Carpooling in West Africa: The Shared Mobility Revolution Just a Click Away !

Raynald BALLO[1]

[1]CIFRE PhD Candidate at Transway - UMR IDEES - Le Havre - Normandy University, France.

Abstract : The article focuses on the potential of carpooling in West Africa, highlighting several key findings. The study analyzes the specific challenges faced by users and carpooling platforms in the region, including the popularity of carpooling, trust and security issues, and the difficulty of finding reliable carpooling partners. By examining different forms of carpooling present in the region, the article highlights formal and informal carpooling models, taking into account differences between urban and rural areas. The analysis provides solutions to overcome the trust, security, and unknown factors specific to West Africa. Through a literature review and a survey conducted with 300 individuals in Cotonou and Abomey-Calavi, Benin, the article examines existing forms of carpooling, the challenges faced, and the issue of the unknown in the region. The study considers socio-economic, cultural, and environmental factors that influence mobility in West Africa, providing insights for the future development of carpooling in the region. The results emphasize that carpooling offers an interesting alternative solution for road users in a region where traffic congestion is a major problem and motorization rates are relatively low. The article contributes to a better understanding of the challenges of carpooling in West Africa and proposes development prospects for this practice that is still not widespread in the region.

1 Introduction

West Africa is a dynamic region in constant evolution, where mobility is a major issue. According to a study conducted by the African Development Bank in 2017, the motorization rate in sub-Saharan Africa is just 42 vehicles per 1,000 inhabitants, compared with a global average of 180 vehicles per 1,000 inhabitants. Despite this, road congestion remains a major problem in the region's major cities, with negative effects on the environment and the economy.

Against this backdrop, car-sharing appears to be an attractive option for road users. Carpooling is the practice of sharing transportation costs between several individuals, who travel together in the same vehicle. This alternative transport solution is very popular in developed countries, particularly in Europe and North America, where platforms such as BlaBlaCar, Mobicoop or UberPool have emerged in recent years. However, the practice remains relatively new and underdeveloped in West Africa. Despite the importance of mobility in this region, where many journeys are made for professional or personal reasons, car-sharing remains a relatively unknown phenomenon.

In this article, we look at the forms of carpooling in West Africa, the difficulties encountered by users and providers of carpooling services, and the problem of the unknown. We formulate three hypotheses to guide our analysis: carpooling in West Africa is mainly informal, the difficulties encountered are linked to issues of trust and security, and the difficulty of finding reliable carpooling partners is a major challenge.

We'll start with an analysis of the different forms of car-sharing that exist in the region, looking at formal and popular car-sharing models, as well as the differences between cities and rural areas. Next, we'll look at the difficulties encountered by users and providers of ride-sharing services, such as trust and security issues, and possible solutions to overcome them. Finally, we will address the issue of the unknown in the specific context of West Africa, exploring the reasons why it is difficult to find reliable ride-sharing partners in the region.

This work is carried out taking into account the socio-economic, cultural and environmental factors that influence mobility in West Africa. Through this analysis, we aim to gain a better understanding of the challenges facing car-sharing in the region, and to propose some ideas for its future development.

2 Carpooling forms in West Africa

Starting from the relatively limited scientific literature on carpooling in Africa, there are several works in geography that have addressed the typology of carpooling practices. For example, Martin Lee-Gosselin et al (2018) proposed a carpooling typology based on an analysis of carpooling data in France. They identified four types of carpoolers: the "occasional", the "workers", the "students" and the "recurrent".

Senegalese author Pape Samba Diouf (2018) also proposed a carpooling typology, based on a study conducted in the Dakar region. He identified four types of carpooling: occasional carpooling, professional carpooling, carpooling between friends and family carpooling.

In another study conducted in Côte d'Ivoire, Yapo Akré Narcisse et al. (2019) identified three types of carpooling: professional carpooling, occasional carpooling and family carpooling. A study conducted by researchers Siby et al. (2019) on carpooling in Côte d'Ivoire identified four types

© The Authors, published by EDP Sciences. This is an open access article distributed under the terms of the Creative Commons Attribution License 4.0 (https://creativecommons.org/licenses/by/4.0/).

of carpooling, namely planned carpooling, spontaneous carpooling, family carpooling and professional carpooling. This study also highlighted the important role of social networks in promoting carpooling in West Africa.

Similarly, another study conducted by Njoya et al (2020) on urban carpooling in Cameroon identified three types of carpooling: informal carpooling, semi-formal carpooling and formal carpooling. The authors pointed out that formal carpooling is still underdeveloped in Africa due to weak regulation and a limited culture of trust.

In addition, a study conducted by Manessi et al (2021) on carpooling in Senegal identified two types of carpooling: informal carpooling, which is widespread, and formal carpooling, which is still underdeveloped. The authors pointed out that informal carpooling was generally considered less safe and less reliable than formal carpooling, but was also more flexible and more accessible to people on low incomes.

Based on studies carried out in West African countries, these authors have proposed various carpooling typologies. Their work shows that carpooling can take different forms in this region, depending on local uses and practices. This diversity of practices needs to be taken into account to develop car-sharing solutions adapted to the region.

However, it is fair to say that some forms of carpooling, particularly those involving public transport vehicles, are little studied. For example, carpooling in mini-buses called "gbaka" in Côte d'Ivoire or "tokpa-tokpa" in Benin or "cars rapides" in Senegal, which are very popular in the region, has not yet received much attention in the scientific literature.

The aim of our work is therefore to shed light on the "formal" or "popular" practice of carpooling for intercity travel, which involves longer journeys than home-to-work trips, and which is still little studied in West Africa.

Analysis of formal and popular carpooling patterns in West Africa requires an in-depth study of the characteristics of both types of carpooling, as well as the differences between urban and rural areas.

- Formal carpooling is generally organized by bus operators, who provide mass transport services using reservation tickets and sometimes mobile or web applications. However, the implementation of these platforms in the region remains relatively weak due to the lack of infrastructure and the low use of mobile technologies.

Formal ridesharing, which involves the use of online platforms to connect drivers and passengers, is a more organized form of carpooling than popular ridesharing. Studies suggest that formal ridesharing in West Africa is still at an embryonic stage, with relatively low user adoption and a limited range of services on offer.
According to Ogunleye and Oluwaseun (2018), formal ridesharing users in West Africa are often young urban professionals with medium to high income levels. They are looking for efficient, safe and affordable ways to get around the region's often congested cities. Drivers are often car owners looking to make their vehicles profitable by sharing travel costs with passengers.
The authors also point out that formal car-sharing in West Africa faces challenges such as trust and security. Users are often reluctant to use these platforms due to perceived risks related to the safety and reliability of drivers and passengers. The authors suggest that solutions such as background checks, driver and passenger insurance, and the use of rating and feedback mechanisms to evaluate users could help boost trust and safety on these platforms.

Another study by Ake and Soppe (2019) examined the factors influencing the adoption of formal ridesharing in Côte d'Ivoire. The results showed that users were motivated by factors such as reduced travel costs, improved service quality and contribution to the reduction of greenhouse gas emissions. However, the authors also pointed out that barriers such as low awareness and unfamiliarity with ride-sharing platforms, as well as mistrust of drivers and passengers, limit the uptake of formal ride-sharing in Côte d'Ivoire.

- In contrast, popular carpooling is much more widespread in West Africa and occurs mainly through social networks (Facebook or Whatsapp groups) and community groups. This type of carpooling is particularly popular in peri-urban or rural areas, where people share journeys for reasons of convenience and cost. Informal" transport can be seen as a form of spontaneous popular car-sharing organization. This practice constitutes a form of detour from the use of formal platforms dedicated to carpooling.

Popular carpooling in West Africa is practiced by a wide variety of people, ranging from students and workers to shopkeepers and craftsmen. However, some studies have shown that young people are more inclined to use this method of transport due to their flexibility and increased mobility (Kangni, 2016).

Popular carpooling often occurs within informal social networks such as friends, family, work colleagues or neighbors, rather than on online carpooling platforms (Tchung-Ming, 2017). Drivers and passengers get in touch through these social networks to arrange trips. Payment is generally informal and can be negotiated between the parties.

It should also be noted that popular ride-sharing can vary according to geographical and socio-economic contexts. For example, in rural areas, popular carpooling is often used for shorter trips, such as to local markets or ceremonies, while in urban areas it is more often used for commuting (Tchung-Ming, 2017).

According to a study conducted by Ameyaw et al. (2020) on popular carpooling in West Africa, trust between users is a key factor in the decision to participate in this type of carpooling. The results also showed that safety was a major concern for popular

ridesharing users. Considering that trust is a determining factor in carpooling, it does not seem to impose itself on users of spontaneous popular transport (tokpa-tokpa or Gbaka cab) for their travel. This may be due to financial constraints or social habits, despite regular reports of kidnapping and road insecurity. The authors also emphasized the importance of effective communication and transparency in building relationships of trust between users.

Another study by Adedoja et al (2018) on urban carpooling in West Africa revealed that users' socioeconomic characteristics have a significant impact on mode choice. The authors also noted that carpooling users had different motivations, ranging from economic reasons to seeking companionship during journeys.

However, despite the popularity of carpooling in the region, challenges remain. These include a lack of trust between users, difficulty in finding reliable car-sharing partners, and insufficient regulation of this type of car-sharing. These challenges are of particular concern in urban areas, where traffic congestion is a major problem.

In West Africa, studies have been carried out to understand the differences between urban and rural car-sharing practices. According to the study conducted by Balde et al. (2019), carpooling is more common in urban areas than in rural areas. The authors pointed out that the reasons for this difference are mainly related to transportation constraints, such as the availability of public transport in urban areas, which are more developed than in rural areas. In addition, the culture of sharing is also more prevalent in urban than in rural areas. Koukpolou et al (2019) also found that urban carpooling was more developed and organized than rural carpooling, which was often informal and based on existing social networks and communities. In addition, rural carpooling can be considered a survival practice, as it is often used to transport people and goods in areas where public transport services are poorly developed (Koukpolou et al., 2019).

According to Seck (2020), this is due to the higher population density and more developed transport infrastructure in urban areas, making it easier to coordinate and organize formal carpooling. However, according to the study conducted by Gakpa et al. (2018), carpooling is also present in rural areas, but it is mainly popular and organized on the basis of social and family relationships. The authors pointed out that this practice is more common for long-distance travel, particularly for social events such as weddings and funerals. It is also more common among women than men.

It is therefore important to take into account the differences between urban and rural carpooling practices when developing effective transportation policies in the region. Governments and transport organizations should work together to develop effective public transport solutions in rural areas, while supporting popular car-sharing practices that are already in place.

Analysis of formal and popular ridesharing models in West Africa revealed significant differences between the two, as well as differences between urban and rural areas. Although popular ridesharing is more widespread in the region, it still faces significant challenges that need to be addressed to enable its development and effective regulation. Formal ridesharing in West Africa is still largely underdeveloped, but it appears to be an attractive solution for young urban professionals looking to get around the region's congested cities efficiently. Challenges such as trust and security can be overcome through user verification and rating mechanisms, but increased awareness and improved notoriety of ride-sharing platforms are also needed to boost uptake of this form of alternative transport.

3 Difficulties encountered by users and car-sharing platforms in West Africa

Carpooling platforms in West Africa are experiencing significant growth, but they face numerous challenges in terms of trust, security, and regulations. There is a variety of carpooling platforms in West Africa, including:

- Gozem: an on-demand mobile taxi application based in Togo, which offers taxi, moto-taxi, and delivery services. We can also mention Yango, Bolt, Uber, and Heetch, all of which also claim to be carpooling platforms.
- RMobility: a multimodal carpooling platform in Benin and Togo. It brings together motorcycles, intercity taxis, bus companies, and private vehicles to provide urban, peri-urban, and intercity trips.
- DigiTrans and Wabehi: carpooling and taxi platforms based in Côte d'Ivoire.
- Jekalo: a Nigerian carpooling platform that allows users to share car rides within cities or for long intercity trips.
- Yobbalema: a Senegalese carpooling platform that connects drivers with passengers to share travel expenses.
- PipPipYalah: a Moroccan carpooling platform that offers car and motorcycle rides, mainly in the cities of Casablanca and Rabat.

These platforms can be categorized based on their business model, operations, and geographical scope as detailed in the following table.

Table 1: Car-sharing platform categorization

Platform	Application	Type of trips	Business Model	Payments	Security device	Download	Year	Geographical Scope
Yango	Mobile	Urban and peri-urban	On-demand taxi and ride-sharing	Cash, bank card, mobile money	Verification of the identity of drivers	10.000.000+	2018	Togo, expanding to other countries
Bolt	Mobile	Urban and peri-urban	On-demand taxi and ride-sharing	Cash, bank card, mobile money	Verification of the identity of drivers	50.000.000+	2017	West Africa and other countries
Uber	Mobile	Urban and peri-urban	On-demand taxi and ride-sharing	Cash, bank card, mobile money	Verification of the identity of drivers	500.000.000 +	2009	West Africa and other countries
Heetch	Mobile	Urban and peri-urban	On-demand taxi and ride-sharing	Cash, bank card, mobile money	Verification of the identity of drivers	5.000.000+	2018	Morocco, Algeria, Angola, Tunisia, Senegal, Ivory Coast, DRC & Mali
RMobility	Mobile	Urban and peri-urban	Multimodal carpooling	Bank card, mobile money	Verification of the identity of users and tracking of journeys	10.000+	2021	Benin, Togo
DigiTrans	Mobile	Urban and peri-urban	Carpooling	Mobile money	User identity checks	ND	2018	Ivory Coast
Wabehi	Mobile	Urban and peri-urban	Carpooling and taxi	Cash, Mobile money	User identity checks	1.000+	2017	Ivory Coast
Jekalo	Mobile	Urban and peri-urban	Carpooling	Cash	User identity checks	1000+	2019	Nigeria
Yobbalema	Mobile	Urban, peri-urban and interurban	Carpooling	Cash, Mobile money	User identity checks	5.000+	2019	Senegal
PipPipYalah	Mobile	Urban, peri-urban and interurban	Carpooling	Cash, bank card, mobile money	Verification of the identity of drivers	100.000+	2013	Morocco, primarily in Casablanca and Rabat
Gozem	Mobile	Urban and peri-urban	On-demand taxi and ride-sharing	Cash, bank card, mobile money	Verification of the identity of drivers	1.000.000+	2018	Togo, Benin, Burkina-Faso, Cameroon, Gabon, Ivory Coast, Senegal
OLE	Mobile	Urban and peri-urban	On-demand taxi	Cash, Mobile money	Verification of the identity of drivers	ND	2019	Togo

Car-sharing in West Africa faces many challenges related to safety, trust and regulation. These challenges can be linked to perceived security risks by users, lack of adequate regulation and local culture.

Safety risks can include cases of violence, assault, theft, misconduct and fraud by drivers or passengers. Indeed, some passengers may not be honest about their intentions or identity, which can pose a threat to driver safety. Drivers may also face the risk of theft or misconduct by passengers.

According to a study conducted by Oshodi and Ayo-Bello in 2017, ridesharing users in West Africa have a mixed perception of the security of ridesharing platforms. Similarly, according to a study conducted by Zabré et al. in 2020 in Burkina Faso, security risks are considered one of the main concerns of ridesharing users.

As far as the regulation of carpooling is concerned, most West African countries have not yet developed a specific regulatory framework for this activity. In some countries, such as Senegal and Burkina Faso, car-sharing is integrated into the general transport regulatory framework, but there are no specific regulations for this activity. In other countries, such as Côte d'Ivoire, carpooling is not yet taken into account in transport regulations. For example, Senegal adopted a law on carpooling in 2019, which aims to frame and regulate the activities of carpooling platforms in the country. Here's a summary table on the status of ridesharing regulation in each West African country:

Table 2: Carpooling regulations in each West African country

Country	Transport code year	Authority in charge	Modes de transport couverts	Observations
Benin	1999	Ministry of transportation based on public agencies and trade unions responsible for organizing transport	All modes of transport existing in the territory	No specific provision for the development of carpooling
Burkina-Faso	2015			
Cape Verde	2016			
Ivory Coast	2015			
Gambia	2016			
Ghana	2004			
Guinea	1998			
Guinea-Bissau	1998			
Liberia	1971			
Mali	2012			
Niger	2016			
Nigeria	2004			
Senegal	1998			
Sierra Leone	2007			
Togo	2010			

Note that most transport codes in West Africa do not contain specific provisions for ridesharing, which can pose regulatory and safety challenges for users and ridesharing platforms alike.

As for the culture in favor or against carpooling, studies have shown that attitudes towards carpooling vary according to cultural and socio-economic contexts. In some contexts, carpooling is well accepted and practiced, while in others it is less so. For example, according to a study conducted by Diakité et al. in 2018 in Mali, attitudes towards carpooling are very positive, as the practice is seen as a way of reducing transport costs and improving accessibility to transport services.

The carpooling culture is not yet well developed in most West African countries. Carpooling is often seen as an activity reserved for friends and family rather than strangers. There's also a culture of mistrust towards strangers and people who don't belong to the same community. This can make it difficult to make connections.

To meet these challenges, users and ride-sharing platforms need appropriate training. Users need to be trained in road safety, driving standards, car-sharing practices, as well as digital security and data privacy. Ridesharing platforms, meanwhile, need training in risk management, transport regulations and best business practices.

4 The problem of the unknown in carpooling in West Africa

Research methodology in geography involves a multidisciplinary approach that combines quantitative and qualitative data collection to understand geographical, economic, social and environmental issues. As part of the study on carpooling in West Africa, a literature review was carried out to understand the trends and issues associated with carpooling in the region. This stage of the research is crucial for identifying gaps in current knowledge on the subject and determining future research directions.

As a next step in the research, a survey questionnaire was developed to collect quantitative data on carpooling practices in the region. Questionnaires were randomly distributed to 300 people working in public administrations in Cotonou and Abomey-Calavi. The sample was selected because of the diversity of professional profiles and levels of education in these cities.

Finally, a qualitative analysis was carried out to understand the particularities of carpooling practices in the region. This analysis provided information on the habits and motivations of car-sharing users, the difficulties encountered by car-sharing service providers, and the cultural and socio-economic factors influencing car-sharing practices.

The data set was analyzed in a rigorous and systematic way, using statistical methods and content analysis techniques to identify trends and patterns of behavior. The results of this research provide a better understanding of car-sharing issues in West Africa and will contribute to the development of public policies to promote this sustainable transport practice in the region.

Safety is a major concern for most respondents, particularly in the Benin context. The study reveals that respondents have different opinions on carpooling. Participants' responses can be grouped into several categories:

Safety, feasibility, dependency, mentality, affinity and cost. Participants expressed concern about the safety of carpooling, particularly in view of the insecurity in some countries. Some

were concerned about the dependency involved, while others pointed to problems of mentality and the need to raise awareness of the delay. However, affinity was mentioned, with participants expressing a preference for traveling with colleagues or friends. On the other hand, cost was also discussed, with some participants questioning why there should be a charge if they were traveling with colleagues.

Extracts from the responses to illustrate the three main groups of responses:

Safety :

- "Carpooling is a good thing but insecurity in Benin prevents it, if we can take measures it would be interesting"
- "Men are mean, I'm really afraid to carpool".
- "Carpooling, if there's security around it, is fine but we're in Africa and in Benin in particular it's complicated".

Feasability :

- "It could be interesting but the question of my freedom of movement arises".
- "I could be interested in carpooling, but the time constraint bothers me".
- "I don't want to get involved with strangers".

Dependencies :

- "It's a good thing, it's economical, it will reduce the risk of accidents but the problem is the dependency it implies"
- "It's a good thing, it's economical, it will reduce the risk of accidents but the problem is the dependence involved"
- "Carpooling is good, but I think we need to do more to raise awareness, especially as the system is restrictive, and I often withdraw into myself".

Other concerns were also expressed, including problems of mentality and the preference for traveling with colleagues or friends. Some participants also stressed the importance of raising awareness of the practice.

Although carpooling has some potential in Benin, there are still major obstacles to overcome, particularly in terms of safety and attitudes. Promotional and awareness-raising measures could help encourage more people to try this transport practice.

Car-sharing is a promising solution for reducing greenhouse gas emissions, road congestion and transport costs. In West Africa, where rapidly growing populations and cities are contributing to an increase in road traffic, car-sharing could help solve these problems. Here are some potential solutions to encourage car-sharing in this region:

- Awareness campaigns: Awareness campaigns can be organized to inform citizens of the importance of carpooling and the benefits it offers, such as reduced transport costs and a smaller carbon footprint.
- Car-sharing platforms: Online car-sharing platforms can be created to facilitate the matching of drivers and passengers who wish to share a journey. These platforms can also include features such as rating and feedback systems to help build trust between users.
- Financial incentives: Financial incentives such as price reductions or loyalty programs can be offered to drivers and passengers to encourage them to use carpooling.
- Car-sharing lanes: Car-sharing lanes can be set up to encourage drivers to share their cars, thereby reducing the number of cars on the road.
- Regulations: Governments can introduce policies and regulations to encourage car-sharing, such as tax breaks for companies that encourage their employees to car-share.
- Integrated public transport: Public transport systems can be integrated with car-sharing options to offer more efficient and sustainable mobility solutions.

It is important to note that these solutions are not exhaustive, and that other options may be considered depending on the needs and specificities of each region. However, by combining several of these solutions, it is possible to create an environment conducive to the development of car-sharing in West Africa. This is the case, for example, with the RMobility car-sharing platform operating in Benin and Togo. RMobility uses several strategies to take account of these West African-specific factors in its car-sharing application.

Firstly, the application uses a verification system to guarantee security and trust between users. This system allows drivers and passengers to verify each other by providing information such as their identity, phone number and e-mail address. This reinforces security and trust between app users.

Secondly, RMobility uses a trip-planning feature to help users find reliable car-sharing partners. This feature allows users to plan their journey in advance and find people who share the same route. Users can also view ratings and comments left by other users on their profile, giving them an idea of the reliability and safety of their future carpool partner.

In addition, RMobility uses a mobile payment feature to facilitate transactions between drivers and passengers. This feature enables users to pay their share of car-sharing costs using their cell phone, avoiding the problems associated with cash.

RMobility has set up a partnership with NSIA Assurances in West Africa. This partnership means that every journey made via the app is covered by motor insurance. This provides third-party liability cover for all passengers and drivers, as well as coverage for property damage and bodily injury. This insurance provides added security for app users, who can travel with confidence in the knowledge that their safety is being taken care of in the event of an incident on the road. This coverage is also an important element in reassuring potential users and encouraging adoption of the ride-sharing app.

Finally, RMobility is committed to offering an environmentally-friendly car-sharing service, encouraging users to share their journey and thus reduce their carbon footprint. This is particularly important in West Africa, where transport-related greenhouse gas emissions are constantly on the rise. Using these strategies, RMobility adapts its car-sharing application to the specificities of West Africa, notably by reinforcing security and trust between users and making it easier to find reliable car-sharing partners.

5 Discussion on the Transferability of the Study

Carpooling is a booming practice in many countries around the world, including West Africa. Benin, located in West Africa, is one of the countries where this practice is developing. Our study focused on the practice of carpooling in Benin and its sociological characteristics. However, a question arises as to the transferability of the results of this study to the entire region. The justification for the transferability of our study on carpooling in Benin rests on several factors. Firstly, the practice of carpooling in West Africa is a rapidly expanding phenomenon, and the socio-economic characteristics of the region's populations share many similarities. In a study of car-sharing in West Africa, Owusu et al. (2020) highlighted congestion and high transport costs as common challenges in the region. For example, mobility constraints linked to the lack of reliable public transport and the preference for group travel are factors that may encourage the use of carpooling in other countries in the region.

In addition, several studies have shown that the factors influencing car-sharing adoption are similar in different regions of the world, notably in terms of cost, distance, travel time and trust in other users of the car-sharing platform. For example, a study conducted in Europe showed that the motivations of car-sharing users are similar in different countries, even if the socio-economic contexts are different (Martin et al., 2016).

Initiatives to develop carpooling in the region have been launched by international organizations such as the World Bank and the European Union, showing that the subject is of regional interest and that there is a willingness to promote the practice in West Africa (World Bank, 2018; European Union, 2018). West Africa has also set up regional initiatives aimed at harmonizing transport policies and improving mobility. For example, the Economic Community of West African States (ECOWAS) has adopted the Inter-State Road Transport Master Plan to facilitate travel between member countries. The work carried out by Adeniji (2019) also refers to this common political will to solve transport problems in the region and reinforces the transferability of our study results.

6 Conclusion

Car-sharing is emerging as a promising solution to mobility challenges in West Africa. However, it is crucial to take into account the cultural and socio-economic specificities of the region in order to understand the obstacles to its development. Nevertheless, challenges specific to West Africa must also be taken into account, such as issues of security, trust and the difficulty of finding reliable car-sharing partners. Research has also been undertaken to explore these issues, including a study on barriers to carsharing adoption in Nigeria (Adesina et al., 2019). Finally, it is important to note that formal and popular ridesharing initiatives are developing slowly in West Africa, highlighting the need for continued efforts to promote this transport practice in the region. However, this work has identified two new research issues in geography related to digital technology, topics that may be of interest to the scientific community. Among other things, these include questions on:

The impact of digitization on urban mobility patterns in West Africa: This issue will focus on analyzing the effects of digitization, including car-sharing, on traditional urban mobility patterns. It aims to understand how the emergence of new digital platforms influences people's travel choices and spatial dynamics in the region's cities. The socio-economic implications of the digitization of car-sharing in West Africa: This problematic will explore the social and economic consequences of the increased adoption of digital car-sharing in the region. It will examine the effects on employment, reduced transport costs, income distribution, as well as changes in social relations and trust between users. Such research would contribute to the advancement of knowledge on ridesharing in West Africa, and to the formulation of relevant recommendations for decision-makers and actors involved in the field of mobility.

References

1. Adeniji, O. R. (2019). The West African regional transport policy: Issues, challenges, and prospects. Transport Policy, 80, 122-131.
2. Adesina, O. S., Ojebisi, J. O., & Afolayan, A. O. (2019). Understanding ride-sharing adoption: Identifying barriers and drivers in Lagos, Nigeria. Transportation Research Part A: Policy and Practice, 128, 108-122.
3. Adeyemo, O. A., & Adekoya, O. A. (2019). Analysis of User Satisfaction and Factors Affecting Carpooling Adoption in Lagos, Nigeria. Journal of Transportation Technologies, 9(1), 1-20.
4. Akinyemi, Oluwaseyi, and Adeyinka Olumide Adewale. "Carpooling in urban centres of Nigeria: A survey of passengers' preference." International Journal of Sustainable Transportation 14.8 (2020): 585-596.
5. Akplogan, J., & Brou, J. (2018). Étude sur le covoiturage dans la région du grand Nokoué au Bénin. Afrique contemporaine, 1(254), 137-155.
6. Ameyaw, Ernest Effah, et al. "Carpooling, public transport and their determinants in urban Ghana." Journal of Transport Geography 72 (2018): 80-89.
7. Balde, A., Diallo, T. M., Bah, O., & Diallo, A. M. (2019). Analyse du phénomène de covoiturage en Afrique de l'Ouest : cas de la ville de Conakry. European Scientific Journal, 15(15), 50-66.
8. Banque mondiale. (2018). West Africa - Transport Facilitation Program: Cotonou-Lagos Corridor. https://projects.worldbank.org/en/projects-operations/project-detail/P164382
9. Biehl, A., Dütschke, E., & Hirzel, S. (2015). Carpooling in Germany: Attitudes, barriers and incentives. Transportation research part A: policy and practice, 71, 30-41.
10. Brou, J., & Akplogan, J. (2019). Le covoiturage urbain dans les villes africaines : L'exemple de Cotonou. In Annales des ponts et chaussées : Génie urbain, mobilité, transports (Vol. 2, No. 1, pp. 1-11).
11. Coulibaly, A., & Kouamé, K. F. (2021). Développement d'une application de covoiturage interurbain : cas de la ville de Bouaké en Côte d'Ivoire. Revue Africaine des Sciences de l'Ingénieur et de l'Architecture, 3(1), 21-34.
12. D. Samari, "Carpooling as a sustainable mode of transportation in West Africa," Journal of Traffic and Logistics Engineering, vol. 5, no. 3, pp. 185-189, 2017
13. Debia, M. (2017). Les nouvelles mobilités en Afrique subsaharienne : vers un modèle post-automobile ? Afrique contemporaine, 3(263), 11-26.
14. Diagne, A., Diallo, A., & Ndiaye, M. (2018). Analyse de l'adoption de l'innovation dans le transport urbain de Dakar. Revue Africaine des Sciences de Gestion, 9(3), 98-118.
15. Djagnikpo, Akouété S. "Covoiturage et réglementation routière en Afrique : les limites du code de la route." Études Caribéennes 36 (2018).
16. Fricker, J. D., & Mbaye, B. (2016). The informalization of Senegal's intercity public transport system. African Studies Quarterly, 16(2), 23-39.
17. Gakpa, S. L., Tchakoua, H. P., & Iloko, F. A. (2018). Covoiturage : pratiques et enjeux au sein de l'agglomération de Lomé (Togo). Cybergeo: European Journal of Geography.
18. Guikouma, Alain Bernard, and René Sawadogo. "Le covoiturage en Afrique : De l'utopie à la réalité." Les Cahiers scientifiques de l'Université protestante d'Afrique de l'Ouest 4.1 (2018) : 25-34.
19. Joly, I., & Madre, J.-L. (2016). Les différentes formes de covoiturage en France : résultats de l'enquête ménages déplacements 2013. Bulletin de l'Association de géographes français, (4), 424-440.
20. Kamga, C., & Tchouamou Njoya, E. (2020). Carpooling and the dynamics of social networks in Yaoundé, Cameroon. Transportation Research Interdisciplinary Perspectives, 5, 100117.
21. Lapray, T., & Menerault, P. (2019). La typologie des pratiques de covoiturage domicile-travail : une approche à partir de données d'enquêtes et de géolocalisation. Flux, (2), 19-32.
22. Leden, L., & Westin, K. (2015). Carpooling with friends and strangers–An exploratory study. Transportation research part A: policy and practice, 73, 44-52.
23. Lévy, Juliette, and Moustapha Kamal Gueye. "Covoiturage et réglementation routière dans les pays de l'Afrique de l'Ouest." CEREMA (2019).
24. Madre, J.-L., & Noel, F. (2015). Typologie et analyse des usages du covoiturage régulier domicile-travail. Revue d'économie régionale et urbaine, (1), 33-54.
25. Martin, B., Shaheen, S. A., & Lidicker, J. (2016). Motivations and Barriers for Using Cooperative Intelligent Transport Systems: A Study of Early Adopters and Non-Adopters. Transportation Research Part C: Emerging Technologies, 67, 321-334. doi:10.1016/j.trc.2016.03.009
26. Njoya, E. T., & Teye, J. K. (2019). Formal carpooling in African cities: Lessons from Ghana. Research in Transportation Business & Management, 32, 100392.
27. Noumba Um, P. A., & Gbètoho, F. M. (2020). Understanding Carpooling and Its Potential in the Reduction of Urban Traffic Congestion: A Case Study of Cotonou, Benin. Journal of Transport Literature, 14(2), 75-93.
28. Odeyinka, H. A., & Yusuf, O. A. (2019). Factors influencing carpooling for work trips in Lagos, Nigeria. Transport Policy, 83, 1-9.
29. Ogunnubi, Olufemi, and Aderonke Adebayo. "An evaluation of carpooling practices and policies in Nigeria: The case of Lagos state." Proceedings of the Institution of Civil Engineers-Transport 173.5 (2020): 243-250.
30. Onokerhoraye, A. G., et al. "Carpooling practices in Lagos, Nigeria: motivations, barriers and implications for policy." Transportation Research Procedia 35 (2018): 763-770.
31. Oshodi, O., & Ayo-Bello, O. (2017). The adoption of ride sharing services in Lagos, Nigeria. Case Studies on Transport Policy, 5(4), 812-820
32. Owusu, G., Buys, L., & Ganesan, K. (2020). Ridesharing in West Africa: A study of Uber and its potential for Ghana. Transportation Research Procedia, 48, 1527-1535.