Revista Turismo em Análise - RTA | ISSN: 1984-4867
DOI: https://doi.org/10.11606/issn.1984-4867.v36pe025008
Artigos e ensaios

Transportation APPs in the transformation of tourist mobility dynamics: reflections on Uber

Pedro Henrique Jesus Santos[1]
Cristiane Alcantara de Jesus Santos[2]
Leylane Meneses Martins[3]

Abstract
The progressive advance of digital technologies has reconfigured socio-spatial dynamics and, consequently, the distribution of services and products linked to the various sectors of tourism activity. These digital innovations have produced new dynamics associated with moving around the urban space of cities, since the possibility of sharing vehicles has dictated other forms of urban mobility that are more agile, efficient, and economically viable for their users. This begs the question: what bibliographic evidence points to the correlation between transportation apps, the production of contemporary mobilities, and their impact on tourism? In light of this, this paper aims to point to bibliographic evidence that correlates transport apps, the production of contemporary mobilities, and their impacts on tourism, with a specific focus on the case of Uber. To this end, exploratory bibliographic research was carried out using the Web of Science (WOS) database and the Connected Papers platform, in order to find articles, dissertations, and theses that address and provide relevant and reliable data on the emerging themes discussed in this work. The results show that there is a lack of studies involving tourism and transportation apps, especially regarding the factors that influence tourists' choice of Uber. On the other hand, it is important to note that apps like Uber reveal the personalization of transport services and influence other forms of mobility, as well as the possibility of visiting destinations in a dynamic and efficient way, individually or shared, as opposed to using traditional cabs.
Keywords: Transport; Transport apps; Uber; Contemporary mobilities; Tourism.

INTRODUCTION

Tourism activity depends on several sectors for the operationalization of its services, such as hotels, travel agencies, and tourist transportation, although the latter is neglected in marketing and academic debates. Lohmann (2002) emphasizes the importance of broadly discussing the systemic nature of tourist transportation. Page and Ge (2009) reinforce that the development of a consistent theoretical framework on transportation and tourism is mainly related to the

1. Master's student in Tourism at the Federal Institute of Sergipe, Brazil. Email: phenrikue@gmail.com. ORCID: https://orcid.org/0000-0002-2428-3549
2. Ph.D. in Geography, Territorial Planning and Environmental Management, University of Barcelona, Spain. Professor of the Bachelor's Degree in Tourism, Federal University of Sergipe, Brazil. Email: cristie09@uol.com.br. ORCID: https://orcid.org/0000-0001-7028-0886
3. Ph.D. student in Tourism at the Federal University of Rio Grande do Norte, Natal, Rio Grande do Norte, Brazil. Email: leylane.martins.028@ufrn.edu.br. ORCID: https://orcid.org/0000-0003-4411-2568

lack or insufficiency of technical terms on the subject that are commonly accepted by the scientific community.

It is a fact that the tourist transportation sector performs functions that are indispensable to the development of tourism, since it would be unfeasible to conceive of travel for tourist purposes without the use, in a network, of different modes of transportation that guarantee the access of tourists to destinations.

The connection between transportation and tourism influences the development of tourist destinations, potentially boosting them or hindering them, depending on the presence or absence of effective transportation systems (Couto, 2019; Lohmann et al., 2013). Indeed, an inefficient transportation system contributes to the creation of bottlenecks that impede the movement and free-flowing access of people (residents and tourists) and goods to city spaces, causing harm to the less privileged sectors of the population in terms of impacts on income, job availability, access to education, entertainment, and healthcare, in addition to straining the environmental balance of urban areas (Carvalho, 2016).

In this sense, urban mobility is defined as an articulated and managed structure of displacement methods, services, and facilities that ensure the mobility of individuals and goods within the municipal territory (Brasil, 2012). For Allis (2013), studies that address the theme of mobility must consider that tourist and non-tourist movements are intertwined by social, economic, cultural and environmental relations that deserve attention from anthropologists, economists, philosophers, and tourism experts.

However, it is clear that studies that mobilize efforts to conceptualize topics such as mobility or urban mobility are recent in the Brazilian context, since the significant number of productions related to such topics was concentrated between 2011 and 2015, totaling 16 works (Allis & Fraga, 2016). In this bibliographic survey, the authors did not use the search term "tourism mobility" (Allis et al., 2020), as they understand that such a definition is in the process of maturing.

Tourist movements are essentially temporary and seasonal. Among other things, tourists may return to the visited territory and reside there for numerous purposes (Coles et al., 2005; Coriolano & Fernandes, 2014). However, the condition highlighted in tourism concepts is that the tourist returns to their place of origin. Therefore, it is the dynamics of mobility that produce and maintain a vibrant tourism trend daily across the globe.

It is worth highlighting that, in this article, mobility will not be addressed only as displacement and access to spaces by means of transport, but as the relationship and social, economic and environmental changes caused by the coming and going of society (Allis, 2016; Coriolano & Fernandes, 2014), especially due to the multiple relationships and transformations caused by the temporalities of tourist trips in the spaces visited.

In this sense, Sheller and Urry (2006) emphasize the interfaces of mobility and its resulting effects, criticizing the social sciences, which at one point considered mobility as static or dense. The authors suggest a return to mobility in the social sciences, theorizing the "new paradigm of mobility," which must consider the fluidity and liquidity of mobility in the post-contemporary era, highly influenced by the possibilities of projecting/being in spaces in a virtual and imaginative way.

Thus, it would be a harbinger of what would happen in the following years with the development and expansion of the digital apparatus, which allows users

to visualize and interact with territorialized spaces. Recently, the emergence of the metaverse will generate new, even more sophisticated interaction patterns between the offline and online worlds, given that this innovation will intensify virtual travel, increasingly sought after by new tourists as a way to interact and obtain prior information about destinations. It is believed that, in some cases, browsing the online space will be sufficient to understand elements of tourist spaces, considering the technological profile of users projecting themselves into the metaverse.

In this logic, Tosta and Kunz (2014) highlight how the power of globalization and technology drives human movement, given that the advancement of digital tools has enabled pre-trip bureaucratic processes, such as purchasing tickets, to be completed online, making mobility increasingly fluid. Sheller and Urry (2006) also highlight the extremely significant role of the automobile in reducing time and ensuring that large numbers of people can move.

In this context, this research begins with the following question: what bibliographical evidence points to the correlation between transportation apps, the production of contemporary mobility, and their impacts on tourism? Therefore, it is important to emphasize that the focus here shifts away from the debate on the concept of tourist mobility, which is still in its maturation phase (Allis & Fraga, 2016). This concept is still understood through the emphasis of the operationalization of different transportation modes, since other interpellations can contribute considerations and understandings about the dynamism of movements and their effects on tourism (Allis, 2016), such as the recent integration of vehicles into mobile applications, such as Uber, and their use for tourism purposes.

Consequently, this article aims to point out bibliographical evidence that correlates transportation applications, the production of contemporary mobility, and their impacts on tourism, with a specific focus on the case of Uber.

To this end, this article is structured into five sections, including this Introduction. The second section presents a literature review on technology, transportation, and tourism, offering insights into trends and challenges in these fields. The third section presents the methodological approach of this research. The "Results and Discussion" section presents an analysis of the impact of transportation apps, such as Uber, on tourism and urban mobility, highlighting the transformation of people's movements in urban areas and tourist destinations. The final section presents the Conclusion.

LITERATURE REVIEW

The evolution of transportation technology, coupled with the improvement and quality of the infrastructure used to build these modes of transportation, has contributed to global tourist travel. Within this evolutionary logic, devices associated with digital technology are being developed to increasingly offer tourist transportation services globally, intensifying human (tourist and non-tourist) and object movement in urban centers (urban mobility).

Currently, it is clear that digital technologies exert positive forces on tourism, in the sense of promoting the development of the activity based on efficient and innovative resources, such as individual passenger transportation applications,

which, according to Fortes (2020), provide revolutions in the scope of urban mobility (tourist and non-tourist), as they are more agile, comfortable, safe and innovative, especially in the case of urban centers.

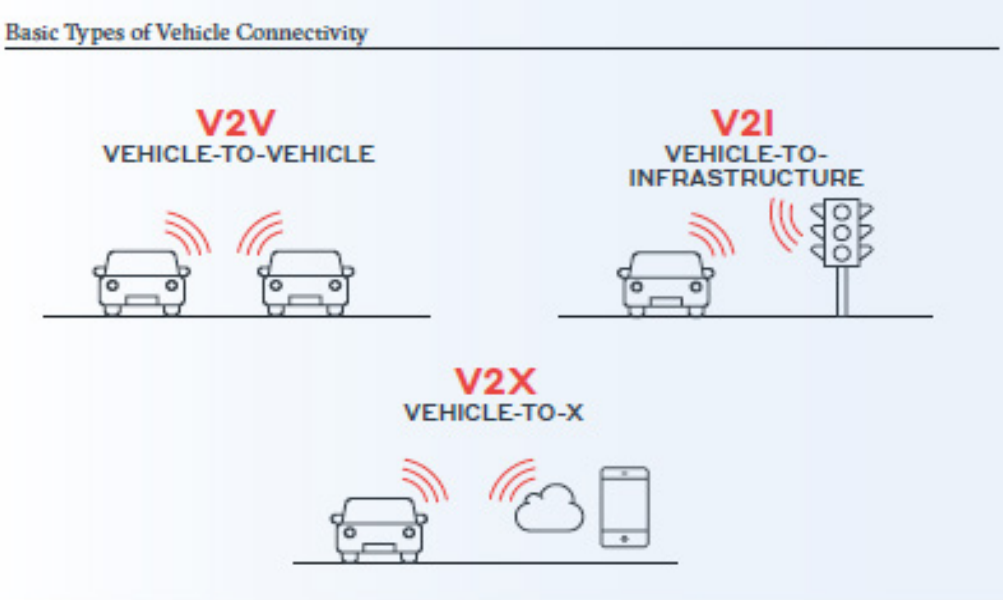
Mobile device technology is constantly expanding, offering a wide range of applications for various modes of transportation, with comprehensive information, including urban transportation (Francoso et al., 2019). The purpose is to highlight the growing offer of mobile technology solutions, which are becoming essential tools for facilitating travel and providing users with relevant information about the different modes of transportation available, especially those within the urban context.

Indeed, the widespread use of these apps is producing new forms of mobility, but research on this topic is limited and does not concretely demonstrate how the use of these digital resources directly impacts mobility. In this regard, the document *"A New Mobility Now"* by the engineering consultancy firm WSP (2017) sheds light on the transformation of mobility resulting from technological developments in transportation.

It is important to understand how the tourist experience is transformed by the dimensions of contemporary mobility. Therefore, WSP (2017) highlights four technological axes that are advancing globally and uncontrollably reflect innovative aspects within mobility: automated driving, electric vehicles, connected vehicle transportation systems and networks, and shared use. In general, people are more receptive to the use of information and communication technologies and the adoption of technology-based transportation alternatives, such as new shared mobility services. On the other hand, the impacts of many of these emerging trends are intertwined with other factors that affect travel patterns, including differences between generations (X, Y, Z, and Baby Boomers) and lifestyles (Alemi et al., 2018a).

Furthermore, these innovations in urban mobility create new standards of safety and agility, as information is exchanged among vehicles, between vehicles and smartphones, and between vehicles and transportation infrastructure (Figure 1). These innovations enable the automotive industry to not only manufacture vehicles but also offer comprehensive related services, with an emphasis on improving and expanding mobility for users. The primary focus is on improving connectivity, not on robotizing the economy through the automation of activities, by enabling interconnected tasks and agents, forming a database (Brasileiro et al., 2023

Figure 1. Value of basic vehicle connectivity types



Source: WSP(2017).

Therefore, when connected, public authorities can benefit from urban planning (safety, speed, congestion) through information captured from vehicles. In this context, urban infrastructure can also benefit as vehicles circulate on highways, detecting and recording infrastructure irregularities, generating relevant data for public administrators (WSP, 2017).

Regarding contributions to sustainable mobility, the still incipient production of electric vehicles has significant repercussions on the structuring of an agenda to reduce greenhouse gas emissions (WSP, 2017). Undoubtedly, the number of traditional automobiles produced daily has harmful effects on the environment, given that these alternatives for developing more sustainable engines consequently reflect different tourist (Allis et al., 2020) and non-tourist mobilities.

Regarding tourist mobility, it is worth highlighting that the different forms of travel in tourism influence tourist environments, as well as the formation and transformation of destinations, resulting in a complex interaction of combinations of movements and pauses, real and imagined experiences, moments of leisure and work (Allis et al., 2020).

Regarding non-tourist mobility, according to WSP (2017), costs for short-distance travel will be reduced by the use of rechargeable batteries, when compared to the traditional format, which requires a lot of investment in fuel and vehicle maintenance.

The emergence of digital technologies causes a transformation in lifestyles, driving the emergence of a shared economy for choosing accommodation (Airbnb), private cars (Drivy), transportation (BlaBlaCar and Uber), package delivery (Amazon and Mercado Livre), as well as streaming services (Netflix, Spotify, Globoplay, Amazon, Disney), music platforms, series and films, which are driven by algorithms controlled by technology companies to make the user experience more convenient and even economical (Brasileiro et al., 2023).

These technologies have enabled shared mobility, where individuals can share resources and services, such as transportation and entertainment, more efficiently and affordably. Furthermore, a positive aspect of shared transportation

is that it can promote better utilization of available resources, contributing to reduced pollution, as fewer private vehicles will be on the roads, which, in turn, reduces the amount of fuel consumed and carbon emissions released into the atmosphere.

Marques (2017), in cooperation with other experts from the Institute for Transportation and Development Policy (ITDP), developed 10 fundamental principles with a view to fostering and structuring shared mobility in cities (Table 1).

Table 1. 10 principles of shared mobility

I	We plan our cities and their mobility together
II	We prioritize people over vehicles
III	We support the shared and efficient use of vehicles, streets, sidewalks, and land
IV	We engage with stakeholders
V	We promote equity
VI	We lead the transition to a zero-emissions, renewable energy future
VII	We support fair fares for users of all modes of transportation.
VIII	We seek public benefits through open data
IX	We work for an integrated, connected and efficient transportation network
X	We support shared autonomous vehicles in dense urban areas

Source: Adapted from ITDP (Marques, 2017).

The principles of shared mobility, from the ITDP perspective, determine that the planning and design of cities must be thought of and constituted in an integrative manner, respecting the specific spaces and shared uses that are or will be given, and prioritizing people first.

Nevertheless, shared mobility has become an alternative in European smart cities to alleviate traffic congestion. In Brazil, the proliferation of this model, from a negative perspective, is associated, strictly speaking, with ride-hailing apps and the impact on traditional taxi revenues, issues discussed in the next section.

Given that taxi services are regulated and operators are unionized, impending changes in the transportation sector may render this category/class obsolete unless it adapts to the new conditions (Shirgaokar, 2018). Furthermore, cooperation between platform mediation companies and the government is essential, with the aim of achieving decentralization and the creation of fairer mobility.

Regulation and operations of individual transportation applications in Brazilian tourism: the case of *Uber*

The Uber app prototyping process began at the turn of 2008 to 2009 in San Francisco, California, but at that initial stage, it was called Uber Cab. The motivation for the development of the Silicon Valley-based company[4] came from the obstacles encountered by Travis Kalanick and Garrett Camp when using a taxi to leave an event in Paris in 2008 (Andrade, 2023; Dargains, 2016; Rached & Farias, 2017; Siqueira et al., 2019).

4. Silicon Valley is a cluster of large, world-renowned technology companies (Microsoft, Google, Uber etc.) located in San Francisco, California (United States).

The development and adaptations of the application, which aim to connect passengers and drivers seeking urban travel using simple gestures on their smartphone screen, are part of the shared economy sector, offering not physical products, such as vehicles, but digital services, and is thus characterized as a technology company (Paiva, 2020).

In 2011, the company chose to change its name, removing the term "Cab" (which, in English, means taxi) and keeping only "Uber", this being a choice of the company's owners, who recognized that their platform was essentially digital and not a conventional transportation company (Paiva, 2020).

During the application's testing period, cars transported only one passenger; however, as the service progressed, other categories were developed, as shown in the table presented (Table 2).

Table 2. Categories offered by Uber

CATEGORY	SERVICE FEATURES
Uber X	Compact cars; air conditioning; four doors; competitive price
Uber Together	Allows you to share the trip with other users with a similar route
Uber Comfort	More comfortable and spacious cars; higher price than Uber X
Uber Black	Large sedans; leather seats; premium experience
Uber Taxi	Taxi rides with Uber's safety features
Uber Flash	Request to send personal items and articles
Uber Eats	Meal requests
Public Transportation	Real-time information on bus, train, and subway lines
Uber for Business	Employee travel management
Uber Direct	Product delivery service; linked to *Uber* for Business
Uber Eats for Business	Meal delivery for employees

Source: Rodrigues (2021).

Currently, the categories Uber Taxi, Uber Flash, Uber Eats, Uber Eats for Business, Uber for Business, and Uber Direct are currently unavailable. Uber Comfort, Uber Black, and, recently, Uber Moto are being offered. In addition, the Uber X (previously called Uber Together) category integrates users traveling to the same location to minimize negative impacts on traffic and the environment, Uber Scooters for more sustainable city rides, and Uber WAV for people with disabilities (Uber, 2022).

Initially, there were attempts to block the Uber app from operating in Brazil, as official transportation agencies and taxi drivers perceived it as unsafe and unfair compared to the traditional service offered. These issues spread to several countries where Uber set up shop, fueling debates about the illegality of its operating model and unfair competition, given the legal requirements taxi drivers met (Dargains, 2016; Rached & Farias, 2017; Salman & Fujita, 2018; Serrano & Baldanza, 2017).

Although discussions about Uber's legality permeate several countries, the app's expansion, based on connecting passengers and drivers, reached Brazil in 2014, in the city of São Paulo (SP), where it was advertised by the media as a paid ride-hailing app. It then arrived in Rio de Janeiro (RJ) through the UberPool service, allowing up to three unknown passengers to share a trip to the same destination, offering Brazilian citizens a new tool in the sharing economy (Andrade, 2023).

However, it is important to emphasize that the experimental phase of Uber's service in Brazil took place in Rio de Janeiro on May 15, 2014 (Complementary Law No. 159, of September 29, 2015). The Legislative branch, nevertheless, disallowed the service and categorized it as similar to what was already being offered (taxi). Complementing the law, the Executive branch enacted restrictions and penalties for those who operated the app service without the city's consent, under the bias of insecurity and lack of comfort (Rached & Farias, 2017). According to the authors, the arrival of Uber in São Paulo is marked by severe restrictions similar to those imposed by the city of Rio de Janeiro, given that, among the 55 councilors, only 3 were against preventing the service from being offered in the city, which, according to the majority, characterized the privatization of taxi drivers (Municipal Law No. 16,279, of October 8, 2015).

Uber's operations in Belo Horizonte in 2014 were in line with decisions taken by the authorities of the aforementioned cities, based on the imperative that this new modality offers more sophisticated private taxis (Law No. 10,900, of January 8, 2016). In the case of the Federal District, the Legislature drafted a bill in 2015 that determined the total ban of the service, defining it as a clandestine activity (Rached & Farias, 2017).

However, it is important to clarify that the decisions taken against Uber by the governments of the aforementioned capitals occurred after the 2014 World Cup, given that the organization's market entry occurred strategically during the event. Indeed, the euphoria surrounding travel throughout Brazil to the capitals hosting the games strongly boosted the use of an innovative transportation service that, in that context, offered an alternative to the bottlenecks faced by the capitals due to the influx of domestic and international tourism.

Furthermore, Uber's strategic entry into the Brazilian market contributed to its own publicity, resulting in its expansion into several cities. According to Uber, "We arrived in Brazil alongside the 2014 World Cup, in Rio de Janeiro, and then in São Paulo, Belo Horizonte, and Brasília. Today, we are present in more than 500 cities across the country, including all capitals and major metropolitan areas" (Uber, 2023).

In 2019, Uber published holistic data on the number of trips taken in Brazil, indicating that the service was operational in more than 100 Brazilian cities, totaling 2.6 billion trips. Furthermore, a single driver completed approximately 25,000 trips (Uber, 2023). The *peer-to-peer digital platform* transformed the world with its technology and convenience (Paiva, 2020), expanding the range of its services and granting it greater visibility globally.

METHODOLOGY

Structuring the methods and techniques is essential to achieving the proposed objective. Therefore, exploratory bibliographical research was conducted on online journal articles, books, dissertations, theses, and book chapters to identify the correlation between transportation apps, the production of contemporary mobility, and their impacts on tourism. This type of research is consistent with a qualitative research approach, which is justified here by the composition of a textual *corpus*.

The need for exploratory research is also justified by the need to identify the correlation between transportation apps, specifically Uber, and the production of other forms of mobility for both tourism and non-tourism purposes. This contemporary dynamic demands theoretical and practical reflections aimed at broadening the understanding of digital resources, especially with the advent of artificial intelligence in (re)configuring the meanings of tourism.

Thus, through the WOS database, it was possible to verify the tracking and survey of studies in national and international literature involving the topics in question (Table 3).

Table 3. Survey of research in WOS[5]

Keywords	Results
Transportation apps e mobilities	122
Transportation apps e mobilities e uber	10
Transportation apps e new mobilities e uber	4

Source: Research production.

Furthermore, a complementary survey was conducted in the Brazilian Digital Library of Theses and Dissertations (BDTD), aiming to identify dissertations and theses that relate the use of Uber to the production of other forms of tourist and non-tourist mobility. To this end, the search terms "Uber" and "mobility" were used, resulting in one work; and "transportation apps" and "mobility," resulting in six works. The terms were searched using the filter—"in the title"—given that, in Brazilian research, tourism is associated with a secondary approach at the heart of discussions on transportation and urban mobility.

When using the three keywords of the objective of this study in the search, it was decided to use the 10 studies found for analysis, since the direction of this research is to point out the Uber case study, without limitation of year of publication, due to the small quantity presented, and without excluding types of documents, having in the sample dissertations (1), theses (2), and scientific articles (7).

However, to expand the existing literature, an article found in the WOS was identified as having high scientific quality, constituting an example of a seminal study addressing the topics (keywords) in question. After the WOS survey stage, we used Connected Papers (2023), an online platform that interactively and graphically presents connections between different academic articles. These connections were made using citation analysis techniques to map and visualize networks of scientific articles based on their similar citations and themes related to a source study. It is worth noting that it was from the article found in the WOS by Alemi et al. (2018a) that it became possible to verify the scope of the results.

RESULTS AND DISCUSSION

Digital technologies, such as transportation applications (Uber, 99Pop, InDriver, among others), are a reality that is playing significant roles in providing peo-

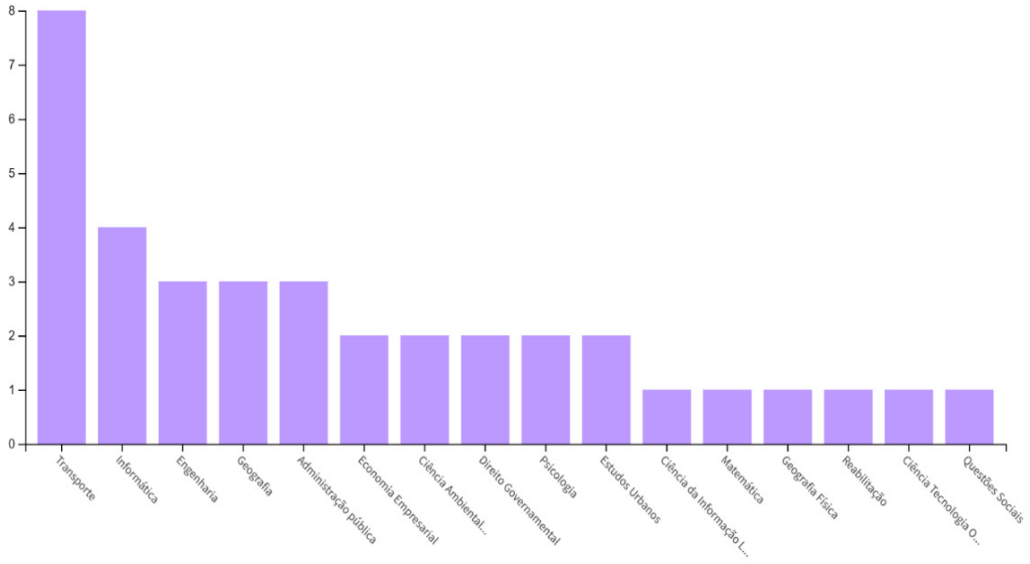
5. Translation of keywords: Transportation apps and mobility; Transportation apps and mobility and Uber and Transportation apps and new mobility and Uber.

ple with access to the various spaces, products, and tourist services that make up cities.

These apps are being used by both residents and tourists to access spaces that require a lot of time and effort within tourist destinations, considering that, from our perspective, agility, price, comfort, and safety are factors that contribute to the choice of transportation services managed by apps.

In the literature review, using the WOS (Figure 2) and BDTD, studies were found in various fields, but none focused directly on tourism. Because this topic involves the term "transportation apps," all are related to the broader "Transportation" field, along with other ancillary fields. This is why Figure 2 shows 16 fields distributed across the 10 studies analyzed.

Figure 2. Research areas[6]



Source: WOS research (2023).

The presentation of these diverse areas reflects the interdisciplinarity and breadth of the topics covered in WOS research, providing a broad overview of research trends across different academic fields. Indeed, transportation apps are being used daily by societies at local and global levels, but little is known, in terms of data that allows for measurement, about the main motivations and the most popular spaces for residents and tourists who, eager for ease of travel and access to cities' tourist destinations, use these services.

Of the 10 studies found in the WOS (Table 4), only one was research in a national journal (Doria & Silva, 2023), but without involving tourism activity, given that it analyzes Uber transportation in social issues and the challenges and socioeconomic implications of this transformation of the digitalization of geographic space.

In the BDTD, Mascarenhas's (2023) thesis highlights how the urban and economic growth of Uberlândia, Minas Gerais, has impacted the quality of public

6. Translation from left to right: Transportation, Informatics, Engineering, Geography, Public Administration, Business Economics, Environmental Science, Governmental Law, Psychology, Urban Studies, Information Science, Mathematics, Physical Geography, Rehabilitation, Science Technology, Social Issues.

transportation and generated a demand for mobility apps, to the detriment of the expansion of important economic hubs in the city. However, the intensity of these urban movements was not measured due to data access difficulties.

Table 4. Studies found in WOS

Author/year	Title	Document type
Alemi (2018)	*What Makes Travelers Use Ride hailing? Exploring the Latent Constructs behind the Adoption and Frequency of Use of Ride hailing Services, and Their Impacts on the Use of Other Travel Modes*	Thesis
Alemi et al. (2018a)	*What influences travelers to use Uber? Exploring the factors affecting the adoption of on-demand ride services in California*	Article
Alemi et al. (2018b)	*Exploring the latent constructions behind the use of ride hailing in California*	Article
Shirgaokar (2018)	*Expanding Seniors' Mobility through Phone Apps: Potential Responses from the Private and Public Sectors*	Article
Su, et al. (2018)	*Understanding the Dynamics of the Pick-Up and Drop-Off Locations of Taxicabs in the Context of a Subsidy War among E-Hailing Apps*	Article
Davidson (2020)	*Data and Information as Our New Transport Infrastructure: An Exploration into How the Modern Transport System Is Being Shaped by Information Communication Technology.*	Article
Fielbaum & Tirachini (2021)	*The sharing economy and the job market: the case of ride-hailing drivers in Chile*	Dissertation
Alanazi (2022)	*Smartphone apps for transportation by people with intellectual disabilities: are they really helpful in improving their mobility?*	Article
Battifarano (2022)	*System-Level Impact and Behavior of Coordinated Vehicle Fleets in Transportation Networks*	Thesis
Doria & Silva (2023)	*Digitalization and urban mobility in a non-metropolitan city: uberization in Campos dos Goytacazes /RJ*	Article

Source: Research production.

Despite Uber's use for tourism purposes, studies highlighting historical aspects or gathering data reflecting its impact on tourism are scarce. Among the articles published in 2018, only one focused on tourism (Alemi et al., 2018a), which seeks to investigate the factors that influence travelers from different generations (X and Y), to choose Uber as transportation, exploring the motivators that lead to the desire to use on-demand transportation services in California.

From this perspective, Santos (2018) found that the availability of transportation modes within tourist destinations influences the choice of Uber. In contexts where access to public transportation is limited or the destination is unfamiliar to the tourist, Uber tends to be the preferred alternative due to its accessibility, safety, and reputation.

From this perspective, Cabanne (2017) found that, although his study did not specifically address tourist mobility, ride-hailing companies promote ease and integration with their customers through online platforms that promote more efficient travel. Among the factors that contribute to the availability of vehicle rentals are price, personalized experience, and quality offered to customers. Indeed, these aspects motivate and drive the choice of Uber as an alternative for mobility in the urban space of destinations (Corrêa, 2023; Peixoto, 2018), as reinforced by Costa (2019) when analyzing the communication process of Uber's arrival in Manaus based on news articles.

However, the symbolic frameworks involved in the motivations and choice of using Uber over a traditional taxi; the relationships that are established while traveling through the city; and how the optimization of the experience impacts the tourist experience through Uber are still interfaces little discussed in Brazilian and international research.

The article "Exploring the latent constructs behind the use of ride hailing in California" (Alemi et al., 2018b) is a continuation of the previous study, but with a focus on emerging mobility, seeking to understand the factors that influence the choices of customers of Uber and Lyft transportation applications in the United States, due to the very rapid growth in the market.

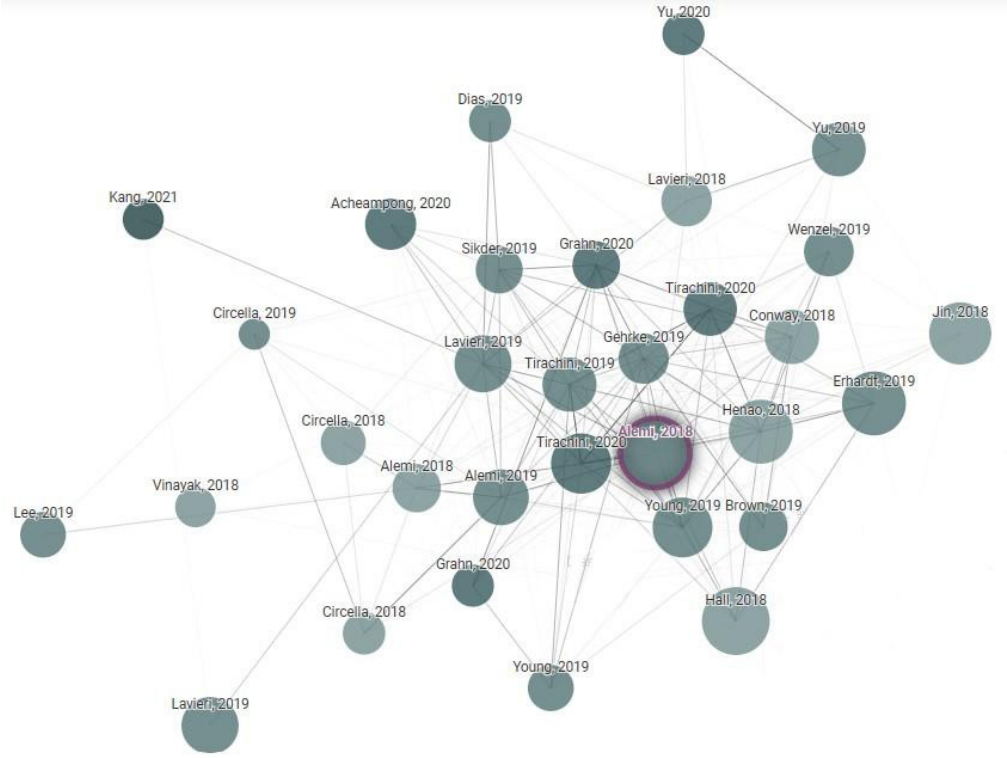
The other thesis found analyzes the impact of technological advances from transportation and ride-hailing applications, considering their use and interference in people's travel behavior (Battifarano, 2022).

The other studies found in WOS address themes of the shared economy and emerging mobility, citing Uber as an example of growing user usage. As examples of applications with diverse personas, it is worth highlighting the study by Shirgaokar (2018), which addresses how ride-hailing services—Uber—can be a real possibility for improving mobility for the elderly, highlighting the barriers faced when using apps to access transportation services.

In addition to the study by Fielbaum and Tirachini (2021), which discusses the impact of the sharing economy on the labor market, with an emphasis on the opinions and behaviors of app-based transportation drivers in Chile, aiming at the perspective of the user providing the service, the research by Alanazi (2022) stands out, which analyzes the use of transportation applications by people with intellectual disabilities and its impact on mobility.

The seminal article by Alemi et al. (2018a) is an impact study on the topic under analysis (apps, Uber, and mobility), which enabled the search for other references based on it in Connected Papers (2023), totaling 30 studies based on similarities and bibliographic coupling. The overview in graphical form is presented in Figure 3.

Figure 3. Literature graph based on Alemi et al. (2018a) article



Source: Connected Papers (2023).

The studies presented are from publications published between 2018 and 2021 and do not directly address tourism. Therefore, for this research, the most cited articles from 2019 to 2021 will be included, totaling eight additional works. In general, these studies address transportation app usage patterns and factors that influence and produce different forms of mobility through the use of personalized services offered by transportation providers through their online platforms—aspects that are indirectly associated with tourism (Table 5).

Table 5. Selected studies from Connected Papers

Author/year	Original Title	Document type
Kang et al. (2021)	*Pooled versus private ride-hailing: A joint revealed and stated preference analysis recognizing psycho-social factors*	Article
Acheampong et al. (2020)	*Mobility-on-demand: An empirical study of internet-based ride-hailing adoption factors, travel characteristics and mode substitution effects*	Article
Grahn et al. (2020)	*Are travelers substituting between transportation network companies (TNC) and public buses? A case study in Pittsburgh*	Article
Yu & Peng (2020)	*The impacts of built environment on ridesourcing demand: A neighborhood level analysis in Austin, Texas*	Article
Tirachini (2019)	*Ride-hailing, travel behavior and sustainable mobility: an international review*	Article

Author/year	Original Title	Document type
Grahn et al. (2019)	*Socioeconomic and usage characteristics of transportation network company (TNC) riders*	Article
Tirachini & Gómez-Lobo (2019)	*Does ride-hailing increase or decrease vehicle kilometers traveled (VKT)? A simulation approach for Santiago de Chile*	Article
Lavieri & Bhat (2019)	*Investigating objective and subjective factors influencing the adoption, frequency, and characteristics of ride-hailing trips*	Article

Source: Prepared by the author, 2023.

The studies by Kang et al. (2021), Grahn et al. (2019) and Lavieri and Bhat (2019) address similar topics, addressing aspects of transportation services through applications, including the characteristics and behaviors of consumers, contributing to their use in urban mobility and, consequently, having an indirect impact on urban tourism, facilitating the transportation of tourists.

Yu and Peng (2020) analyzed the impact of ride-hailing app use in Texas, addressing access and places of interest that have demand for these services. This study may indirectly influence tourism by addressing accessibility and mobility in cities, factors that may be important for tourists who want to explore different urban areas and attractions during their travels.

Acheampong et al. (2020), Grahn et al. (2020), Tirachini (2019), and Tirachini and Gómez-Lobo (2019) approach Uber as a new form of mobility, in addition to presenting it as a positive factor for urban sustainability issues, since the emergence of Uber and similar ride-hailing services has affected the use of traditional modes of transport, such as public transport, and influenced people's travel behavior.

Specifically regarding Uber and its applicability in tourism, Rodrigues (2021) conducted a relevant study based on user-generated content (UGC or VGI) in forums available on TripAdvisor, aiming to analyze tourist reviews regarding the use of Uber in the city of Natal, capital of Rio Grande do Norte. The results indicate that safety, comfort, app accessibility, price, and efficiency are variables that determine the choice of Uber.

In 2020, Santos et al. (2020) conducted research on dynamic pricing and adopted Uber as a case study, which demonstrated that tourists perceive Uber prices as much more advantageous for travel when compared to other modes of transport.

A relevant factor is Uber's inclusion in structural mobility plans, as it uses "boarding points" to reduce congestion among its vehicles in high-demand locations, such as the use of entire airport structures, dedicated exclusively to parking near the terminal, for ride-hailing services. This is a strategy for the passenger-driver system, as it saves travel time, considering the time wasted traveling to meet-ups in locations with multiple arrival and departure options (Battifarano, 2022).

Despite the commute, there is a constant process of using this individual passenger transportation service (notably Uber) by residents, but also by tourist users, to access tourist facilities and attractions within destinations. This new spatial dynamic is understood as *Uberization,* given the expansion of Uber use throughout practically the entire Brazilian territory and, recently, its use as a relevant support for consuming the tourist offerings of destinations.

CONCLUSION

From the perspective of the reviewed literature, technological developments in transportation have played an important role in improving mobility quality, boosting both tourist and non-tourist travel. Over the last decade, travelers have increasingly used technology to assist in using transportation systems, from real-time navigation apps like Google Maps to ride-hailing apps like Uber and bike and scooter-sharing (Battifarano, 2022).

It is important to highlight that ride-hailing apps have played a significant role in the development of contemporary mobility. Through these apps, people have access to immediate transportation options, allowing for greater flexibility and personalization in their journeys. This ability to choose and adapt transportation services to individual needs is contributing to the creation of new mobility patterns: more dynamic and diverse.

These apps offer a convenient and efficient alternative to traditional means of transportation and are also generating changes in people's travel behaviors by providing the opportunity to request and pay for transportation through the app.

However, future research should mobilize efforts to capture real data that will enable the measurement of the impact that Uber use by tourists has had on the transformation of travel and other aspects of the tourism phenomenon. From this perspective, access to data from ride-hailing app operators, coupled with data privacy concerns, still poses an obstacle to more in-depth analyses of Uber's performance at the local and national level.

REFERENCES

Acheampong, R. A., Siiba, A., Okyere, D. K., & Tuffour, J. P. (2020). Mobility-on-demand: An empirical study of internet-based ride-hailing adoption factors, travel characteristics and mode substitution effects. *Transportation Research Part C: Emerging Technologies*, 115, 102638.

Alanazi, A. (2022) Smartphone apps for transportation by people with intellectual disabilities: are they really helpful in improving their mobility?. *Disability and Rehabilitation: Assistive Technology*, *17*(1), 1–7. https://doi.org/10.1080/17483107.2020.1820085

Alemi, F. (2018). *What Makes Travelers Use Ridehailing? Exploring the Latent Constructs behind the Adoption and Frequency of Use of Ridehailing Services, and Their Impacts on the Use of Other Travel Modes.* (Tese de Doutorado em Filosofia). Institute of Transportation Studies, University of California. https://rosap.ntl.bts.gov/view/dot/58175

Alemi, F., Circella, G., Handy, S., & Mokhtarian, P. (2018a). What influences travelers to use Uber? Exploring the factors affecting the adoption of on-demand ride services in California. *Travel Behaviour and Society*, *13*, 88–104. https://doi.org/10.1016/j.tbs.2018.06.002

Alemi, F., Circella, G., Mokhtarian, P. & Handy, S. (2018b). Exploring the latent constructs behind the use of ridehailing in California. *Journal of Choice Modelling*, *29*, 47–62. https://doi.org/10.1016/j.jocm.2018.08.003

Allis T., Moraes C. M. S. & Sheller M. (2020). Revisitando as mobilidades turísticas. *Revista Turismo em Análise - RTA*, *31*(2), 271–295. https://doi.org/10.11606/issn.1984-4867.v31i2p271-295

Allis, T. (2013). Nos caminhos das mobilidades. *Revista Rosa dos Ventos*, *5*(4), 663–668. https://sou.ucs.br/etc/revistas/index.php/rosadosventos/article/view/2328

Allis, T. (2016) Em busca das mobilidades turísticas. *PLURAL: Revista do Programa de Pós-Graduação em Sociologia da USP*, *23*(2), 94–117. https://doi.org/10.11606/issn.2176-8099.pcso.2016.125112

Allis, T., & Fraga, C. (2016). Mobilidades turísticas e hospitalidade urbana: Análise bibliográfica a partir de publicações de turismo no Brasil. *Revista Turismo & Desenvolvimento*, (26), 155–165.

Andrade, C. I. (2023). O transporte individual de passageiros: uma análise sobre a chegada do Uber no Brasil e as principais vantagens desta economia do compartilhamento. *Brazilian Journal of Science*, *2*(6), 38–45. https://doi.org/10.14295/bjs.v2i6.302

Battifarano, M. (2022). *System-level impact and behavior of coordinated vehicle fleets in transportation networks*. (Tese de Doutorado). Department of Civil and Environmental Engineering) – Carnegie Mellon University. https://kilthub.cmu.edu/articles/thesis/System-level_impact_and_behavior_of_coordinated_vehicle_fleets_in_transportation_networks/21441246

Brasil. (2012). *Lei nº 12.587, de 3 de janeiro de 2012*: *institui as diretrizes da Política Nacional de Mobilidade Urbana*. Presidência da República. https://www.planalto.gov.br/ccivil_03/_ato2011-2014/2012/lei/l12587.htm

Brasileiro, A., Andrade, M. O., & Vasconcelos, D. (2023). Mobilidade sustentável e tecnologias digitais: uma agenda baseada nos comuns urbanos. *Cadernos Metrópole*, *25*(57), 491–514. https://doi.org/10.1590/2236-9996.2023-5706

Cabanne, C. L. S. M. (2017). *Economia colaborativa em turismo: estudo comparativo de modelos de negócio entre empresas tradicionais e de turismo colaborativo*. (Dissertação de Mestrado em Administração) – Universidade Federal de Sergipe. Programa de Pós-Graduação em Administração. http://ri.ufs.br/jspui/handle/riufs/12003

Carvalho, C. H. R. (2016). Mobilidade urbana: avanços, desafios e perspectivas. In Costa, M. A (Org.). *O Estatuto da Cidade e a Habitat III: um balanço de quinze anos da política urbana no Brasil e a nova agenda urbana* (pp. 345–361). Ipea.

Clarivate. (2023). *Web of Science platform*. https://clarivate.com

Coles, T., Hall, C. M., & Duval, D. T. (2005). Mobilizing Tourism: A Post-disciplinary Critique. *Tourism Recreation Research*, *30*(2), 31–41. https://doi.org/10.1080/02508281.2005.11081471

Connected Papers. (2023). *How does it work?* https://www.connectedpapers.com/about

Coriolano, L. N. M. T., & Fernandes, L. M. M. (2014). Da mobilidade do trabalho à mobilidade no turismo. *ABET*, *4*(1), 45–52.

Corrêa, V. P. (2023) *Panorama do ride sourcing na mobilidade urbana: um estudo de caso do transporte sob demanda por aplicativo em Juiz de Fora (MG)*. (Dissertação de Mestrado em Ambiente Construído) – Universidade Federal de Juiz de Fora, Faculdade de Engenharia. Programa de Pós-Graduação em Ambiente Construído. https://doi.org/10.34019/ufjf/di/2022/00274

Costa, S. N. A. (2019). *Estudo ecossistêmico sobre o aplicativo uber na cidade de Manaus: mobilidade urbana, redes e cibercidades*. (Dissertação de Mestrado em Ciências da

Computação) – Universidade Federal do Amazonas, Programa de Pós-Graduação em Ciências da Comunicação. https://tede.ufam.edu.br/handle/tede/7934

Couto, S. L. S. (2019). *O turismo e as novas tecnologias no transporte aéreo: avaliação dos especialistas.* (Dissertação de Mestrado em Engenharia de Transportes). (Programa de Pós-graduação em Engenharia de Transportes, Universidade Federal do Rio de Janeiro.

Dargains, S. (2016). Uber: uma inovação com potencial infinito para polêmicas*. GVcasos*, *6*(2), 1–8. https://doi.org/10.12660/gvcasosv6n2c14

Davidson, A. (2020). *Data and Information as Our New Transport Infrastructure: An Exploration into How the Modern Transport System Is Being Shaped by Information Communication Technology*. (Dissertação de Mestrado). (Faculty in Earth & Environmental Sciences) – City University of New York (CUNY).

Doria, N. M, & Silva, S. C. (2023). Digitalization and urban mobility in a non-metropolitan city: uberization in Campos dos Goytacazes/RJ. *Ateliê Geográfico*, *17*(2), 246–267.

Fielbaum, A., & Tirachini, A. (2021). The sharing economy and the job market: the case of ride-hailing drivers in Chile. *Transportation*, *48*, 2235–2261. https://doi.org/10.1007/s11116-020-10127-7

Fortes. M. B. (2020). *Tecnologias disruptivas e mobilidade urbana: inovações para o desenho das cidades*. (Tese de Doutorado) – Faculdade de Arquitetura e Urbanismo da Universidade de São Paulo.

Franco, D. S., & Ferraz, D. L. S. (2019). Uberização do trabalho e acumulação capitalista, *Cadernos EBAPE.BR*, *17*(spe), 844–856. https://doi.org/10.1590/1679-395176936

Françoso, M. T., Mello, N. C., & Treiber, H. M. (2019). Influência dos aplicativos de smartphones para transporte urbano no trânsito. In Abdala, M. R. W. S. (Org*.). Impactos das tecnologias na engenharia civil 3* (pp. 230–327). Atena.

Grahn, R., Harper, C. D., Hendrickson, C., Qian, Z., & Matthews, H. S. (2019). Socioeconomic and usage characteristics of transportation network company (TNC) riders. *Transportation*, *47*, 3047–3067. https://doi.org/10.1007/s11116-019-09989-3

Grahn, R., Qian, S., Matthews, H. S., & Hendrickson, C. (2020). Are travelers substituting between transportation network companies (TNC) and public buses? A case study in Pittsburgh. *Transportation*, *48*, 977–100. https://doi.org/10.1007/s11116-020-10081-4

Kang, S., Mondal, A., Bhat, A. C., & Bhat, C. R. (2021). Pooled versus private ride-hailing: A joint revealed and stated preference analysis recognizing psycho-social factors. *Transportation Research Part C: Emerging Technologies*, *124*, 102906. https://doi.org/10.1016/j.trc.2020.102906

Lavieri, P. S., & Bhat, C. R. (2019). Investigating objective and subjective factors influencing the adoption, frequency, and characteristics of ride-hailing trips. *Transportation Research Part C: Emerging Technologies*, *105*, 100–125. https://doi.org/10.1016/j.trc.2019.05.037

LegisWeb. (2015). *Lei nº 13.146, de 6 de julho de 2015*. https://www.legisweb.com.br/legislacao/?id=303996

LegisWeb. (2016). *Lei nº 13.370, de 12 de dezembro de 2016*. https://www.legisweb.com.br/legislacao/?id=315206

Lohmann, G. (2002). *Transportes turísticos*. Aleph.

Lohmann, G., Fraga, C., & Castro, R. (2013). *Transportes e destinos turísticos*: *planejamento e gestão*. Elsevier.

Marques, R. (2017). *Princípios de mobilidade compartilhada para cidades mais humanas*. ITPD. https://itdpbrasil.org/principios-de-mobilidade-compartilhada-para-cidades-mais-humanas/

Mascarenhas, R. R. (2023). *Análise dos aplicativos Uber e 99Pop em relação aos usuários do transporte público de Uberlândia (MG)*. (Tese de Doutorado) – Universidade Federal de Uberlândia. Programa de Pós-Graduação em Geografia.

Mori, L. B., & Cesar, F. I. G. (2022). UBER e seus impactos sociais. *Revista Científica Acertte*, *2*(1), e2154. https://doi.org/10.47820/acertte.v2i1.54

Page, S., & Ge, Y. (2009). Transportation and tourism: A symbiotic relationship?. In Jamal T., & Robinson, M. *The Sage Handbook of Tourism Studies* (pp. 371-395). Sage Publications.

Paiva, A. M. (2020). *O caso Uber: um estudo acerca do Fenômeno da Informalidade Global na Economia Compartilhada*. (Monografia de Graduação) – Pontifícia Universidade Católica de Goiás, Programa de Graduação em Relações Internacionais.

Peixoto, N. E. S. (2018). *Identificação dos parâmetros de infraestrutura de transporte urbano que influenciam na mobilidade do turista*. (Dissertação de Mestrado) – Universidade de Brasília, Faculdade de Tecnologia, Departamento de Engenharia Civil e Ambiental. https://repositorio.unb.br/handle/10482/32792

Prefeitura do Município de São Paulo. (2015). *Lei nº 16.279, de 8 de outubro de 2015*. http://legislacao.prefeitura.sp.gov.br/leis/lei-16279-de-08-de-outubro-de-2015

Rached, G., & Farias, E. H. (2017). Regulação do transporte individual de passageiros: um estudo sobre o caso uber no Brasil. *Revista de Direito da Cidade*, *9*(3), 825–866. https://doi.org/10.12957/rdc.2017.26922

Rodrigues, F. I. B. V. (2021). *Uso de aplicativos de transporte na mobilidade intradestino: percepções com base em reviews de turistas (Natal-RN).* (Dissertação de Mestrado) -Universidade Federal do Rio Grande do Norte, Centro de Ciências Sociais Aplicadas, Programa de Pós-Graduação em Turismo. https://repositorio.ufrn.br/items/bce1632e-7988-4a83-99b9-c132001c47c6

Salman, J. E. A., & Fujita, J. S. (2018). Inovações tecnológicas baseadas na economia colaborativa ou economia compartilhada e a legislação brasileira: o caso Uber. *Revista de Direito, Economia e Desenvolvimento Sustentável*, *4*(1), 9–112. https://doi.org/10.26668/IndexLawJournals/2526-0057/2018.v4i1.4243

Santos, F. A. N. (2018). *O preço é justo? Um estudo sobre as percepções de consumidores e turistas sobre a precificação dinâmica de um aplicativo de mobilidade urbana*. (Dissertação de Mestrado) – Universidade Federal Fluminense. https://app.uff.br/riuff/handle/1/7462

Santos, F.A.N., Mayer, V. F., & Marques, O.R.B. (2020). Precificação dinâmica e percepção de justiça em preços: um estudo sobre o uso do aplicativo Uber em viagens. *Turismo, Visão e Ação*, *21*(3) 239–264. https://doi.org/10.14210/rtva.v21n3.p239-264

Serrano, P. H. S. M., & Baldanza, R. F. (2017). Tecnologias disruptivas: o caso do uber. *RPCA*, 11(5), 37-48. Serrano, P. H. S. M., & Baldanza, R. F. (2017). Tecnologias disruptivas: o caso do uber. *RPCA*, 11(5), 37–48.

Sheller, M., & Urry. J. (2006). The new mobilities paradigma*. Environment and Planning*, *38*(2), 207–226. https://doi.org/10.1068/a37268

Shirgaokar, M. (2018). Expanding Seniors' Mobility through Phone Apps: Potential Responses from the Private and Public Sectors. *Journal of Planning Education and Research*, *40*(4), 405–415. https://doi.org/10.1177/0739456X18769133

Siqueira, J. L. S., Valdevino, A. M., Pellizzoni, L. N., & Moraes, T. A. (2019). UBER: De Carona no Consumo Colaborativo. *CBR-Consumer Behavior Review*, *3*(1), 18–26.

Su, R., Fang, Z., Luo, N., & Zhu, J. (2018). Understanding the Dynamics of the Pick-Up and Drop-Off Locations of Taxicabs in the Context of a Subsidy War among E-Hailing Apps. *Sustainability*, *10*(4), 1256. https://doi.org/10.3390/su10041256

Tirachini, A. (2019). Ride-hailing, travel behaviour and sustainable mobility: an international review. *Transportation*, *47*, 2011–2047. https://doi.org/10.1007/s11116-019-10070-2

Tirachini, A., & Gomez-Lobo, A. (2019). Does ride-hailing increase or decrease vehicle kilometers traveled (VKT)? A simulation approach for Santiago de Chile. *International Journal of Sustainable Transportation*, *14*(3), 187–204. https://doi.org/10.1080/15568318.2018.1539146

Tosta, E., & Kunz, J. G. (2014). Mobilidade e turismo: Construindo um mapa conceitual. *V Encontro da Semintur Jr***.** Universidade de Caxias do Sul (UCS). https://www.ucs.br/site/midia/arquivos/mobilidade_e_turismo.pdf

Tozi, F. (2020). *Uma geografia da uberização no Brasil*. Outras palavras. https://outraspalavras.net/cidadesemtranse/uma-geografia-da-uberizacao-no-brasil/

Uber. (2022). *Descubra o que é e como usar o Uber Juntos (antigo Uber Pool).* Uber. https://www.uber.com/pt-BR/blog/o-que-uber-pool/

Uber. (2023). *Fatos e dados sobre a Uber*. Uber. https://www.uber.com/pt-BR/newsroom/fatos-e-dados-sobre-uber/

WSP. (2017). *A new Mobility now.* WSP. https://www.wsp.com/en-GL/news/2017/new-mobility-now-is-the-time-to-take-action

Yu, H, & Peng, Z. R. (2019) Exploring the spatial variation of ridesourcing demand and its relationship to built environment and socioeconomic factors with the geographically weighted Poisson regression. *Journal of Transport Geography 75*, 147–163.

Received on Dec. 23, 2024

Approved on Aug. 8, 2025.