Evaluating the Impact of Uber on the London Taxi Cab Community: A Strategic Review

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Key words: Uber, London Taxi cabs, private hire vehicles, strategic review, roadmap

Abstract

This paper considers how London's private hire vehicle (PHV) industry and the regulatory authority, Transport for London (TfL), can react to Uber's well-funded, aggressive entry into the marketplace, outlines the new challenges they face and describes the strategic directions that are available to the PHV industry for their survival, merger or closure.

Using a narrative enquiry, the study explores the impact from the co-evolution of three mega-trends (ICT advancement, paradigm change and public preferences) to understand and interpret the methods being deployed to compete, issues faced by drivers, stakeholders' perceptions of regulations and the options for the future direction of the industry.

The research concludes that the impact has been profound, with themes emerging such as passenger safety, driver employment status, sustaining operators' service levels and regulatory changes. Moreover, there is a premise that short-term planning is dominant, which raises concerns regarding the move toward electric and autonomous vehicles.

The research also recommends practical methods for small private hire operators to review their business models in the form of a roadmap that has been designed for the London situation, but may be adapted for use in other international cities.

To enable proactive, rather than reactive enforcement by the regulator, an app is proposed in order to aid in implementing a stakeholder engagement strategy and undertaking scenario planning to anticipate and manage future regulatory requirements.

Finally, suggestions are made for further research to identify the future direction of London's PHV industry, considering the Mayor of London's draft transport strategy, and further clarity regarding drivers' employment status.

The paper may be useful to taxi service operators and regulators in other cities that are faced with the disruptive nature of smartphone technology to their traditional working practices.

Acknowledgements

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Also thanks to all the participants who gave up their time to be interviewed on a confidential basis in order to provide valuable insights into an important transportation situation in London.

1 Research Design

1.1 Research Aims and Objectives

This project aims to evaluate the impact of smartphone booking apps on London's private hire vehicle industry by investigating the impact across a variety of stakeholders. The objectives are to explore and interpret the methods being deployed to compete, issues faced by drivers, stakeholders' perceptions of regulations and the future direction of the industry. The result is to provide a strategic review of the industry and provide a practical set of recommendations.

1.2 Overview of Existing Studies Related to the Research Problem

From the literature review (Skok and Baker, 2018), only one study (Wood *et al.,* 2017) focused on London's transportation network, utilising a small sample of customer surveys and focus groups with passengers, taxi and Uber drivers. A sample of the remaining literature concentrated upon the following types of studies: exploratory (Rayle *et al.,* 2016; Stafford, 2016), case (Skok and Tissut, 2003; Skok and Baird, 2005), descriptive (Verboven and Vanherck, 2016; Dudley and Schwanen, 2017), law (Posen, 2015; Elliott, 2016) and discussion (Gabel, 2016; Smith, 2016).

Unfortunately, no studies offered a conceptual framework upon which to base this research project, however one study did propose a framework which could assist with understanding the cause of the problem. Watanabe, Naveed and Neittaanmäki (2016) identified mega-trends, guiding the external factors impacting London's private hire industry such as the co-evolution of technological developments, societal preferences and economic shifts.

1.3 Conceptual Framework Applicable to the Research Problem

The conceptual framework illustrated in figure 1, draws upon the three mega-trends of Watanabe, Naveed and Neittaanmäki (2016) and demonstrates the co-evolution which when applied to a traditional industry impact labour and regulations (as revealed in the literature review of Skok and Baker, 2018). However, the question mark remains over what has been the impact on London's private hire vehicle industry, and what other impacts exist that have not yet emerged.

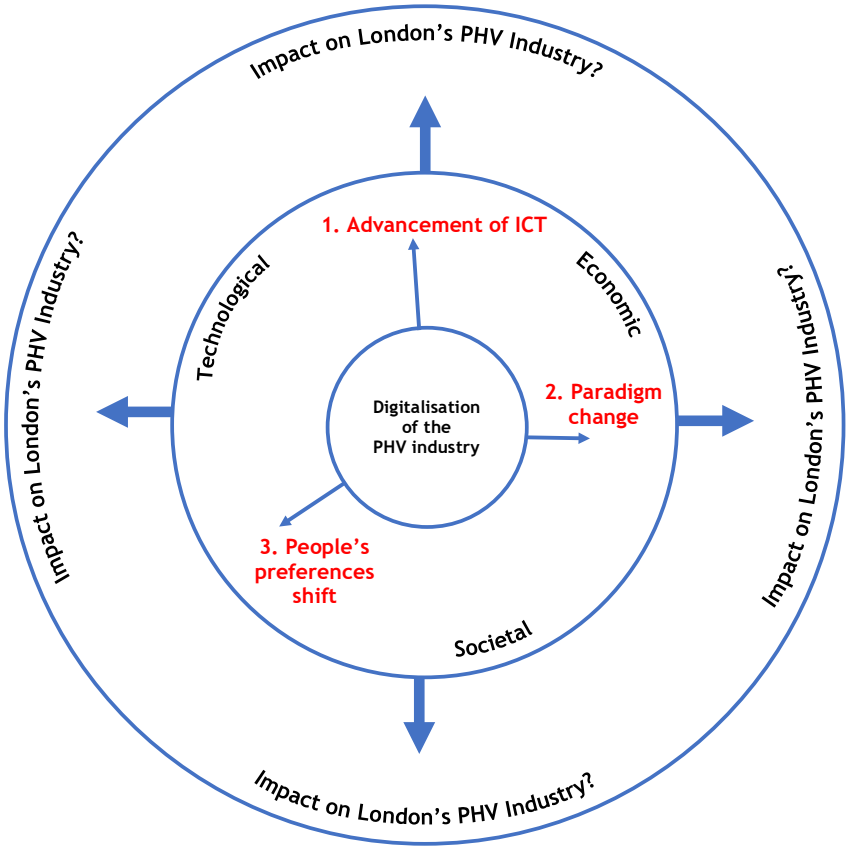

Figure 1. Conceptual framework illustrating the impact from the co-evolution of 3 mega-trends on a traditional industry (Adapted from Watanabe, Naveed and Neittaanmäki, 2016)

1.4 Approach

This conceptual framework provided the foundation for the research design. The aim of the research is to gain insights and an understanding of what is happening in the private hire industry. An exploratory study lends itself to comprehending what is taking place in certain situations via interviews with experts in the field, thereby leading to the selection of the design choices shown in the 'research onion' of Figure 2 (Saunders and Lewis, 2012).

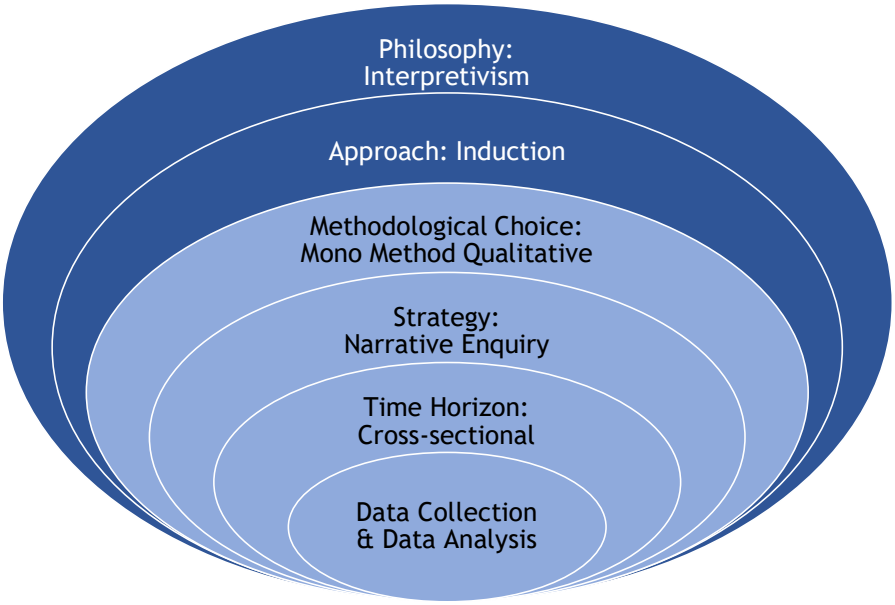

Figure 2. Research 'onion' (Adapted from Saunders, Lewis and Thornhill, 2012)

1.5 Identification and Formulation of Research Questions

The gap in the literature concerns London's private hire industry, as most studies focus on medallion services in the US, drivers or passengers. Limited research has been conducted regarding industry stakeholders' perceptions.

Therefore this evaluation has the following research questions:

RQ1. How has London's private hire industry been affected?

RQ2. How have London's private hire driver earnings been affected?

RQ3. What business models are being used by London's private hire industry to compete since the launch of smartphone booking apps?

RQ4. What has been the impact of TfL's regulation review?

RQ5. What factors are resulting in London's private hire operators merging, being acquired, leaving the industry or going into administration?

RQ6. What could the future of London's private hire industry look like?

1.6 Methods for Data Collection and Analysis

1.6.1 Data Collection

To obtain an appreciation of the industry, a mind map to understand how each stakeholder interacted was drawn (figure 3). This identified key terms and 'actors' in order to demonstrate credibility during the subsequent interviews. A non-probability sampling method was adopted utilising TfL's judgement.

This resulted in six participants from an introductory email and one from a snowball sampling method, securing seven interviews. Telephone calls were booked with each participant to explain the project, build rapport and advise a sixty-minute interview time. Each participant was sent an interview pack containing the questions (appendix 1). A short, online questionnaire (appendix 2) was sent to operators who participated in the study in order to understand the structure of their business. The interviews were semi-structured to enable the exploration of previously unidentified areas.

1.6.2 Data Analysis

A common approach to qualitative data analysis is thematic framework analysis (Ritchie *et al.,* 2014) which systematically organises data according to themes and patterns. This approach was blended with thematic narrative analysis (Riessman, 2008), where the transcript extracts were coded 'whole' with a beginning, middle and end, so analysis focused on dialogue from multiple sources for comparison. First, data from the paper transcripts were analysed to discern commonality. This was followed by applying the Saldanã (2009) codes-to-theory model to distil the data. When the data was initially reviewed, caution was exercised not to align the data to themes (Saldanã, 2009) straight away. Instead, the data was sifted through and codes attributed to avoid a preconceived approach. This resulted in eighty codes (appendix 3) capturing short stories that had similar connections. Through the analytical

process some commonality emerged which surfaced into fifteen weighted categories (appendix 4). The CAQDAS (Computer Assisted Qualitative Data AnalysiS) software NVivo™ was used to manage and retrieve the information along with maintaining analytic memos regarding the theories which were emerging. The categories were then associated to themes and these were mapped to the six research questions to ensure they aligned. Gibbs (2007) approach to moving beyond the descriptive assisted in translating the themes to theory.

Figure 3. London's Private Hire Industry - Stakeholder Map

1.7 Limitations of the Design Proposed

Small operators with twenty cars or less were not included in the sample despite attempts to use snowball sampling, along with those who only provided a phone and office-based booking service.

The study focused on the private hire industry from a stakeholder perspective, however not all stakeholders could be included due to accessibility and time. Those stakeholders who did not participate were passengers, drivers (although perspectives were obtained on their behalf via a trade union), TfL and aggregators.

1.8 Ethical Considerations

The interview participants were senior and involved in regulatory consultation processes and engagement with politicians and judiciary authorities. Therefore, it was critical that the participants were fully aware of the nature of the study e.g. any information used would remain anonymous (Fisher, 2010).

Where participants prefixed an area not to be probed during their interview, (Sekaran and Bougie, 2016) due to existing confidentiality agreements, this was respected.

2 Analysis and Discussion

2.1 Findings

The data analysis resulted in six major themes (T1, T2, T3, T4, T5 and T6) with five themes directly related to the research questions (RQ1, RQ2, RQ3, RQ4, RQ5 and RQ6), as illustrated in figure 4. 'Convergence of change' was the exception which reflected the global and local trends faced by the taxi and private hire industries and formed the foundation from the stakeholders' perspective.

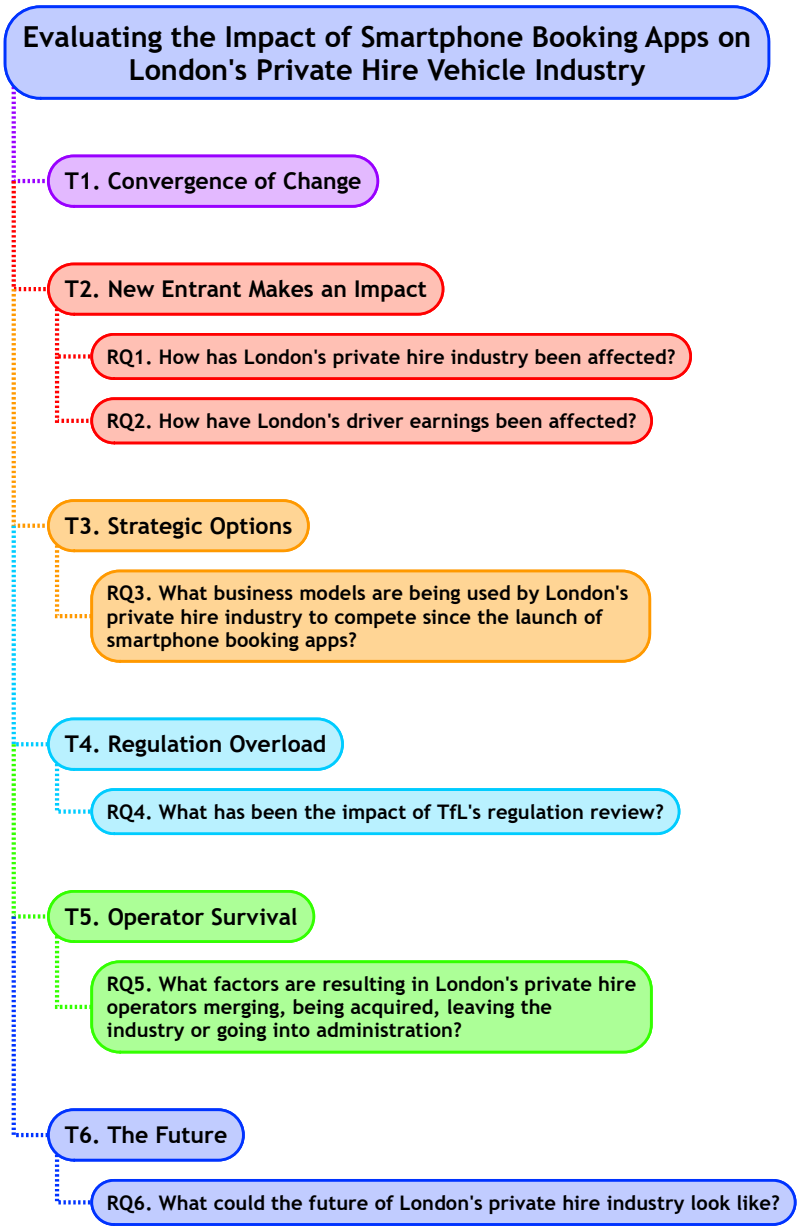

Figure 4. Themes identified from the data analysis and aligned to the research questions

2.1.1 Convergence of Change

Advances in geolocation technology, GPS (Global Positioning Systems) chips in smartphones and user preferences has resulted in an on-demand culture. The change in culture is linked with personal transportation shortcomings in the US and Europe where regulations lack consistency. This has enabled new entrants such as Uber and Lyft to expand rapidly because passengers view them as a practical alternative to conventional transport modes.

From the early 2000s, private hire industry proponents were acutely aware of the requirements for sharing vehicles to match supply and demand. Furthermore, a technology company at the time was interested in the industry, purely to obtain customer data movements. The recent impact has been attributed to the Government declaring London the 'technology centre of Europe'.

2.1.2 New Entrant Makes an Impact

Although the private hire industry had adopted technology, the market was not prepared for the venture capital funding backing Uber's operation. This manifested itself in reduced fares due to subsidised journeys and promotional offers thereby impacting incumbent operators' profit margins.

Participants were quick to contest that app technology alone did not make a new entrant successful, citing Karhoo and Wheely who came to the market with several million pounds and exhausted their funds within a short period of time.

Alongside funding, it was stressed that Uber's original business model was an important insight. Uber commenced business as a high-end limousine service that only wanted to operate in a regulated way. The advent of Lyft in San Francisco and the finite pool of passengers requiring an on-demand limousine service led Uber to pivot to a ride-share model.

The core stakeholders (regulator, operator, passengers and drivers) have all been impacted by Uber's growth. For drivers, there are positives of working with Uber such as incentives, guaranteed payments, increased flexibility and the impartiality of how trips are allocated. However, commission rates are flexible, thereby increasing the requirement to potentially work longer, resulting in employment dissatisfaction as a minimum hourly wage may be harder to achieve.

What is most disturbing is health and safety concerns, with drivers working longer hours and being cognisant that drivers are real people and not assets to be sweated. This is on a foundation of increasing fuel, insurance and associated costs and long-term car lease commitments.

There was a consensus that driver earnings in the industry had reduced, although some operators had implemented methods to mitigate this which correlated to the business model they operated. For example, premium service operators could sustain driver wages as opposed to those operators directly competing with Uber's entry level service. However, all had reduced their overheads to compete through technology efficiencies and reducing head count.

Conversely, passengers have an on-demand service, yet the publicly stated lack of responsibility by Uber in the event of an incident leaves customers exposed and raises corporate responsibility debates.

Operators in the industry welcome competition and have seen a 'rejuvenating' effect which has increased competitiveness. Although, the loss of business from on-demand customers and drivers leaving to work for Uber has inevitably led to a reduction in service levels and made driver recruitment more challenging. It was a concern across all participants that a reduction in reward would reduce service levels and safety.

Additionally, other ground transportation methods were impacted due to cost-effective private hire vehicles. It was posited that in the future there would be no personal car ownership and instead third-party providers or Mobility-as-a-Service (MaaS) would prevail.

2.1.3 Strategic Options

To respond to increased competition, operators reviewed the strategic options available to them. The on-demand, business to consumer market was impacted the most which drove operators to understand their competitive position (Porter, 1985). Each operator chose a strategy that distanced their business from a cost leadership position. Those with a mid-range service employed a cost focus strategy (cost minimisation in a focused market) and those offering a high-end service implemented a differentiation (creating uniquely desirable products and services) or differentiation focus (pursuing strategic differentiation in a focused

market) strategy. One operator was trialling a hybrid position (Faulkner and Bowman, 1995; Bowman and Faulkner, 1997) by offering a high-end, on-demand service.

The competitive positions were supported by analysing the industry, the operator's resources and those of competitors. Although some of the interviewees suggested they did not use a formal analytical process, their narratives suggested otherwise. The analysis led to each operator choosing a deliberate strategic direction for their business which was a combination of market penetration, market development and product development, although diversification (Ansoff, 1968) was not utilised. Figure 5 illustrates their strategic alignment choices. All operators interviewed had a smartphone booking app, with the earliest a form-based interface launched in 2009. There was a mixture of clarity and uncertainty whether operators had reached a breakeven point from their app investment due to them being developed within a suite of software and ongoing app development.

Existing Products	**Market Penetration** □ Acquiring a company to increase the service offering and customer base (e.g. Addison Lee acquiring Tristar Worldwide) □ Implementation of customer loyalty schemes. □ Extending service use from business to leisure time. □ Marketing strategy: - Reviewing core customers and traditional business. - Focusing on a pre-book service - Identifying customer segments such as those who would use on-demand and those who prefer pre-book. This also included customers such as public sector who cannot use an on-demand service. - Building a brand based upon service or the types of vehicles used (e.g. hybrid cars for a green brand or Mercedes for quality)	**Market Development** □ Expanding operations beyond the London market. □ Using different sales channels (intermediaries) such as aggregator websites (e.g. Karhoo) or sharing contracts with other operators and forming partnerships □ Market segmentation, for example targeting corporate accounts, hospital contracts, public sector, pubs and clubs. □ Marketing mix 4Ps (price, promotion, place and product) such as customer price subsidies, off-peak tariffs and promotions.
New Products	**Product Development** □ Improving customer service and quality by reviewing operating systems (e.g. invoicing, dispatch, customer platforms, process automation, customer relationship management (CRM) and portals for travel managers). □ Designing new product services such as in-venue booking or Application Programming Interfaces (APIs) to integrate into partner platforms.	**Diversification** □ Strategic direction not utilised by operators.
	Existing Markets	**New Markets**

Figure 5. Strategic direction choices made by private hire operators (Adapted from Ansoff, 1968)

2.1.4 Regulation Overload

The stakeholders were supportive of the private hire industry being regulated and the credibility the 1998 Private Hire Act had provided. However, although some of the regulation review components remain in consultation or review there was an overwhelming sense of unease.

For previous regulatory changes the impact had been cost and time based where systems were required to record and report journeys and provide driver information. For the current regulation review, there was confusion about the proposed increase in operator fees, what the impact of the new enforcements officers had been, the requirements for the English language test, insurance and cross border journeys.

In summary, the concern with the changes is the increase in costs and the corresponding impact on operators' businesses and whether the regulatory hoops will prevent new drivers joining the industry.

2.1.5 Operator Survival

Regulation overload links to one of the factors resulting in operators merging, being acquired, leaving the industry or going into administration. Prior to evaluating the reasons, it is fundamental to understand the operators' composition. According to Transport for London (2017) the approximate split of operators is indicated in figure 6.

Number of vehicles	Approximate number of operators
0 - 10	1,126
11-20	511
21-100	877
101-1000	113
1001+	2

Figure 6. Composition of London's private hire operators (Transport for London, 2017)

The numbers indicate that 62% of businesses operate twenty vehicles or less, which is considered a small operator. These businesses may typically be managed by owners with limited long-range planning knowledge and may be owned by an ageing demographic.

The enhanced regulations, technology investments for regulatory compliance and business competitiveness, coupled with the economics of price reductions, the effect on margins and the difficulty retaining customers and drivers has left business owners questioning whether they should continue. Unless the operators have existing contracts in place the businesses are likely to have reduced value and owners therefore find the challenges outweigh the benefits. In some cases, owners were giving up because they do not have family members who are interested in managing the business on their behalf.

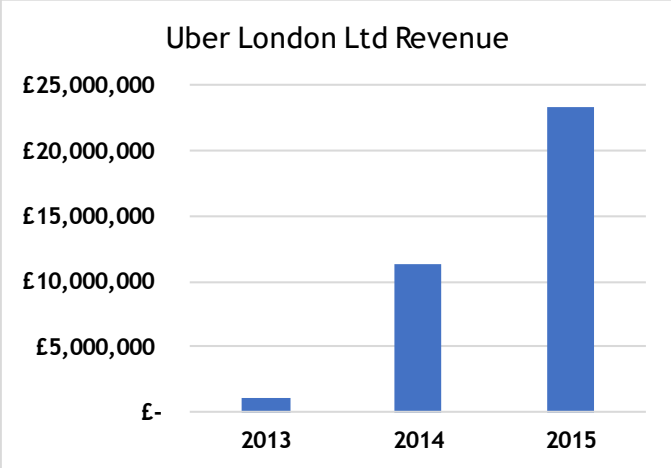

Figure 7. Uber London Ltd.'s annual revenues reproduced from Companies House (2017)

Reviewing Uber London Ltd.'s accounts (Companies House, 2017), it can be seen (figure 7) that their growth has been exponential in London. Therefore, it could be surmised that some of this growth has been taken from the low to mid-range providers. Conversely, operators that work in the elite market are being acquired by investment groups who wish to expand the businesses or car manufacturers and organisations interested in the passenger data movements. Examples are the acquisition of Addison Lee by Carlyle Group and Brunel by EuropCar.

2.1.6 The Future

Stakeholders varied in their positivity regarding the industry's future, with Likert responses ranging from five to ten, (1 low; 10 high) this was despite lower scoring participants being optimists. One high scoring participant did caveat their rating as being in the short-term with the long-term outlook not as positive. In the very short-term, the view revolved around

employment law for drivers and the impact this would have on business models, with some highlighting that an hourly rate is not motivational for good quality drivers.

Furthermore, there was an observation that car manufacturers, such as Renault-Nissan purchasing Karhoo, were focused on passenger movements in the long-term and less so on drivers' livelihoods.

The topical areas emanating from the research were electric and autonomous vehicles with some rich insights and practical considerations. Regarding electric cars, the practicality of charging points and the electricity grid were highlighted as infrastructure concerns. Infrastructure played heavily with autonomous vehicles, particularly with the lack of grid system on London's road network. Edge cases (situations that occur only at an extreme) were emphasised as barriers to implementation for autonomous vehicles. An example was an autonomous vehicle endeavouring to navigate a school field on sports day to park. The remaining opinions focused on a transformational change in artificial intelligence for automated cars to be viable and a view that issues remained around their regulation and insurance. Ultimately, it was believed a place still existed for the private hire industry with drivers needed for high-touch services and the requirement for autonomous fleets to be cleaned, serviced, maintained and supported.

3 Conclusions

The findings demonstrated the private hire industry was fully aware of the need to efficiently organise supply and demand for drivers and customers. The inhibitors to this being realised were suggested as technological and financial, as well as a potential lack of long-term planning and customer focused strategies. This is supported by comments asserting that new entrants motivated the industry to improve their strategies.

New entrants presented some positive competitive market forces such as quality and efficiency improvements, however there have been negative side-effects. These have directly impacted passenger safety which is one of the core reasons for requiring the service. The strategies employed have impacted driver earnings, requiring longer working hours to sustain a living. This has affected driver health, well-being and employment status which subsequently could put passengers and other road users at risk. The access economy has made becoming a private hire driver more attractive due to the work flexibility it offers. Although, the volume of drivers entering the industry has rendered some recruitment challenges in terms of driver quality and suitability. Moreover, while large operators have developed strategies to compete, concerns should be raised over the sustainability and diversity represented by smaller operators who provide different service levels and market coverage and how this may impact passengers.

Although some operators had not acknowledged the theory during their narrative, it was evident that they practised the deliberation of evaluating their market position and strategic direction. The frameworks that underpinned their decision making (Ansoff, 1968; Porter, 1985; Faulkner and Bowman 1995; Bowman and Faulkner, 1997) would be useful for smaller operators. Arguably, the frameworks could be more practical than the suggestions from the Skok and Baker (2018) literature review, such as referring to regulations, offering unmatched services and asking questions about value proposition, profit, resources and processes.

Focusing on strategy is important, however the findings did indicate the pressures regarding the proposed regulatory changes on the industry, which may dilute the hard work taking place to provide an exemplary service. Regrettably, it appears the regulator is not utilising the stakeholders' knowledge and experience which could be utilised to co-produce regulation improvements. There appears to be a pre-occupation with short-term planning horizons. This

is concerning as the three identified mega-trends (the advancements in ICT, a paradigm change and a shift in people's preferences) occur at a rapid pace and the industry needs to anticipate how services in the future will need to be provided and delivered.

4 Recommendations

4.1 Introduction

This study found that when there is a co-evolution of technological, societal and economic trends they enable different types of business models to emerge. When the business model is one that investors and business leaders believe will secure a significant return in the future, an aggressive growth strategy is followed to obtain a market dominant position.

4.2 Business Issues

The trends and aggressive growth strategies present problems for both the regulator and incumbent stakeholders in the industry. The following sub-sections outline the key concerns identified.

4.2.1 Driver Health and Well-being

Although access economy business models create flexible work for drivers and on-demand services for consumers, they can lead to drivers being vulnerable to commission rate changes. The net effect is drivers may need to work longer hours, which may give rise to employment dissatisfaction because minimum living wages are unable to be achieved.

4.2.2 Passenger Health and Safety

Extended working hours not only affect drivers but could lead to passengers being exposed to health and safety issues. The problem is magnified when operators may not take responsibility for the actions of their drivers' due to the business model they operate. Moreover, the regulator is responsible for licensing the private hire industry, enforcement and compliance, yet today monitoring appears reactive.

4.2.3 Regulation Clarity

The regulators approach to regulating the taxi and private hire industry is admired, yet a lack of clarity was cited for proposed changes to the regulatory structure. The key concerns were a perceived lack of transparency, decision making information to support proposed changes and whether a third category of operator should be introduced such as the Transportation Network Company (TNC) model used in the US for app only providers.

4.2.4 Sustaining Passenger Service, Choice and Coverage

The primary objective for the participants involved in this research was improving passenger service levels, yet the proposed regulatory changes were cited as inhibiting factors. Issues were raised regarding operators being able to sustain their businesses, or those owned by older people who may give up and relinquish their ownership. The impact could be damaging for passengers who rely upon an enhanced service, supplier choice and coverage in outer London.

4.2.5 Long-term Planning

Some of the private hire industry's stakeholders appear to concentrate on the short-term rather than the long-term. With futures that harness electric cars, automated vehicles and Mobility as a Service (MaaS) the concern is what planning is taking place to prepare for these developments given personal car ownership is likely to decline.

4.3 Practical Recommendations for Decision Making – Operators

4.3.1 Business Strategy

As highlighted in the findings, smaller operators may not have the planning knowledge and more importantly resources to develop a complex strategic approach. To aid them with their business approach, it is recommended that they use a series of steps to evaluate how they can ensure their companies remain successful. The steps are described in figure 8 and are borne out of the research findings where a similar small operator had adapted their business model. These steps can be supported by a simple business model generation tool so that their future strategy can be outlined diagrammatically in the form of a road map (figure 9) which has been adapted from the business model canvas of Osterwalder and Pigneur, (2010). The roadmap consists of three phases:

Phase One: Identifying the Key Issues

This identifies the required partners and resources that will be essential to their success, as well as the corresponding key critical activities.

Phase Two: Establishing the Value Proposition

This defines the full range of features that the operators can deliver to their customers in order to attempt to distinguish their services from those of Uber.

Phase Three: Future Directions

This outlines how the operators should deal with their customers in the future in the face of the strong external competitive forces of the new technology entrants.

Across all three phases, the roadmap is underpinned by establishing a firm cost structure that will facilitate the development of improved revenue streams.

To support this approach, it is suggested that the Licensed Private Hire Car Association (LPHCA) implements the following proactive steps to help the operators.

- A membership recruitment campaign to attract smaller operators to the association utilising successful industry case studies.
- 'Surgeries' to help evaluate the operators' business model.

- Workshops to support the operators' chosen direction.
- An operator 'matching service' to aid consolidation or exit planning.

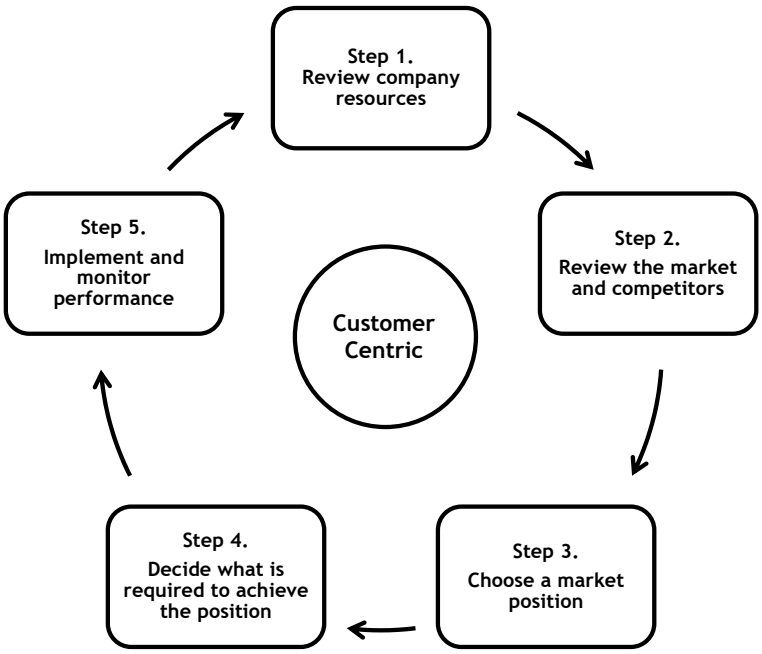

Figure 8. Small private hire operator approach to considering their business model

<table>
<tr><th colspan="2">PHASE ONE</th><th>PHASE TWO</th><th colspan="2">PHASE THREE</th></tr>
<tr><th colspan="2">IDENTIFYING KEY ISSUES</th><th>ESTABLISHING VALUE PROPOSITION</th><th colspan="2">FUTURE DIRECTIONS</th></tr>
<tr><td>Partners
Aggregator websites
App and software suppliers/ developers
Other local private hire operators</td><td>Activities
School journeys
Hospital patients
General private hire journeys
Late night/early hours' coverage
Airport transfers
Account and contract services
Courier services</td><td rowspan="2">Value Proposition
Dedicated offices which can be visited or called
Booking support for queries
Availability if an incident occurs
An app for pre-book or on-demand bookings
In-venue tool for simple booking
Local drivers
Consistent regular service for school runs
Service remote suburban locations
Executive service
24 hours, 7 days, 365 days' availability
Variety of vehicles</td><td>Customer Relationships
Reliability
Patience
Enhanced service e.g. helping with shopping bags, opening doors
Available to discuss a booking and special requirements</td><td>Customer Segments
Public, particularly those who need to go shopping
Elderly
Patients requiring special support
Disabled passengers
Parents of school children
Pub, club and restaurant customers</td></tr>
<tr><td colspan="2">Resources
Licensed drivers
Reliable vehicles, drivers or own
Technology to support customer booking choices e.g. app, in-venue tools, website, telephone
Customer account facility
Secure electronic payment facilities</td><td colspan="2">Customer Channels
Smartphone booking app
Aggregator platforms
Website
Telephone
Office
Shared app services</td></tr>
<tr><td colspan="3">Cost Structure
People
Vehicles and associated costs
Dispatch technology
Regulatory costs
Investing in smartphone booking apps and shared services</td><td colspan="2">Revenue Streams
Customer accounts
Cash/electronic journey payments
Contracts
Shared contracts with other operators</td></tr>
</table>

Figure 9. Roadmap for small operators (applying the business model adapted from Osterwalder and Pigneur, 2010)

4.4 Practical Recommendations for Decision Making – Regulatory Authority

4.4.1 Transport for London App

Given the pervasiveness of apps, it is surprising that similar technology has not been implemented to aid the regulator proactively in the role that it performs. Passenger health and safety is an area that could be assisted by a TfL/TPH app that all drivers log into when they commence private hire journeys. The idea generated from the use of digital tachographs used in Heavy Good Vehicles (HGVs) and was further supported by a participant sharing their opinion on the Livery Passenger Enhancement Program (LPEP) used in New York. The proposal is for TfL to investigate the development of their own app which would monitor which driver is in the vehicle, the vehicle statistics and where and when it is travelling. The app could provide collision data, support incident information and ensure hire and reward insurance is in place. This would provide assurances to passengers and the public and would give TfL/TPH data that may relinquish the requirement for costly enforcement measures.

4.4.2 Research Study – Driver Employment Status

The research demonstrated that driver health and well-being originates from the operators' business model. Operators who are mindful that good quality, satisfied drivers, sustain their businesses have put methods in place to ensure drivers are rewarded fairly for the work they do and trained accordingly. Arguably, differentiated services have the financial resources to do this, whereas traditional operators with a low-end service may have challenges. However, the matter of whether private hire drivers are self-employed, workers, independent or dependent contractors (Taylor, 2017) should begin with examining how an industry operates and what status supports the passenger, driver and operator. Some drivers prefer the self-employed status due to the flexibility it provides and the opportunity to increase their earnings. The recommendation is for further research to be undertaken to understand the appropriate model for sustainable safe journeys, and shape a driver's status collaboratively rather than a 'one-size fits all' approach.

4.4.3 Stakeholder Engagement Strategy

A lack of regulation clarity was cited by many stakeholders interviewed. The recommendation is for an urgent review of how the regulator engages with the private hire industry to remedy this situation. The Taxi and Private Hire Action Plan 2016, (Transport for London, 2016) outlines a commitment to quarterly trade meetings, yet there is little evidence of a stakeholder engagement strategy. An immediate action is for TfL to prepare, in collaboration with the private hire industry, an engagement strategy which concentrates on co-production rather than consultation to utilise the wealth of expertise and knowledge that is available as an extension to the regulator's own resources. For example, this approach could investigate the viability of a third tiered service similar to the TNC tier implemented in the US.

4.4.4 Scenario Planning

The future of the service provided by the regulator and the private hire industry extends beyond their jurisdiction. The draft Mayor's Transport Strategy (Greater London Authority, 2017) does acknowledge the continued requirement for taxi and private hire vehicles, yet the 'Healthy Streets Initiative' to pedestrianise central London and increased emphasis for public transport does raise questions regarding what services the private hire industry will provide. What could transpire from this strategy is an enhanced requirement for suburban private hire services. However, these services are already provided by smaller operators, but considering the current regulatory and business pressures, they may disappear in the long-term. The recommendation is for the regulator, Government, other transport operators, London Boroughs, businesses and civil society to conduct scenario planning to envisage what passengers' needs will be in the future in the context of rapid societal, economic and technological changes. This could lead to an environment where all London transport services work in a collaborative rather than competitive manner.

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Appendix 1 - Interview Pack

Strategic review of London's private hire industry
"The impact of smartphone booking apps on London's private hire industry".

Research question:
The impact of smartphone booking apps on London's private hire industry

Research objectives:

1. How has the private hire industry been affected?
2. What strategies are being used by the private hire industry since the launch of smarphone booking apps?
3. How can the private hire industry remain competitive?
4. How have driver earnings been affected?
5. What factors are resulting in London's private hire operators merging, being acquired, leaving the industry or going into administration?

Interview Questions

Asked	Question
	1. How would you describe the impact of smartphone booking apps on the private hire industry?
	2. How have you adapted your business model since the launch of smartphone booking apps?
	3. a) Do you utilise a smartphone booking app for your services?
	3. b) When did you start using a smartphone booking app?
	3. c) If so, is this designed in-house or do you use an aggregator website such as Karhoo, Kabbee or Minicabit?
	3. d) If the app was developed in-house, how long did it take you to reach a break-even point and return on investment?
	4. a) What effect have smartphone booking apps had on driver earnings?
	4. b) Have earnings increased or decreased?
	5. a) How are drivers employed? E.g. self-employed, contract or employed
	5. b) How are drivers paid? E.g. salary, fare less a percentage
	6. What factors would you say are contributing to private hire operators merging, being acquired, leaving the industry or going out of business?
	7. Alongside new technologies in the industry, what has been the impact of the regulation review? E.g. English language test and the accumulative impact of regulation changes
	8. What is your view on what the next 5 years look like for London's private hire industry?
	9. On a scale of 1 to 10 where 1 is low and 10 is high, how positive do you feel about the future of the private hire industry?

Appendix 2 - Operator Pre-Interview Questionnaire

Kingston University London

Operator Questionnaire

1. Company Name

2. Respondent's Name

3. Please could you advise the annual revenue of the company for each of the past 3 years?

4. How many drivers do you operate?

5. How have the number of drivers changed over the past 12 months and how long do drivers stay with the company?

6. How many vehicles do you operate?

7. Do you have a variety of different private hire vehicles? If so, what types do you operate?

8. What is the approximate percentage mix of private hire vehicles?

9. What percentage of private hire vehicles are wheelchair accessible?

10. Are private hire vehicles operator owned, driver owned or leased?

11. What geographical areas do you cover?

- [ ] Inner London
- [ ] Outer London

Other (please specify)

12. What type of service do you provide?

- [ ] Minicab
- [ ] Courier
- [ ] Airport transfer
- [ ] Executive
- [ ] Events

Other (please specify)

13. What methods can a customer use to book a journey with you?

- [ ] Office
- [ ] Telephone
- [ ] Website
- [ ] Smartphone booking app

Other (please specify)

14. What proportion of bookings goes through each method?

15. How has this differed from last year to this year?

16. What hours do you operate?

17. What is the typical origin and destination of customer trips?

18. What is the average number of trips per month/year?

19. What is the average journeytime?

Appendix 3 – NVivo™ Codes

Code 1	Answer back to Uber	Code 41	Systems update
Code 2	Aggregator benefits	Code 42	Cashless society
Code 3	Aggregator types	Code 43	Economic
Code 4	App functionality, quality etc.	Code 44	European regulations
Code 5	App introduction	Code 45	Sharing economy
Code 6	Breakeven point on own app	Code 46	Social interaction
Code 7	Competition	Code 47	Technology
Code 8	Differentiation	Code 48	US regulation
Code 9	Disruptive innovation	Code 49	Private hire versus taxis
Code 10	Driver of customer choice	Code 50	Suppliers
Code 11	Driver earnings	Code 51	250 enforcement officers
Code 12	Driver employment status	Code 52	3rd tier
Code 13	Driver incentives	Code 53	Creating quality
Code 14	Driver motivation	Code 54	Cross border
Code 15	Driver recruitment	Code 55	DBS check
Code 16	Drivers workers' rights	Code 56	Driving tests
Code 17	GMB union	Code 57	English language test
Code 18	Hours worked	Code 58	History of licensing
Code 19	How drivers are paid	Code 59	Incidents
Code 20	Historical context	Code 60	Industry perceptions of TfL
Code 21	Impact on other transport	Code 61	Insurance
Code 22	Industry partnerships	Code 62	Monopoly
Code 23	Memorable quotes	Code 63	Numbers of drivers, vehicles etc.
Code 24	Negative PH industry perceptions	Code 64	Office location
Code 25	New entrants	Code 65	Operator engagement
Code 26	On-demand	Code 66	Recommendations
Code 27	Operator license fee changes	Code 67	Regulating technology
Code 28	Business model changes	Code 68	Regulations general
Code 29	Client types	Code 69	Relaxed regulations
Code 30	Existing business model	Code 70	TfL and PH industry relationship
Code 31	Operator numbers	Code 71	TfL license fees
Code 32	Operator vehicle types	Code 72	The future
Code 33	Overheads	Code 73	Driverless vehicles
Code 34	Bookings via different methods	Code 74	Perceptions
Code 35	Price	Code 75	Traffic
Code 36	Profits	Code 76	Uber negative comments
Code 37	Reasons for mergers, leaving etc.	Code 77	Uber perceptions
Code 38	Revenue split	Code 78	Uber positive comments
Code 39	Service levels	Code 79	Uber's strategy
Code 40	Small operators' motivation	Code 80	VC funding

Appendix 4 - NVivo™ Key Categories

Category 1	App introduction
Category 2	Driver earnings
Category 3	Driver hours
Category 4	Historical context
Category 5	Business model changes
Category 6	Reasons for mergers, acquisition etc.
Category 7	Service levels
Category 8	Private hire versus taxis
Category 9	English language test
Category 10	Industry perceptions of TfL
Category 11	Numbers of drivers, vehicles etc.
Category 12	The future
Category 13	Driverless vehicles
Category 14	Perceptions
Category 15	Uber