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Service innovation drive system integration: How ride sharing service engender an economic & social impact in Bangladesh

Mehedi Shahnewaz Jalil[1], Sharmin Sultana[2]
[1] BCS-Information, Ministry of Information, Government of the People's Republic of Bangladesh
[2] Senior Lecturer, Tourism and Hospitality Management, Faculty of Business and Entrepreneurship, Daffodil International University, Dhaka, Bangladesh

Abstract
Technological advancement helps ease day to day activities by establishing means of digital system. One such area that rocked the transportation system of Bangladesh is the inclusion of ride-sharing platform. Only inaugurated in 2016 the system raised severe controversy within a week when authorities coined the system 'illegal'. But a massive acceptance among the general people quickly counteracted existing transportation infrastructure and forced the authorities to come up with new rules for the system. The acceptance of ride sharing is a very good example of service innovation that drove system integration. In this paper economic and the social impact of ride sharing services are discussed. How government made the system legal and what are the laws that bind it are shown by analyzing the guidelines. Besides these, contributions and opinions of the riders, passengers, lawmakers and all other stakeholders are combined together to formulate suggestions that would make the service better are also discussed in this research.

Keywords: ride sharing, transportation, Bangladesh

Introduction
A country's development mainly depends on transportation and communication technology. The more developed transportation and communication technology, the more flourished economy of a country. The neighboring countries of Bangladesh such as Thailand, Malaysia and Singapore have well designed transportation system. According to a study conducted by the UN population division, Dhaka was the 8th most populated city of the world, with a population of 18.2 million (Irani, 2017) [4]. It's not surprising that Dhaka also has one of the most congested traffic conditions as well, with an average traffic speed of only 7kmph—slightly above the average walking speed (Quaium, 2017) [8]. Though this growth brings numerous business opportunities, it causes tremendous strain on the resources of the city, thus driving up prices of essentials, as evidence by the inflation rate of essentials in the city at 8-14% (especially in Dhaka city) compared to the other regions of the country at 5.69% (BBS, 2016). Moreover, the road and communication network within the city is not adequate to accommodate a large influx of traffic due to high population. There are close to 3,042,853 licensed vehicles currently operating in the country, and officials estimate about 40-50% operating in Dhaka city alone excluding rickshaws, bicycles, and other unregistered vehicles. (BRTA, 2017)
Ride-sharing services have commenced their journey on November 30, 2016 with the launching of Uber, a US-based e-hailing company. Although the launch of app-based ride-sharing companies in Bangladesh was not very smooth, in the course of time, these services started receiving an overwhelming response from commuters of all ages. (Kamrul H. 2017) [5]
This study has showed how the innovation of ride-sharing platform completely changes the landscape of modern city traveling and compelled lawmaker's adjustment.

Statement of the Problem
Dhaka is the capital city of Bangladesh. Almost 2 million people lives in Dhaka and many more are coming here from small cities in looking for jobs. Firstly, the crowds and congestion is increasing with the number of population. The number of public transportation was not enough to meet the needs of existing number of passengers throughout the country. So, the innovation of ride sharing services enhanced the number of cars, micro buses and bikes on roads. Anyone can hire these public transports from anywhere through smart phone and internet. Secondly, traffic jams wear on a man's energy, time and mental health. Every person in Dhaka city loses huge working hours just sitting on the roads in traffic jam. There are shortages of roads and it's seen that some roads remains busy all the time and some remain unused or undeveloped. So through proper traffic navigation system the driver can use the less busy roads to avoid the traffic jam and can save time and energy to some extent. Thirdly, ride sharing has created more employment opportunities and entrepreneurs. Riders are benefitted by earning independently and can do overtime. And the passengers are benefitted by getting safer, relaxing and faster transportation services. Finally, transportation syndicate occupies majority of the transportation hub throughout the country and kind of ransom the general passengers. The introduction of ride-sharing platform has created a breathing space and providing an alternative to transport and thus has created a user-friendly transport environment.

Research Questions
a. How ride sharing platform drives system integration?
b. How ride sharing services engender economic impact?
c. How ride sharing services engender social impact?

Objectives of the Study

a. To assess the service innovation of ride sharing platform.
b. To demonstrate the new dimension of cost and income structure of riders and passengers.
c. To portray a new social reality of riders and passengers.

Literature Review

Ride sharing companies have raised more than $25 billion in private capital since 2010. Today, top-5 ride sharing companies – Uber, Didi-Chuxing, Lyft, Ola, and Grab – have a combined market capitalization of roughly $120 billion (based on most recent primary round valuations). We believe ride sharing apps have a large and expanding market opportunity, and benefit from significant secular and demographic tailwinds. Uber has already established itself as a market leader in most geography, and its business model has inherent network effects benefits. Key near-term debates include legal/regulatory framework and intense competition weighing on unit economics. (Uber & Ridesharing, The $650 billion question)

US-based Datavoxel Ltd first brought an-app based motorbike service in Bangladesh in May 2016. Consequently, international giant Uber and local provider Pathao were launched by the end of that year in Dhaka. According to market sources, big names like Uber, Pathao and Bahon altogether log 10,000 rides a day on an average-although, insiders estimate that the actual number could be higher. In addition, it has been reported that Indian ride-hailing service Ola is planning to extend its operations to Dhaka while a number of local entities are also in line to launch similar services. Meanwhile, as the ride sharing service takes shape in the country, the government has also put forward in formulating a guideline to regulate the emerging industry. The guideline, according to relevant sources, is expected to be finalized after getting the necessary green light from all the relevant government entities. Firstly, as a number of recent global researches indicate that, ridesharing services have the potential in helping Dhaka to ease its traffic congestion. In fact, according to a recent study conducted by Boston Consulting Group (BCG) in various major cities across Asia, around 40 to 70 per cent of private vehicles on the road today could be removed if rideshare becomes a viable substitute for private vehicle ownership. BCG research also suggests that 10 to 40 per cent of commuters who plan to purchase a car indicate that they are highly willing to forego purchase if rideshare matches private car ownership. (Bhuiyan., M. 2017)

Hoffmann, Panagiotis, Ipeirotis and Sundarajan (2016) presented the first attempt to pair ridesharing and subway ridership data from New York City to investigate substitution between the two transport modes. Their preliminary findings act as a proof-of-concept for this approach. They support the hypothesis that a decrease in public transportation use can be partially offset by an increase in ridesharing, at least in the short run and in response to subway system shocks. Although the magnitude of this response is high relative to average ridesharing levels, it is a small fraction of subway usage. It remains to be seen how much this substitution grows as mobile-hailed ridesharing becomes increasingly mainstream.

Ullah and Islam (2017) [3] studied on Pathao ride sharing services and showed an overview of logistics and transport scenario in Bangladesh through the lens of the start-up. It depicts the challenges related to starting a new company; identifying, creating and interacting with the market; securing intellectual property rights, and developing a business model in a developing country.

Rayle *et al*. (2014) [10] conducted an intercept survey of ridesharing users and matched this survey with existing data on taxi users and taxi trips from the same time period. The authors found that many ridesharing customers reported less actual use of their cars, although the authors found no relationship between ridesharing and self-reported changes in car ownership. Similarly, a recent report from the American Public Transportation Association (APTA) used survey data to suggest that ridesharing is more likely to replace a trip in a private car than a trip with public transportation (Shared-Use Mobility Center 2016).

Uber continues to be involved in disputes with several governmental bodies, including local governments in the U.S. and Australia. Questions of employment law, consumer protection, unfair commercial practices, tax law, and insurance are common. A recent research on Uber and dehumanised negotiations by Northumbria University reveals, 'It is impossible to foresee all the potential legal and regulatory issues involved when it comes to Uber'. (Shyikh Mahdi, 2016)

Uber has already faced stiff criticism and outright protest in many countries from taxi drivers who claim the ride-sharing app is not a platform connecting rider and driver, but a global taxi company instead. But Uber owns no vehicles or employs drivers; the company argues all drivers have their own cars, self-employed, and work with Uber on a contractual basis.

Rayle *et al*. (2014) [10] found that ridesharing users were less likely to have a car than taxi customers, while the APTA report argued that the use of transport modes like ridesharing is associated with less car ownership and more use of public transportation. The authors differ on their attitudes towards whether ridesharing is a complement or substitute for public transportation; while Rayle *et al*. (2014) [10] note that users saved approximately 10 minutes on average by choosing ridesharing over public transportation alternatives.

Following the literature review it can be seen that there are a number of research on ride sharing across the globe. As the phenomenon is new in Bangladesh there are limited number of researches. However, this research is unique in a sense that it shows a new economic and social reality of using the Ride sharing service. No research studies previously showed from this perspective before. With minding this research gap this study has been conducted.

Research Design

This study is descriptive in nature with some emphasis on exploratory research. Both primary and secondary data are collected from a number of sources. Primary data has been collected by interview method with open ended questionnaire from a number of respondents. The riders are being chosen based on convenience sampling method. Data was collected from around 100 national riders of most popular ride sharing service: Uber and Pathao. Secondary sources derived from many local and international articles, websites related to public transportation and BRTA. The time frame of the study is 12 months. The scope of the study was quite limited and focused on only two platforms. The calculations are mostly non-analytical. The sources of

literature on the national level were limited as the platform only started its journey one and a half years back.

Analysis and Results

A. Ride-Sharing: Service Innovation drives System Integration

The app-based ridesharing services offered by Uber, Pathao, Shohoz, FlitBD, and OBhai particularly in Dhaka and Chattagram metropolitan cities, have gained popularity even without government approval. Under the service, private companies and vehicle owners are being allowed to run private vehicles, like cars, motorbikes, jeeps, microbuses and ambulances commercially. The government published a gazette notification in this regard on February 28 which says the guideline comes into effect from March 8, 2018 in the country. The cabinet on January 15 approved the guideline in the face of crisis of comfortable private transports at affordable charges in the city in particular. (New Age, 2018) Through ride sharing services life becomes so much comfortable now-a-days. This service innovation has opened up a new dimension in technological advancement. Until a year ago, when a person wanted to take a taxi, the only option available was to stand by the side of a road and hail a taxi. The person did not know whether a taxi was on the way or not. Moreover, it was impossible to predict the expected time of pick-up and to know whether a taxi would usually pass by or not.

In addition, for the taxi driver, the system was not effective either. Drivers had to drive around the city looking for potential riders. With the introduction of ridesharing technologies, the experience for both riders and drivers has been significantly changed. Ridesharing mobility extends the supply of on-demand car service or bike service to increase the options available for transportation. It is based on a concept of matching the needs of private car drivers and riders who need a ride through a mobile application. Anyone with a Smartphone and mobile internet can download and use a range of ridesharing apps such as Uber, Pathao etc. The mobile app is used to order an on-demand car ride whenever and wherever the rider wishes. Overall, the key concept of ridesharing mobility is simple but at the same time important: it is convenient for passengers to get an on-demand car ride and it is easier for on-demand car drivers to find a passenger. Moreover, it creates a positive economic benefit for the driver and social benefit for the passenger.

Uber's rise in Bangladesh is apparently unstoppable. As soon as the San Francisco based technology company entered the market in late 2016, the government outlawed its ride-sharing service, citing that the legal framework of the country doesn't permit private vehicles to run on commercial purpose. CNG auto-rickshaws and taxis are commercial entities, and are thus subject to commercial tax. On the other hand, the vehicles enlisted on ride-sharing apps are personal vehicles and thus protected from commercial regulations. (Kamrul., 2017) [5] But the Bangladesh Road and Transport Authority's effort to stop Uber turned out to be a futile pursuit, due to overwhelming market demand and the people's eagerness to be part of technological advancement. In last seven months, the number of cars added to Uber's fleet in Dhaka has gone up remarkably. Now it is believed that Uber has the highest number of cars in Dhaka among other cities in Asia Pacific region. (Shoeb S.M. 2017).

B. Government's Adjustments: Ride-sharing Services Guidelines, 2018

Government on March 8 2018 published a gazette with ride-sharing guidelines. In this guidelines there are following important points that need to be mentioned:

- The ride-sharing company must be enlisted with BRTA; the minimum number of vehicles needed to be enlisted are as follows:
  - Dhaka City – 100 vehicles
  - Chattagram City – 50 vehicles
  - Other Cities – 20 vehicles
- The ridesharing platform must be a public/private limited company and must have Tax Identification Number (TIN)
- All vehicles must be registered and carry the certificates all the time. Motorcycle, Motorcar, Jeep, Microbus and Ambulance.
- Only one individual can be registered to drive his/her own vehicle
- Ride-sharing services must be deemed safe and secured. A SOS system leading back to National Emergency Line – 999 must be installed in every ride-sharing service platforms
- Enlistment Fees is: 1,00,000 taka which must be renewed every year by submitting: 10,000 taka. Certificate Lost Fees-1000 taka and Changing Fees-1000 taka.
- Ride-sharing Rent Fees: Not more than Taxicab fare of 2014; where the rate are as follows:
  - For first 2 Kilometers – 85 taka
  - For every kilometer follows– 34 taka
  - For One/fourth of a kilometer– 8.50 taka
  - For every two minutes of waiting – 8.50 taka
  - Taxicab call fare (Passengers)– 20 taka
- Enlistment forms, registration forms and fees submission guidelines are to be found in the BRTA website: http://www.brta.gov.bd/ride-sharing

C. New Dimension of Cost and Income Structure of Riders and Passengers

Perhaps the most important aspect of ride-sharing services is the new dimension of cost and income structure. It has to be noted that the cost and income structure in this study is based on some pre-identified causation and based on every situation being constant. This research identifies a new dimension of cost that occurs in transportation.

Benefits to Rider

Ridesharing to private cars or motor bikes creates a comfortable and attractive economic opportunity for many riders, therefore supplementing their primary income. Extension of ridesharing to private cars allows private car owners to better use their cars by generating additional income with ridesharing. Based on this research there are three categories of riders identified:

- **Type A:** Serviceholder who earns through ride-sharing as a part-time rider
- **Type B:** Student who earns through ride-sharing besides study to college or university
- **Type C:** Full-time rider, whose only work is to give trips throughout the day

Benefits of these three types of riders are as follows:

- **Type A:** Extra Income after regular service-work.
- **Type B:** Extra Income and gathering costs of education.
- **Type C:** Full Income through ride-sharing services.

Among these types of people; the Type C gives more number of trips than the other types. Student is the most beneficial as he/she can earn his/her education fees by ride-sharing. The most income generating type will however be Type A as his/her additional income contributes significantly to his family.

Cost Structure of these riders is as follows

- Fuel Cost- Petrol: 86 taka, Octane: 89 taka
- Maintenance Cost-500 to 1000 taka per month

Motorcycles and Cars both benefits if the vehicle is used beside regular up-down trips. For instance: Suppose, a rider goes to office daily from Basabo to Dhanmondi and up-down distance is around 30 km. He needs 1 liter patrol per day to drive 30 km. If he maintains 30 day service to Dhanmondi and daily takes only one rider to his location and returns with another;

His cost

30 liters of Petrol every month: 30 x 86 = 2580 Taka
Maintenance every month = 420 Taka
Total=3000 Taka

His income

Traveling to Dhanmondi- 140 Taka
Traveling to Basabo- 140 Taka
Total (Everyday) -280 Taka
Monthly Income (30 x 280) - 8400 Taka
Monthly Revenue = Income – Cost = 8400 – 3000 = 5400 Taka
Yearly Revenue = 64,800 Taka

Of course the amount is hypothetical based on crude observation; the amount can be shifted, but it is close to the estimation. Now, if this rider takes more than one trip, then his income increases. Likewise if he gets penalized with traffic then cost increases. But at the end of the year this income is considered as extra.

Time Structure of the Rider

In Uber and Pathao a rider can use his time efficiently. Suppose on his weekends he has no works so he can give trips and earn extra. So the free time can be utilized by the riders.

Most ride-sharing platforms, including Uber and Pathao, have set the fare at Tk18 per kilometre for sharing a private car while the base fare is Tk40 for the first two kilometres. The charge for the premium service is Tk22 per kilometre with a base fare of Tk80. (Source: BRTA) Then on peak time the fare is calculated not only on distance but also on time. So, if he stuck in traffic jam or signals the time costs is recovered with the extra fare.

Psychological Structure of the Rider

Ride sharing services raised a new employment opportunity. The riders get the freedom to accept passengers request in Uber or Pathao app through Smartphone. They can cancel the ride if they want. So, the freedom of choice gives a pleasure to them every time.

Benefits to Passengers

Time Structure of the Passenger

Extension of ridesharing to private cars further increase overall supply of on-demand car service, therefore increasing availability of cars to riders. People may take rides in Uber or Pathao not only on week days to go office on time but also on weekend to go for day trips or just visiting friends or relatives. In fact on late night some vehicles are available to give trips at nearest location.

Psychological Structure of the Passenger

Extension of ridesharing to private cars increase the quality of vehicles due to more modern cars in line with safety regulations as well as the initial screening of vehicles. If someone wants to go for an interview or meeting he needed to take public transports and the options were rickshaws, taxi or bus. He needed to wait at roads under the sun or sometimes in rain for long time in signal or traffic jam. After reaching the office, his appearance may make him less confident or looks awkward. So, taking Uber or Pathao gives much more comfort and reliability than the other modes of public transports.

Energy Structure of the Passenger

Dhaka is a congested city with huge population. People lost huge time on roads just in traffic jam besides energy also. So, if he can minimize his travel time from home to workplace for at least 30 minutes per day he can save 1 hour everyday as well as save his energy every day, he will be less exhausted and can use this energy in office or home. His mental condition will remain better than before.

Salient Features of Ride sharing

Safety

- Ridesharing companies screen vehicles before enabling them with ridesharing technology
- Ridesharing technology records data on drivers and passengers, tracks rides with GPS, and incorporates feedback mechanism between driver and passenger
- Higher safety of passengers and drivers

Reliability

- Ridesharing technology directs driver to locations where the demand is and optimizes driving directions based on traffic congestion
- Improvement of demand responsiveness
- Improvement of vehicle utilization

Efficiency

- Ridesharing technology incentivizes drivers to get on road when there is sufficient demand
- Reduction of number of vehicles in circulation during non-peak hours
- Improvement of availability of on-demand car rides, in particular during peak hours

New Social Reality of Riders and Passengers

Rider reality

- New source of income and new engagement of career path of the riders
- Trip-giving interest means more time on the road the before. During the holidays as well some rider chooses to be on the road rather than spending quality family time

- Rider forms a bonding with passengers which in terms creates a new rider-passenger relationship. Some riders take only one passenger every day for convenience; from home to office and from office to home
- Rider with a mindset that he/she needs to give rides before office time starts, tend to wake up early and give one or two trips
- Students who are riders give trips before and after classes and can be involved in income-generation activity from their student life

Passenger Reality

- Because of the ride-sharing services, people can attend functions and return home late
- People can choose from a variety of transportation options because of ride-sharing services. Inclusion of microbus services is one of the newest additions. The renting system of Uber also allows a feature to keep the vehicle as long as required
- People tend to share transportation services with Uber and Pathao. Usually 4 people join together to ride car. This sharing system has created a new way of traveling to home and offices
- A passenger can travel to distances faster than before with ride-sharing services
- There are discounts & other promotional offers which motivate passengers to use service.

Recommendations

Keeping the ride-sharing services in mind; this study also looks upon other neighboring countries around Bangladesh to find out any suggestions regarding the service. There are four major findings that this study proposes:

1. Use of Messenger Services in the App

This function is available in Indonesia, Malaysia and Thailand. The ride-sharing service provider Grab uses this feature for connecting passenger and rider. Through this feature, a rider or passenger can send message to each other and can give a call as well. This unique feature allows passengers to contact their rider easily. Besides, sometimes it's difficult to call someone or receive because a rider is on the move. Messenger service doesn't require a rider to call and they can easily communicate. In Bangladesh most of the ride-sharing services use phone call and sms services to contact each other. With the inclusion of messenger services it will be far better to communicate in here as well.

2. Barring Ride-Sharing Services in Certain Places

It is true that ride-sharing services are ruining the traditional business of Taxi and other transportation services. In a country where government has to look after each and every aspect of the society, it would be wise to look after the taxi services as well. The solution can be limiting the use of ride-sharing services in certain areas and use local taxi and bus services to promote their businesses. The suggestions are: Airport area, Train stations, Bus terminals, Launch terminals and other transportation hubs. Thailand follows this function in their country. In Thailand the use of ride-sharing services after arriving at in the airport is an offense and can lead to a fine of 2000 Baht.

3. Use of Reward Points when using Ride-Sharing Service

The ride-sharing service in Bangladesh has two additional options as with Pathao: Parcels and Food. But in Thailand, Malaysia and Indonesia: Grab ride-sharing services provide riders and passengers with reward points. The reward points can be redeemed at restaurants, transportation and other services. This motivates the users to use more of the service. In those countries, there is a lot of alternative means of transportation. Yet, the companies give out this feature. The use of reward points in Bangladesh can also be put forward. Government can ask the ride-sharing service providers to install this feature in their apps. The feature must work on both parties: riders as well as passengers.

4. Inclusion of other Services in the Apps

The introduction of news services is a latest feature in the ride-sharing apps of Thailand, Malaysia and Indonesia. The service gives news and main stories of the world. Some services provide weather updates in the apps. Some make a profile of the passenger and rider and provides the functions based on the choices. In Bangladesh ride-sharing services are evolving. More services from a single ride-sharing app are not necessary at this stage but it worth mentioning that these services can be added in the future.

Conclusion

The ride sharing services have revolutionized the context of the transportation in Bangladesh and successfully created an impact which is difficult to change. Technological breakthrough and innovation can change the system. It is an example for the businesses and people that if the mindset is to lessen the troubles of people; the innovation can change the existing system and bring out a new one. The ride-sharing service is still an infant industry in Bangladesh but has a huge potential for the future. For it to prosper every side of the society must come forward and work together.

References

1. Bangladesh Bureau of Statistics. Price and Wages (CPI, QIIP), 2016.
2. Bangladesh Road Transport Authority, Registered Motor Vehicle Statistics, 2017.
3. GM Wali Ullah, Ashraful Islam. A Case Study on Pathao: Technology Based Solution to Dhaka's Traffic Congestion Problem. Case Studies in Business and Management, ISSN 2333-3324, 2017:4:2.
4. Irani B. Population growth kept at bay despite flagging initiatives. Dhaka Tribune, 2017.
5. Kamrul H, Dhaka Tribune, 2017. Retrieved from https://www.dhakatribune.com/bangladesh/dhaka/2017/12/09/ride-sharing-revolutionize-dhaka/
6. Mahdi S. Uber vs the traditional world. November 26, 2016. 12:00 AM, Retrieved from https://www.thedailystar.net/law-our-rights/uber-vs-the-traditional-world-1320811
7. Mehdi MB, 2017. Real-time ridesharing: A saviour of our urban transport? https://today.thefinancialexpress.com.bd/print/real-time-ridesharing-a-saviour-of-our-urban-transport-1511940642
8. Quaium R, (2017). Wheels in motion. *Dhaka Tribune*.
9. Research report - Uber & Ridesharing. The $650 billion question
10. Rayle L, Shaheen S, Chan N, Dai D, Cervero R. App-

Based, On-Demand Ride Services: Comparing Taxi and Ridesharing Trips and User Characteristics in San Francisco, Working Paper No. UCTC-FR-2014-08, 2014. University of California Transportation Center; available at: http://www.uctc.net/research/papers/UCTC-FR-2014-08.pdf
11. Ridesharing service guideline comes into effect tomorrow. Mar 07, 2018 http://www.newagebd.net/article/36191/ridesharing-service-guideline-comes-into-effect-tomorrow
12. Shoeb SM. Formulate Policy for Ride Sharing Service; 2 December, 2017 12:00 AM http://www.daily-sun.com/printversion/details/272505/Formulate-Policy-for-Ride-Sharing-Service
13. Shared-Use Mobility Center, 2016. Shared Mobility and the Transformation of Public Transit, Research Analysis No. TCRP J-11/TASK 21, American Public Transportation Association; available at: http://www.apta.com/resources/reportsandpublications/Documents/APTA-Shared-Mobility.pdf