Coopetition in Digital Platform Ecosystems:

Revisiting Incumbent and Innovative Entrant Dynamics

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ABSTRACT

In the digital platform economy, incumbents appear to interact with innovative entrants in more profound ways than expected, despite entrants' significant losses. We conduct a historical case study of the Southeast Asian digital ride-hailing platform ecosystem to shed light on how established incumbents accommodate and support competing digital platform entrants. Once a digital platform entrant emerges with a new ecosystem, incumbents do nothing to challenge it, and often support it. Successful entrants in our case opportunistically reposition their business model with little regard for the focal industry and surprisingly ignore these focal industry incumbents, who gradually clamor to support the digital entrant platforms. We contribute a process model of the dynamic coopetition process that plays out between diverse incumbents and entrants in digital platform ecosystems.

Keywords: incumbent entrant dynamics, coopetition, digital platform ecosystems

1. INTRODUCTION

Innovative entrants, conventional wisdom suggests, struggle to compete with established incumbents. Even if they possess superior ideas, technologies, and processes, their lack of complementary assets (Teece, 1986, 2018) and access to resources puts them at a significant disadvantage vis-à-vis large, established incumbents. This, as Ozcan and Santos (2015) have pointed out, is even more of a constraint for actors who must rely on their complementors to succeed in the nascent market of mobile payments. Complex offerings that necessitate the alignment of various actors find it difficult to succeed because established firms defend the status quo. As Jacobides, MacDuffie & Tae (2016) have shown, dominant incumbent firms

that control value creation and capture in their industry can become potent defenders of their status quo, making it nearly impossible for new entrants to challenge the structure of the existing industry hierarchy. Change can happen through the collective action of new firms and their collaborators, who can usher in new solutions (Gurses and Ozcan, 2015). For disruptive companies (Christensen *et al.*, 2018) that challenge the status quo of an industry or ecosystem of interdependent firms (Ansari, Garud, and Kumaraswamy, 2016), there is the additional challenge of not antagonizing their incumbent complementors. While this depiction of entrant and incumbent dynamics suggests that entrants should cooperate with incumbents or powerful stakeholders to gain legitimacy for growth and survival, we have observed different competitive dynamics in new *digital* platform ecosystems introduced by disruptive entrants. We thus explore a new disruption process by which entrants gain legitimacy without the initial support of established incumbents, who later clamor to support and grow with entrants in new digital platform ecosystems.

As a case in point, we examine the digital ride-hailing platform ecosystem, where a set of formerly small, inconsequential entrants such as Uber and Lyft, despite growing at a loss, drastically changed their status and attractiveness as potential partners as they grew. Consider Grab, Southeast Asia's largest digital ride-hailing platform entrant and the two established incumbent groups it upended: global automotive original equipment manufacturers (OEMs) and the local taxi industries. Founded in 2012, Grab initially sought the financial and strategic support of automotive OEMs, and partnerships with local taxi fleet companies, at its early expansion stage from 2013 to 2014. At first, Grab was relegated to an industry pariah status by both the OEMs and dominant taxi fleets across the region. Yet within two years, and despite Grab's lack of profitability or even Uber's global reach, the tables ostensibly turned, and it became the focus of offers by major incumbents to collaborate, as well as the recipient of over $2B in financial investment by global OEMs like

Toyota and Hyundai. This was all the more remarkable, as automobile OEMs threw caution to the wind, strengthening both Grab and other ride-hailing firms (like Uber and Gojek) which were increasingly seen as competitors trying to attract the "industry bottleneck" (Baldwin, 2018; Jacobides, Knudsen, and Augier, 2006) in their direction—if not in cash-flow terms, surely in terms of perception, and offers to collaborate. Major taxi fleets also scrambled to either collaborate with Grab or form an alliance with its direct competitors.

Motivated by this phenomenon, we argue that the perception of relative attractiveness in an industry where asymmetric collaborations between established incumbents and innovative entrants become increasingly vital for success is an important and understudied area (Eggers and Francis Park, 2018). In particular, we aim to study how the particularities of the digital platform business model introduced by entrants can induce unique coopetitive dynamics (Khanagha *et al.*, 2020). This happens even when new players challenge the status quo and potentially threaten the dominant position of established actors, partly because of changes in the increased availability of resources for startups (Ewens, Nanda, and Rhodes-Kropf, 2018), in addition to the economics of platforms (Cusumano, Gawer, and Yoffie, 2019; Katz and Shapiro, 1985) and value creation and appropriation in platform ecosystems (Adner and Kapoor, 2010; Ansari *et al.*, 2016). As Khan (2017) has pointed out in the context of antitrust studies, a vastly different set of behaviors may emerge when dominant firms are expected to capture the market—given that in many of these businesses, the objective is no longer to be profitable, but rather to *grow*. New firms, even with significant losses, may be richly rewarded by the stock market, and before that, from venture capital and private equity firms which aim to capitalize on them. Therefore, part of the liability of new firms, which was the inability to gather resources in their earlier, loss-making period may be shrinking. Rapid growth, even of smaller and unprofitable firms, may make them more powerful than what used to be the case.

Understanding these new dynamics also helps to revisit received wisdom on what drives industry transformation for a platform-based business model. In a new mobility services industry where technological changes have been described as disruptive to established incumbents (Collie *et al.*, 2017; Grosse-Ophoff *et al.*, 2017), we aim to better understand how this disruption happens, particularly how it changes the competitive dynamics between incumbents and entrants towards coopetition, where competing incumbents and entrants cooperate for mutual benefit. This change in competitive dynamics toward coopetitive ties is topical because it contributes to a deeper understanding of how incumbent firms can react to innovative entrants with a new technology *and* business model; and vice versa (Eggers and Francis Park, 2018; Eggers and Kaplan, 2009; Eklund and Kapoor, 2019; Hannah and Eisenhardt, 2018; Khanagha *et al.*, 2020).

We thus pose the following research question: how do the particularities of digital platform-based business models affect incumbent-entrant dynamics in a new digital platform ecosystem introduced by innovative entrants? To answer this question, we examine the Southeast Asian digital ride-hailing platform ecosystem to develop a historical case study focused on understanding the evolution of relationships between key incumbent actors and innovative digital platform entrants who introduce a new, competing ecosystem. We collect data in the form of 60 in-depth stakeholder interviews, in-person observations and archival data from firms and the public media to examine the variations of dyadic ties between incumbent and entrants firms in the ecosystem. We develop a process model to understand how coopetition emerges and unfolds between incumbents and entrants across the evolution of a new digital platform-based ecosystems.

In answering these research questions, we can determine whether such coopetitive ties are, among others, a unique feature of digital platform ecosystems on which these new

business models are founded (Jacobides, Cennamo, and Gawer, 2018). We also revisit the nature of a disruptive process—which may have greater support from the disrupted incumbent actors than previously acknowledged (Ansari *et al.*, 2016; Khanagha *et al.*, 2020). We also aim to better understand heterogeneous characteristics that underpin incumbent action, inaction or change of course (Eggers and Francis Park, 2018)—and particularly, the proactive support of new players by studying two types of incumbent players, automotive OEMs and taxi fleet firms. Ultimately, we aim to draw upon this phenomenologically-driven context of coopetitive incumbent-entrant ties to add a new perspective to a long tradition of strategy research on how entrants—in this case, platform complementors—with disruptive innovations can upend long-standing industry dominance traditionally held by incumbents (Christensen and Bower, 1996; Henderson and Clark, 1990; Tushman and Anderson, 1986). In doing so, we contribute research on the competitive dynamics between incumbents and disruptive entrants at the intersection of innovation and digital platform ecosystems.

2. REVISITING INCUMBENT AND ENTRANT DYNAMICS

Existing research has addressed issues of competitive dynamics between firms in an innovative ecosystem (Adner and Kapoor, 2010; Ansari *et al.*, 2016; Cusumano *et al.*, 2019; Hannah and Eisenhardt, 2018; Jacobides *et al.*, 2016; Khanagha *et al.*, 2020), but few have examined the processes by which established incumbents in a mature industry accommodate and cooperate with innovative entrant competitors with digital platform-based business models (Eggers and Francis Park, 2018; Khanagha *et al.*, 2020). In particular, how do the particularities of digital platform-based ecosystems affect the way both incumbents and disruptive entrants respond to one another? While these questions may not have been directly answered by existing research, we draw upon a few research streams that offer partial insights.

First, we briefly consider established wisdom on how entrants disrupt an industry's way of creating and capturing value, and how established players tend to react (Eggers and Francis Park, 2018). We then draw upon the growing institutional entrepreneurship research on how competing incumbents and entrants in a new ecosystem cooperate. We end the section by examining the specificities of digital platform ecosystem business models that may distinguish them from non-digital models before returning to the intended contribution of this paper.

Incumbent Responses to Innovative Entrants

Extant research on disruptive innovation has shown how dominant incumbents resort to organizational inertia or conservatism in response to technological change introduced by entrant firms (Benner, 2010; Henderson and Clark, 1990; Miller and Chen, 1994; Tushman and Anderson, 1986; Van Wijk *et al.*, 2013). The strategy literature provides additional evidence, broadly consistent with this picture. It establishes that incumbents typically hold the power and legitimacy relative to entrants in an industry. Incumbents usually have the knowledge, capital, R&D resources (Cohen and Klepper, 1996; Klepper and Simons, 2000), and other complementary assets like brand recognition, reputation, a large customer base and marketing and distribution capabilities that start-ups need (Adner and Kapoor, 2010; Kapoor and Furr, 2010; Rothaermel, 2001; Singh and Mitchell, 2005; Teece, 1986; Tripsas, 1997).

Research focusing on the organization of industries (Jacobides *et al.*, 2006) has also been directly interested in incumbent-entrant dynamics. Jacobides (2005) paints a more collaborative picture, whereby established firms often support new practices (such as vertical dis-integration), if they think their short-term benefits are supported, even if they are ultimately undermined. Firms that proactively try to change the way the industry is structured and to benefit from it even though they often appear to take a short-term view of their

interests. Thus, disruption can be endogenous, and the result of established and new firms alike, whether ultimately misguided or not (Jacobides *et al.*, 2016; Jacobides and Winter, 2012). That said, empirical research on this topic suggests that incumbents can embody a strong inertial force to defend their status quo dominance in the nascent period of industry change brought upon by innovative entrants (Jacobides *et al.*, 2016). Similarly, the nascent market for mobile payments failed to emerge when powerful incumbents, whom entrants depend on for resources, benefit from long-standing industry dominance and withhold investing resources needed to support new market emergence (Ozcan and Santos, 2015).

This leads to a significant problem for firms that need complementors, as Ansari et al. (2016) have shown in the case of TiVo, a disruptive firm which needed the collaboration of existing players to become commercially viable, and stress the need for managing coopetitive ties, not only at the level of a dyad, but also at the level of the entire industry or ecosystem (Adner, 2017; Jacobides *et al.*, 2018). They show that to survive, the disruptor continually adjusts its strategy, and that as their relational dynamics change, they gain latitude to broaden the frame of their innovation over time. So clearly, disruptors require a deft strategy, cognizant of established firms' agendas over time. However, what enables new, disruptive entrants to be successful? And how does the process of mutual accommodation that these disruptive entrants engage in evolve?

Towards a Mutualistic Approach of Incumbent-Entrant Dynamics

Another stream of research has moved toward a mutualistic approach in which competing incumbents and entrants cooperate to some degree. As Tripsas (1997) suggested, collaboration will ensue if incumbents can profitably combine entrants' new technologies, even if they are offered by disruptors. Competing incumbents and innovative entrants will collaborate if both actors can gain additional value from an alliance (Hannah and Eisenhardt,

2018), and particularly when innovative entrants enter incumbent markets with low-to-moderate levels of competition (Hashai and Markovich, 2017).

Strategic alliances can enable incumbents to engage in the development of new entrepreneurial ecosystems, learn how to develop new products and remain relevant in changing business environments (Wright and Drori, 2018), a potential motivation to engage with new firms. Alliance formation with innovative entrants can also motivate incumbents working with disruptors by enabling them to lower their adjustment costs for new products or technologies (Eklund and Kapoor, 2019). However, incumbents may fear resource expropriation in strategic alliances (Gulati and Singh, 1998; Oxley and Sampson, 2004; Reuer, Zollo, and Singh, 2002), although it may be unlikely in the case of start-ups, which may not have the knowledge and resources to do so (Haeussler, Patzelt, and Zahra, 2012).

Recent studies have also examined how firms can gain competitive advantage through the digitization of innovative practices or products and the full exploitation of this transformative opportunity (Teece, 2018). Thus, incumbents can invest in collaborating with entrants who offer valuable innovations (Ansari *et al.*, 2016), or take a mutualistic "rising tide lifts all boats" approach to a dominant platform entrant by engaging in the ecosystem as an enhancing complementor and partaking in partial competition after gaining acceptance (Khanagha *et al.*, 2020). Although Khanagha *et al.* (2020) find evidence of coopetition between platform incumbents and entrants, their study focuses on a case of a dominant platform incumbent introducing a new innovation that competes with other incumbent complementors on its platform to avoid cannibalizing the market share gained from its existing complementors. In our study, we instead aim to revisit how coopetition unfolds in the innovative disruption of incumbent industries, except in the context of emerging digital platform entrants that introduce a new ecosystem.

Incumbent-Entrant Dynamics in Digital Platform Ecosystems

Our research question focuses on the emergence of new, platform-based ecosystems, that change some of the traditional constraints, especially given the excitement of funders over the last decade. In particular, a plethora of new platforms and digital ecosystems have arisen, that have transformed the way economies work (Jacobides, Sundararajan, and Van Alstyne, 2019). From ride-hailing, to food delivery, to entertainment platforms, many industries are seeing new ways of organizing emerge, creating significant challenges for existing incumbents. These digital platforms are pervasive, and they also change the underlying economics of competition (Cusumano *et al.*, 2019). And, we argue that they also create a new set of competitive incumbent-entrant dynamics that may differ from innovative disruption by non-digital platform-based entrants.

The challenge with platforms is that they create significant network externalities (Katz and Shapiro, 1985; Rochet and Tirole, 2003). That is, platform success creates a virtuous cycle, especially on two-sided platforms where attracting, for instance, customers helps attract a supply of drivers, and vice versa. This leads to a "winner-take-all" (or at worst, "winner-take-most") dynamic, which suggests that whether a platform has been sponsored by an incumbent or an entrant, the fact of being there early and the achievement of critical mass is a key driver of success (Cusumano *et al.*, 2019; Eisenmann, 2006). This suggests that incumbents might not have the possibility of thwarting the emergence of new platforms with the same facility with which they had to keep the structure of an industry in check.

This point raises a host of both strategic and policy issues, outlined recently by (Khan, 2017), who noted (in the context of Amazon) that the upside of such platforms also means that the achievement of scale, as opposed to profits, is something that investors are keen to support. As such, and given the broad availability of funding from PE and VC that can

support such ventures (Ewens *et al.*, 2018), new firms can survive despite making profits for protracted periods of time, and as we have seen in the last year, may even reap impressive rewards from the capital markets by IPOs that happen while firms are deeply loss-making. This ability may overcome the traditional constraints that were placed on disruptive firms and could alter the dynamics between established and entering actors.

While research on platforms (Cusumano *et al.*, 2019) or ecosystems which are potentially drawn on platforms (Adner, 2017; Jacobides *et al.*, 2018) have recently made significant strides, they have mostly considered the growth of platforms individually, as opposed to looking at them in their competitive context. With few exceptions (Khanagha *et al.*, 2020), how established incumbent firms respond to and engage dynamically with *digital* platform-based entrants, especially versus non-digital ones, remains a puzzle.

3. RESEARCH SETTING, DATA SOURCES AND METHODS

To revisit established notions of how incumbent-entrant dynamics unfold in the emergence of new digital platform ecosystems and the subsequent responses of incumbent industries, we conduct a historical case study of incumbent firm responses to entrants in the Southeast Asian digital ride-hailing platform ecosystem from its inception in 2011 (official launch was in mid-2012) to 2020 for two main reasons (Eisenhardt and Graebner, 2007; Yin, 2014). First, one co-author's previous industry experience at Grab as the founding Vice President of Public Affairs and the first regional employee from July 2013 to June 2017 motivates this study for unique research access and understanding of the historical events that unfolded during her work tenure. For instance, this co-author had participated in Grab's first discussions with one of the major automotive OEMs in Thailand in 2013 and we used archival data from her email records and meeting notes to form our analysis of the relationship between the incumbent and entrant at the time. Although this co-author's former

experience has helped us gain access to unique data, we also rely on interview and publicly available archival data to triangulate and validate the co-author's experience and data.

Second, we chose to single out one industry, the Southeast Asian digital ride-hailing ecosystem, to hold industry-level factors constant within the boundaries of the firms operating in this region in our case study (Eisenhardt, 1989; Thomas, 2011). Previous strategic management research has utilized the historical case study method as a suitable way to analyze the variation of firm responses to innovations in one industry (Gilbert, 2005) and the variation of innovation processes in one firm (Vinokurova and Kapoor, 2020). Our level of analysis is the varying firm-level incumbent responses to the innovative entrants within a regional digital ride-hailing platform ecosystem.

Research Setting

Southeast Asia's digital ride-hailing platform ecosystem offers a rich case study context. Since June 2012, Grab has grown into the largest digital ride-hailing platform firm in Southeast Asia and is valued at over USD14 billion (Pham, 2019) and operates in 336 cities across eight countries with over 152 million downloads and over 9 million drivers on its platform (Grab, 2019a). Since March 2018, Grab consolidated market share after merging with its main competing entrant, Uber, which soon exited the entire Southeast Asian market. Uber, the pioneering ride-hailing entrant launched in the United States in 2010 and operates globally in over 600 cities with a market capitalization of USD 46.1 billion (Yahoo, 2020).

The diverse Southeast Asian digital ride-hailing platform ecosystem also enables us to analyze the responses of two types of incumbent firms that are threatened by the entry of the digital platform entrant-led ecosystem: global automotive OEMs (upstream suppliers of ride-hailing platforms, including taxi fleets) and local taxi fleet firms (*non-digital* ride-hailing

platforms). Like many other digital platforms, Grab provides a ride-matching service and does not manufacture its own ride-hailing vehicles; and thus, relies on vehicles produced by automotive OEMs or procured from existing taxi firms for its own survival. Since Grab mainly operated as a digital taxi-hailing service from mid-2012 to late 2014, it solely relied on the existing taxi fleet industry or independent taxi drivers as complementors for its platform. As Grab expanded to include the hailing of drivers with privately-owned vehicles in late 2014 and 2015, its new private-hire vehicle service made it both a direct competitor to the taxi industry and a new potential customer for automotive OEMs.

Although Grab indirectly and directly depend on automotive OEMs to supply vehicles for its ride-hailing drivers, digital ride-hailing platforms also shifted consumer trends away from personal car ownership, which threatened automotive OEMs' personal car sales business. Thus, we consider automotive OEMs to be another type of an incumbent in the digital ride-hailing platform ecosystem. Taxi fleet companies comprise the other group of incumbents and can be viewed as non-digital platform counterparts to digital ride-hailing entrants. Taxi fleets firms are traditionally non-digital, ride-matching platforms whereby taxi drivers rely on a centralized operator dispatch system or street hailing to complete rides. Because taxi fleets were eventually threatened by the rise of digital ride-hailing platform entrants like Grab, these two types of incumbents played both a cooperative and competing role with entrants throughout the entry and rise of a new digital platform ecosystem.

Data sources

We combine experiential industry exposure, archival data and a set of 60 interviews with relevant actors in the Southeast Asian digital ride-hailing platform ecosystem to construct a case study on the incumbent responses to the digital ride-hailing entrant, Grab, from its market entry in 2011 to April 2020. These data sources, summarized in Table 1, provide

multi-faceted evidence on how the two groups of incumbents responded to entrants like Grab—which entered the ecosystem as a pariah and later became a dominant focal player—and other competing entrants like Uber and Gojek.

[INSERT TABLE 1 HERE]

For the first group of incumbents, we focused on the major automotive OEM incumbents active in the region's four-wheeled vehicle market from 2011 to 2019: Toyota Motor Corporation (Toyota), Hyundai Motors (Hyundai) and Daimler's subsidiary in Singapore. These three automotive OEMs provide a heterogeneity of strategic responses to ride-hailing entrants. Toyota and Hyundai offer two cases of OEMs that eventually invested in Grab and collaborated with it, while Daimler provides a contrasting case study of an OEM that did not invest in it nor collaborate. Although other major OEMs like Honda and Mitsubishi have made investments in the Southeast Asian digital ride-hailing firms, Grab and Gojek—a major competitor from Indonesia, they focus on the two-wheel motorcycle market, which lies outside the scope of this study.

For the second group of incumbents, we analyzed the local taxi fleet companies across the region, and conducted interviews with local taxi fleets in two of the region's primary ride-hailing markets, Singapore and Indonesia. The major taxi fleets in Singapore comprise 95 percent of the taxi industry by number of vehicles (LTA Singapore, 2020). The largest taxi fleet in Singapore, ComfortDelGro (60% market share) offers a case of a taxi incumbent that refused to work with Grab, but tried to partner with Uber before the latter's exit. Trans-Cab (15%), SMRT (13%) and Premier (8%) represent other taxi fleet firms that formed an alliance with Grab and other entrants for digital taxi-hailing services. In Indonesia, the dominant taxi firm we interviewed was the BlueBird Group, which manages over 28,000 taxis.

Data analysis

To generate inductive insights, we follow the historical case study method to understand how coopetition evolved between incumbents and entrants in Southeast Asia's digital ride-hailing platform ecosystem. First, we constructed a chronological timeline of events, as shown in Figure 1, that unfolded in the ecosystem relating to the dyadic dynamics between the incumbent and entrant actors from 2011 to 2020. We analyzed industry-level phenomena from our multiple data sources and drew conclusions from how major automotive OEMs and taxi fleet incumbents viewed and responded to Grab during the entrant's market entry, nascent growth stage and mature growth stage throughout the longitudinal period of 2011 to 2020. We were aware that the co-author's experiential industry experience and our qualitative interview data on historical events represented contemporaneous accounts of an individual's personal experiences. Thus, these data sources were continuously triangulated with historical archival data to limit bias as much as possible (Guba and Lincoln, 1982).

[INSERT FIGURE 1 HERE]

Second, we developed a detailed memo of generated and revised insights of the timeline of events that preceded the emergence of the Southeast Asian digital ride-hailing platform ecosystem, extending the study to two years before Grab's entry to include how some incumbents had explored entrant innovations outside of Southeast Asia, until the ecosystem emerged in late 2011 and through its evolution until 2020 (Charmaz, 2006). We then used theoretical coding to analyze the data we gathered to track the variance in the relationships between the two types of incumbents and entrants across the evolution of a new digital platform ecosystem introduced by entrants in our study from 2011 to 2020. Our data analysis involved an iterative process of data collection, analysis and triangulation. We triangulated our archival data from news sources and industry experience with the field

interviews and notes from relevant industry conferences to corroborate our findings (Guba and Lincoln, 1982). Table 2 illustrates the results of our theoretical coding analysis.

[INSERT TABLE 2 HERE]

Finally, we used the timeline and theoretical coding analyses to formulate a process model, as illustrated in Figure 3, of how coopetitive relations between incumbents and entrants unfolded over time in an evolving digital platform ecosystem. We demarcated three phases of ecosystem evolution in our process model based on the development phase of the historical events we analyzed. To further validate our case study and process model, we followed up with additional phone interviews and email exchanges with at least one stakeholder from each of the incumbent and entrant firms we interviewed from July 2019 to September 2020. We also interviewed external experts from The Boston Consulting Group and a senior expert from an international transport policy association for further validation from knowledgeable third parties in the same time period. We present our findings from our historical case study through a longitudinal analysis of both facts from archival records and the narratives provided by the field interviews and industry experiences in the next section for each of the three phases of the process model (Walsh, 1967).

4. EVIDENCE: HOW COOPETITION EMERGES AND EVOLVES IN THE EVOLUTION OF DIGITAL PLATFORM ECOSYSTEMS

A process model of coopetitive incumbent-entrant dynamics

Our case study of the evolution of Southeast Asia's digital ride-hailing platform ecosystem revealed that the process of coopetitive ties between incumbent industry firms and digital platform entrants unfolded in three main phases below in Figure 2. We detail the historical

events leading to the formation of coopetitive ties between the incumbent and entrant firms for each phase in the next sections.

[INSERT FIGURE 2 HERE]

Experimentation phase (2011-2014): Incumbent and entrant firms explore options

Grab officially launched digital ride-hailing services in Southeast Asia in June 2012 after piloting the concept since October 2011. However, established automotive OEMs present in the region like Daimler had initiated innovations in the digital ride-hailing platform ecosystem as early as 2007 in Europe when it launched its free-floating carsharing program, car2go, in October 2008 (Daimler, 2008). A young team from Daimler's Business Innovation division had predicted a future in which car ownership would decline and new mobility services enabled by digital technology would increase (Daimler, 2016).

While other OEMs were not as engaged as Daimler, they also showed innovation initiative, especially as new entrepreneurial actors emerged. In 2011, the strategic foresight research team at Hyundai had conducted exploration studies on new mobility innovations, which mostly focused on carsharing entrants like ZipCar in the US. In 2010, Toyota had made an unprecedented USD50 million investment in Tesla Motors, a US-based company for electric vehicle development, but did not yet focus on other new mobility services like carsharing like Daimler and Hyundai (Johnson and Hull, 2010). Automotive OEMs like Daimler and Hyundai mainly focused on experimenting in the digital, free-floating carsharing industry, which did not involve chauffeured rides and resembled a car rental service, while Toyota was intent on electric vehicle development. Meanwhile, Uber, the world's first digital ride-hailing startup, was founded in 2009 in San Francisco but did not officially launch its

mobile app and operations until 2011 with chauffeured executive cars for hire. The ride-hailing industry remained nascent at this time and expanded internationally only in 2012.

In addition, major taxi incumbents in Southeast Asia, like ComfortDelGro in Singapore, experimented with a digital taxi-hailing app since 2010 but did not fully launch an updated version until after entrants did in 2014. After Grab launched in 2012, it had approached ComfortDelGro and other dominant taxi fleets across the region like BlueBird Group in Indonesia, but these fleets refused to partner with Grab, which had relied on taxi fleets for its focal taxi-hailing service in its early growth phase from 2012 to 2015. In late 2013, Grab also had approached Toyota through its subsidiary based in Bangkok, Thailand to potentially collaborate on an in-car data-collection project for map development and had invited Toyota to participate as a minor investor in its Series B funding round at a pre-money valuation of USD40 million, but both initiatives failed to materialize after several discussions.

Also in mid-2012, the Hyundai strategic foresight research team took a deeper dive into studying future trends in the transition of mobility ecosystems in global mega-cities like London, which included the case of Uber in the ride-hailing industry, as well as other OEMs like Daimler and BMW entering the carsharing space. The research team published their future of mobility study in late 2014 and had it read by the Hyundai top management team, but it did not impact business decisions at the time. Hyundai was still unwilling to take any action on their initial research findings because they deemed the carsharing and ride-hailing markets too small at the time, and also recognized that they did not have the organizational capacity to manage the new project. Hyundai did not yet study, nor spend much attention on Grab in Southeast Asia at the time for similar reasons.

Whether incumbents engaged with the new business opportunity or not depended on whether the firm deemed the opportunity as a large enough market to enter or not, in addition to whether it was consistent with their core business model. Daimler decided to engage with ride-hailing entrants, but only in their core market of Europe and not in Southeast Asia. After its experience investing in ride-hailing services in Germany, it quickly learned that the innovations would be unprofitable, and especially so in a non-core market. On the other hand, Hyundai did not engage with entrants during nascent growth period of new mobility services due to viewing the market opportunity as too small at the time, in addition to lacking the organizational capacity to manage this new project at the time. Dominant taxi fleets in Singapore, Indonesia and Vietnam refused to engage with Grab, but smaller taxi fleets or independent taxi drivers in those countries, and in Malaysia, Philippines and Thailand, welcomed partnering with digital platform entrants from the start.

The organization structure and staffing of incumbent firms also played a key role in determining whether they would view new opportunities as consistent with their core business model. For example, Daimler had a Business Innovation team already in place to launch and execute on the new digital platform opportunities in carsharing that resulted from their exploration research, culminating in the launch of their car2go pilot in 2008. However, Hyundai was not able to act upon their research findings to enter into the carsharing market due to a lack of an organizational structure and capability to execute on the idea; in addition to the reluctance to take on a nascent market they viewed as too small at the time. Meanwhile, Toyota did not begin its exploration into new mobility services until much later in 2015, but when it decided to engage with the ride-hailing industry through a strategic partnership and investment in Uber in 2016, it already had its Toyota Connected division and team set up since 2012 to manage the new business opportunity.

For entrants, experimentation led to finding new monetization opportunities in the ride-hailing ecosystem; in addition to complementary digital platform services outside of the mobility industry. Uber's unique focus on the ride-hailing of private vehicles, versus taxis, was quickly emulated by Grab in July 2014 after Uber officially forayed into Southeast Asia by launching in Singapore in March 2014. Automotive OEMs had initially deemed digital ride-hailing businesses irrelevant because these firms did not own any vehicles and instead leveraged assets from their existing taxi fleet customers, but their view would soon change after the rapid adoption of ride-hailing with private cars among both passengers and drivers.

Consolidation phase (2015-2016): Emergence of new platform connecting incumbents and entrants

The experimentation phase motivated a new model of consolidation that connected entrants to established incumbents; leading to the emergence of a new business platform model that connects different, interdependent actors in an ecosystem. The new digital ride-hailing platform created competition between disruptive entrants who engaged in price wars, which decreased fares for passengers and increased wages to drivers, thereby increasing the market share of entrants rapidly. Entrants received significant venture capital support to grow their installed user bases fast, which created a cycle that generated more excitement surrounding entrants' growth trajectories and market share accumulation; and thus, further fueling investor support. A Grab senior executive explained (Tay, 2014a): "Growth remains a key focus , and we now have a considerable war chest to accelerate our rapid expansion in Southeast Asia." From late 2014, Grab received large amounts of funding from venture capital investors and Grab focused on expanding into new business services across Southeast Asia independently without the strong affiliation or financial backing of powerful incumbent companies like taxi fleets and automotive OEMs.

However, the tables seemed to have turned after 2016 when the automotive OEM industry accepted that they were disrupted and threatened by digital ride-hailing platform entrants. Be that as it may, this disruption motivated a slew of industry reports that predicted a range of unsettling changes in the automotive OEM industry. A 2016 McKinsey & Company report predicted that incumbent automotive OEMs will have to simultaneously compete and cooperate with other OEMs and participate in new mobility ecosystems like ride-hailing that emerge as a result of consumer and technological trends (Gao *et al.*, 2016). A Boston Consulting Group report declared that disruption has arrived and estimated that by 2030, shared mobility innovations in the form of shared autonomous electric vehicles will account for nearly 25 percent of auto passenger miles traveled in the US (Collie *et al.*, 2017). Collie et al. (2017) warned that automotive OEMs' long-standing business models will need to be re-examined in light of this new mobility paradigm, whereby some firms can reinvent themselves as providers or suppliers of digital ride-hailing services and those that fail to do so will be rendered obsolete. In addition, Bain & Company report forecasted that worldwide profits from the automotive OEM industry will be reallocated by eight percent through 2025 to other players like new mobility platform firms and suppliers, despite a growth of 35 percent in the overall industry profitability during the same timeframe (Rajan *et al.*, 2017). Financial analysts predicted that automotive OEM industry revenues will shift from personal car sales to the purchase of mobility services over time, with the passenger mobility economy with services like ride-hailing would be worth as much as USD7 trillion by 2050 (Alliance Bernstein, 2018). Automotive OEMs were aware of these reports, as we have gathered from the industry interviews, and their engagement (or lack thereof) should be understood in this light.

In addition to the impending disruption to automotive OEMs, taxi fleets across Southeast Asia also experienced sharp declines in rides and number of drivers (Rahmiasri,

2016; Tan, 2018; Trang, 2017). Collaboration between incumbents and ride-hailing entrants became inevitable as the digital ride-hailing industry grew rapidly in the direction of private cars for hire and away from taxis. As such, in 2016, automotive OEMs like Toyota and Hyundai started discussions with Uber to supply cars directly to their ride-hailing drivers and dominant taxi fleets were compelled to partner with ride-hailing entrants. Taxi fleet firms—like BlueBird in Indonesia—that initially ignored Grab were compelled to form alliances with one of Grab's direct competitors, Gojek, in 2016. Both ComfortDelGro and BlueBird had made major investments to launch their own digital booking application platform to compete directly with entrants. However, since technology was not their core competence and taxis fares were heavily regulated compared to private-vehicle hailing, they could not compete with entrants increasingly engaged in winning over users through intense price wars on private-hail car rides. Meanwhile, minor taxi fleet firms continued to partner with Grab and other entrants around the region for survival as they had done early on.

Despite wide losses among the ride-hailing platform entrants engaged in price wars to attain market share in Southeast Asia at all costs, venture capital funding continued to pour into the industry, motivated by the potential benefits of a "winner-take-all" contest (Al Azhari, Diela, and Siniwi, 2016; Hutton, 2016). At the time, prominent venture capital investors believed that the ride-hailing platform industry was a winner-take-all market and invested in firms they believed would be the dominant player in each region globally. In July 2017, Grab received another unprecedented round of funding worth USD2.5 billion from venture capitalists to diversify into electronic payments services and grow platform use by becoming a full-service ride-hailing and financial technology platform.

In this phase, the automotive OEMs incumbents had different responses to Grab and its global entrant counterparts like Uber. Toyota's Research Institute started search and

development efforts for new mobility services in Silicon Valley in 2015, but mostly for autonomous vehicles technology. Toyota Motor Corporation did not begin developing and operating its mobility services platform (MSPF) under Toyota Connected, which now oversees new mobility services such as ride-hailing and carsharing, until 2016, when it announced a minor investment in Uber in May of that year (Toyota, 2016). Toyota's strategic partnership with Uber created new vehicle leasing options for Uber drivers to directly lease a car through Toyota and cover the lease payments through their Uber earnings (Buckland, Sano, and Inoue, 2018). Toyota admitted that the installation of Uber's second CEO enabled the start of a strategic alliance between the two firms in 2016. Toyota's President of Toyota Connected and Senior Managing Officer of Toyota Motor Corporation remarked that: "Ridesharing has huge potential in terms of shaping the future of mobility. Through this collaboration with Uber, we would like to explore new ways of delivering secure, convenient and attractive mobility services to customers," (Toyota, 2016).

Daimler had already invested in mytaxi in 2012 and expanded its minority investment by fully acquiring the ride-hailing firm in 2014 under its moovel integrated mobility services platform; in addition to acquiring 60 percent of the ailing London-based taxi ride-hailing platform, Hailo, in 2016 to merge it with mytaxi (Cook, 2016; Lim, 2016). Daimler entered China with its car2go carsharing service in 2016 (Daimler, 2017), but did not expand its ride-hailing services into Asia due to rampant competition from existing regional players in the region and the long road to profitability in the ride-hailing industry. At that time, mytaxi was not yet profitable in all of its operations across Europe and Hailo had to exit Singapore in 2016 after failing to compete with Grab and Uber there since its entry in 2014 (Lim, 2016).

In 2016, Uber had also reached out to Hyundai Motors and the two firms held discussions about a potential partnership for autonomous vehicle development. However,

Uber also tried to negotiate a deal for Hyundai Motors to provide its individual ride-hailing drivers with a 40 percent discount on Hyundai vehicles. Since Hyundai usually sells cars in bulk orders to car rental fleets like Avis or Enterprise Rentals with a 20 percent discount, it could not risk taking on a steeper discount without a bulk order volume guarantee that Uber could not commit to. Because of this large gap in expectations between Uber and Hyundai Motors, the two firms ultimately did not reach a partnership deal after intense discussions.

Re-alignment phase (2017-2020): Stabilization of new platform shapes ecosystem

In the re-alignment phase, we observed that the pressure for incumbents to engage with entrants on their platforms. This shift in incumbent-entrant dynamics led to further pressure for incumbent automotive and taxi industries to engage and cooperate with digital platform entrants. First, we saw that changes in the reframing of incumbents' vision for the future of mobility and in their management and organizational structures, which enabled some OEM incumbents like Toyota and Hyundai to support entrants like Grab through a combination of major financial investments and strategic partnership opportunities. Second, entrant platform innovations like JustGrab disrupted the incumbent taxi industry, creating significant changes in how value is captured in the taxi industry. Taxi fleet firms now depend on digital platform entrant firms for survival due to shifts in consumer preferences to use digital ride-hailing platforms. Third, these pressures for incumbent firms to cooperate with entrants were amplified by the indifference of entrants to the future of the focal mobility industry. Ultimately, the combination of these types of pressures and entrant platform indifference on the future of the focal industry drove changes in both the incumbent automotive and taxi firms to cooperate with digital entrants in some way.

In March 2017, Grab launched its new JustGrab service, which enabled ride-hailing users to access the nearest ride from a consolidated pool of Grab's taxi fleet partners and

private-hire car drivers in Singapore, reducing passenger wait times. In particular, the service enabled participating taxi drivers to benefit from charging dynamic, fixed price fares (including surge pricing) that were unique to entrant ride-hailing platforms for private hire car rides. JustGrab formally institutionalized partnerships between all of Singapore's taxi fleet firms at its launch, except for the dominant ComfortDelGro, which owned the Comfort and CityCab taxi fleets that constituted nearly 60 percent of the taxi market. ComfortDelGro refused Grab's offer to join JustGrab and initially believed that its dominant taxi market position could overcome this new competitive threat enabled by Grab's platform, which pitted the rest of the Singaporean taxi market against it. However, JustGrab's increasing success (Ang, 2017) pressured ComfortDelGro to form an unlikely alliance with the lagging entrant, Uber, in December 2017 in Singapore to join its competing service, UberFlash.

Shortly after in March 2018, ComfortDelGro's partnership with Uber abruptly ended when Grab acquired Uber in Southeast Asia, further cementing its position as the largest and most powerful digital ride-hailing platform firm in the region as incumbent taxi fleets decreased in size as private hire vehicle (PHV) hailing drivers and fleets from digital ride-hailing firms greatly outnumbered taxis (Grab, 2018a). Following the acquisition, Grab vowed to venture beyond transport by focusing on three major initiatives: (1) food delivery, (2) more localised transport and innovative mobility solutions with industry partners and governments and (3) a continued expansion of its financial technology services. By mid-2018, Gojek and Grab have coined their business model of diversifying into multiple business verticals and offering a variety of lifestyle services in one digital app platform as a "super app" strategy (Grab, 2019b; Ponnappa, 2019).

Key institutional changes in the automotive OEM industry gained momentum starting in 2017 when Toyota and Hyundai had initiated partnership discussions with Grab. Both

incumbent OEM firms realized the significance and urgency of engaging with major ride-hailing platforms globally and in response, Grab also created a new division for Strategic Automotive Partnerships in January 2017 to manage these relationships full-time. Notably, Toyota's President, Akio Toyoda, publicly unveiled his new vision for the company at a global technology conference in early 2018 (Toyota, 2018):

> "It's my goal to transition Toyota from an automobile company to a mobility company, and the possibilities of what we can build, in my mind, are endless… Clearly, Toyota is a well-known maker of reliable hardware. But with Toyota Connected, we hope to become just as well-known for the Mobility Services Platform we've developed to manage large fleets of vehicles and all kinds of connected services."

Hyundai had engaged with Grab because it felt competitive pressure to follow Toyota and Daimler in engaging with the digital ride-hailing platform and adopting a new vision for future mobility innovations. Hyundai's initial discussions with Grab began from an opportune meeting between the Executive Vice Chairman of Hyundai, who is also the son of Hyundai's Chairman and CEO, and Grab's CEO, who had bonded at an international conference over their shared multi-generational family business experiences in the automotive OEM industry and interest in digital mobility innovations. A Senior Manager at Hyundai explained (Personal interview, July 24, 2019): "The strategy and technology division started in early 2017 to cover all kinds of new businesses, except for manufacturing cars, because top management thought Hyundai was behind in reacting to digital innovations." Hyundai spent several months hiring a former Samsung Electronics executive to run the team, which was half comprised of external hires from a range of industries like e-commerce and management consulting. This reorganization enabled Hyundai to invest in and partner with digital ride-hailing platforms like Grab.

Toyota's and Hyundai's early discussions with Grab culminated in unprecedented investments and strategic partnerships between automotive incumbents and ride-hailing

platform entrants. In June 2018, Toyota announced a USD1 billion investment in Grab, the largest investment made by an automotive OEM in a ride-hailing company to date. Toyota also received a seat on Grab's executive board of directors, in addition to sending a senior Toyota executive from its Tokyo headquarters to work directly with the Grab team in Singapore to implement their partnership on connected car mobility, one part of Toyota's new mobility platform vision. By the end of 2018, Hyundai followed with USD275 million cumulative investment in Grab. At the time, Grab had a USD10 billion valuation in its Series G funding round and was not yet profitable. The global media reported that: "Toyota has some competition in courting Grab. Hyundai Motor Co. has also invested an undisclosed amount as part of an agreement to have its eco-friendly cars form part of the GrabRentals fleet. Honda Motor Co. is also an investor," (Buckland *et al.*, 2018). At this point, the tables have turned in which Grab held the bargaining power in the digital ride-hailing platform ecosystem over the dominant automotive OEMs in the automotive industry, who now vied for Grab's attention, despite the entrant's lack of profits.

Perhaps ironically, Grab and Gojek used the funds they obtained from automotive OEMs to shift *beyond* the automobile service, establishing themselves as a super app digital platform that also provided a range of lifestyle, food delivery and financial services. In August 2018, Gojek's CEO announced the firm had almost reached profitability in all of their business segments, except for transportation services (Potkin, 2018). For example, Gojek's electronic payments segment, Go-Pay, completed transactions totalling USD6.3 billion by the end of 2018 (Harsono, 2019). In March 2019, Grab considered spinning out Grab Financial, so that potential investors from the financial services industry—PayPal and Alibaba—could make strategic investments in Grab's non-transportation business (Russell, 2019). That same month, Grab's CEO articulated a new vision for the firm after receiving a USD1.4 billion venture capital investment to grow their super app strategy (Grab, 2019c): "The investment is

a clear statement of belief in our vision to grow Southeast Asia's technology ecosystem as the region's number one super app."

5. DISCUSSION

Our study sought out to explore how coopetitive ties emerge and evolve between incumbents and new digital platform entrants, who in the trade and popular business press are seen as "disruptive" competitors. We chose the Southeast Asian digital ride-hailing platform ecosystem as a setting because of the meteoric growth of these platform entrepreneurs, and because we saw incumbents who *supported,* rather than challenged or forestalled entrants, as we had seen in other settings like the emergence of mobile banking (Ozcan and Santos, 2015). This was all the more puzzling given that the automotive industry had been documented as a paragon of stability (Jacobides *et al.*, 2016), with the automotive OEMs not only having the lion's share of profits and market capitalization (Jacobides and Macduffie, 2013), but also control how value is created and captured in the automotive industry. We saw similar parallels in the disruption of major taxi industries that were previously uncontested and supported by long-standing regulatory institutions. Yet, the emergence of a digital ride-hailing platform model was enough to upend the dominance of these incumbent industries.

Our core contribution is a strategy process model of how coopetition between incumbents and disruptive entrants can shape and transform a digital platform ecosystem. While our research design focuses on one industry and a technology that draws on a digital platform (ride-hailing)—and as such does not offer a direct comparison to non-platform mediated changes, we find sufficient evidence to support the view that *digital* platform-based entry changes the traditional incumbent-entrant competitive dynamics established in several fields (Cusumano *et al.*, 2019). As a case in point, automotive OEMs continued traditional buy-sell exchange relationships with taxi fleets, which are arguably platform-based business

models that also facilitate rides between drivers and passengers like in digital ride-hailing platforms. Yet, the entry of digital ride-hailing platforms induced unprecedented responses by automotive OEM incumbents to invest billions of dollars and collaborate in ways unseen in the taxi industry. We thus argue that the benefits accrued by the digital aspect of ride-hailing platforms triggered the disruption of both automotive OEM and taxi fleet incumbents. In particular, digital technology enabled ride-hailing platforms to rapidly achieve economies of scale in line with a "winner-take-all" (or most) market logic championed by entrants and multiple stakeholders at the time through the benefits of indirect network effects and the ease of diversifying into multiple business verticals (Cusumano *et al.*, 2019; Eisenmann, 2006; Rochet and Tirole, 2006). In turn, this logic fueled a "grow-at-all-costs" business model—focused on user acquisition over short-term profits—that received extraordinary funding and support from external investors and the popular media. The popular support of this new business model logic, engendered by digital platforms, changed the perspective of existing incumbents who ultimately supported these entrant platforms.

The extent of the engagement of incumbent OEMs varies and depends, as best as we could ascertain, on a combination of their organizational structure, their openness to innovation overall, and more idiosyncratic, leader-dependent attributes. For taxi fleet incumbents, we observed differentiated responses depending on market dominance, whereby fleets with the largest market share in local markets refused to engage with the leading entrants and tried to compete with them head-on through alliances with minor entrants. None of the OEMs, though, seem to try to undermine new efforts—and new platforms. OEM and minor taxi fleet incumbents seem to want to co-opt with emerging firms by investing in them or partnering with them, provided they find potential upsides that fit their current model, and at worst are indifferent, or actively choose to ignore new efforts and structures they consider to be sufficiently small or tangential.

This study also revisits some of the received wisdom on the nature of the competitive dynamics between incumbents and challengers in platform ecosystems, where an interplay of competition and cooperation exists due to interdependencies between firms. We see here that incumbents, rather than trying to reproduce and enhance the existing status quo in terms of structure, engage in experimentation that includes potentially disruptive business models that risk upending the existing industry through the creation of new platforms. We also see evidence of entrants engaged in parallel play by borrowing ideas from each other when Grab followed Uber into the digital hailing of private car rides, rather than differentiating themselves. Unlike McDonald and Eisenhardt's (2019) study, the incumbents in our setting borrowed ideas from entrant innovations in the experimental phase. In addition, our findings differ from the previous study in that digital ride-hailing entrants were not indifferent to other and instead generally ignored incumbents, most likely due to following a different digital platform industry logic of growing the largest user base fast.

While we concur that finding a balance with existing incumbents is important for disruptive firms, we also find that in *digital* platform ecosystems, innovative entrants do not necessarily face a liability of newness. And that these entrants also do not need to enter into strategic alliances with established incumbents to survive the early growth period if they can succeed in growing a large user base through unique network effects (Cusumano *et al.*, 2019). Although Khanagha *et al*. (2020) found evidence of a mutualistic strategy process unfolding in the dynamics of the digital cloud computing platform ecosystem, their case focuses on new digital platform creation by existing incumbent firms and not entrants. However, our case found evidence of this mutualistic "rising tide lifts all boats" strategy in the opposite direction of conventional wisdom, whereby established incumbents supported and cooperated with new digital platform entrants. We uniquely found that entrants like Grab

largely ignored both automotive OEM and taxi incumbents in their nascent growth stage, rather than try to co-exist with incumbents and gain legitimacy from them through symbolic actions like repositioning themselves from a disruptor to a complementor (Ansari *et al.*, 2016). Despite Grab's indifference, global automotive OEMs and multiple taxi fleets clamored to partner with and invest over USD1.25 billion into it. Remarkably, Grab demonstrated its desire to grow beyond the mobility industry by prioritizing its expansion into new, more profitable services like financial services and food delivery, among others. As Grab moved away from its initial ride-hailing business model to identify as a super app for a range of lifestyle services on one platform, its reliance on automotive OEM incumbents decreased further.

It would also be interesting to see if our results would generalize to similar contexts in other industries in which digital platform entrants have upended longstanding industries. Consider the case of home sharing platforms like Airbnb, valued at USD31 billion, which has upended both the incumbent hotel and real estate industries (Thompson, 2018). In addition, the "growth-at-all-costs" logic has increasingly proven to be a fad in the wake of failed, heavily-funded startups like WeWork (Khan, 2019), corroborating the recent insights that argue network effects in digital platform business are not enough to sustain a winner-take-all market (Hagiu, 2014; Zhu and Furr, 2016). Future research can examine how in the absence of such winner-take-all and growth-at-all-costs logics that distinguished digital platforms from non-digital ones in our case; whether the incumbent dynamics we observed were indeed uniquely enabled by these supposed benefits of digital platform entrants.

6. CONCLUSION

Given the meteoric rise of platforms and ecosystems (Cusumano *et al.*, 2019; Jacobides *et al.*, 2018, 2019), understanding how such business models and structures relate to disruption and

competitive dynamics between firms has become an important area of study. Our findings showed that entrant disruption can unfold differently in new digital platform ecosystems, whereby entrants can gain established incumbents' support, contrary to established literature that depicts entrants in an inferior position of status and legitimacy relative to established incumbents in an industry. We found that: the pressure for incumbents to engage with entrants in a new platform ecosystem, changes in incumbents' and entrants' organizational structure and entrants' indifference toward the future of the focal industry it operates in all contribute to enabling new challengers to move into a unique position in which they did not rely on established incumbents, but were willing to accept incumbents' support and resources. As organizations, regulators and scholars adjust their frameworks to better understand how these competitive dynamics unfold towards a mutualistic, coopetitive approach, we hope our immersive study of the Southeast Asian digital ride-hailing platform ecosystem contributes to an understanding of important phenomena and theory alike.

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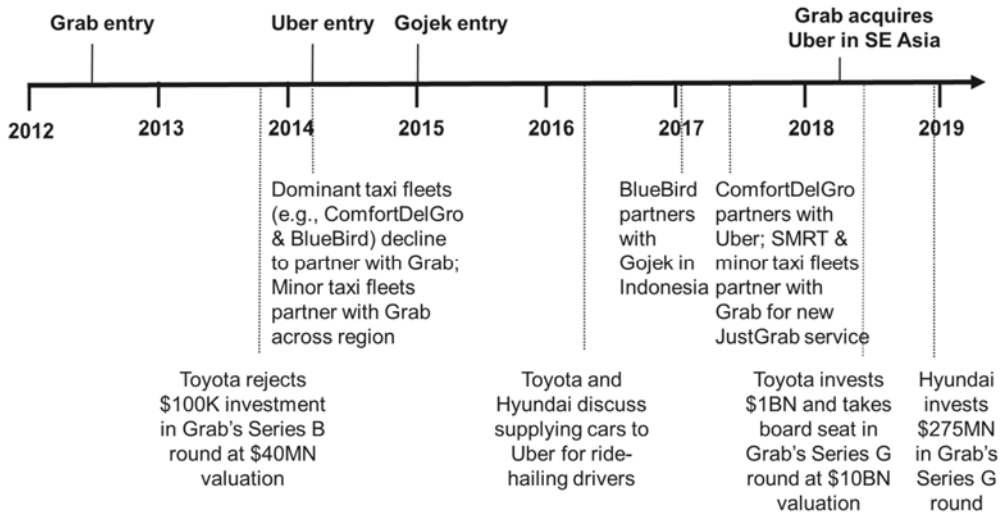

FIGURE 1. A timeline of key incumbent responses to ride-hailing platform entrants in Southeast Asia′s digital ride-hailing platform ecosystem

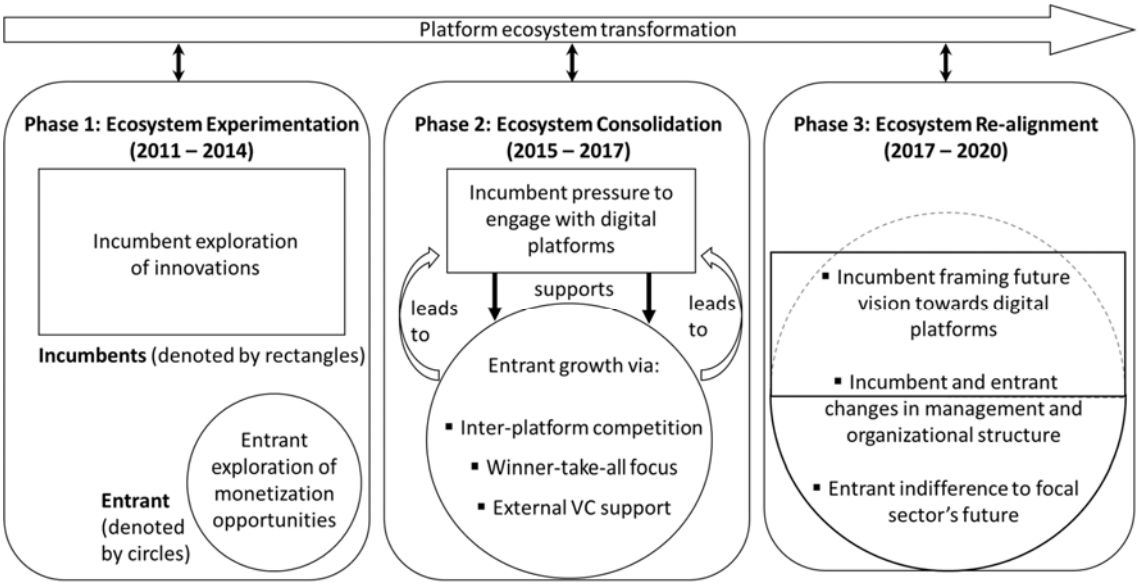

FIGURE 2. A process model of how coopetition unfolds in new digital platform emergence

TABLE 1. Data sources

Data sources	Details
Interviews	15 total in-depth entrant firm interviews (one to two hours each) with six senior executives at Grab and one former senior executive at Uber Malaysia from late 2017 to 2018
	17 total in-depth automotive OEM incumbent firm interviews with senior executives from Toyota, Hyundai, and Daimler between late 2018 and 2020
	3 total in-depth taxi incumbent firm interviews with senior executives from SMRT Taxis in Singapore (and formerly at ComfortDelGro), the BlueBird Group in Indonesia and the National Trades Union Congress in Singapore in 2020
	20 in-depth, transcribed interviews (one hour each) with Grab and Uber users—eight drivers and 12 passengers—in Singapore and Manila in mid-2017
	5 total in-depth interviews with third-party transport industry experts: two Senior Partners and Managing Directors at the Boston Consulting Group and a Senior Expert from the International Association of Public Transport (UITP) responsible for leading a global working group and conference on how the taxi and digital ride-hailing platform industries work together in Asia
Archival data from experiential industry experience at the entrant firm, Grab	One co-author's personal email records, meeting notes and strategic planning documents as a former Grab senior executive from 2013 to 2017
Archival data from experiential industry experience at conferences	Co-authors' personal notes taken from a conference panel with senior executives from Grab, Daimler, and the Singapore Economic Development Board, which was moderated and organized by the co-authors in Tokyo in November 2018
	One co-author's personal notes taken from major transport industry conferences from 2015 to 2019
Published articles on entrants and incumbents in the SE Asian digital ride-hailing platform ecosystem	News articles published online about digital ride-hailing entrants and incumbents (major automotive OEMs and major taxi fleet companies) in Southeast Asia from 2012 and 2020
	Three industry reports by major strategy consulting forms on mobility, digital disruption and the transformation of the automotive industry between 2016 and 2017
Press releases and statistics from corporate websites	Grab's press releases between 2012 and 2020; Grab's corporate profile in May 2019
	Uber Southeast Asia's press releases between 2013 and 2018
	Daimler's press releases between 2008 and 2020
	Toyota's press releases between 2010 and 2020
	Hyundai's press releases between 2010 and 2020
	ComfortDelGro's Annual Reports between 2012 and 2020
	Land Transport Authority of Singapore's monthly taxi industry statistics between 2012 and 2020

TABLE 2. Theoretical coding analysis of automotive OEM and taxi fleet incumbents and ride-hailing entrants in the Southeast Asian digital ride-hailing platform ecosystem

Phase of coopetition between incumbents and entrants	Events leading to coopetitive ties between incumbents and entrants	Excerpts/quotations from archival data and interviews
Experimental phase (2010–2014)	Incumbent exploration of innovations	"A few years back in 2015, we had a base in Palo Alto to explore opportunities in new mobility. These search development centers might involve partnerships with new players on a smaller scale for mobility platform services." (Senior Manager, Toyota, personal interview, July 19, 2019).
		"In late 2014, we published a research report on changes in cities and people's behavior on mobility, which was read by the top management, but it didn't impact business decisions because we didn't have a dedicated team and organization to manage these efforts. Before that, the department of industry research published some research on carsharing and Uber, but it also did not make an impact on top management at the time because the market for carsharing was too small." (Senior Manager, Hyundai, personal interview, July 24, 2019).
		"Despite competition from new booking apps, our app continued to prove attractive to commuters. Since its launch in 2010, it has been downloaded 2.6 million times. In 2014, thanks to increased automation in our booking system, we had 35.6 million successful booking jobs – a 10 percent increase over 2013." (ComfortDelGro Corporation Limited, 2014)
	Entrant exploration of monetization opportunities	"Through data gathered by the team since GrabTaxi was launched locally last year, there are still pockets of time when the demand for taxis is not fully matched by supply – especially during peak hours… GrabCar is their solution to this problem, allowing them to meet the demand without taking away business from their core user base of taxis. "The inclusion of GrabCar as part of the GrabTaxi service […] offers them [customers] access to a wider network of taxis as well as premium cars," says the Grab CEO (Tay, 2014b).
Consolidation phase (2015–2016)	Incumbents pressured to engage with entrant platforms due to entrant growth	"We don't see Grab as a competitor, but as complementary to our business. We are forward-looking, so we welcome technology by startups like Grab that can give us an edge. For a long time, the taxi industry has not changed because regulations are strict and market share is dominated by one big player, ComfortDelGro. This makes smaller players in the taxi industry willing to work with startups." (Tony Heng, Managing Director, SMRT Taxis, personal interview, May 01, 2020).
		"Toyota's outlay in Grab is double the size of General Motors Co.'s investment in Lyft Inc. in 2016, underscoring the sense of urgency CEO Akio Toyoda has in shifting the company toward mobility services. The 81-year-old automaker, founded by Toyoda's grandfather, is preparing for intensifying competition from peers as well as technology giants as the industry transforms. "This is a good decision -- Toyota should not be late in this area," said Tatsuo Yoshida, an equities analyst at Sawakami Asset Management Inc. in Tokyo. "Ride sharing is coming. For car companies, this is a painful reality. But it can be a business opportunity if they understand it correctly." As part of the pact announced Wednesday, a Toyota executive will be appointed to Grab's board." (Buckland and Lee, 2018).
	Entrant inter-platform competition	"Scanning the timeline, the acceleration of activity seen in 2016 is immediately obvious… The flurry of May activity also featured three ride-hailing and ride-sharing tie-ups in a single week, with Volkswagen and Toyota making corporate minority investments in Gett (USD 300 million) and Uber (amount undisclosed), respectively… Deal pace has only accelerated in the months since, no doubt fueled by pressure to keep pace with

	fueled growth	rivals and secure partnerships with the finite pool of top tech and ride-hailing companies...” (CB Insights, 2016).
	Entrant winner-take-all focus fueled growth	“[Competitors have] made [Grab] better and sharper. We are growing our fleet at a faster pace now, enhancing our service levels and will continue to work hard to maintain our edge. We must be doing something right if a well-funded and experienced organization such as Rocket Internet [EasyTaxi] finds this space worth their time and investment.” (Ho, 2013).
	External VC support fueled growth	“This investment [of USD 700 million] is not only a statement on [Grab’s] dominance in the region, but also the growth potential of Southeast Asia on a global level. [Grab] is at the forefront of the startup industry in Southeast Asia and it is a mantle we carry proudly,” says Grab CEO (Sawers, 2015).
Re-alignment phase (2017–2020)	Reframing vision towards digital platforms	“In 2017, SMRT launched a Taxi Share digital platform based on the car sharing concept that allows freelance drivers to rent vehicles short-term and we manage this process online. We recognize that drivers increasingly value flexibility, so we changed our vision to focus on provide flexible taxi services, rather than the traditional model of providing long-term vehicle contracts to drivers.” (Tony Heng, Managing Director, SMRT Taxis, personal interview, May 01, 2020).
	Changes in incumbents’ and entrant’s management and organizational structure	“Toyota CEO Akio Toyoda sees the industry shift threatening the very existence of the company his grandfather founded in 1937, and is pursuing a transformation into a mobility services provider. He hand-picked [Shigeki] Tomoyama, an executive vice president and longtime confidant, to lead the effort. Tomoyama says building a good rapport and making speedy decisions are essential in crafting partnerships with companies outside the auto industry. As an example, he said negotiations with Uber progressed rapidly after Dara Khosrowshahi became CEO last year. Tomoyama also said Toyota has sped up decision-making by adopting a more top-down management approach. Now, Toyoda and his six executive vice presidents are staying in constant contact via social networking, something Tomoyama calls a major breakthrough. “All the core issues are decided via instant message,” he said,” (Buckland *et al.*, 2018).
	Entrant indifference of focal industry’s future	“Over the past six years, we’ve worked hard to improve our technology and expand our reach. Our assets are well tested through Grab’s own services. We’ve gone from offering our tech as a booking platform for taxi operators, to providing a fleet of delivery drivers for e-commerce companies. It’s now time to take what we’re really good at to a select group of partners – and eventually make our platform open to the wider Southeast Asia ecosystem. With over 100 million mobile installs, a network of 7.1 million drivers, delivery partners, merchants and agents, and strong payments and back-end technology, we are better placed than anyone else in the region to help other start-ups and businesses grow and scale, as we have,” said Anthony Tan, Group CEO & Co-founder, Grab (Grab, 2018b).
	Entrants grow through incumbents’ support	“At Grab, we believe in pooling together resources to solve urban mobility issues. JustGrab combines the strengths of taxis and cars to improve the efficiency and affordability of point-to-point transportation in Singapore. We are positive that JustGrab will help shave waiting time for rides by up to five minutes, and bring us closer to our goal of ensuring commuters get a Grab ride within three minutes every time. Our hope is to encourage more people to use shared transportation over personal cars, and offer our driver-partners additional income opportunities from our growing passenger base,” said Melvin Vu, former Head of GrabTaxi Singapore (Grab, 2017).