Evolution of ride-hailing platforms regulations in India: a multi-level perspective

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Abstract

Purpose – Digital platforms (DP) are transforming service delivery and affecting associated actors. The position of DPs is impacted by the regulations. However, emerging economies often lack the regulatory environment to support DPs. This paper aims to explore the regulatory developments for DPs using the multi-level perspective (MLP).

Design/methodology/approach – The paper explores regulatory developments of ride-hailing platforms (RHPs) in India and their impacts. This study uses qualitative interview data from platform representatives, bureaucrats, drivers, experts and policy documents.

Findings – Regulatory developments in the ride-hailing space cannot be explained as a linear progression. The static institutional assumptions, especially without considering the multi-actors and multi-levels in policy formulation, do not serve associated actors adequately in different times and spaces. The RHPs regulations must consider the perspective of new RHPs and the support available to them. Non-consideration of short- and long-term perspectives of RHPs may have unequal outcomes for established and new RHPs.

Research limitations/implications – This research has implications for the digital economy regulatory ecosystem, DPs and implications for policymakers. Though the data from legal documents and qualitative interviews is adequate, transactional data from the RHPs and interviews with judiciary actors would have been insightful.

Practical implications – The study provides insights into critical aspects of regulatory evolution, governance and regulatory impact on the DPs’ ecosystem. The right balance of regulations according to the business models of DPs allows DPs to have space for growth and development of the platform ecosystem.

Social implications – This research shows the interactions in the digital space and how regulations can impact various actors. A balanced policy can guide the paths of DPs to have equal opportunities.

Originality/value – DP regulations have a complex structure. The paper studies regulatory developments of DPs and the impacts of governance and controls on associated players and platform ecosystems.

Keywords Digital platforms, Regulations, Ride-hailing platforms, Multi-level perspective

1. Introduction

Digital platforms (DPs) are vital intermediaries that deliver multiple services and impact society with various outcomes (Gawer, 2015; Constantinides et al., 2018; Heeks et al., 2021). The emergence of DPs in the Global South is linked with economic growth and development with various opportunities for the associated actors (UNCTAD, 2019). It is observed across the sectors that the DPs are transforming traditional businesses (Ansong and Boateng, 2019). Such interactions between DPs and society have led to regulatory, technological and market changes (Ndemo and Weiss, 2017; Constantinides et al., 2018; Guo et al., 2019). The regulatory environment is critical for the DPs’ business operations, which impacts the survival and growth of the DPs (Zou, 2017; Heeks et al., 2021).

Transportation businesses consider DPs an efficient way to deliver mobility services, popularly known as ride-hailing platforms (RHPs). RHPs share the market space with established and new RHPs, incumbent taxi players and other transportation players. The appropriate
regulatory provisions can set the right balance between the RHPs, incumbent players, riders and new players. The regulatory changes also need to address the outcome of routine changes and inequalities in the transport domain (Gomez-Morantes et al., 2021). However, the taxi regulatory arrangements vary based on the time and taxi types. During the initial phase, RHPs have limited or no legal liabilities (Edelman and Geradin, 2015), which results in differential transaction costs and impacts on RHPs (Bibil, 2019; Etro, 2022), on actors and context (Eferin et al., 2019; Yadav and Banerjee, 2022; Ndemo and Weiss, 2017; Jiang and Zhang, 2019; Sun et al., 2019).

The regulatory dilemmas seem significant in the context of the global south (Sun et al., 2019; Yuana et al., 2019). Global South countries have adopted approaches to regulate RHPs. Developing countries witnessed regulation changes with the emergence of platforms, and these regulations are still in the initial phase and sometimes insufficient (Sun et al., 2019; Yuana et al., 2019). The evolution and interconnectedness of RHP regulations within a context are crucial for understanding the regulatory impacts on the associated actors. An understanding of the same is much needed. This research studies the sociotechnical (ST) interactions and regulations in the ride-hailing space. It has the following research questions:

**RQ1.** What are the regulatory developments, and how do regulations evolve as a transition to the sociotechnical regime?

**RQ2.** What are the impacts of regulatory changes on the RHPs ecosystem?

We studied the RHPs regulatory developments using the multi-level perspective (MLP) (Geels, 2002). This research contributes to the DP regulations and the DP transition to the ST policy regime of the MLP.

This paper is organized as follows. Section 1 introduces the research briefly. In Section 2, we explore RHP regulations in emerging nations. Section 3 discusses the methodology. Section 4 examines India’s RHP regulatory developments and ST shifts. Section 5 discusses the findings, implications and limitations; Section 6 concludes the paper.

### 2. Literature review

The RHPs innovated in mobility service delivery, where they are developing their ecosystem within multiple contexts across the world. The regulatory environment is critical for RHPs to grow and get support from the existing sectors such as manufacturing, market, technology, users and culture. Initially, in many places, RHPs are facing regulatory challenges. For instance, though Uber operates in many countries, it has been considered illegal and banned in many locations (Edelman and Geradin, 2015; Watanabe et al., 2017). RHPs have influenced the traditional taxi service providers by changing the stable structure of the traditional taxi system and supposedly have created adverse outcomes for the incumbents (Meagher, 2018; Zhong et al., 2022). Studies also have evident cases where DPs established an equilibrium with higher outcomes for national players than global (Eferin et al., 2019). RHPs have defined rules to manage and control drivers through reward and punishment (Wu et al., 2019), but national governments are scrambling to regulate RHPs (Zou, 2017; Sun et al., 2019).

RHP regulatory developments are influenced by the incumbents, RHP business and users’ perspectives. It is argued that RHPs should not be treated differently from the incumbent players as the functional place is similar for both and differential regulatory space has different impacts (Li et al., 2019; Zhong et al., 2022; Ciulli and Saka-Helmhout, 2023). However, there is a fear that the restrictive regulations may affect the RHP’s revenue models. Therefore, new internet-based regulations are proposed (Jiang and Zhang, 2019).

RHPs provide various efficiencies to the existing service delivery ecosystem, (Zou, 2017; Giddy, 2021; Heeks et al., 2021) whereas critics raise concerns about their legitimacy. The question of the legitimacy of RHPs is not straightforward. As the understanding of the RHPs’
businesses evolved, RHPs operated in an undefined regulatory environment. It is said that the gap in the regulations has put RHP in an advantageous position over the incumbent players (Edelman and Geradin, 2015; Zhong et al., 2022). Regulatory decisions on DPs need to consider consumer protection and market dynamism. Regulators need to be aware of the mechanisms through which innovative services are developed and delivered. Economic regulations have deficiencies in capturing the start-ups’ perspective and their ability to innovate. RHPs are undergoing regulatory changes across the developed and developing countries. The existence of voids in regulatory spaces results in different outcomes for different taxi players (Li et al., 2019; Zhong et al., 2022; Ciulli and Saka-Helmhout, 2023; Jiang and Yang, 2023; Soltanzadeh et al., 2023).

In the Indian context, traditional taxi services were not mainstream transport. Now, RHP taxi-led services are available in more than 200 cities in India with more than two million service providers/drivers. Traditional taxis exist along with other transportation modes, such as public and private transportation services (NTDPC, 2014). The emergence of the RHPs developed a platform taxi system supported by the digital infrastructure, which operates along with the traditional taxi regime (Ilavarasan et al., 2018; Zhong et al., 2022; Soltanzadeh et al., 2023).

The emergence of RHPs has led to changes in India’s taxi services and transportation sector. The Government of India (GoI) has developed a cab aggregator guideline for RHP regulations (GoI-MORTH, 2016). Despite the regulatory attempts, RHPs consider these regulations impeding their business model. Given this ongoing tussle, systematically studying the regulatory developments related to the RHPs is crucial. This paper attempts to contribute to exploring the multiple interactions in the evolution of RHP regulations in India.

2.1 Theoretical approach: a multi-level perspective

We adopted the MLP to guide our analysis. MLP explores social and technological interactions to understand the transitions at various levels (Geels, 2002). MLP has three levels explained in the following sections.

2.1.1 Landscape developments. Landscape developments show the following macro developments: demographics, significant policy changes, political and economic changes, environmental changes and cultural changes (Geels, 2002).

2.1.2 Sociotechnical regime level. The ST regime is the middle level of MLP, which consists of multiple supporting regimes to perform societal functions. ST regime of RHP taxis has specific technologies, culture, markets, infrastructure, user practices and policy elements. The regime’s transition to a new configuration is termed ST transition (STT). STT occurs when the associated regime also changes to support the transition path of the new regime configuration. The stability and instability of the regime are described as lock-ins and cracks, respectively. Lock-ins are those forces that stabilize the regime, and cracks are those forces that pressure the regime to change and provide opportunities for innovation to bring changes in the existing ST regime (Geels, 2002, 2005; Geels and Schot, 2007).

2.1.3 Niche. Niche is the protected space of learning and supporting radical innovations and novelities. It started in universities, incubation centres and research centres. Niche dynamics guide innovations; it experiments with technology and operates on a small scale. Innovation outcomes depend on landscape pressure, regime position, innovation timing and supporting infrastructures (Geels, 2002).

The dynamic interplay between the three MLP levels analyses a system’s interactions. A new system requires multiple supporting regimes such as policy, technology, infrastructure and finance. The interactions between the regimes decide a system’s direction to stabilize itself to become part of the ST regime. The transitional pathways of the ST regime are substitution, transformation, reconfiguration, re-alignment and de-alignment (Geels and Schot, 2007).
There are multiple regulatory developments in ride-hailing space, which influence the RHPs at MLP levels. In this study, we focus on the regulations associated with the ST regimes; however, it would be difficult to separate them from other MLP levels in absolute terms.

3. Research methodology

The present research is a qualitative study of DP regulations in India. The research aim was studied using the case-based approach (Yin, 2017) and taking the case of RHPs for data collection and analysis. The field of the study is the National Capital Region (NCR) of India. NCR India consists of regions from Delhi, Haryana (Gurugram) and Uttar Pradesh (Noida). Figure 1 presents an overview of methods discussed in detail in the subsequent sub-sections.

3.1 Data collection and analysis

We used primary and secondary data sources to understand the developments in the regulatory space for RHPs. The associated actors, interactions and context influence the RHP’s operations. To explore the research aims, we collected diverse primary and secondary data. The primary data was collected by semi-structured qualitative interviews with the following respondents: four RHP representatives (two founders, one co-founder and one product manager) and three government representatives (dealing with RHPs policy transportation research with at least 20 years of experience). For expert opinions (having more than fifteen years of experience), we interviewed two civil society members working in the taxi space and two senior academicians. We interviewed three taxi union representatives to understand their perspectives. We conducted twenty interviews with drivers to understand the users’ perspectives (service providers/drivers). Drivers were contacted through the RHPs app and used only those interviews where drivers have at least having one year of work experience. In most cases, drivers worked with one or more RHP platforms, most migrating to Delhi for RHP work. Most of these interviews lasted 25 min to 2 h, and data were collected from December 2017 to May 2023.

The secondary data sources were consulted from the following sources: regulatory documents, policies, court cases, news reports and online interviews of platform representatives. A list of secondary sources mentioned in Appendix 2, which includes the following documents related to regulations and guidelines, include the Motor Vehicle Act (MVA) 1988, Radio taxi schemes of 2006 and 2010, the Delhi Government taxi policy of 2015, Central Government aggregators guidelines of 2016 and 2020, 2023; social protection regulations of 2020 and government policy documents and court cases (for a detailed list of secondary sources, please refer to Appendix 2). We adopted the document analysis (Bowen, 2009) approach for secondary data sources. Document analysis helps to understand the interactions between multiple actors and the contextual background of
regulatory actions. The observations from multiple sources were organized into themes using thematic analysis.

3.2 Thematic analysis

We performed the thematic analysis (Braun and Clarke, 2006) on the data, and MLP guided the analysis. In thematic analysis, we read and re-read all the data and performed open coding followed by axial coding. Then, we identified the initial themes, and later, we merged themes and sub-themes to have specific themes to remove duplicity. In the final step, we identified eight significant themes for the ST regime; these themes were later merged into five. Three researchers performed the thematic analysis to ensure the coding process’s reliability and final themes were reached based on consensus on emerging themes by validating themes after discussion. We used WEFT and NVivo (version-11, 12 Pro) for qualitative data analysis tools for thematic analysis (please refer to Appendix 3, for further details).

4. Findings

This section analyses the landscape developments, ST regimes and niches. Results show how actors and context facilitate transactions and how regulatory space evolved to accommodate the RHPs (for the pre-RHPs regime, please refer to Appendix 1).

4.1 Regulations: user protection, governance, operations, innovations and barriers

DP-enabled services drive the growth and development of the DP ecosystem and economy (Bonina et al., 2021). RHPs, associated actors and incumbents interact in ways that affect actors and context. This section analyses regulatory changes using MLP. The three levels of MLP: landscape developments, niche innovations and ST regimes are analysed, primarily focusing on the ST regime. The focus on the ST regime is derived from the following: firstly, the RHPs become part of the ST regime and enable mobility functions. Secondly, the landscape and niche development impact the establishment and movement of the RHPs to the ST regime. The interactions between the three levels develop the thread of regulation that holds the RHPs in the ST regime, and its impacts are evident in the ST regime.

4.1.1 Landscape developments. The regulatory changes for RHPs are interlinked with the macro socioeconomic factors. The increasing demand for urbanization, transportation, economic investments and technological push in the past two decades has led to the restructuring of India’s socioeconomic structure. Urban transportation has challenges such as congestion, privatization of cars, quality of services, public transport status, economic aspects and rapid urbanization, which are pressuring for a new system (Govt-NCT, 2021). The availability of private support and investment has pushed the existing infrastructure and supported innovation in the taxi space. In the past, despite attempting to expand the taxis, taxi operations had limited functional and regional presence and limited numbers of taxis and users. The above factors resulted in RHPs’ market development, where RHPs focused on value creation, ecosystem development and businesses during the initial stage. RHPs orient towards value creation to address the concerns associated with landscape developments. The emergence of the RHPs is facilitated by market timing, available digital infrastructure, regulatory freedom and government support for start-ups. The factors associated with the RHPs’ business and ecosystem developments influence their position. A platform representative mentioned that “there is a need to understand the business model of the RHPs. RHPs have huge potential to create value for the society”.

RHP intersects technology, growth, services, investment, smart infrastructure (smart mobility) and livelihood. The Motors Vehicle Act 1988 did not consider RHP business models while regulating regular taxis. Thus, new regulations need to include economic, legal and constitutional concerns to improve the taxi system. Courts have often noted that
RHPs provide efficient services for riders and a livelihood for drivers, a win-win situation. These considerations affect the new RHP regulatory rules. A platform representative correctly mentioned that “there is a need to consider the transportation from a holistic perspective rather than from only limited perspectives”.

4.1.2 Niche innovations: protected phase with limited regulatory obligations. The interactions at the niche innovations level for regulatory developments are limited in changing regulations as this space is protected from outside structural pressures. Despite that, the following factors determine the regulatory interactions with RHPs. The first niche phase has limited or no regulation, evidenced by RHPs functioning without transport regulations applicable to them; for instance, Ola has been operating since 2010–2011, and Uber since 2013. Platform representative cited that “Uber has operated without regulation for these many years in India. From that point of view, I would rather say that the Indian government is more lenient regarding regulations than other countries”.

The second phase saw the encouragement of RHPs. GoI’s Ministry of Electronics and Information Technology representative said the government encouraged the overall ecosystem and enabled international investments. Japanese investors have made significant investments; for instance, Japan’s Softbank has invested in Ola and Uber. The pace of regulatory developments is influenced by the encouragement of foreign investment and the push for entrepreneurial initiatives. The taxi regulations in NCR have taken a slow path to regulate RHPs. Initially, there were attempts to regulate RHPs with old taxi regulations, which governments used to regulate Radio taxis by Taxi schemes in 2006 and 2010. However, these regulations have little scope to regulate the RHPs’ business model. Limited regulations had two outcomes: firstly, they allowed the RHPs to develop their products and services. Secondly, RHPs engaged with other actors to build the RHPs’ ecosystem. Initially, RHPs focused on self-regulating their service quality through various means, such as mobilization of investment and incentives. Service providers/drivers were recruited through background checks, training provided to drivers and experimentation to expand to multiple regions (VCC-TV, 2012).

4.1.3 Sociotechnical regime: evolutionary phases of regulatory reforms.

4.1.3.1 Restructuring of regulations for RHPs. RHPs become a part of the transportation ecosystem and enter the ST regime with multiple regulations at State and federal transport rules. However, the legality of RHPs has been initially questioned due to the lack of regulations. With this background, adverse incidents associated with RHPs attracted reactive actions from governments and society for women’s safety (Burke, 2014). For instance, Uber was criticized for not verifying the drivers’ records after a women molestation incident by a RHP driver, after which the government banned the RHPs’ taxis. The Delhi transport department and police department impounded a few vehicles. The government had also rejected the Uber license application (Anand, 2016). Despite the ban, taxis continued to run in the city. However, the ban was lifted in April 2015. Platform representative cited that “[…] regulations of ride-hailing are not a challenge only for the Indian government but a challenge for most of the governments. For instance, Uber came to the US and had to fight the legal battle to operate.”

There were court cases and concerns regarding RHPs in India. RHPs were sued for security, surge pricing, lack of regulations and unethical commercial practices. A taxi union representative said, “We filed court cases against Ola and Uber for violating the All-India Permit rule under the Motors Vehicle Act 1988.”

The Indian court directed the Indian government to develop RHP regulations. In the National Capital Territory (NCT), the government drafted the City Taxi Scheme 2015 to regulate RHPs. Despite regulatory changes, RHPs did not follow the City Taxi Scheme 2015 because it did not fit their business strategies. Initially, RHPs registered under the Information Technology Act so they do not have to follow transport department policies while their
vendors/service providers need to follow them. This was criticized by the incumbents and taxi unions, who had filed lawsuits against the RHPs.

In February 2017, the NCT Government contemplated banning the seat-sharing products of Ola and Uber. Seat-sharing services allow passengers to share taxis with other passengers traveling on the same route but having different destinations. The ride cost is 50% lower than the taxi booked by a person. Apart from safety concerns, especially for female passengers, the government argued that the app taxis violate the “contract carriage permit” of the Motor Vehicles Act, 1988, which specifies that the delivery of specific ride types depends on the taxi’s license. The state carriage permit allows the same, followed by buses. One of the RHP representatives lamented about the absence of any policy. “[…] no support from the government, and I would say negative support from the government as they are not implementing their schemes. Despite guidelines, the state government is struggling to develop a policy.”

With the above background, there were policy changes and regulatory developments at the state and national levels. NCT Government was exploring new regulations and planned another policy in 2017. However, the state government has delayed the formulation of such a policy. The government representative mentioned that (in August 2018) “we are working for a new policy, and soon the new policy shall come.” On 24 May 2023, the NCT Government drafted a policy for the aggregators of taxis, deliveries, bike taxis and the adoption of electric vehicles (Dept of Transportation Govt of NCT of Delhi, 2023).

At the central level, the Ministry of Road Transport & Highways, GoI, constituted a six-member committee to develop taxi policy guidelines for cab aggregators (RHPs). The guidelines promote aggregators and see RHPs as partners in addressing mobility issues such as congestion, pollution, car privatization and economic growth. These guidelines helped the RHPs defend their court case by following central government guidelines rather than state government guidelines. RHP policy space faced the challenges of non-binding policy provisions, operational challenges and delays. In the past, India had no overall binding regulatory framework and predefined established regulatory trajectory for RHPs.

4.1.3.2 Co-existence and protection: co-evolution, collaboration and impact. The co-evolution of RHPs and traditional taxis is supported by the regulatory directions that led to an environment for both to operate. With the evolution of the taxi structures in NCR, the government made changes to taxi regulations and governance, evidenced by the changes in the taxi regulatory landscape. One of the taxi union representatives mentioned that in the early 1970s, they converted a village land into a taxi stand near the NCR airport with limited support from the government, and taxi laws were gradually formed. Till 2020, most taxis were regulated by the Motors Vehicle Act 1988. With changes in the types of taxis, the following regulations were framed to regulate taxis: Radio Taxi Policy 2006 and 2010, City Taxi Scheme 2015, Taxi Aggregators Guidelines (Gol-MORTH, 2016), Motor Vehicle Aggregators Guidelines (Gol-MORTH, 2020) and Delhi Motor Vehicle Aggregators and Delivery Service Provider Scheme (Dept of Transportation Govt of NCT of Delhi, 2023).

At the national level, efforts are being made to facilitate the RHPs’ taxis. The commercial license requirement was relaxed in 2018, where an individual with a non-commercial light motor vehicle license can drive for RHP. The Madras High Court dismissed a public interest litigation on the adverse effects of RHP operations on autorickshaw drivers’ living. The high court mentioned that competition benefits the passengers, and incumbent players need to change their business strategies. Despite protests and court cases, RHPs are welcomed by the governments and mobility players.

Government support helped the RHPs to deliver values to associated actors and contexts. RHPs increase the resource flow to taxi services. RHPs are improving the taxis’ quality, supporting the adoption of electric vehicles and forming partnerships with automobile players.
The Indian Government changed the regulations to accommodate RHPs and addressed the legal gap. These regulatory changes gradually made court cases against RHPs ineffective on the following grounds: damage to the market under monopoly, predatory pricing, losses to incumbent players, environmental damages and operating against laws, etc. Most of these court cases were associated with deviance from past regulations. In the taxi guidelines 2016, the central government set 20% as the commission rate and a maximum of three times surcharge during the day and up to four times from midnight up to 5 a.m. for the RHPs. The court cases were filed against RHPs for violating the MVA 1988. To accommodate RHPs, changes have been made to the MVA 1988, and the Indian Government amended the MVA 1988 and brought a new MVA 2019. Under section 36 of the MVA 2019, the government enacted motor vehicle aggregators 2020 guidelines, applicable from 27 November 2020. The central government shared motor vehicle aggregators guidelines 2020 with Indian states to regulate RHPs. As per the guideline, RHPs must take a state government license to operate. In 2023, the Delhi Government developed a policy guideline to regulate RHPs in NCT Delhi.

The new regulations gave legitimacy to the RHPs’ operations. The regulatory guidelines are accommodative and indicate a supportive environment for the RHPs. However, the differential regulatory environments led to uncertainty related to business growth, daily operations, the development of new taxi products and increased expenses. These concerns affected the position of the established RHPs and new players. The Motor Vehicle Aggregator Guidelines 2020 have detailed provisions for most of the operational aspects of RHPs business (GoI MoRTH, 2020). However, RHPs considered these new regulations are not aligned with their businesses in absolute terms.

4.1.3.3 Algorithmic regulations: internal and external governance. The narratives emphasized security concerns surrounding RHP operations, prompting strong reactions from the government, taxi unions, established industry players and users, particularly regarding the safety of women, drivers and passengers. The RHPs introduced advanced technologies to manage their operations for internal governance to address security concerns. These measures include facial recognition, an in-app security alert system, real-time online vehicle tracking and integrated emergency alert systems for enhanced safety.

A platform representative reiterated this: “Riders and drivers’ security is a key concern for us. We ensure documentation, background checks, and technology to secure our platforms.” Ola introduced a safety button (or panic button) (SOS – to deal with emergencies) in their app and a similar control (SOS button) in the taxi. By pressing the SOS button, a passenger can pass information to the nearest police station. The government made it compulsory to install the SOS (panic) button and vehicle live tracking systems in taxis registered after 2019. However, it is still absent in many RHP taxis (please refer to the images taken during fieldwork in Appendix 1). Drivers pointed out the additional costs to be borne by the driver. To quote a driver, “SoS button costs drivers more than INR 50000 and has annual maintenance of INR 12000. SOS button is of no use that does not ensure full safety, but it is a cost for the driver.”

External governance, where RHPs follow the government provisions of the MVA and guidelines for taxi aggregators. The external governance focuses on security, quality of the asset, labour rights and recognizing the business models of the RHPs. RHPs developed a system to maintain the data on drivers’ working hours that helped to implement the regulatory provision of twelve working hours by restricting drivers from logging in extra hours. However, there is often a misalignment between RHPs and legal regulations, RHPs are operating in a context, which is driven by business uncertainties, competition and resource constraints for established and emerging RHP platforms. For instance, India’s Supreme Court ordered RHPs to convert diesel taxis to CNG-fuelled taxis. RHPs appealed to the courts for additional time for following the court guidelines. The shift of RHP taxis to electric vehicles is in line with India’s electric vehicle policy. The internal and external
governance aligned with the RHP operations to achieve its goals and positive outcomes for the associated actors and contexts.

4.1.3.4 Business operations. RHP business operates on the economy of scale and focuses on improving resource deployment, reducing idle time, improve taxi availability and reduce the cost of service. RHPs follow the strategies to diversify their revenue sources. RHPs have the following revenue sources: commission, renting, advertising and partnerships as mentioned by the platform representatives. However, RHPs were criticized for adopting predatory pricing and unrealistic monetary sharing. Incumbent players filed court cases against RHP’s business strategies that negatively impact incumbents, such as high incentives, unrealistic monetary sharing and free rides. In 2014–2015, the GoI recognized these complaints and warned the RHPs, and cases were filed with the Competition Commission of India. However, GoI also recognizes the positive network effects, ratings, riders and drivers’ benefits/incentives for building the RHPs ecosystem (GoI MORTH, 2020).

Taxi aggregator’s regulations specify the provisions for various business aspects. These provisions influence the RHP’s business model. For instance, new regulations specified the percentage of revenue sharing with drivers, taxi fares, penalties, technological requirements and working conditions. However, RHPs consider the new policy misaligned with their business model (James, 2020). The reality contradicts the provision of specified working hours as the drivers need to spend more time on the road. Most of the drivers have accounts with more than one RHPs. A driver said, “Now, many taxis are working with Ola and Uber. I am not receiving regular work; therefore, I need to spend more time on the road.” The increased resources in RHP ecosystem result in the removal of incentives. A driver complained that the “company is gradually removing the incentives and other benefits.”

Platform representatives mentioned that they are substantially investing in India in payment, automobile production, food delivery, electric vehicles and technology research. RHPs have visions to redefine mobility in India, which demands resources and support. It appears that RHPs find the regulations restrictive for their growth. However, restrictive regulations reduce resource inflow. In India, Ola and Uber are exploring new avenues to develop mobility products and services, resources, innovation and research, and building infrastructure for future mobility to improve presence and accessibility.

4.1.3.5 Regulatory barriers to ride-hailing innovations. RHPs innovate to grow their businesses. However, the regulatory changes are slow to accommodate all RHP products and services. The old regulations do not allow RHPs to implement their products and services. An RHP representative mentioned that they provide travel products by sharing seats in private cars, which is illegal under the current regulations. One of the platform representatives opined about the sharing of seats in private vehicles (cars).

Anyway, they (private car users) are going to the office, then why not commercialise the private vehicles? Until the government makes any change at the regulation end, until that time, I do not see there is a space for others to come up with the ideas for private vehicle peer-to-peer sharing.

RHPs struggle with restrictive regulations. RHP developed mobility products and services that may violate transportation laws. For example, the company is supposed to consider the regulatory provisions to build mobility products. RHPs’ efficiency is limited by regulations that do not recognize all mobility products and services. A platform representative mentioned that “transport is a state government subject, and we cannot take clearance in one go for any product. Our non-core businesses are illegal by legal definition but still operating in the grey area.”

The new regulations are equally applicable to the established and new RHPs. Resource access to comply with regulations differs for established and new RHPs. RHPs must comply with the registration fees, penalties provisions and technical requirements based on the regulatory changes. In the case of new RHPs, new regulatory reforms act as barriers. GoI guidelines, Motor Vehicle Aggregators, 2020 specified operating licenses for RHPs. RHPs
license registration fees of up to INR 500,000. Even before these guidelines, new players were finding it hard to grow in the presence of bigger RHPs like Ola and Uber. New platform representatives mentioned a lack of resources to build a technical structure like Ola and Uber. Another platform representative said it is challenging to mobilize investment because investors ask how new players could compete with Ola and Uber. Emerging RHPs representative mentioned, “We approached the investors, but they were asking about the business model and doubted the sustainability of our business model in the presence of bigger players like Ola and Uber.”

Platform representatives with limited technological presence mentioned, “We need to improve our technology and focus on driver training.” Another new RHPs player said, “We are trying to build our business with limited finance. We do not have the technical expertise compared to Ola and Uber.” New players have resource constraints that compel them to have a different business model. A platform representative said, “We did not have enough funds, then we thought of focusing on peer-to-peer services using private cars, and according to the law, we cannot commercially operate the private vehicle.”

The current regulatory requirements, limited support and the presence of established RHPs may not allow new players to have similar freedom and support to those of established RHPs in the past. “Then they (new RHPs) have to generate revenue for themselves, drivers, and investors. It can take around 7–8 years to generate the profit.” The policy talks about the requirement of security platforms where RHP has access to all online riders and drivers, allowing RHP to monitor the movement of vehicles towards their drop location. In case of any deviation from the stipulated direction, this raises a security alert for the safety of drivers and riders. These regulations aim to resolve the safety and security challenges. This results in different business environments for established and new players to grow. Prominent players like Ola and Uber were able to bring these features to their platforms gradually. In the case of Ola, security platforms such as the Guardian Program (real-time information from the rides can be used to automatically identify anomalous trip activities, such as extended stops and unexpected route changes) were available in limited regions in 2018. However, a new player cannot comply with all the aggregator guidelines provisions. These requirements did not apply to the established players when they were new. This shows that limited or no regulations during the initial days of established RHPs provided an environment with minimum investment and infrastructure to comply with the regulations.

5. Discussion

The paper discusses the regulatory environment from an MLP and shows how regulatory regimes evolve by studying the interactions between DPs and regulations. Regulatory developments show the shift to the transition paths by adopting multiple paths with sequential and parallel approaches (Zhang, 2019). RHPs interact with the contextual structures, which influences their regulatory transition paths. In the findings section, we unpack the regulatory developments in the ride-hailing space and the regulatory pathways oriented towards supporting the RHPs ecosystem. This research showed the changes in the ride-hailing space. These changes are supported by the various developments in the regulatory space as enablers and barriers for RHPs. RHP regulatory reforms in India are enabled by changes in the existing transportation structure, while the lack of supportive elements acts as a barrier. Regulatory reforms focus on restructuring existing structures, co-existence of multiple mobility systems, algorithmic governance, platform operations and concerns of associated actors (Figure 2).

Initially, the interactions between RHPs and regulations followed the transformation regulatory path where RHPs were regulated through the old taxi and motor vehicle regulations (Heeks et al., 2021). In the transformational path, few changes were made to the institutional arrangements to accommodate RHPs through government notifications. However, the traditional taxi regulations cannot accommodate the RHPs’ business models.
This research shows that the regulatory paths were reconfigured for RHPs. The new structures created for RHPs influence the reconfiguration path (Constantinides et al., 2018). The strong position of RHPs in fulfilling mobility services, economic commitments and technological changes (Heeks et al., 2021) pressurizes the regime to provide a conducive environment for RHPs. RHP legality is gradually established by making regulatory changes that recognize the platform’s business operations, and these regulatory provisions shift the RHP ecosystem towards stability (Jiang and Zhang, 2019). The reconfiguration of regulations is holistic, with changes in the Motor Vehicles Act, labour Act, taxi aggregators policies and social security changes, recognizing the platforms and encouraging DPs’ multiple roles (Sun et al., 2019; Wu et al., 2019; Heeks et al., 2021).

The evolution of the RHPs regulations regime at the ST level has addressed some of the concerns of the existing and new RHPs. The strict regulatory provisions may hurt RHP’s business interests as the RHP business is still away from the consolidation and profit-making stage (Zhong et al., 2022; Ciulli and Saka-Helmhout, 2023). Regulations are also attempting to secure the position of the associated actors (Mukhopadhyay and Upadhyay, 2022), especially drivers and customers. However, despite the regulatory provision of specific working conditions, its implementation has concerns owing to the type of work, controlling limitations and increasing competition.

The regulatory barriers for new players and resource constraints lead to unequal growth opportunities for the established and new RHPs. Established players have the technological infrastructure and resources to comply with the regulatory guidelines. However, regulatory requirements and resource access may lead to differential outcomes for the established and new RHP players (Zhong et al., 2022; Jiang and Yang, 2023; Soltanzadeh et al., 2023). The technology supports the internal and external governance of RHPs. In internal regulations, RHPs have rules and regulations to govern their business operations. Internal regulations show a shift from pre-existing regimes in terms of the role of technology in managing taxi operations. In internal governance, algorithms guide the RHP transactions with service providers/drivers and riders. The external regulations through policies and notifications have also recognized the importance of technology in governing labour rights, security issues and working conditions (Boninsegni et al., 2022).
The RHP structures and governance design must support each other to work together. The failure may result from an incompatible match to have incentives and value for society. The existing transition of RHPs regulations becomes a part of the ST regime of RHPs. The governance arrangements and regulatory environment also affect RHPs’ actors and ecosystem (Li et al., 2019; Ciulli and Saka-Helmhout, 2023; Soltanzadeh et al., 2023). RHPs must match legal arrangements by adopting a collaborative policy framework (Ansong and Boateng, 2019; Bilbil, 2019; Zhong et al., 2022). The various elements discussed above show the STT of the regulations of RHPs in India.

5.1 Implications

5.1.1 Theoretical contributions. Firstly, this research provides a comprehensive analysis of regulatory transitions of RHPs using MLP. This study captures the regulatory changes at the micro and macrolevels, which have differential impacts on the RHPs ecosystem. This study incorporated the perspectives of multi-levels and multi-actors. Secondly, based on the regulatory considerations, RHPs ecosystem impacts associated actors and contexts. This study provides the factors contributing to the RHPs’ ecosystem position. This understanding enables the regulatory reforms to consider related to how a niche innovation can enter the ST regime. Besides RHPs as actors, the regulatory developments also impact the other interacting actors and contexts. Therefore, considerations of the existing RHPs, new start-ups and supporting institutions (such as banks, manufacturing and service providers) allow for a better grounding of DPs. MLP is used in policy, especially sustainability, environmental and transport studies. With this research, we are extending the use of MLP to study the regulatory developments of RHPs in the Indian context.

5.1.2 Practical contributions. This research has practical implications for the platforms and regulators. This helps to understand the role of regulatory provisions for the RHPs ecosystem. Regulatory provisions have broad aims to integrate technology with society. While integrating, it is essential to consider the outcomes for the society in the short and long term. From a specific point of view, it is critical to incorporate the views of concerned actors associated with RHPs. At the same time, arrangements should be made to secure the position of future entrepreneurs to enter this space. The co-existence of multiple regimes and their support to different ST regimes should be considered concerning the impacts of new regulations on existing relationships.

5.2 Limitations and future scope

This research is not without limitations. Despite limitations, this study’s findings allow future researchers to extend the findings to RHPs and DPs. We provide a detailed explanation of the regulations of RHPs and their implications for some of the actors. However, to understand the impacts on all associated actors, especially implications on the growth of RHPs. Then, future research can analyse the impacts of specific regulations on the operations of the RHPs and economic concerns for associated actors. The judiciary played a critical role in resolving cases related to RHPs. To understand the trajectory of judicial perspectives on the transition of RHPs in Indian society, we could have included more respondents with legal backgrounds. As we do not have access to RHP operational data to compare the position of pre and post regulatory reforms, future studies can consider the operational data and cultural elements. This study focuses on the ST level and in the future, researchers can explore the interactions of regulations at landscape and niche levels of MLP.

6. Conclusion

This study examined the interactions between RHPs and regulations and how DPs regulatory developments evolved in India. This research shows that regulatory developments in the ride-hailing space cannot be explained as linear policy developments. The static institutional
assumptions, especially without considering the multi-actors and multi-levels during policy formulation, may not serve the associated actors in different times and spaces. RHP regulations must consider the perspective of new RHPs and the support available to them, while non-consideration may have unequal outcomes for them and the RHP ecosystem. The shift towards technology-led internal and external governance supported the RHP ecosystem. We conceptualize the regulations of DPs from a broad perspective in the context of RHPs operating in developing countries.

References


VCC-TV (2012), “We are marrying the benefits of both online and offline for car rentals in India: Bhavish Aggarwal”, available at: www.youtube.com/watch?v=vWIR8x4ONVo&t=10s (accessed 25 June 2019).


Appendix 1. Pre-existing regime: incumbent players and regulations

Before RHPs, taxi services were provided by kaali-peeli (black and yellow) taxis in the Delhi region and are regulated by the MVA 1988. After 2000, new taxi services known as Radio taxis were introduced https://transport.delhi.gov.in/. They are equipped with GPS and can be traced through telephone numbers. Along with four-wheeler taxis, autorickshaws provide transport services at a price lower than taxis. The traditional taxis are stationed in designed spaces near residential neighbourhoods, shopping areas and taxi stands at railway stations and airports. The government regulates the operations of traditional taxis with the pre-decided fare, locations and sanction authorities. From airports and railway stations, customers can book a taxi using pre-paid options. https://transport.delhi.gov.in/transport/acts-and-rules

Regulations

India’s transport sector is not centralized and varies in states. One state may tax vehicles registered in other states. State-issued licenses are valid nationwide. Any vehicle that charges passengers in New Delhi needs a business license from the transport department. All business cars should have yellow-and-black number plates, and private cars have white backgrounds and black text. A commercial license is required to drive a taxi or commercial vehicle. A person with a private license cannot drive a taxi and cannot charge passengers without a commercial license.

The City Taxi Scheme 2015 has four taxi types operating in New Delhi. First are locally owned taxis. They can drive within the city limits and charge INR 14 (US$ 0.77) per km. The other three types of taxis are mini, economy and premium, which can operate in NCR of India. A taxi permit is valid for five years and requires a periodical renewal Home I Transport Department (delhi.gov.in/). The regulations are different for local, rental and all-India licensed taxis https://morth.nic.in/ Ministry of Road Transport & Highways, Government of India (morth.nic.in).
Field photos: sociotechnical regime (selected)

Response to security concerns – SOS button (to deal with emergencies)

**Figure A1** SOS button installed in RHP taxis

Response to security concerns- SOS button (to deal with emergency)

*SOS button installed in RHP's taxis.*

![SOS button installed in RHP taxis](image)

**Notes:** A panic (SoS) button is installed in an NCR Delhi RHP taxi. The following images (A), (B: i–iii) and C was taken in 2018, 2021 and 2023, respectively.

**Source:** Photos taken by authors
### Table A1  Secondary sources (selected)

<table>
<thead>
<tr>
<th>Category</th>
<th>Sources</th>
</tr>
</thead>
</table>
| **Taxi policy guidelines/reports** | - Motor Vehicle Act 1988  
- New Delhi Radio Taxi Policy Guidelines 2006  
- New Delhi Radio Taxi Policy Guidelines 2010  
- NTDPC (2014) India Transport Report: Moving India to 2032. New Delhi  
- City Taxi Scheme 2015  
- VLT reg and activation.pdf (morth.nic.in). Available at: https://morth.nic.in/sites/default/files/circulars_document/VLT%20reg%20and%20activation.pdf  
- CCI (2021a) Competition Commission of India Case No. 96 of 2015. India  
- CCI (2021b) Meru Travel Solutions Pvt. Ltd. vs Uber India Systems Pvt. Ltd. And on 14th July 2021. India  
- Delhi High Court (2016) In the High Court of Delhi at the New Delhi. Available at: http://164.100.68.118:8080/jupload/dhc/RKG/judgement/05-04-2016/RKG22032016MACA9872014.pdf |
- VCC-TV (2012) ‘We are marrying the benefits of both online and offline for car rentals in India: Bhavish Aggarwal’. Available at: www.youtube.com/watch?v=vWiR6x4ONVo&t=10s  
- Electric push in draft Delhi policy for app-based cabs; bike taxis | Latest News Delhi - Hindustan Times  
- Delhi High Court provides relief to Ola, Rapidido; stays taxi ban order (business-standard.com)  
- Ola Guardian: Ola to expand ‘Guardian’ safety feature to 17 cities in India, Australia (indiatimes.com)  
- Relief for Ola, Uber, Rapidido as Delhi HC lifts curbs on bike taxis; India, EU to work on tech rules (indiatimes.com)  
- Rapidido Delhi: HC stays Delhi govt’s notice halting Rapidido, Uber & other aggregators’ services – The Economic Times (indiatimes.com)  
| **Ride-hailing platforms online** | - 2014–2021 - RHPs (Ola and Uber) Newspaper articles  
- Online interviews of the RHPs representatives  
- Ola and Uber Newsroom (India) archival data from 2014 to December 2020 |
| **Archival data of RHPs**         | - Ola and Uber Newsroom (India) archival data from 2014 to December 2020 |

**Source:** Created by author
### Table A2  Regulatory themes at socio-technical regime (selected)

<table>
<thead>
<tr>
<th>Theme</th>
<th>Evolution of platform business models</th>
<th>Restructuring of regulations for RHPs</th>
<th>Interactions with other market systems</th>
<th>Steps to accommodate RHPs</th>
<th>Economic growth</th>
<th>Business operations</th>
<th>Resources: Increasing and Improve Resources</th>
<th>RHPs products and services creation</th>
<th>Innovation and business growth</th>
<th>Co-existence and protection: co-evolution, collaboration and impact</th>
<th>Transportation actors</th>
<th>Quality of taxis</th>
<th>Concerns</th>
<th>Algorithmic regulations: internal and external governance</th>
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<td>Criticized for adopting predatory pricing and unrealistic monetary sharing</td>
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<td>Filed court cases against RHP’s business strategies (security issues, surge pricing, lack of regulations and unethical business practices)</td>
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<td>Old regulations do not allow RHPs to implement their products and services</td>
<td>Evolution of supporting institutions</td>
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<td>GoI also recognizes that positive network effects, incentives, ratings, riders and drivers’ benefits/ incentives are essential to building the RHPs ecosystem</td>
<td>New standards for RHPs</td>
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<td>“Court ordered to form regulatory guidelines for RHPs”</td>
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<td>Innovate to improve their business operations and build their business portfolios</td>
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<td>“Cars (private car users) are going to the office, then why not commercialise private vehicles? Until the government does any change at the regulation end, then until that time, not seeing there is a space for others”</td>
<td>Evolution of supporting institutions</td>
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<td>Regulatory changes are slow to accommodate all RHPs products and services</td>
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<td>Consider multiple regulatory provisions while developing mobility products and services</td>
<td>Co-existence and protection: co-evolution, collaboration and impact</td>
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<td>To expand their businesses</td>
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<td>Changes in the types of taxis, new regulations were framed in 2006, 2010, 2015, 2016, 2020 and 2023 to regulate taxis</td>
<td>Regulate security, vehicle types and working</td>
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<td>Competition benefits the passengers, and incumbent players need to change their business strategies</td>
<td>Regulate working conditions</td>
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<td>RHPs are welcomed by governments and mobility players</td>
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<td>Most of these court cases were associated with deviance from past regulations and led to new regulations resulting in more control over the quality</td>
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<td>No or different regulatory environments led to uncertainty about the business growth, daily RHPs operations, development of new products and increased cost of service</td>
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<td>Sharp reactions from the government, unions, incumbent players and users to safety issues for women, drivers and passengers</td>
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<td>New technology and operational mechanisms for internal governance-guardian systems for real-time governance</td>
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<td>“Riders and drivers’ security is a key concern for us. We ensure documentation, background check and technological updating”</td>
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<td>Safety button in the app and a similar control (SOS button) in the taxi</td>
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<td>Government provisions of the Motor Vehicle Act and guidelines for taxi aggregators</td>
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<td>Focuses on security, quality of the asset, labour rights and recognizing the business models</td>
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<td>Technologies were developed to implement the regulatory provisions for RHPs ecosystems</td>
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<td>System to maintain the data on drivers’ working hours, which helps to implement the regulatory provision of 12 working hours and RHPs do not</td>
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(continued)
allow drivers to log in after 12 h
App availability in multiple languages (9 Indian languages)

Secure the RHPs, technologies such as face identification, in-app security
alert system, real-time online vehicle tracking and inbuilt emergency alert systems

Resources to convert diesel taxis to CNG to comply with Supreme Court regulations
Convert the RHPs taxis to electric vehicles

Able to introduce safety and security features gradually, while new players struggle to comply with all aggregator guidelines provisions

Competing with established RHPs like Ola and Uber.
For new players licensing requirements and registration fees
Sharing seats in private cars, which is illegal under current regulations
It is challenging for RHPs to obtain clearance for their products on a nationwide scale
Need for security platforms to ensure the safety of drivers and riders
Lack technological expertise and resources compared to larger platforms like Ola and Uber

Final themes
MLP guided themes
1. Pre-existing regimes
2. MLP levels
   • Landscape
   • ST regime
   • Niche

1. Pre-existing regime: incumbent players and regulations
2. Landscape developments
3. Niche innovations: protected phase of regulations
4. Sociotechnical regime: evolutionary phases
   • Restructuring of regulations for RHPs
   • Business operations
   • Coexistence and protection: co-evolution, collaboration and impact
   • Algorithmic regulations: internal and external governance
   • Regulatory barriers to ride-hailing innovations


Source: Created by author

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Research Fellow at the United Nations University – School of Computing and Society (Macau) and School of Management, Curtin University (Perth). He is a recipient of the Outstanding Young Faculty Fellowship Award at IIT Delhi and Prof M.N. Srinivas Memorial Prize of the Indian Sociological Society. He is also a Senior Research Fellow at LIRNEasia, a leading regional ICT policy and regulation think tank. He has received large research grants from Department of Science and Technology (Government of India), ICSSR (India), IDRC (Canada), Oxford Analytica (UK), IPTS (European Commission), CIPPEC (Argentina) and IdeaCorp (Philippines). He is an active contributor to the international journals and conferences of repute. Further details: http://web.iitd.ac.in/~vignes/

Arpan Kumar Kar is Amar S Gupta Chair Professor at the Indian Institute of Technology Delhi, India. His research interests are in the domain of data science, digital transformation, internet ecosystems, social media and ICT-based public policy. He has authored over 150 peer-reviewed articles and edited seven research monographs. He is the recipient of the Research Excellence Award by Clarivate Analytics (Web of Science) for research impact between 2015 and 2020. He is the recipient of the Basant Kumar Birla Distinguished Researcher Award for the highest count of ABDC A*/ABS 4/FT50 level publications in India between the period 2014–2019. He is the Editor in Chief of the International Journal of Information Management Data Insights, published by Elsevier. He is also an associate/coordinating editor in International Journal of Electronic Government Research, Journal of Public Affairs, Information Systems Frontiers and Global Journal of Flexible Systems Management. He has been a guest editor for journals like Industrial Marketing Management, International Journal of Information Management, Information Systems Frontiers and Australasian Journal of Information Systems. He has received reviewing excellence awards from multiple journals like I&M, GIQ, IJIM, LUP, JRCS, JOCS and ESWA.

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