (*What are the advantages and disadvantages of fleet management?* n.d). This can also help to reduce fuel consumption and improve the utilization of the tricycles, resulting in cost savings for the fleet owner (India, n.d.).

Moreover, mobile application-based ride-hailing services, such as Uber and Grab, have gained widespread popularity in recent years and have disrupted the traditional transportation industry in the Philippines (Quimba, n.d). These services offer a range of benefits for both drivers and passengers, including cashless payment options and the ability to track the location and estimated arrival time of the vehicle (Agmostudio, 2021). However, the rise of these e-hailing services has also led to regulatory and legal issues, as traditional transportation operators argue for fair competition (Quimba, n.d). In Malaysia, Grab has been able to differentiate itself from Uber and other competitors through strategic partnerships and a strong brand image (*Grab vs uber:* A brand difference analysis on the brand acquisition*,* 2021). This has allowed Grab to acquire a significant share of the ride-hailing market in the country. In contrast, the Philippine government has struggled to effectively regulate e-hailing services, leading to calls for a comprehensive law to address the challenges posed by these platforms (Villanueva, 2022).

However, there are also several limitations to consider in the development of such a system, India (n.d) notes that implementing a fleet management system can be a complex and time-consuming process, and may require significant upfront costs for hardware and software, including the purchase or development of the software, training of staff, and the installation of necessary hardware such as GPS devices. In addition, there may be privacy concerns for both drivers and passengers related to the tracking of location and other data images (*Grab vs uber:* A brand difference analysis on the brand acquisition*,* 2021). It will be important to carefully consider and address these issues in the design and implementation of the proposed system.

**Foreign**

According to Horbenko (2021), booking apps can help both users and businesses thrive byproviding an easy and convenient platform for booking and scheduling services. They have become increasingly popular in various industries, including transportation, due to their convenience and efficiency. An article titled "Booking App: The List of Most Important Functions Which Have to Be There" (Ruban, 2021) highlights the key features that a successful booking app should have, such as the ability to search and compare options, make and modify bookings, and receive confirmation and updates. Having those features can improve communication between service providers and customers, as well as increase customer loyalty through personalized recommendations and experiences.

The use of online booking systems has also been found to have numerous benefits for businesses, including increased efficiency and productivity, reduced costs, and improved customer satisfaction (Campbell, 2020). Specifically, it can provide a convenient and efficient way for passengers to book rides, reducing wait times and improving the overall customer experience (Szeto, Jiang, Wong, et al., 2011). Web-based management systems, on the other hand, can provide numerous benefits for businesses, including easy data sharing and collaboration, improved efficiency and productivity, and enhanced security and data protection (Sekirov, 2022; Khamooshi, 2019).

**RELATED STUDIES**

**Local**

One local study that is relevant to the research on the development of a web-based tricycle management system is "Web-Based Management System with SMS and E-mail Notification for Binan Tricycle Franchising and Regulatory Board" (Paldez, Pintucan, Sere, & Agustin, 2018). This study aimed to develop a system that would streamline the process of registering and renewing tricycle franchises in the city of Binan. The system included features such as an online application and renewal form, SMS and email notifications for updates on the application process, and there is a module to manage violations.

Another local study that is relevant to the research is "Usability of Traysi: A Tricycle Commuting Web Application (Abana, 2019). This study evaluated the usability of a web-based application that allowed passengers to book tricycle rides and track the location of the assigned tricycle. The study found that the application was user-friendly and convenient for passengers, and also provided benefits for tricycle drivers such as increased income and reduced waiting time. The Traysi application has a feature that will automatically show the tricycle terminal location on the map by clicking on the information provided and doing tricycle fare calculations.

In addition, ISAKAY: Android-Based Booking System for TriBike Operators and Drivers Association with Cloud-Based Data Analytics an online booking system for the Odiongan Tri-Bike Operators and Drivers Association (OTBODA) in the Municipality of Odiongan. This booking system has the objective of integrating GPS technology for mapping and location finding where the data will be collected in terms of drivers, passengers, vehicles, and transaction details.

**Foreign**

One foreign study that is relevant to the research is "Transportation booking system via mobile computing" (Kim et al., 2019). This application aims to improve the transportation booking system for students at UniSZA by providing an easy-to-use application for booking transportation. Features of this system include a registration page for students and a booking form where the student can book their transportation by filling in the details needed such as their departure time, a destination address, etc. Also, there is a list of bookings where student can view their booking details, registration, and booking approval from the driver.

Another study is the research "Web-based Vehicle Management System” (Musonda, 2018). The purpose of the study is to develop a web-based vehicle management system for use in Zambia to address problems with the current system, such as mismanagement and high maintenance costs. The system has a three-tier architecture with a front-end interface using HTML and a back-end database using MySQL. It will allow users to request vehicles through a coordinator and track their use, as well as send reminders for important tasks such as insurance coverage, vehicle maintenance, and fitness checks.

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