

# So, what do you think about eScooters and eBikes?

Understanding visitor and resident experiences and perceptions with micromobility in Brisbane





#### Authors

Dr. Richard Buning Ms. Wendy Pham Ms. Milly Chen

UQ Business School The University of Queensland Brisbane QLD 4072 Australia business.uq.edu.au

The authors acknowledge the contributions of Associate Professor Dorina Pojani, Dr Mireia Guix Navarette, Professor Bob McKercher, Associate Professor Karen Hughes, and Associate Professor Jan Packer at The University of Queensland and Professor Matthew Burke and Henry Trembath at Griffith University for their input into this project. The project was undertaken through the Transport and Innovation Research Hub with Brisbane City Council and The University of Queensland.

> Image Credits Brisbane City Council Adobe Stock

> > 2



# Contents

| Executi  | ve Summary  | 5                                      |
|--|---|--|
| Chapter  | 1 Introduction  | 7                                      |
| 1.1  | Project Background  | 7                                      |
| <b>1.2</b><br>1.2.1<br>1.2.2<br>1.2.3                            | Literature Review<br>Definition of eMicromobility<br>Development History of eMicromobility<br>Adoption of eMicromobility in Tourism and Destination Marketing   | 7<br>7<br>8                            |
| 1.3  | Scope and Objectives  | 9                                      |
| <b>1.4</b><br>1.4.1<br>1.4.2<br>1.4.3                            | Methodology<br>Intercept Survey<br>Semi-Structured Interviews<br>Who Are They? Categorisation of Respondents and Demographic Profile  | <b>9</b><br>9<br>10<br>10              |
| Chapter  | <sup>2</sup> Findings   | 11                                     |
| <b>2.1</b><br>2.1.1<br>2.1.2<br>2.1.3                            | eMicromobility Ridership<br>Ridership Frequency<br>eMicromobility and Brisbane's Public Transport System<br>Preference for eBikes and eScooters   | <b> 11</b><br>11<br>12<br>14           |
| <b>2.2</b><br>2.2.1<br>2.2.2<br>2.2.3<br>2.2.4<br>2.2.5<br>2.2.6 | Perception of eMicromobility in Brisbane<br>General Feelings of Using eMicromobility<br>Likelihood of Recommending eMicromobility<br>Transport vs. Leisure<br>Motivators of Use<br>Enablers of Use<br>eMicromobility vs. Other Transportation Modes | 16<br>16<br>18<br>18<br>19<br>20<br>23 |
| <b>2.3</b><br>2.3.1<br>2.3.2<br>2.3.3                            | Destination Image of Brisbane City<br>How Do the Public View Brisbane's Image<br>Influence of eMicromobility on Brisbane's Image<br>Brisbane vs. Other Destinations   | <b> 24</b><br>24<br>35<br>38           |
| <b>2.4</b><br>2.4.1  | Non-Users of eMicromobility in Brisbane<br>Barriers to Use  | <b> 39</b><br>39                       |
| Chapter  | 3 Conclusion  | 43                                     |
| 3.1  | Summary   | 43                                     |
| Referen  | ces   | 44                                     |
| Append   | ices  | 45                                     |



# **Tables**

| Table 1 Summary of Survey Respondents and Demographic Characteristics  | 10 |
|--|----|
| Table 2 Summary of Interviewees and Demographic Characteristics        | 10 |
| Table 3 Overall Feeling of Using an eBike in Brisbane                  | 16 |
| Table 4 Overall Feeling of Using an eScooter in Brisbane               | 16 |
| Table 5 Likelihood to Recommend Other Visitors Use an eBike            | 18 |
| Table 6 Likelihood to Recommend Other Visitors Use an eScooter         | 18 |
| Table 7 Using eMicromobility for Transport vs. for Leisure             | 18 |
| Table 8 Average Scores of Overall Experience in Brisbane by User Group | 24 |

# **Figures**

| Figure 1 Categorisation of Visitors and Residents                               | . 11 |
|---|------|
| Figure 2 eMicromobility Ridership Frequency                                     | . 11 |
| Figure 3 Use of Bikes and eMicromobility in Daily Life                          | . 12 |
| Figure 4 Connecting to Brisbane's Public Transport Using eMicromobility         | . 13 |
| Figure 5 Preference for eScooters and eBikes Across User Groups                 | . 14 |
| Figure 6 The Public's Sentiment Towards Brisbane eMicromobility                 | . 16 |
| Figure 7 Summary of Themes Motivating the Use of eMicromobility                 | . 19 |
| Figure 8 Summary of Themes Enabling the Use of eMicromobility                   | . 20 |
| Figure 9 Word Cloud on How Respondents Chose to Describe Brisbane               | . 25 |
| Figure 10 How Visitor Users Think About Brisbane                                | . 27 |
| Figure 11 How Visitor Non-Users Think About Brisbane                            | . 28 |
| Figure 12 How Resident Users Think About Brisbane                               | . 29 |
| Figure 13 How Visitor Non-Users Think About Brisbane                            | . 30 |
| Figure 14 How Visitor Users Feel About Brisbane                                 | . 31 |
| Figure 15 How Visitor Non-Users Feel About Brisbane                             | . 32 |
| Figure 16 How Resident Users Feel About Brisbane                                | . 33 |
| Figure 17 How Resident Non-Users Feel About Brisbane                            | . 34 |
| Figure 18 How Much Do eScooters Impact the Brisbane Experience? (by user group) | . 35 |
| Figure 19 How Much Do eScooters Impact the Brisbane Experience? (by user group) | . 36 |
| Figure 20 Why the Public Have Not Used eMicromobility in Brisbane               | . 39 |
| Figure 21 Summary of Themes Preventing the Use of eMicromobility                | . 40 |
|   |      |

# **Appendices**

International Visitors and Home Countries Domestic Visitors' Home State or Town (QLD) Distribution of Visitors on a Day or Overnight Trip Travel Group Type and Average Travel Party Size Visit Purpose Tap Suburba Visitors Are Staving While in Brishand

Top Suburbs Visitors Are Staying While in Brisbane



# **Executive Summary**

This project was commissioned by the Brisbane City Council (BCC) via the Transport Innovation and Research Hub (TIRH). The study focused on assessing tourists and residents' perceptions of eMicromobility and their experiences when visiting/living in Brisbane. The research objectives were: (1) to determine the usage and perception of eMicromobility devices in Brisbane by visitors and residents; and (2) to assess the image of Brisbane City in the mind of visitors and residents, and whether micromobility influences the city's image.

This research was targeted at four distinct groups related to micromobility use and nonuse: (1) Visitor Users; (2) Visitor Non-Users; (3) Resident Users; and (4) Resident Non-Users. The research employed a sequential mixed-methods design, utilising both quantitative (intercept surveys) and qualitative (semi-structured interviews) methods to collect data from the targeted participants. In total, 924 completed survey responses and 29 interview were collected and analysed.

Key findings from both quantitative and qualitative data include:

- For visitors who used eScooters, more than 80% indicated that eScooters enhanced their experience while in Brisbane. This is also reflected in visitors who used eBikes while in Brisbane, although to a lesser extent, with just under 60% indicating that their Brisbane experience was enhanced by using eBikes.
- Results revealed that eMicromobility devices were used more as an alternative to public transport than in connection to public transport. eMicromobility was found to be incredibly useful for visitors to Brisbane who were not familiar with the public transport system.
- In general, participants showed a stronger preference for eScooters over eBikes. Among the 924 survey respondents, nearly 80% of them had never used a shared eBike in Brisbane, compared to 45% who had never used a shared eScooter in Brisbane.
- eMicromobility users reported higher levels of positive emotions towards eMicromobility and Brisbane than non-users. Similarly, the indicators of likelihood to recommend others to use eMicromobility were high for both Visitor-User and Resident-User groups.
- Key motivators of eMicromobility usage as reported by the interview participants were: convenience and efficiency, enjoyment seeking, novelty seeking, healthy lifestyle, sustainability, and social interactions.
- Features of eBikes/eScooters that supported usage were found to be ease of control, user-friendly technology, familiarity, and affordable prices. On the other hand, features of the city of Brisbane that enabled eMicromobility usage were having easily to find and use cycling infrastructure and the availability of eBikes/eScooters.

5



- Overall, Brisbane's cognitive image (i.e., beliefs, attitudes) was rated positively by respondents (*M* = 5.34, *scale of 1 to 7*). Affective image (i.e., feelings, emotions) was also highly positive (*M* = 5.47, scale of 1 to 7). Only minor differences were found between user is each group related to image.
- In general, all survey respondents indicated a strongly positive experience in Brisbane, with no significant differences among the groups. Interestingly, Visitor-Users and Resident-Users were more likely to agree that eMicromobility enhanced their Brisbane experience, compared to nonusers.
- Safety concerns, high costs, and psychological barriers were the key factors of eBikes/eScooters that discouraged use. Inadequate infrastructure and regulations also reduced the confidence to use eMicromobility devices in Brisbane.



Image: Adobe Stock



# Chapter 1 Introduction

# 1.1 Project Background

This study was commissioned by the Brisbane City Council (BCC) via the Transport Innovation and Research Hub (TIRH), a research funding agreement with the Queensland University of Technology, University of Queensland, and Griffith University to address the city's future transport needs. The project focused on assessing tourists and residents' perceptions of eMicromobility and their experiences when visiting/living in Brisbane. While research has been conducted on how bikeshare systems, or more broadly, micromobility, is utilised, these mostly considered the perspectives of local residents (Jain et al., 2018; O'Brien et al., 2014). Little is known about tourists' perceived use and non-use of eMicromobility as well as its impact on their experience in urban areas.

This project is the first cross-disciplinary and academic-government-industry partnership of its kind worldwide to explore differences in visitors' and residents' usage of eMicromobility in the city of Brisbane. It delivers unique findings into the experiences of visitors and residents as micromobility users and non-users. Practically, the research outcomes will lead to the creation of a tourism micromobility research agenda, as well as direct implications for transport and tourism planning and management of transport infrastructure in Brisbane.

## **1.2 Literature Review**

#### 1.2.1 Definition of eMicromobility

Shared electric-micromobility (eMicromobility) is a public transportation scheme where users can rent small electric vehicles like bicycles and scooters. This service is provided by micromobility companies in collaboration with city planning departments worldwide. The current generation of shared eMicromobility allows users to search for available vehicles, locate them using GPS, unlock them, and make payments through a smartphone app (Shen et al., 2018; Zhu et al., 2020). In Brisbane, Australia, two shared eMicromobility providers, Beam and Neuron, are currently in operation. Both companies operate a fleet of electric bicycles (eBikes) and electric scooters (eScooters) available in the Brisbane CBD and inner suburbs. Approximately 3,200 eScooters and 600 eBikes were in operation at the time of publication. Trials in other communities across the country are underway. To date, more than 8 million eScooter trips have been taken in Brisbane since late 2018.

#### 1.2.2 Development History of eMicromobility

The concept of shared mobility was first introduced in Amsterdam, Netherlands in 1965 with the White Bikes, and it gained popularity in La Rochelle, France in 1974 with the Yellow Bikes (Shaheen et al., 2010). Those bicycles were freely available for locals and tourists to use and explore the cities. However, the free system quickly led to problems with vandalism and theft. To address those, a second generation of shared mobility emerged in Copenhagen, Denmark in 1995 (Shaheen et al., 2010). This new system required users to deposit coins to unlock the bikes, and designated or docked stations were introduced to encourage users to return the bikes after their trips. Despite these efforts, theft remained a significant problem due to insufficient incentives for users to return the bicycles (McKenzie, 2020).



In the early 2000s, a third generation of shared mobility appeared in various cities in North America, Asia, and Europe. This generation incorporated IT and digital payment systems, eliminating the issue of stolen assets by ensuring that bicycles were returned to docking stations (Shaheen et al., 2010). However, this system faced criticism for the static functionality of the docked station design and the subpar quality of non-electric bicycles used in the shared schemes (Lin & Chen, 2018; McKenzie, 2020; Shen et al., 2018).

The fourth and current generation of shared mobility schemes emerged in the late 2000s and early 2010s. This generation introduced changeable or dockless stations and improved electric bicycles that were faster and of better quality (Shaheen et al., 2010; Lin & Chen, 2018). In 2017, the first shared eScooter scheme was launched in Washington D.C. with remarkable success (McKenzie, 2020). By 2018, shared eBikes and eScooters were available in over 100 cities, including Brisbane (Haworth et al., 2021). Several factors have contributed to the rapid growth of shared eMicromobility, including advanced technology utilising big data, a dockless platform that caters to demand and allows for flexibility, and a multi-modal system that integrates with public transportation networks, providing commuters with faster and more convenient first/last mile travel options (Gössling, 2020; Hardt & Bogenberger, 2019; Shen et al., 2018).

#### 1.2.3 Adoption of eMicromobility in Tourism and Destination Marketing

Cities are incorporating shared eMicromobility services into their transportation plans to enhance active transportation, alleviate traffic congestion, lower greenhouse gas emissions, promote healthier lifestyles, and improve urban mobility for both residents and tourists (Gössling, 2020). In addition, micromobility has the potential to enhance the tourism attractiveness of a city by connecting visitors to an area, facilitating travel within the region, and creating memorable tourism experiences. Shared eMicromobility can have a positive impact on tourist destinations when it is safe, enjoyable, and accessible (Lin & Chen, 2018; Yang et al., 2021).

Research that connects tourism and micromobility is very limited, as noted. A few existing studies suggest that the provision of transport services and facilities along a recreational travel route significantly influences the quality of the tourism experience (Khajehshahkoohi et al., 2022). When shared eMicromobility is integrated with public transportation modes, it further enhances access within tourist destinations and to tourist sites (Buning & Lulla, 2021; Yang et al., 2021). One key aspect is that shared eMicromobility provides an emotional experience for tourists, going beyond its function as a means of transportation (Chen & Huang, 2021). The emotional experience of shared eMicromobility is often described as hedonic or unique, and it varies based on different user motivations such as social interaction, exploration, self-development, and physical challenge (Chen & Huang, 2021). To understand the motivations behind tourism experiences, digital footprints or stopovers are used to identify tourist attractions within a destination (Banet et al., 2022).



## 1.3 Scope and Objectives

The current project aimed to investigate the experiences of visitors and residents who use and do not use eMicromobility (i.e., eBikes, eScooters) in Brisbane. The research objectives were:

- 1. To determine the usage and perception of eMicromobility devices in Brisbane by visitors and residents.
- 2. To assess the image of Brisbane in the mind of visitors and residents, and whether eMicromobility influences the city's image.

## 1.4 Methodology

To address the project objectives as well as to develop a comprehensive understanding of the perceptions and usage of eMicromobility in Brisbane, the study targeted four distinct groups of users and nonusers of micromobility: (1) Visitor User; (2) Visitor Non-User; (3) Resident User; and (4) Resident Non-User. The research employed a sequential mixed-methods design, utilising both quantitative (intercept survey) and qualitative (semi-structured interview) methods to collect data from the targeted participants. Survey and interview questions are available upon request.

#### 1.4.1 Intercept Survey

A street-intercept survey was used to collect information on a large scale. As a research method, intercept surveys involve approaching participants in person in public settings (e.g., streets, malls, parks) and using a set of structured questions to enquire about their opinions, behaviour, and experiences (Bush & Hair, 1985). Intercept surveys are particularly useful for tourism research studying visitors, since they can yield a better response rate while minimising potential recall bias and ensure high quality responses (Croes et al., 2010).

In this project, the intercept survey contained questions about: (1) frequency of eMicromobility usage in Brisbane; (2) perceptions and experiences of using eBikes and eScooters; (3) experiences of visiting Brisbane (for visitors); and (4) opinions about Brisbane as a city. Open-ended questions were also asked in the survey to allow participants to elaborate on some topics. For ease of completion, the survey was designed as an online form that could be easily accessed on mobile devices. A paper form was also provided if requested. A team of trained research assistants conducted the survey over the course of six weeks in March-April 2023. The team was strategically positioned at popular tourist destinations and eBike-eScooter collection points throughout the Brisbane CBD, including: Queen Street Mall, City Botanic Gardens, North Quay ferry terminal, Howard Smith wharves, South Bank, and Mount Coot-tha lookout. To improve the response rate, each participant completing the survey was rewarded with a \$5 coupon for Neuron eBikeeScooter rides (courtesy of Neuron Mobility).

In total, N = 924 survey responses were used for analysis. The average age of the respondents was 32.33 years, with the minimum being 16 years old and a maximum of 84 years old. In terms of gender, 52.3% of the respondents identified as female, 45.4% as male, 1.5% as non-binary, and 0.8% preferred not to state. Data from the survey were processed using statistical techniques and the results are presented below.



#### 1.4.2 Semi-Structured Interviews

A series of semi-structured interviews were conducted to complement the survey data. This research method has the advantage of being inductive and thorough, thus being able to capture diverse perspectives from the participants as well as in-depth insights about their experiences and opinions (Kallio et al., 2016). In this project, at the end of the intercept survey, the respondents were asked for their email should they wish to participate in a follow-up interview. The interviews were then conducted one-on-one via Zoom or phone for the convenience of the participants. An interview protocol with two separate sets of questions (one for Brisbane residents and one for visitors to Brisbane) was developed to guide the discussion between the researcher and the participant. While the interview questions also revolved around the perceptions and experiences of eMicromobility in Brisbane, they further investigated the motivators, enablers and barriers of usage, as well as the congruence between Brisbane and eMicromobility images. Each interview was recorded with participant's consent and transcribed for analysis. For each completed interview, the participant was rewarded with a \$25 grocery voucher.

Interviews were conducted with N = 29 participants, who are referred herein by pseudonyms P01 to P29. The interviews ranged from 14 to 42 minutes, with the average duration being 26.5 minutes. Among the interview participants, 17 were female, 11 were male, and 1 non-binary. The average age was 34.28 years, with a minimum of 17 and maximum of 72. Data from the interviews were coded using thematic analysis and the results are presented in parallel with the survey data.

#### 1.4.3 Who Are They? Categorisation of Respondents and Demographic Profile

#### Table 1 Summary of Survey Respondents and Demographic Characteristics

| Visitor User ( <i>n</i> = 263)  | Visitor Non-User ( <i>n</i> = 264)   |
|---|--|
| Average Age: 32.7 years (Min. 16, Max.<br>70)<br>Gender: 44.8% Female, 53.9% Male,<br>0.4% Non-binary, 0.9% Prefer not to state | Average Age: 33.8 years (Min. 17, Max.<br>84)<br>Gender: 60.1 % Female, 37.1% Male,<br>2.3% Non-binary, 0.5% Prefer not to state |
|   | -  |
| Resident User ( <i>n</i> = 262)   | Resident Non-User ( <i>n</i> = 135)  |
| Resident User ( <i>n</i> = 262)<br>Average Age: 30.65 years (Min. 16, Max.<br>71)   | Resident Non-User ( <i>n</i> = 135)<br>Average Age: 32.14 years (Min. 16, Max.<br>75)  |

#### Table 2 Summary of Interviewees and Demographic Characteristics

| Visitor User ( <i>n</i> = 11)            | Visitor Non-User ( <i>n</i> = 6)         |
|--|--|
| Average Age: 35 years (Min. 21, Max. 54) | Average Age: 34 years (Min. 17, Max. 72) |
| Gender: 55% Female, 45% Male             | Gender: 83% Female, 17% Male             |
| Resident User ( <i>n</i> = 9)            | Resident Non-User ( <i>n</i> = 3)        |
| Average Age: 34.6 years (Min. 22, Max.   | Average Age: 31 years (Min. 27, Max. 40) |
| 66)                                      | Gender: 33% Female, 33% Male, 33%        |
| Gender: 56% Female, 44% Male             | Other                                    |



# Chapter 2 Findings

# 2.1 eMicromobility Ridership

#### 2.1.1 Ridership Frequency



Figure 1 Categorisation of Visitors and Residents



Figure 2 eMicromobility Ridership Frequency





Use of eScooters, eBikes and Bikes in Daily Life (n = 916)

#### 2.1.2 eMicromobility and Brisbane's Public Transport System

#### 2.1.2.1 eMicromobility Integrated into Brisbane's Public Transport

The use of eMicromobility devices in conjunction with public transport is a particular aspect of interest, as it reflects how well eMicromobility is integrated and synergised in the whole transportation system of a city (i.e., first/last mile). However, data from the intercept survey suggests that the majority of eMicromobility users in Brisbane did not utilise eBikes and eScooters to connect to other public transport modes. In both groups of Resident-Users and Visitor-Users, less than 43% used eBikes or eScooters for their first- or last-mile trips when using public transport (i.e., buses, trains, ferries).

Figure 3 Use of Bikes and eMicromobility in Daily Life





Figure 4 Connecting to Brisbane's Public Transport Using eMicromobility

#### 2.1.2.2 eMicromobility as an Alternative to Public Transport

A possible explanation revealed in the interviews is that most user participants ride eBikes and eScooters directly to a specific destination; thus, they might not feel the need to combine the ride with other public transport options. Importantly, many tourists also reported significant challenges of using public transport in Brisbane, which discouraged them from doing so:

"We were going to use the City Cat and the Kitty Cat. But we realised you have to buy a Go Card, you can't just go up to the boat and buy passes there, you have to go somewhere and buy one, and it just wasn't convenient for us. If they had something on the boat to be able just to tap your credit card or buy a ticket, we would have used it. But the fact that you have to go to a store to buy a card, you know, it's time consuming." (P12, Domestic Visitor - eScooter User)



Instead of using eMicromobility devices to connect to public transport, visitors and residents use them as an alternative. This can be particularly useful for first-time visitors to Brisbane who are not familiar with the city's public transport system.

#### 2.1.3 Preference for eBikes and eScooters

From the survey data, people tend to prefer eScooters over eBikes. It has already been shown in Figure 2 above, that among the 924 survey respondents, nearly 80% had never used a shared eBike in Brisbane, compared to 45% who had never used a shared eScooter in Brisbane. In addition, when asked about whether they preferred eBikes or eScooters, more than 50% of both visitor and resident users expressed a preference for using eScooters over eBikes. For visitors who had not used either, 56% indicated they preferred eScooters. For resident non-users however, more than 55% indicated a preference for eBikes. It should be noted that at the time of the study shared eScooters were more than 5x prevalent than eBikes.



Figure 5 Preference for eScooters and eBikes Across User Groups



The differences between eBikes and eScooters were explored in more detail during conversations with interview participants:

*"I guess they are a little different in that, in certain areas of the city, at least as far as I'm aware, you need to ride your bike on the street. Whereas scooters you're able to ride them on the sidewalk and that sort of stuff." (P02, International Visitor - eScooter User)* 

"I think scooters are **just easier**. They are more nimble, they're not bulky and heavy to park up and move around. Yeah, they're just a lot nicer to use than a bike. A bike is good if you're doing long distance, riding along a bike track. But if you're zipping around the city, it's a **lot easier and more nimble** to choose the eScooters." (P12, Domestic Visitor - eScooter user)

*"I feel bikes are easier to use, and safer.* For some reason, I don't know why, but with the eScooters, I find it quite hard to find the balance." (P15, Resident - eBike User)

"I would think of **eScooters as an experience**, but I would think of **eBikes as a form of transport** to get someone from A to B." (P19, International Visitor - Non-User)

Apart from personal reasons and preferences for choosing either eBikes or eScooters, a few interviewees noted that they spotted considerably more eScooters available than eBikes around the Brisbane CBD, which might also explain the low usage of eBikes.



Image: Adobe Stock



# 2.2 Perception of eMicromobility in Brisbane

#### 2.2.1 General Feelings of Using eMicromobility

Visitor Users and Resident Users of eBikes and eScooters were asked to rate their feelings (joyful, confident, free, cautious, worried, scared) towards eMicromobility use in Brisbane on a scale from 1 to 7, with 1 being most negative and 7 most positive. Items were condensed into a single score to provide an overall positive or negative feeling towards using an eBike or eScooter. The results indicate that the user participants reported overall positive emotions toward eMicromobility.

#### Table 3 Overall Feeling of Using an eBike in Brisbane

|   | n  | Mean | Std. Deviation |  |  |
|---|----|------|----------------|--|--|
| Visitor User                                | 72 | 5.26 | 0.98           |  |  |
| Resident User                               | 88 | 5.17 | 1.05           |  |  |
| *Items were measured on a scale from 1 to 7 |    |      |                |  |  |

#### Table 4 Overall Feeling of Using an eScooter in Brisbane

|   | n  | Mean | Std. Deviation |  |  |  |
|---|----|------|----------------|--|--|--|
| Visitor User                                | 59 | 5.14 | 1.33           |  |  |  |
| Resident User                               | 74 | 5.25 | 1.09           |  |  |  |
| *Items were measured on a scale from 1 to 7 |    |      |                |  |  |  |

All survey respondents were asked to indicate their feelings towards a series of statements regarding eBikes and eScooters in Brisbane (whether they believe they are a public resource or a nuisance, and whether they are dangerous or safe). Overall, most groups view eMicromobility in Brisbane more positively, with the exception of Resident Non-Users who view eScooters as marginally more dangerous than safe (M = 4.55, SD = 2.75), compared to Visitor Non-Users (M = 5.97, SD = 2.73). See Figure 6 below.





#### How Do the Public View eMicromobility in Brisbane

■ Visitor User (n=232) ■ Visitor Non-User (n=206) ■ Resident User (n=222) ■ Resident Non-User (n=107)

#### Figure 6 The Public's Sentiment Towards Brisbane eMicromobility

*Note.* Items were measured on a scale from one to ten, '1' being the more negative adjectives (i.e., eScooters are a nuisance) and '10' being more positive (i.e., eScooters are a public resource). The mid-point for the scale is 5.5 thus, any score above 5.5 would be indicative of a lean towards a positive response.)



#### 2.2.2 Likelihood of Recommending eMicromobility

Similarly, the indicators of likelihood to recommend others to use eMicromobility were high among both Visitor User and Resident User groups.

#### Table 5 Likelihood to Recommend Other Visitors Use an eBike

|   | п  | Mean | Std. Deviation |  |  |
|---|----|------|----------------|--|--|
| Visitor User  | 79 | 7.3  | 2.98           |  |  |
| Resident User   | 98 | 7.57 | 2.39           |  |  |
| *Items were measured on a scale from 1 to 10, where '1' = Extremely unlikely to recommend, and '10' = Extremely likely to recommend |    |      |                |  |  |

#### Table 6 Likelihood to Recommend Other Visitors Use an eScooter

|               | п   | Mean | Std. Deviation |
|---------------|-----|------|----------------|
| Visitor User  | 243 | 8.23 | 2.47           |
| Resident User | 247 | 7.38 | 2.72           |

*Note.* Items were measured on a scale from 1 to 10, where '1' = Extremely unlikely to recommend, and '10' = Extremely likely to recommend

#### 2.2.3 Transport vs. Leisure

Interestingly, when asked whether they perceived eMicromobility devices as a transport mode or a leisure experience, visitors gravitated more towards the view of leisure experience compared to residents. This is also in sync with the interview insights, which showed that many users were motivated by enjoyment and novelty seeking. These findings suggest the utility of eMicromobility as a tourism experience for visitors to Brisbane, opening the opportunities for future tourism development.

#### Table 7 Using eMicromobility for Transport vs. for Leisure

|  | n   | Mean | Std. Deviation |  |
|--|-----|------|----------------|--|
| Visitor User   | 236 | 6.94 | 2.59           |  |
| Visitor Non-User   | 213 | 6.06 | 2.74           |  |
| Resident User  | 229 | 5.62 | 2.81           |  |
| Resident Non-User  | 110 | 5.54 | 2.69           |  |
| <i>Note.</i> Item was measured on a scale from 1 to 10, where '1' = To get to a specific place, and '10' = To explore a city |     |      |                |  |



#### 2.2.4 Motivators of Use



#### Figure 7 Summary of Themes Motivating the Use of eMicromobility

Interviews with the eMicromobility users revealed several reasons as to why they were driven to use eBikes and eScooters in Brisbane. The most prominent motivator was reported to be the convenience and efficiency of eMicromobility as a means of transport. Such convenience is a key advantage that sets eMicromobility apart from other public transport options:

*"I love that I can use them at my own pace. And I like that you can just leave them in certain areas, you don't have to take them back to a charging point. I like how independent it makes me, I can use it at any time of the day. Because I finish work at 2am, and getting an Uber at 2am is not easy, and buses don't run at 2am either." (P04, Resident - eScooter User)* 

Apart from the practical use for transport, many participants regarded eBike/eScooter rides as a hedonic experience, providing enjoyment and novelty. Noticeably, some visitors even considered their experience riding the eBikes-eScooters as the highlight of their stay in Brisbane.

#### eMicromobility as a Tourism Experience for Visitors

P02 and P13 were a couple from Canada who stayed in Brisbane for two days to visit their families. On the first night of arrival, they noticed a lot of eScooters around their accommodation and, having used eScooters in many other places before, they decided to use eScooters as their main means of transport for the whole following day. They reported that "it 100% added to our experience in Brisbane", and they were able to explore more parts of the city thanks to the eScooters.

Similarly, P12 and P16 were a couple from Melbourne. They stumbled upon the eScooters during their walk in the Brisbane CBD and decided to give them a try. It was the first time P16 ever tried an eScooter and according to her, "I really enjoyed using it. [...]. It was a highlight of our trip actually."



As for Brisbane residents, eMicromobility can be utilised as part of their *"active commuting"*, bringing some added exercising and health benefits:

*"I feel like I'm actually doing a little bit of exercise. Obviously it's not the same amount as a normal mechanical bike, but I feel a lot more active using the eBikes than the eScooters." (P27, Resident - eBike & eScooter User)* 

In addition to the abovementioned advantages for individual users, it was acknowledged that eMicromobility users were also motivated by the shared benefits to the community, particularly in terms of sustainability and social interactions:

*"I felt I was reducing my carbon emissions. [...] I think it decentivises people away from driving their own cars, so we have fewer cars on the road and more people on the bikes." (P27, Resident - eBike & eScooter User)* 

*"I see quite a lot of people using them, so I feel they create a sense of community. [...] It's kind of a shared utility that lots of people can use, and you often see friends and families using them to go on trips together. So that's kind of a community thing." (P21, International Visitor - eScooter User)* 



#### 2.2.5 Enablers of Use

Figure 8 Summary of Themes Enabling the Use of eMicromobility

When asked about the specific aspects of eMicromobility usage that enabled a positive experience for users, the interview participants discussed a variety of contributing factors. These factors can be categorised into two main groups: features of eBikes/eScooters, and features of Brisbane.

In terms of the features of eBikes-eScooters themselves, the ease of control and userfriendly technology were recognised as the most common enablers of use. Especially for eScooters, many of the interviewees reported to be first-time users, but they were able to learn how to use the app and ride the eScooters quickly.



"The throttle response is really easy for people to learn. They're not super zippy, or they're not super responsive. They're kind of set at a tolerance that can be **easy for anyone to learn**." (P12, Domestic Visitor - eScooter User)

"They were **super easy to use**. I've never ever used scooters before. I've never been on a scooter before, or knew anything about them, but it was very, very easy." (P16, Domestic Visitor - eScooter User)

"I think the websites are quite good, and then the **apps are also good**. They give you a lot of prompts on what the expectations are, about where to park them, how you're going to pay for it, what the rates are, what the legalities are, wearing your helmet and that sort of thing. So it **wasn't difficult to find the information** that we wanted, and a lot of the information was sort of presented in a way that it was given to us without necessarily asking for it, if that makes sense." (P02, International visitor - eScooter User)

As for eBikes, they have the advantage of familiarity, meaning that they resemble the design of a traditional bike and the majority of people are familiar with bike riding. Interestingly, this advantage was acknowledged by both users and non-users of eBikes:

*"I think I was comfortable because I'm comfortable with biking." (P15, Resident - eBike User)* 

*"I would probably feel more comfortable on an eBike just because I've grown up <i>riding bikes.* So just in terms of familiarity, I would probably gravitate more towards a bike." (P05, Resident - Non-User)

Affordable prices were another a key factor that encouraged the decision to use eBikeseScooters, with participants showing high appreciation for the bundled discounts (i.e., day passes and monthly package).

*"We used the Beam scooters. We chose them because you could pick a day pass, and it was \$15, and it gave you 120 minutes of usage." (P02, International Visitor - eScooter User)* 

"I've said to a couple of guys at work who drive into the city for work and pay maybe \$35-37 a day to park their cars. I would certainly promote the use of eScooters instead of driving, **because it is so cost effective.** Like I pay monthly [monthly pass of Neuron], and I think it breaks down to only around \$3 a day, whereas in comparison to what the guys were paying is \$35-37 a day to park their cars." (P29, Resident - eBike & eScooter User)



#### eMicromobility as Mobility as a Service (MaaS)

P26 Resident-eBike & eScooter User) was a student at the University of Queensland, and he was using an app called Odin Pass developed by UQ. This app links all user's transport accounts (Translink, eMicromobility, taxi, car sharing) into one place, while also offering competitive bundled prices for unlimited access to transport for UQ staff and students. P26 reported that, "With that subscription I have access to free eScooters and eBikes for 120 minutes per day. I don't need to worry about the bill when I use them. [...] Because if I don't have that kind of ticket, it can be a lot more expensive than using public transport. I guess cost might be one big factor that stops people from using the eScooters. But because I have the option of getting up to two hours of access every day, it makes me feel I can use it more often."

With regard to the features of Brisbane, it was strongly suggested by the majority of eMicromobility users that supporting infrastructure for cycling and scootering was a key strength of the city, and it made the users feel much safer when riding on the road:

*"With the bike paths, I think they were really great. I felt safe just going as fast as we can on the scooter, which you don't really feel in other cities." - (P10, Domestic Visitor - eScooter User)* 

"What I really like about **Brisbane** is they've really catered for bicycles and scooters. The government, or the Council, has taken into **consideration the pedestrians and people on scooters and bikes.** It's really easy to navigate, and not having to weave through people and cause accidents, that sort of stuff. [...] It makes it safer to ride, and more pleasant to ride as well." (P12, Domestic Visitor eScooter User)

"What I like most is the separated paths you have for the scooters and the bikes, I call it the **scooter highway**. The one they have near the river, I take it from Milton to QUT and I am there under 10 minutes. It's really nice, there are no red lights or anything, so you can just go. It's convenient, and there are no traffic jams." (P18, International Visitor - eScooter User)

In addition, the availability of eMicromobility devices (especially eScooters) at strategic locations throughout the Brisbane CBD has made them easily accessible by both residents and visitors. Notably, some users reported that their decision to use eMicromobility was prompted spontaneously by spotting the devices on their way:

"We were gonna walk, and then, because the eScooters were there just outside River Stage, we could pick them up and drop them off equally as easily. There were people using them, and we were like "Well, we could do that too". **So it's kind of more spontaneous, just because they were there."** (P21, International Visitor eScooter User)



#### 2.2.6 eMicromobility vs. Other Transportation Modes

To add more perspective, during the in-depth interviews participants were prompted to compare between the use of eMicromobility and other transport options. It was revealed that a key advantage of eBikes and eScooters over other options such as public transport and ride-sharing services was that they provided users with convenience as well as freedom of schedule and destination. For example, as quoted by the participants:

*"I like how independent it makes me, like how I can use it at any time of the day. Because I finish work at 2am, and getting an Uber at 2am is not easy, and buses don't run at 2am either." (P03, Resident - eScooter User)* 

"When I lived in Melbourne, I used trams and buses quite a bit. But since I came to Brisbane, I've replaced public transport with the eScooters for my daily commute, I suppose. **I think it's quicker and a little bit more independent**. You're not waiting at specific times for buses or trains. I can go whenever and wherever I want once I find a scooter, which is generally not too hard, there are plenty of them around." -(P29, Resident - eBike & eScooter User)

However, eMicromobility is considered as more expensive than other transport options if used for travelling long distances:

*"I think it's quite expensive, for like 20 minutes and it's nearly \$15, which is quite expensive, whereas for an Uber it's about the same and you get further away." (P08, Domestic Visitor - Non-User)* 

*"I think the barrier is the cost, because it's so expensive. It's like 45 cents a minute, so it's \$5 for just 10 minutes, which is a lot. With public transport you can go on a bus and that's only meant to be \$5, and you can go much further distance." (P11, Domestic Visitor - eScooter User)* 



# 2.3 Destination Image of Brisbane City

#### 2.3.1 How Do the Public View Brisbane's Image

All the participants of the intercept survey (including both visitors and residents) were asked to rate their overall experience in Brisbane from 1 to 10 (1 = very poor; 10 = excellent). In general, all participants indicated a strongly positive experience in Brisbane, with no significant differences among the groups.

Table 8 Average Scores of Overall Experience in Brisbane by User Group

|   | n   | Mean* | Std. Deviation |
|---|-----|-------|----------------|
| Visitor User  | 244 | 8.19  | 1.76           |
| Visitor Non-User  | 225 | 8.03  | 1.73           |
| Resident User   | 244 | 8.31  | 1.67           |
| Resident Non-User   | 119 | 8.13  | 1.79           |
| Note. Item was measured on a scale from 1 to 10, where '1' = very poor, and '10' = excellent. |     |       |                |

To dive deeper into the participant's perceptions of Brisbane, they were asked to describe the city in three short phrases. Figure 9 provides the word cloud of descriptions, which shows that the majority have positive meaning (see Figure 9).



Image: Adobe Stock





Figure 9 Word Cloud on How Respondents Chose to Describe Brisbane



#### 2.3.1.1 Brisbane's Cognitive Image

Destination image is a key element in marketing a place to tourists. This study measured destination image as Brisbane's *cognitive image* (i.e., beliefs that describe their view of a destination) and *affective* image (i.e., how people feel or what emotions they express about a place) image are of particular relevance (Martín-Santana et al., 2017).

All survey respondents were asked to answer questions about Brisbane's cognitive image (how they think) and affective image (how they feel). Questions regarding cognitive image asked respondents to rate Brisbane on a set of items from '1' (strongly disagree) to '7' (strongly agree). These included statements like 'Brisbane is an exciting city' and 'There is a lot to see and do'. To measure the affective image, respondents were asked to indicate how they felt about Brisbane based on several pairs of attributes ranging from 1 to 7 (for example, unpleasant-pleasant, gloomy-exciting, and so on, where '1' is the negative adjective, and '7' is the positive).

Figures 10 to 17 provide detailed proportions about how each user group rated Brisbane in both dimensions. Average scores for each dimension were also calculated to gain a broad understanding of how respondents felt. Overall, each of the user groups rated Brisbane's cognitive and affective image quite positively.

There were no significant differences in the mean scores of each user group for cognitive image. Resident Users rated Brisbane marginally lower that the other groups (M = 5.15, SD = 1.11), while Visitor Users rated Brisbane's cognitive image the highest (M = 5.55, SD = 1.05) among the four groups. Affective image was also rated positively. Visitor Users were at the lower end of the scores out of the four groups (M = 5.41, SD = 1.32), while Resident Non-Users gave the highest scores for Brisbane's affective image (M = 5.61, SD = 1.04).



Image: Adobe Stock





Visitor User - Brisbane Cognitive Image

#### Figure 10 Visitor Users Views of Brisbane





## Visitor Non-User - Brisbane Cognitive Image

Figure 11 Visitor Non-Users Views of Brisbane





## Resident User- Brisbane Cognitive Image

Figure 12 Resident Users Views of Brisbane





## Resident Non-User- Brisbane Cognitive Image

Figure 13 Visitor Non-Users Views of Brisbane



#### 2.3.1.2 Brisbane's Affective Image



Visitor User - Brisbane Affective Image

Figure 14 How Visitor Users Feel About Brisbane





Visitor Non-User - Brisbane Affective Image

Figure 15 How Visitor Non-Users Feel About Brisbane





Resident User - Brisbane Affective Image

Figure 16 How Resident Users Feel About Brisbane





## Resident Non-User - Brisbane Affective Image

Figure 17 How Resident Non-Users Feel About Brisbane



#### 2.3.2 Influence of eMicromobility on Brisbane's Image

An important aim of this research was to explore the relationship between the image of eMicromobility and the image of Brisbane as a city. All survey respondents were asked whether they thought the eBikes and eScooters enhanced their Brisbane experience. It is obvious from Figures 18 and 19 that Users of eBikes and eScooters reported significantly higher ratings compared to Non-Users.



## Do eScooters Enhance the Brisbane Experience?

Figure 18 How Much Do eScooters Impact the Brisbane Experience? (by user group)





## Do eBikes Enhance the Brisbane Experience?

Figure 19 How Much Do eScooters Impact the Brisbane Experience? (by user group)

For visitors who used eScooters, more than 80% indicated that eScooters enhanced their experience while in Brisbane. This is also reflected in visitors who used eBikes while in Brisbane, although to a lesser extent, with just under 60% indicating their Brisbane experience was enhanced by using eBikes. It is also important to note that the actual percentage of people who used eBikes is lower compared to those who used an eScooter (see Section 2.1, Figure 2 for reference).



When asked to further explain why eBikes and/or eScooters enhanced their Brisbane experience, survey respondents provided some further comments. Among the Visitor-Users and Resident-Users, enhancement of transport accessibility and convenience were recognised as the most common reasons. Additionally, the notions of building a fun and smart city image were also prevalent:

*"I like the freedom* of using e scooters. Navigating *public transport* can be *expensive and stressful.* Being able to go anywhere at my own pace is really attractive to me. It's nice *being outside as* well. *Much better than public transport* where people smell bad and play loud music."

"The **convenience** to just ride **through the city and see the sights at your own discretion** instead of from a taxi or tour guide is amazing, especially from a scooter riding along the paths."

"Having an opportunity to use eScooters while we visit Brisbane allows us to take in the **beautiful environment that we would normally miss in a taxi or Uber**. We also have a family member with acute kidney disease who tires easily when walking long distances around the city so using the eScooters allows her to join in and not miss out."

"E-bikes and E-scooters **enhance your experiences** in Brisbane by showing a different more intimate side to it. Yes we have the ferries which are just intimate but they can't get you into the **little nooks and crannies that Brisbane has to offer**."

Meanwhile, Non-users provided conflicting comments, with some having positive or neutral perceptions towards eMicromoblity in Brisbane while others considering them as public risks or nuisances:

"eScooters and eBikes do not enhance my experience because **I do not know how to ride them**. Locals of Brisbane who do ride them, can be harsh if you are blocking their path (even if you are on a bike or scooter). I tried learning how to ride a bike when first arriving in Brisbane and had a horrible experience. I was yelled at several times and became full of anxiety. However the international friends I have who ride bikes, highly enjoy them."

"eScooters are less stable. They tend to **clog up more areas** and are dropped everywhere. I've noticed People tend to cram multiple people onto eScooters. eScooters are involved in more traffic offending wrong side of road, doubling, cutting off and hitting pedestrians."

*"I don't think they can enhance the Brisbane's experience since there is no specific path for this transportation. It will be dangerous to bike or ride next to the pass-by."* 

"I don't mind eScooters I just dislike them being **dumped everywhere**, and trying to walk around them. I also find it not enjoyable to go for a stroll and feel as though people on scooters are riding particularly close or I have to move off the pathway into grass/dirt/mud whilst walking."



#### 2.3.3 Brisbane vs. Other Destinations

On some occasions during the interviews, participants reported interesting observations that compared the eMicromobility adoption in Brisbane with other cities. It seems that Brisbane had the obvious advantage over other Australian cities in terms of eMicromobility availability and cycling-friendly infrastructure:

"The eScooter and eBike population in Brisbane as a whole is way more than **Perth**, probably because there are way more people. And in Perth there's basically no eBike, you rarely see them, so that was new for me to see." (P06, Domestic Visitor - Non-User)

"They [eBikes & eScooters] are very popular in Brisbane, I think they're the most popular here, whereas I've been in **Melbourne** and **Sydney** and I didn't really see them that much. They're way more popular here in Brisbane than what I've seen before in other places or cities." (P08, Domestic Visitor - Non-User)

"We went to **Launceston** last year, and we used it [eScooter] there. And it's not as good as Brisbane. Brisbane's much better, because in Launceston they had the scooters but they didn't have dedicated bike lanes. Which is why you guys do it much better because you had the dedicated lanes, like the dedicated riverside walk in South Bank." (P11, Domestic Visitor - eScooter User)

"I wish we had something like this [eScooter] here at the **Gold Coast**, because I would use it. We have bikes, but I don't think we got the **infrastructure to** make it safe." (P14, Domestic Visitor - eScooter User)

Meanwhile, compared to some overseas cities, there were still many areas for improvement in Brisbane. Local eMicromobility companies could learn from their international counterparts:

"I used to live in **London**, they had them there, but they **were quite cheaper** than here. You could use it for like two pounds for two hours. Whereas here I think it's a bit more expensive." (P08, Domestic Visitor - Non-User)

*"I think the ones in Canada actually had a test module, so you couldn't go until you tested the brakes both front and back, and tested the accelerator. It made you go through a little test first. There was nothing like that on the bikes in Brisbane." (P23, Resident - eBike & eScooter User)* 

"I noticed in overseas where I've just come back from, in **Amsterdam** where people have push bikes, and there are eScooters and eBikes as well, but mostly they use push bikes. But that's a whole population, like **Belgium** and **Netherlands**, who are used to that type of transport. And the cities' facilities are second to none when it comes to catering for that type of transport. The footpaths are there, the rules are there, people understand the rules. I **don't think that people understand the rules** around eScooters here because they're all over the place. There's not a bike path where eScooters and eBikes are supposed to be." (P07, Resident - eScooter User)



# 2.4 Non-Users of eMicromobility in Brisbane

#### 2.4.1 Barriers to Use

Apart from investigating the experiences of eBike-eScooter users in Brisbane, this research also explored the perception of non-users as to what hindered their decision to use eMicromobility. As can be seen from Figure 20 below, the three most common reasons for not using eBikes-eScooters in Brisbane as reported by Resident-Nonuser and Visitor-Nonuser survey respondents are: (1) danger; (2) self-image and (3) cost.



#### Reasons For Not Using an eBike or eScooter in Brisbane

Figure 20 Why the Public Have Not Used eMicromobility in Brisbane



Survey respondents were allowed to add additional comments if the options provided were not suitable. Those who answered 'other' indicated a few key reasons for not using eMicromobility is Brisbane. For Residents, Non-Users also noted that:

- Because destinations were located within walking distance, there wasn't a need to use eMicromobility; and
- Simply that there was 'no need' or 'no interest or desire' to use eMicromobility.

Similarly, many visitors said that they:

- Preferred to walk, not seeing a need to use the eScooters or eBikes and just enjoyed walking as an activity in itself.
- Haven't needed to' or were 'not interested' in using eScooters or eBikes.
- Were concerned about potential for injuries while using the devices.
- Had not had a chance to use them during their visit in Brisbane, due to lack of time; however, a few indicated they were planning to.

The in-depth interviews also generated key themes regarding the barriers to eMicromobility usage. These barriers can be grouped as either features of eBikes-eScooters or features of the city of Brisbane.



Figure 21 Summary of Themes Preventing the Use of eMicromobility



In line with the survey findings, participants in the interviews also highlighted safety concerns as the main obstacles to the adoption of eMicromobility. The accidents involving these vehicles raised questions about liability and regulations. Users and Non-Users alike were concerned about potential collisions and injuries, particularly in areas with heavy traffic.

#### Concerns of Injury and Reckless Use

P24 (Domestic Visitor Non-User) visited Brisbane from Goulburn, New South Wales over the last Anzac Day holiday. She reported that during her stay in Brisbane she witnessed several occasions of irresponsible behaviour displayed by users of eMicromobility, especially eScooter riders, such as: not wearing a helmet, speeding, riding into bus lanes, and screaming at pedestrians. More seriously, P24 said that she was **nearly knocked down by an eScooter** when she was walking around a corner. Because of such negative experiences, P24 said that: "My impressions of the eScooters are that most of them are totally out of control and dangerous". She also raised a question of who would have been held liable if an accident had happened - the rider or the eMicromobility company,

Another significant barrier was the cost associated with renting eBikes and eScooters. Many participants found the per-minute rate too expensive for long-distance rides. This is in sync with the finding reported above: participants highly valued the bundled discounts, such as day passes and monthly packages, which played a crucial role in making eBikes and eScooters affordable and influenced their decision to use these modes of transportation.

Other features of the eBikes/eScooters such as technical difficulties and unfamiliar design could also make it challenging for people to use them. It should be noted that a few participants raised the issue of physical inability as an overlooked hindrance:

"I don't know **about my age group**. I mean, I have a very mixed group of friends whose abilities are quite mixed. So some might have hip and knee replacements, whereas I'm quite fit and still do yoga, I sort of stand on my head. I'm 66 but I'm doing a lot that my friends couldn't possibly do. So I would get on an eScooter, no doubt, but they wouldn't. They just would not get on eScooters." (P07, Resident eScooter User)

"Because in a way, scooters and bicycles are for **able bodies**. I think people living with disabilities, or some people living with certain disabilities may not be able to use these bikes and scooters." (P17, Resident - Non-User)

Hygiene concerns have become increasingly relevant in recent times, especially in the wake of the COVID-19 pandemic. Users might hesitate to ride shared eBikes and eScooters due to worries about cleanliness and transmission of pathogens.



However, certain barriers to the adoption of eMicromobility are not inherent to the devices themselves but are instead associated with the characteristics of Brisbane itself. The absence of dedicated infrastructure for eBikes and eScooters in some locations, along with inadequate regulations for usage, were identified as significant obstacles to the wider acceptance of eMicromobility. These barriers are closely linked to concerns regarding safety.

"So there's a disjoint between pedestrians and others as in push-bike riders, eBike riders and eScooter riders. There's **not enough infrastructure** for them versus pedestrians to keep them safe from each other. [...] I think the eScooters have boomed too quickly for infrastructure to keep up, I mean what our city could keep up." (P07, Resident - eScooter User)

"I think the cities, like Brisbane or Sydney, I think most of the **Australian cities are not built for them** [eBikes & eScooters]. Because most of the time you either have to go on the road with the cars, or on the side road with pedestrians, so I feel none of the options are quite safe for everyone." (P15, Resident - eBike User)

*"I guess that would be something for the Government or Council of the city to regulate.* And give *strong penalties* to people going too fast, not wearing their helmets, leaving the scooters or bikes parked in a weird place, etc. So I guess that's more of a *legislation* thing." (P20, Domestic Visitor – Non-User)



Image: Adobe Stock



# Chapter 3 Conclusion

# 3.1 Summary

This report provides a foundational study at the intersection of micromobility and tourism, which explains how and why eScooters and eBikes impact the experiences and views of visitors and residents in Brisbane. The results are clear: micromobility is a win for improving urban tourism experiences. Visitors arrive in Brisbane, and they are immediately confronted with decisions on how to travel around and see the city. Public transport is considered too challenging, rideshare and car travel skip past all the attractions and sites, and walking is limited by distance and weather.

So, those who are able and willing to use micromobility are rewarded with a better visitation experience as they can more easily experience all the best attractions that the city has to offer. Further, users of micromobility have more positive views of these modes and the impact they have on the city generally. Therefore, efforts to improve access and lower barriers would likely improve perceptions of micromobility generally and the related image of the city. Our findings align with prior work, in that eMicromobility is recognised as a convenient transportation option for both local commuters and visiting tourists, providing exciting ways to get around in increasingly congested urban areas (e.g., Buning & Lulla, 2020; Hardt & Bogenberger, 2019).

While shared micromobility programs are generally thought to fill first/last mile transportation gaps, the respondents here (especially visitors) used micromobility as an alternative to other transport modes, including public transport, as it was perceived to be easier to use and provided a better experience of the city. In comparing eScooters and eBikes, for those who can ride a bike, eBikes are considered a safer and more utilitarian transport option, but eScooters are considered easier to use and more convenient for all.

However, perceptions of micromobility vary greatly depending on whether someone has used them. Non-users of eScooters do report some mild inconveniences (i.e., blocked footpaths or negligent riders), but for the most part do not mind their presence in the city and see the appeal for others. Features of eBikes/eScooters that supported usage were found to be ease of control, user-friendly technology, familiarity, and affordable prices. On the other hand, features of the city of Brisbane that enabled eMicromobility usage were having easily to find and to use cycling infrastructure and the availability of eBikes/eScooters.

In terms of barries to usage, safety concerns, expense, and psychological barriers are severely limiting to further uptake. Further investment in easy to navigate and find cycling infrastructure and adoption of user-friendly regulations will further enable use and, in turn, positive views of micromobility and the city.

Overall, Brisbane's image is highly positive whether people are micromobility users or not, and with the addition of eScooters and eBikes this image becomes even stronger.



# References

- Banet, K., Naumov, V., & Kucharski, R. (2022). Using city-bike stopovers to reveal spatial patterns of urban attractiveness. *Current Issues in Tourism*,25(18), 2887–2904.
- https://doi.org/10.1080/13683500.2021.2011841
- Buning, R., & Lulla, V. (2021). Visitor bikeshare usage: Tracking visitor spatiotemporal behavior using big data. *Journal of Sustainable Tourism*,29(4), 711–731. https://doi.org/10.1080/09669582.2020.1825456
- Bush, A. J., & Hair, J. F. (1985). An assessment of the mall intercept as a data collection method. *Journal of Marketing Research*, 22(2), 158–167. https://doi.org/10.1177/002224378502200205
- Chen, C. F., & Huang, C. Y. (2021). Investigating the effects of a shared bike for tourism use on the tourist experience and its consequences. *Current Issues in Tourism*, *24*(1), 134–148. https://doi.org/10.1080/13683500.2020.1730309
- Croes, R., Shani, A., & Walls, A. (2010). The value of destination loyalty: Myth or reality?. *Journal of Hospitality Marketing & Management*, *19*(2), 115–136. https://doi.org/10.1080/19368620903455252
- Gössling, S. (2020). Integrating e-scooters in urban transportation: Problems, policies, and the prospect of system change. *Transportation Research Part D: Transport and Environment*, 79, 102230. https://doi.org/10.1016/j.trd.2020.102230
- Hardt, C., & Bogenberger, K. (2019). Usage of e-Scooters in urban environments. *Transportation Research Procedia*, 37, 155–162. https://doi.org/10.1016/j.trpro.2018.12.178
- Haworth, N., Schramm, A., & Twisk, D. (2021). Comparing the risky behaviours of shared and private e-scooter and bicycle riders in downtown Brisbane, Australia. *Accident Analysis and Prevention*, 152, 105981. https://doi.org/10.1016/j.aap.2021.105981
- Jain, T., Wang, X., Rose, G., & Johnson, M. (2018). Does the role of a bicycle share system in a city change over time? A longitudinal analysis of casual users and long-term subscribers. *Journal of Transport Geography*, 71, 45-57. https://doi.org/10.1016/j.jtrangeo.2018.06.023
- Kallio, H., Pietilä, A. M., Johnson, M., & Kangasniemi, M. (2016). Systematic methodological review: Developing a framework for a qualitative semi-structured interview guide. *Journal of Advanced Nursing*,72(12), 2954–2965. https://doi.org/10.1111/jan.13031
- Khajehshahkoohi, M., Davoodi, S. R., & Shaaban, K. (2022). Factors affecting the behavioral intention of tourists on the use of bike sharing in tourism areas. *Research in Transportation Business & Management*,43, 100742. https://doi.org/10.1016/j.rtbm.2021.100742
- Lin, J. J., & Chen, W. T. (2018). Bike-sharing systems and destination satisfaction in overseas tourists. *Asian Transport Studies*,*5*(2), 423–435. https://doi.org/10.11175/eastsats.5.423
- Martín-Santana, J. D., Beerli-Palacio, A., & Nazzareno, P. A. (2017). Antecedents and consequences of destination image gap. Annals of Tourism Research, 62, 13-25. https://doi.org/10.1016/j.annals.2016.11.001
- McKenzie, G. (2020). Urban mobility in the sharing economy: A spatiotemporal comparison of shared mobility services. *Computers, Environment and Urban Systems*, 79, 101418. https://doi.org/10.1016/j.compenvurbsys.2019.101418
- O'Brien, O., Cheshire, J., & Batty, M. (2014). Mining bicycle sharing data for generating insights into sustainable transport systems. *Journal of Transport Geography, 34,* 262-273. https://doi.org/https://doi.org/10.1016/j.jtrangeo.2013.06.007
- Shaheen, S. A., Guzman, S., & Zhang, H. (2010). Bikesharing in Europe, the Americas, and Asia: Past, present, and future. *Transportation Research Record*,2143(1), 159–167. https://doi.org/10.3141/2143-20
- Shen, Y., Zhang, X., & Zhao, J. (2018). Understanding the usage of dockless bike sharing in Singapore. International Journal of Sustainable Transportation, 12(9), 686–700. https://doi.org/10.1080/15568318.2018.1429696
- Yang, Y., Jiang, L., & Zhang, Z. (2021). Tourists on shared bikes: Can bike-sharing boost attraction demand?. *Tourism Management*,86, 104328. https://doi.org/10.1016/j.tourman.2021.104328
- Zhu, R., Zhang, X., Kondor, D., Santi, P., & Ratti, C. (2020). Understanding spatio-temporal heterogeneity of bikesharing and scooter-sharing mobility. *Computers, Environment and Urban Systems*,81, 101483. https://doi.org/10.1016/j.compenvurbsys.2020.101483



# Appendices

#### **International Visitors and Home Countries**







#### Domestic Visitors' Home State or Town (QLD)



#### Distribution of Visitors on a Day or Overnight Trip





#### Travel Group Type and Average Travel Party Size





|  | n   | Minimum | Maximum | Mean | Std.<br>Deviation |
|--|-----|---------|---------|------|-------------------|
| Number of<br>people in<br>travel party | 363 | 1.00    | 10.00   | 2.62 | 1.8140            |



#### **Visit Purpose**



#### Top Suburbs Visitors Are Staying While in Brisbane



# Accommodation in Brisbane - Top 15 Suburbs (n = 350)



Other reported suburbs visitors indicated they were staying at while visiting Brisbane include:

| Suburb           | Percentage | Suburb            | Percentage |
|------------------|------------|-------------------|------------|
| Albion           | 0.3%       | Carseldine        | 0.3%       |
| Alderley         | 0.3%       | Cedar Vale        | 0.3%       |
| Arana Hills      | 0.3%       | Chelmer           | 0.3%       |
| Auchenflower     | 0.3%       | Chermside         | 0.3%       |
| Bardon           | 0.3%       | Coorparoo         | 0.3%       |
| Belivah          | 0.3%       | Eatons Hill       | 0.3%       |
| Bellbird Park    | 0.3%       | Greenslopes       | 0.3%       |
| Boondall         | 0.3%       | Inala             | 0.3%       |
| Brisbane Airport | 0.3%       | Kallangur         | 0.3%       |
| Broadbeach       | 0.3%       | Macgregor         | 0.3%       |
| Calamvale        | 0.3%       | Maryborough       | 0.3%       |
| Camp Hill        | 0.3%       | Morayfield        | 0.3%       |
| Carina           | 0.3%       | Petrie Terrace    | 0.3%       |
| Carindale        | 0.3%       | Bulimba           | 0.6%       |
| Redbank          | 0.3%       | East Brisbane     | 0.6%       |
| Redcliffe        | 0.3%       | Enoggera          | 0.6%       |
| Richlands        | 0.3%       | Gold Coast        | 0.6%       |
| Runcorn          | 0.3%       | Indooroopilly     | 0.6%       |
| Salisbury        | 0.3%       | Ipswich           | 0.6%       |
| Southport        | 0.3%       | Morningside       | 0.6%       |
| Spring Mountain  | 0.3%       | Mount Glorious    | 0.6%       |
| Surfers Paradise | 0.3%       | Paddington        | 0.6%       |
| The Gap          | 0.3%       | Red Hill          | 0.6%       |
| Underwood        | 0.3%       | Redland Bay       | 0.6%       |
| Windsor          | 0.3%       | Tingalpa          | 0.6%       |
| Woodridge        | 0.3%       | Annerley          | 0.9%       |
| Wynnum           | 0.3%       | Eight Mile Plains | 0.9%       |
| Yeronga          | 0.3%       |                   |            |



CREATE CHANGE

# **Contact details**

**Dr. Richard Buning** T +61 7 **334 68014** 

- E r.buning@business.uq.edu.au;
- W uq.edu.au

CRICOS Provider 00025B • TEQSA PRV12080