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The Shape-Shifting Dynamics of a Digital Platform Entrant:

How Grab Navigated and Changed the Industry Architecture of Mobility in Southeast Asia.

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Contents

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Abstract

Our inductive case study of the mobility industry in Southeast Asia shows how an innovative digital platform entrant, Grab, first tried to coopt existing actors and then, faced with competition, morphed both itself and ultimately the entire industry architecture. Grab repositioned its business model with little regard for the focal industry or its incumbents, who ultimately clamored to support it, even as it expanded beyond mobility into other sectors. Drawing on real-time direct observation and archival sources, we trace the process of Grab's evolution and engagement with the architecture of its industry. We distinguish between proximate and distant incumbents, show how Grab used the ambiguity about its complementary offerings to enlist incumbents' support, and discuss how happenstance shaped its own choice of platform boundaries.

124 words

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1. Introduction

The last few years have seen a remarkable proliferation of platform firms and their associated ecosystems, ushering in an entirely new perspective on industry evolution (Adner, 2017; Cusumano, Gawer, and Yoffie, 2019; Jacobides, Cennamo, and Gawer, 2018). Platform- or ecosystem-based transformation is clearly disruptive, in the sense of potentially threatening established incumbents. However, as Adner and Lieberman (2021) argue, such disruption is not necessarily due to a new substitute product or technology emerging to challenge incumbents, who ignore it at their peril (King and Tucci, 2002). It is also driven by firms introducing radical new complements to existing actors, throwing up distinctive competitive dynamics that have not yet been properly explored. Indeed, this feature may explain why traditional incumbents are often ambivalent about how to respond to these new players, allowing small entrepreneurial ventures to scale rapidly and rise to dominance.

Our understanding of these dynamics is still in its infancy, despite the interest in coopetition (Hoffmann *et al.,* 2018) or competing in ecosystem contexts (Hannah and Eisenhardt, 2018). A few papers have documented platform-induced industry transformation, albeit without direct reference to disruption in substitutes vs. disruption in complements. Ansari *et al.* (2016) recount how TiVo, a digital video recording service that had the potential to substitute existing players' offers, evolved to balance its desire to signal novelty and acquire customers with the need for complementors' support. Snihur *et al.* (2018) document the development of Salesforce into the CRM market, looking at how it framed its offering in relation to incumbents such as Siebel and adjusted its business model to fit their needs. Khanagha *et al.* (2020) show how Cisco framed Fog—potentially a substitute for both Cloud and Edge computing—as "another" ecosystem, making it appear less of a substitute than it really was. Moving closer to disruption in complements, Cozzolino *et al.* (2021) examine the emergence of digital platforms in advertising from the perspective of incumbents, and consider whether their evolving responses are collaborative, competitive, or coopetitive.

These accounts shed valuable light on an important phenomenon, yet they share certain attributes. First, they take the "industry" as a given, and tend to consider it as a whole, speaking of "incumbents" and their response to the new platform entrant. We suggest that in order to understand the mechanics of platform-based disruption, we also need to consider industry architecture (IA)—that is, the "rules, roles and relationships that pertain to the division of labor" (Jacobides, Knudsen, and Augier, 2006)—with an understanding that such roles evolve over time, and are shaped by industry participants. Paying closer attention to IA allows us to consider whether platform-based disruption is through substitutes or complements. It may also reveal that while some incumbents lose out from a new platform through substitution, others may benefit from it as complementors. If we attempt to shoehorn all these players into a unifying process map as homogenous "incumbents," we may miss a vital side of the story.

Such a perspective can also shed light on how platform firms set their boundaries. As Gawer (2021) recently noted, this area has yet to be systematically studied, with most research focusing on the platforms themselves, as opposed to the firms behind them. Therefore, we pose two questions: *How does an innovative digital platform navigate the sector's industry architecture—and potentially change it? How does such a platform relate to various ecosystem participants, and why does that relationship change over time?*

Our paper draws on an inductive, single case study of Grab, a disruptive digital ride-hailing platform ecosystem in the mobility industry of Southeast Asia (the focal industry in this context). Entering this industry in 2011, Grab initially tried to cooperate with proximate incumbent taxi firms, before abruptly dropping them to work directly with independent taxi drivers instead, and then diversifying into new mobility industries. By 2015, Grab had disrupted the entire regional taxi market, prompting *all* proximate incumbents to clamor to partner with digital ride-hailing entrants for survival. Meanwhile, established automotive OEMs such as Toyota—Grab's distant incumbents—supplied cars to both taxi firms and ride-hailing drivers—Grab's platform complementors. Though automotive OEMs were not initially considered as competitors to digital platform entrants, automotive OEMs were thrust into the role of distant incumbents when digital ride-hailing suddenly disrupted how consumers traveled, and both car sales and traditional taxi fares began to decline globally. By 2018, Grab was receiving offers of collaboration from major OEM incumbents, as well as over USD 2 billion in finance from Toyota and Hyundai. Remarkably, automotive OEMs threw caution to the wind, ceding bargaining power to Grab and granting it discretionary use of their own resources. However, despite the investments and support that Grab received from automotive OEMs, it moved away from its original focal industry into more lucrative verticals such as food delivery and financial services as it grew and scaled its platform.

Our analysis draws on historical sources, archival material, and interviews, as well as the personal records of the first author, who played a central role in Grab's early evolution. We drew on the first author's in-person observations and archival data and collected additional data in the form of 60 in-depth stakeholder interviews, corporate press releases, and the public media to understand how internal events and interactions unfolded and led to strategic decisions. We also examined how Grab viewed and interacted with other focal industry actors as it transformed itself, its ecosystem, and ultimately the entire industry. We contribute a systematic, detailed, and first-hand account of the deliberate and emergent internal processes that drive a platform entrant's changing boundaries and scope (Gawer, 2021); as well as how these *shape-shifting* dynamics subsequently transform the existing IA.

Our analysis allows us to distinguish between *proximate* and *distant* incumbents in digital platform ecosystem disruption. *Proximate incumbents* are established firms whose products or services are obvious substitution targets for disruptive entrants. *Distant incumbents* are established firms that may be complementors or non-substitutive counterparts to disruptive entrants at first but can still lose market share once disruption takes hold. We find that as digital platform firms build up their unique capabilities and critical mass, distant incumbents—who initially disregard these new developments—end up deciding that it is, on the margin, better to join and support the new platform than to fight it, focusing on the complementarities advertised by the entrant. This happens even when entrants challenge the status quo and potentially threaten the dominant position of proximate incumbents.

Mapping the IA allows us to compare and contrast those established firms that are *substitutes* with those that are *complements,* putting the approach of Adner and Lieberman (2021) to an empirical test. We agree with them on the significant economic and strategic difference between substitute- and complement-based disruption. However, in a context such as ours, incumbents' uncertainty over what new services meant for them created an opportunity for Grab to use framing to shape perceptions (as in Ansari *et al.,* 2016; Khanagha *et al.,* 2020; Snihur *et al.,* 2018). It was hard to tell whether an entrant was a friend or foe, so the

complement/substitute distinction also remained unclear—and Grab was able to benefit from this ambiguity.

In terms of IA dynamics, we find that Grab started by playing within the existing structures, and then, prompted by direct competition from rival entrants, sought to change the structure by creating a service that lay outside the established legal framework. What is remarkable is that automotive OEMs, rather than fighting Grab, supported it, highlighting its ability to complement their services even though widespread ride-hailing might dent car ownership. This is noteworthy as the automobile sector, studied by Jacobides *et al.* (2016), has shown remarkable stability: OEMs have managed to keep control of their sector's architecture, and as such keep the lions' share of the value add, fending off their suppliers' efforts to change the IA. Things changed when the sector broadened to encompass mobility as OEMs lost their grip on the sectors' IA (Jacobides, 2018). Yet, ironically, we find that Grab's lack of interest in mobility per se—it adopted a cross-industry position to maximize its power—gave it unusual latitude to instigate far-reaching change, both within mobility and across multiple industries. We explain what drives this approach, and how it resembles and subtly differs from a strategy of "envelopment" (Eisenmann, Parker, and Van Alstyne, 2011).

Our analysis also extends and qualifies existing research on the dynamics of digital platform entrants and incumbents. Our direct observational data offers us a rare glimpse into the decision-making process at the time and prevents us from rationalizing *ex post facto.* Indeed, the process we depict is far less orderly and premeditated than those in some other published accounts, which inevitably infer strategic motives at the level of organizations overall (Cozzolino *et al.,* 2021; Snihur *et al.,* 2018). Whether this difference is due to the specifics of this case or the nature of our data remains an interesting, but unanswerable question. Regardless, we concur with Ansari *et al.* (2016) that such processes are both intentional and emergent, and find that some decisions are less a trade-off between resources and optimal scope (Marx and Hsu, 2015) and more about competitive dynamics and sizing a particular market opportunity (Jacobides and Winter, 2007).

2. Disruptive platform entry and how incumbents respond

Disruption and the Shift from Substitutes to Complements

Research on disruption has established itself as a major field, especially given the turbulence of the last two decades, often in areas affected by technology. Perhaps most famously, Christensen's version of disruptive innovation (Christensen, 1997; Christensen *et al.*, 2015, 2018) focuses on the challenges of firms faced with a new technology. Incumbents, Christensen argues, have no reason to invest resources to engage with a technology that is inferior to their own. However, by the time the rival technology is "good enough" to be a viable alternative, incumbents may find themselves too far behind to catch up. Christensen's account, which has been vigorously debated (see King and Tucci, 2002), is not the only version of disruption. Foster (1986) considers the dynamics of S-curves, suggesting that disruption does

not come “from below”—i.e., from inferior solutions that improve—but rather “from above,” i.e. from superior solutions that move down-market, giving rise to different dynamics. Tushman and Anderson (1986) and Henderson and Clark (1990) look at whether the new technologies draw on existing capabilities or require new sets of skills, which is what makes some changes “sustaining” and others “disruptive.”

Whichever flavor of disruption one prefers, Adner and Lieberman (2021) note that the literature has focused either on competition proper (i.e., how new technologies change pricing and profit dynamics in a clearly defined market), or on the competitive dynamics caused by the entry of new *substitutes,* i.e., products or technologies that can be used instead of market leaders (Adner and Kapoor, 2016). Moreover, they note that in the context of ecosystems, disruption does not only arise because of new substitutes, but can also come about because of new *complements* (Adner and Kapoor, 2010). What is unusual, they remark, is that the net benefit of a complement’s availability or innovation is ambiguous. While the arrival of a new substitute reduces the profit and value that can be appropriated by incumbents, a new complement might significantly enhance it, if it makes the joint offering more attractive. Conversely, it may also decrease value—at least in the long run—inasmuch as it appropriates a greater share of the total value add for itself. Using mobility as an example, Adner and Kapoor point out that automobile OEMs may benefit from ride-hailing if it boosts car usage—but if ride-hailing ends up reducing car *ownership*, that could undermine the value of the OEMs’ offering. This ambiguity opens up new paths that, as Adner and Lieberman (2021) argue, have yet to be explored.

Complementary Assets and the IA Perspective

The identification of complementarity vs. substitutability brings up the issue of complementary assets. As Tripsas (1997) suggested, looking at typesetters and printing, collaboration will ensue if incumbents can profitably incorporate entrants’ new technologies, even if those entrants are disruptors. Competing innovative entrants and incumbents will collaborate if both actors can gain additional value from an alliance (Hannah and Eisenhardt, 2018)—particularly when innovative entrants enter incumbent markets with low-to-moderate levels of competition (Hashai and Markovich, 2017). Kapoor and Furr (2015) argue that aspiring entrants will choose their approach based on the possibility of accessing complementary assets. Cozzolino and Rothaermel (2018) suggest that if innovation happens at the level of complementary assets, incumbents tend to collaborate among themselves and fend off entrants. If disruption happens at the core, however, they acquire entrants at low levels of the appropriability regime, and ally with them at high levels of appropriability. This extends the analysis of Teece (1986, 2018).

However, the question of how entrants engage with incumbents does not solely depend on assets and incentives. It also depends on the “rules, roles and relationships that pertain to the division of labor”—in other words, the “industry architecture” (IA) (Jacobides *et al.,* 2006). This strand of research argues that sectors are characterized by stable templates, according to which labor is divided. These rules evolve over time, and innovators can find fertile ground if they are perceived to align with their interests. Researching mortgage banking, for instance, Jacobides (2005) shows that established firms often support new rules and relationships (and indeed platforms) if they think they offer short-term benefits—even if they themselves are

ultimately undermined. Thus, disruption can be endogenous, and the result of actions by new or established firms alike (Jacobides and Winter, 2012). That said, empirical research on this topic suggests that incumbents can exert a strong inertial force to defend their status quo dominance in the turbulent period of industry change brought about by innovative entrants (Jacobides *et al.,* 2016). For instance, the nascent market for mobile payments was held back when powerful incumbents, on whom entrants depended for resources, drew on their long-standing industry dominance and withheld investment (Ozcan and Santos, 2015).

Focusing on the automobile industry, Jacobides *et al.* (2016) find that despite suppliers' repeated efforts to change the norms of engagement and be more visible to the final customer in the hope of capturing more value, OEMs were able to defend the status quo. These dynamics went further in the computer sector, where value shifted from OEMs to makers of components (like Intel) and operating systems (like Microsoft) (Jacobides and Macduffie, 2013). Here, however, OEMs hit back hard, reimposing their control over the IA through hierarchical supply relations. Overall, the IA perspective suggests that entrants' ability to grab value depends on the nature of the rules and relationships in the sectors they aim to transform.

To understand how a new platform entrant interacts with existing firms, we might naturally draw on entrant–incumbent research. The "traditional" view is that new entrants lack legitimacy and suffer from a "liability of newness" (Stinchcombe, 1965; Yang and Aldrich, 2017). Lounsbury and Glynn (2001) consider how entrants use framing to turn the new and unfamiliar into something known and accepted. This approach is documented by Hensmans (2003) in his study of Napster, which used a distinctiveness frame to differentiate itself while also explaining its offer to incumbents. A more nuanced view, then, is that innovative entrants can engage in a dynamic strategy in which they first compete and then collaborate to commercialize disruptive technologies (Marx, Gans, and Hsu, 2014), or repeatedly switch between cooperation and competition over time (Marx and Hsu, 2015). This also raises prospect of more complex relationships that blend collaboration and competition—an area that has created considerable excitement under the "coopetition" rubric (Hoffmann *et al.,* 2018).

Insights from the Platform Literature

Research on platforms (Cusumano *et al.,* 2019; Gawer and Cusumano, 2002; Hagiu and Wright, 2015; Parker and Van Alstyne, 2005; Zhu and Iansiti, 2012) has greatly enhanced our understanding of what is particular about the underlying economics of platforms and the ecosystems they engender. First, it is clear that platform-based business models can create significant network externalities (Katz and Shapiro, 1985; Rochet and Tirole, 2003). This implies that new platforms can create a virtuous (or vicious) cycle—especially on two-sided platforms where, for instance, attracting paying passengers helps to attract a supply of taxi drivers, and vice versa. This leads to a "winner-take-all" (or, at least, "winner-take-most") dynamic, which suggests that early-mover advantage and critical mass are the key drivers of success (Cusumano *et al.,* 2019; Katz and Shapiro, 1985)—regardless of whether a platform is sponsored by an incumbent or an entrant. But while this may help platform entrants overcome some of the obstacles they face, it leaves the links between incumbents and platform entrants unexplored.

Recently, platform research has explored the interconnections that platforms engender between firms (Shipilov and Gawer, 2020), or how new platforms change the links within the economy (Kenney and Zysman, 2016)—yet there has been little work on how new platform firms change the context for incumbents, or how platform firms structure and change their boundaries. In a recent paper on setting the boundaries of a platform, Gawer (2021: 1) notes that "digital platform firms' boundaries [are] an important but underexplored topic in the platform literature." She provides a conceptual overview of the main dimensions of platform boundaries (in terms of scope, sides, and interfaces), their drivers, and their interaction, noting that "empirical research is needed to test […] the combinations of boundary decisions" (Gawer, 2021: 13). We would add that such research would benefit from looking at how entrant platforms' evolving boundaries relate to their environment and incumbent responses.

Of particular interest in our paper is the evolution of platform scope. In the context of *inter-platform competition,* Eisenmann *et al.* (2011) have pointed out that platforms may be incented to "broaden up" their scope, and as such "envelop" other platforms, inasmuch as they can leverage their position of strength in one market to conquer a proximate one. This is arguably what Microsoft did with its ever-expanding definition of an operating system, a graphical user interface, and then aspects of its MS Office suite. Such dynamics, which have raised significant concerns in the context of antitrust (see Jacobides and Lianos, 2021 for a summary), explain how platforms may expand their dominance, but do not help us understand how entering players can set their scope in order to grow, and shape their offering in relation to non-platform incumbents.

Empirical Research on Disruptive Platform Entrants

A handful of studies have empirically examined our topic of interest. First, Ansari *et al.* (2016) examine TiVo, a (potentially) disruptive digital video recording entrant that had to collaborate with incumbent complementors to survive. The authors show that the disruptive entrant continually adjusts its strategy to ensure its survival. As its relational dynamics change, it gains latitude to broaden the frame of its innovation over time, shifting the focus of its framing activities away from self-advertised focus on disruption (chosen to confer distinctiveness) towards an emphasis on collaboration and a shift of the business model towards accommodation. This process model is based on a detailed study of the sector, incorporating both platform entrant action and incumbent reaction, and yields important results. That said, it does not clearly distinguish between different positions in the IA, or between complements and substitutes. More important, the form of incumbent engagement highlighted may be specific to the IA and complementarity conditions studied, rather than part of a more generalizable pattern; as we shall see, our case revealed very different dynamics.

Moving a bit further from the focus of our study, Snihur *et al.* (2018) consider Salesforce's entry into the CRM market. Extending the Bower-Burgelman (Burgelman, 1983) framing to encompass ecosystem reactions, Snihur *et al.* (2018) advance a process model that posits that firms choose their framing to attract partners, adjusting their business model as they do so. This conclusion is hard to argue with, even though it is also challenging to operationalize it in a concrete prediction, or an explanation of the conditions under which new entry will succeed. The setting suggests that this is a case of disruption in substitutes rather than complements,

even though Salesforce focused on SaaS as opposed to installed software. In all, this setting is one where a single dominant firm (Siebel) is replaced by another (Salesforce), rather than one where the entire industry is transformed, and value migrates as a result of a new platform. The theme of accommodation and framing also comes up in Khanagha *et al.* (2020). The authors show how a dominant player (Cisco) can set up a platform-based ecosystem (Fog computing) that risks upsetting its complementors, who are established leaders in the key existing markets (Cloud and Edge, which partly overlap with Fog). The emphasis here is on the framing used with partners—in particular, the use of a mutualistic "rising tide lifts all boats" trope. Such a perspective works well for this type of cannibalization conflict in substitute products, but is harder to generalize to our setting which considers complements.

Finally, Cozzolino *et al.* (2021) examine how digital platforms changed advertising, focusing on the reaction of the incumbents, as opposed to entrants. The authors hold true to the original Christensen (1997) definition of disruptive innovation as "low-quality" products that creep in under the radar. Although the paper does refer to the attributes of the sector, it considers several heterogeneous players as "incumbents," without exploring how their position in the IA shapes their response. So, while we do learn how incumbents changed their views, we still lack a detailed picture of the evolution of the platform entrants themselves.

Summing up, the last few years have seen significant advances in our understanding of what drives the evolution of platform entrants, and what underpins their success in transforming sectors. Armed with newly elaborated theoretical distinctions, and an understanding of platform-entrant economics and the dynamics with which firms set their boundaries, we can now turn to a revelatory case study that allows us to explore two vital questions: *How does an innovative digital platform navigate the sector's industry architecture— and potentially change it? And, how does such a platform relate to various ecosystem participants, and why does that relationship change over time?*

3. Research setting, data sources, and methods

To revisit established notions of how internal entrant dynamics unfold in the emergence of new digital platforms, we conduct a single, revelatory case study (Yin, 2014) of Grab, the digital ride-hailing platform and entrant to the focal mobility industry in Southeast Asia from 2011 to 2020. We chose this setting for three main reasons. First, the first co-author's previous industry experience at Grab, as the founding Country Head for Thailand and then the founding Vice President of Public Affairs, offered unique research access and an understanding of the historical events that unfolded during her work tenure. We use the pseudonym "Nitaya" to denote the first co-author in order to distance her positions as active participant and researcher in the data analysis (Langley and Klag, 2019). We used archival data from Nitaya's email records and meeting notes to inform our analysis of the relationship between the entrant and

incumbents at the time.[1] We also relied on interviews and publicly available archival data to triangulate and validate the author's recollection and data.

The second reason was theoretical sampling. We wanted to focus on a purposeful case (Eisenhardt and Graebner, 2007) that highlights a rising phenomenon. For us, this was Grab—a firm that, out of nowhere, disrupted and redefined the mobility industry of Southeast Asia. Moreover, Grab enlisted significant support from incumbents without ever needing to rely on them—indeed, often while simply ignoring them. Third, focusing on a single case study allowed us to hold industry-level factors constant (Eisenhardt, 1989; Thomas, 2011), and also trace the process of industry and firm co-evolution. This draws on previous strategic management research, which has utilized the single case study method 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), and expands it to consider co-evolution between the two. Our level of analysis is the digital platform entrant, Grab, encompassing both its internal processes and its interactions with other firms in its ecosystem and the wider mobility industry in Southeast Asia.

Research Setting

Southeast Asia's digital ride-hailing platform ecosystem, and its mobility industry more broadly, offers a rich case-study context. Since June 2012, Grab has grown into the largest digital ride-hailing platform entrant in Southeast Asia. It operates in over 400 cities across eight countries, with over 198 million downloads, 25 million monthly transacting users, and over nine million service providers on its platform (Grab, 2021). Since March 2018, Grab has consolidated its market share after merging with its main competing entrant, Uber, which soon exited the entire Southeast Asian market. In April 2021, Grab announced it would soon go public at a value of nearly USD 40 billion. Online Appendix C offers more information on Grab's timeline of corporate milestones and service offerings.

Our chosen setting also enables us to analyze the responses of two types of incumbents: local taxi fleet firms and global automotive OEMs. Both played a cooperative and competing role with entrants throughout the entry and rise of a new digital platform ecosystem, and both were ultimately disrupted by it. Local taxi fleets are *non-digital* ride-hailing platforms whereby taxi drivers rely on a centralized operator dispatch system or on-street hailing to obtain fares. They were eventually threatened by the rise of digital ride-hailing platform entrants such as Grab, which allow users to request a cab on their smartphones. Thus, taxi fleets are *proximate incumbents*, which we would typically consider as competing with entrants.

Automotive OEMs, as the upstream suppliers or complements of mobility platforms, were not immediately disrupted by innovative entrants. Initially, Grab relied solely on existing taxi fleets or independent taxi drivers as complementors for its platform. Once it began recruiting private vehicle owners as complementors, in late 2014 and 2015, its new private-hire service made it both a direct competitor to the taxi industry and a new potential customer for automotive OEMs. Although Grab depended on automotive OEMs to supply vehicles for its drivers, digital ride-

[1] As a concrete example of such direct observation, we drew from Nitaya's role as the point-person in Grab's first discussions with one of the major automotive OEMs in Thailand in 2013.

hailing platforms also shifted consumer trends away from personal car ownership, which threatened automotive OEMs' personal car sales business. Thus, we regard automotive OEMs as *distant incumbents* in the focal industry.

Data Collection

Our data sources, shown in Table 1, offer multi-faceted evidence on the internal processes that led to Grab to pivot and evolve, as well as how it related to other industry players. We collected qualitative, semi-structured interview data with relevant senior executive informants from Grab, its rival entrants, and incumbents to better understand the internal decision-making processes and relations behind major events. For proximate incumbents, we conducted interviews with taxi fleets in two of the region's primary ride-hailing markets: Singapore and Indonesia. The four major taxi firms in Singapore comprise 95 percent of the industry by number of vehicles (LTA Singapore, 2020). The largest, ComfortDelGro (60% market share) refused to work with Grab, but tried to partner with Uber before the latter's exit. Trans-Cab (15%), SMRT (13%), and Premier (8%) formed alliances with Grab and other entrants. In Indonesia, we interviewed the BlueBird Group (over 28,000 taxis).

For distant incumbents, we focused on the major automotive OEM incumbents active in the region's four-wheeled vehicle market from 2011 to 2021: Toyota Motor Corporation ("Toyota"), Hyundai Motors ("Hyundai"), and Daimler's subsidiary in Singapore. These three OEMs exhibited diverse strategic responses to ride-hailing entrants. Toyota and Hyundai collaborated with Grab and eventually invested in it, while Daimler did neither. Although other major OEMs such as Honda and Mitsubishi have invested in digital ride-hailing, they focus on the motorcycle market, which lies outside the scope of this study.

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 2021 17 total in-depth automotive OEM incumbent firm interviews with senior executives from Toyota, Hyundai, and Daimler between late 2018 and 2021 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 2021 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. She served as an early employee who led market expansion in Thailand and Vietnam from 2013 to mid-2014 as Regional Business Lead and then led regional government affairs from mid-2014 to 2017 as the founding Vice President of Public Affairs
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 2021 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 2021 Uber Southeast Asia's press releases between 2013 and 2018 Daimler's press releases between 2008 and 2021 Toyota's press releases between 2010 and 2021 Hyundai's press releases between 2010 and 2021 ComfortDelGro's Annual Reports between 2012 and 2021 Land Transport Authority of Singapore's monthly taxi industry statistics between 2012 and 2021

Data Analysis

To generate inductive insights from our case study, we follow theory elaboration techniques used in strategy research to develop new theoretical insights from existing conceptual ideas (Fisher and Aguinis, 2017). Having initially aimed to explore how different incumbents responded to digital platform entrants like Grab, we shifted our focus to the (more interesting) strategy processes whereby Grab internally pivoted and evolved, and its underlying interactions with other industry players.

Step 1: Reconstructing a chronology of events

First, we drew on primary and secondary research from multiple, diverse participants and archival data sources to establish a timeline of events to help us understand how competitive dynamics, complementarities, and industry roles evolved between digital platform entrants and incumbents in the mobility industry of Southeast Asia, as shown in Table A1 (Online Appendix A). We analyzed our data using theoretical coding to understand the dynamics between incumbents and entrants over time, starting with a line-by-line coding of our interview and archival data into initial codes (Charmaz, 2014). The initial codes we developed enabled us to use temporal bracketing to distinguish three distinct phases of Grab's strategic business model evolution from 2011 to 2021 (Langley, 1999), which became our focused codes of Grab's role in IA change. We then outlined the evolution of roles and relationships (or lack thereof) between Grab and other major mobility industry players: rival platform entrants and both proximate and distant incumbents in Tables A2a to A2c (Online Appendix A). We also detail the main events, complementarities, and dynamics between Grab, other digital platform entrants, and incumbents in Table 2. This chronology of events and industry dynamics helped us to map out the major components and moving parts of the IA of our case study, which are illustrated in Figures 1a to 1d.

Step 2: Reconstructing decision-making behind events

Next, we applied memo-writing methods to inductively analyze our data and reconstruct the internal decision-making processes behind the major events that unfolded (Charmaz, 2014). In particular, we used experiential and interview data to narrate how the Grab leadership team made major decisions that impacted the IA of the mobility industry in Southeast Asia over time. We developed a detailed memo of longitudinal events that preceded the emergence of the digital ride-hailing platform ecosystem in Southeast Asia, extending the study to a year before Grab's official entry in 2011. We iteratively compared our data with our memo of longitudinal events, which led to subsequent data collection and coding until we reached data saturation for the major events that are captured in our initial codes (Glaser and Strauss, 1967). As we did so, we were mindful that Nitaya's experiential insights and our qualitative interview data represented contemporaneous accounts of individuals' experiences. Thus, we continuously triangulated this data with historical archival data and validation interviews to limit bias as much as possible (Guba and Lincoln, 1982). We further validated our memo and theoretical coding by asking relevant stakeholders from Grab, Uber, EasyTaxi, Gojek, the major taxi firms, and automotive OEM incumbents to read these materials and verify their content, until we had developed a final version from mutual consensus. We also interviewed third-party experts from

The Boston Consulting Group and an international transport association for validation from knowledgeable third parties. Our memo from this exercise formed the basis of our case study in the Evidence section.

Step 3: Summarizing our findings and developing a process map

We further summarize the emergent, consistent patterns of the findings from our analytic memos and theoretical coding analyses in the previous steps in Tables 2 and 3, which are detailed in the next Evidence section. Finally, we developed a process map in Figure 2 (shown in the Discussion section) that illustrates what drove strategic changes within Grab, and how those changes affected the IA of the focal industry over time. The construction of our process map enabled us to further analyze our data through a multi-level, visual display of the complex moving parts, patterns, and relationship ties between the multiple actors of our case study over time (Langley and Ravasi, 2019). The process map also enabled us to identify the most relevant case study observations and emergent theoretical contributions, which are detailed in the Discussion section.

4. Evidence: how a digital platform entrant engages with, then changes, the architecture of a sector

Our case study revealed that dynamics between a disruptive digital platform entrant, Grab, and incumbent firms evolved in three main phases, shown below in Tables 2 and 3: (1) industry complementation, (2) industry disruption, and (3) industry transcendence. Table 2 details the industry dynamics, complementarities, and value proposition between Grab and its focal mobility industry players across the three phases. Table 3 summarizes how Grab evolved and changed the IA of the mobility industry in Southeast Asia across the three phases. Figures 1a to 1d in the subsections below illustrate these dynamics over time. In the following sections, we detail the major events during the three phases.

TABLE 2. How Grab related to incumbents in the Southeast Asian digital platform mobility ecosystem, and their mutual complementarities and value propositions

		How Grab Related to Incumbents	Grab's Complementarities with Incumbents	Incumbents' Complementarities with Grab
Proximate Incumbents (Major): dominant taxi platform firms	**ComfortDelGro Taxi (Singapore)**	Grab approached them in 2013 for partnership ComfortDelGro declined and later launched their own updated digital ride-hailing app in February 2015 Since Grab's launch, ComfortDelGro has prohibited their drivers from using the Grab platform to get bookings and punished drivers who get caught	The opportunity for taxi drivers to access more ride demand from passengers efficiently, so that taxi drivers could make enough revenue to cover the daily taxi rent they owe to the taxi fleet Access to Grab's more advanced digital platform application	Opportunity to rapidly expand GrabTaxi and JustGrab driver fleet size with the largest taxi fleet in Singapore (ComfortDelGro had 12,447 taxi drivers in October 2013 when Grab entered Singapore and shrank to 7,361 taxis by October 2020)
	BlueBird Taxi (Indonesia)	Grab approached the owner in late 2013 for partnership BlueBird declined and later launched their own updated digital ride-hailing app 2016	The opportunity for taxi drivers to access more ride demand from Grab passengers efficiently, so that taxi drivers could make enough revenue to cover the daily taxi rent they owe to the taxi fleet Access to Grab's more advanced digital platform application	Opportunity to rapidly expand GrabTaxi driver fleet size with the largest and highest-quality taxi fleet in Indonesia with over 28,000 vehicles in 2020
	Sunlight Taxi (Malaysia)	Grab approached them in 2012 for partnership Sunlight Taxi declined and instead built their own app, which launched in February 2013 They were also against Grab venturing into private-hire vehicle hailing in 2014	The opportunity for taxi drivers to access more ride demand from Grab passengers efficiently, so that taxi drivers could make enough revenue to cover the daily taxi rent they owe to the taxi fleet	Opportunity to rapidly expand GrabTaxi driver fleet size
	Vinasun Taxi (Vietnam)	Grab approached them in late 2013 for partnership, but the Chairman of Vinasun declined Vinasun sued Grab in February 2018 for unfair business practices and alleged that Grab's "illegal operations" caused its company revenues to fall in 2016 and 2017. Grab was	The opportunity for taxi drivers to access more ride demand from Grab passengers efficiently, so that taxi drivers could make enough revenue to better pay off the daily taxi rent they owe to the taxi fleet	Opportunity to rapidly expand GrabTaxi driver fleet size with a high-quality taxi fleet in Vietnam

		How Grab Related to Incumbents	Grab's Complementarities with Incumbents	Incumbents' Complementarities with Grab
		ordered by the court to compensate Vinasun for USD200k in December 2018 and Grab later lost its appeal against the ruling		
	Suvarnabhumi Taxi (Thailand)	Grab approached them in June 2013 for partnership and ran a short two-month pilot The partnership ended when Suvarnabhumi decided to compete with Grab by building their own digital ride-hailing app, which did not launch until February 2019	The opportunity for taxi drivers to access more ride demand from Grab passengers efficiently, so that taxi drivers could make enough revenue to better pay off the daily taxi rent they owe to the taxi fleet	Grab was able to quickly launch a GrabTaxi Thailand pilot with a few hundred taxi drivers with the highest-quality fleet in Thailand during its market entry in July 2013
Proximate Incumbents (Minor): minor taxi platform firms	**SMRT Taxis (Singapore)**	Grab approached them in late 2013 and SMRT agreed to partner with them since it already allowed their taxi drivers to use GrabTaxi. In October 2017, Grab signs an exclusive partnership with SMRT to build the largest car fleet in Singapore together through a private-hire car rental service	SMRT can leverage Grab's vast financial resources in 2017 to venture into the private-hire car industry and offer limousine, chauffeured and car rental services SMRT can capture more market share through Grab's large installed user base with more Grab ride bookings for their drivers to earn more income and better compete with the dominant taxi firm, ComfortDelGro, in Singapore Access to Grab's advanced digital platform capabilities and marketing	Grab's drivers will have exclusive access to SMRT's taxi and private car fleet (about 2,900 cars in 2017 and shrank to 1,697 by October 2020), which gives them a competitive edge over rival, Uber (until Uber's exit in March 2018) Grab drivers will be able to use SMRT driver training workshops and service centers for taxi maintenance Grab can increase their GrabTaxi driver fleet size with SMRT's eco-friendly hybrid and fully electric vehicles.
	Trans-Cab (Singapore)	Partnered exclusively with Grab in September 2016 to onboard all its drivers on to Grab's digital platform to receive bookings through Grab (Grab was not exclusive and still partnered with multiple other taxi firms)	Trans-Cab can capture more market share through Grab's large installed user base with more Grab ride bookings for their drivers to earn more income and better compete with the dominant taxi firm, ComfortDelGro, in Singapore Access to Grab's advanced digital platform capabilities and marketing Grab subsidized the cost of smartphones for Trans-Cab drivers to go digital	Grab can significantly increase their GrabTaxi fleet of drivers and ride allocation rate because Trans-Cab is Singapore's second-largest taxi operator with over 7,000 drivers in 2016 (which had shrunk to 2,406 drivers by October 2020)

		How Grab Related to Incumbents	Grab's Complementarities with Incumbents	Incumbents' Complementarities with Grab
	Premier Taxis (Singapore)	Partnered with Grab in October 2016 to onboard all Premier Taxi drivers onto Grab's digital platform to receive bookings through Grab	Premier Taxis can capture more market share through Grab's large installed user base with more Grab ride bookings for their drivers to earn more income and better compete with the dominant taxi firm, ComfortDelGro, in Singapore Access to Grab's advanced digital platform capabilities and marketing	Grab can increase their GrabTaxi fleet of drivers and ride allocation rate with Premier Taxis' fleet of 3,000 drivers in 2016 (which had shrunk to 1,292 drivers by October 2020)
	Prime Taxi (Singapore)	Partnered with Grab in October 2016 to onboard all Premier Taxi drivers on to Grab's digital platform to receive bookings through Grab	Prime Taxi can capture more market share through Grab's large installed user base with more Grab ride bookings for their drivers to earn more income and better compete with the dominant taxi firm, ComfortDelGro, in Singapore Access to Grab's advanced digital platform capabilities and marketing	Grab can increase their GrabTaxi fleet of drivers and ride allocation rate with Prime Taxi's fleet of 1,000 drivers in 2016 (which had shrunk to 641 drivers by October 2020)
Distant Incumbents: Automotive OEMs	**Toyota**	In June 2018, Toyota announced that it had agreed to invest USD1 billion in Grab in its Series H round (at a rumored valuation of USD10 billion). This was the largest ever investment by an automotive OEM in the ride-hailing sector globally. In addition to this investment, Toyota appointed a senior executive from its Tokyo headquarters to Grab's board of directors and another senior Toyota executive was seconded to Grab's Singapore headquarters to lead the implementation of this partnership (Russell, 2018)	Toyota aimed to partner with Grab to extend its new Mobility Service Platform, a cloud-based digital ecosystem for Toyota's mobility innovations. Toyota aimed to work with Grab to install in-car data recording devices (telematics) into Grab's vehicles to accumulate driver behavior, car, and rides data. Using this data, Toyota planned to offer targeted financing, insurance, and car maintenance services to Grab's drivers across Southeast Asia. The data attained from Grab's platform could also enable Toyota to develop its own new mobility services like a self-driving electric vehicle service for logistics and food delivery. Toyota also planned to increase the ratio of Toyota cars used by Grab to 80 percent.	Grab received an undisclosed financial investment from Toyota in August 2017, followed by an unprecedented USD1 billion investment in June 2018 to partner with Toyota to be the one-stop mobility platform for users in Southeast Asia Grab can help provide discounted Toyota vehicles for drivers on its platform

		How Grab Related to Incumbents	Grab's Complementarities with Incumbents	Incumbents' Complementarities with Grab
	Hyundai	In January 2018, Hyundai invested an undisclosed amount in Grab to form a strategic partnership. In November 2018, Hyundai announced its USD250 million investment in Grab, right after Toyota announced its USD1 billion investment in Grab.	Hyundai aims to gather telematics data from the drivers on Grab's platform for its electric vehicle development by installing in-car recording devices in Hyundai cars that Grab drivers use. For example, Hyundai would like to know how to build electric vehicles for a humid region like Southeast Asia and gather vehicle performance data from Grab drivers in the pilot program	Grab can expand its electric vehicle fleet capacity through its partnership with Hyundai, which is a key growth proposition in markets like Indonesia and Singapore, where the governments have committed to a future with electric vehicles and more sustainable mobility
	Daimler Southeast Asia	Daimler has a Southeast Asia presence through its Singapore office, but Grab did not approach Daimler for a partnership and remained friendly with the Daimler Southeast Asia head. The main reason is that Daimler's vehicles mainly offer luxury class cars, which is beyond the budget of many Grab drivers	Daimler could partner with Grab to access big data on consumer behavior in Southeast Asia	Daimler could provide Grab with a discounted supply of vehicles to drivers who would want to rent or buy them for digital ride-hailing services

TABLE 3. Summary of findings: How a disruptive digital platform entrant (Grab) evolved and changed the industry architecture of the mobility industry in Southeast Asia from 2011 to 2021

	Industry Complementation Phase (2011–2014)	Industry Disruption Phase (2014–2016)	Industry Transcendence Phase (2016–2021)
Major events in the evolution of Grab's digital platform	**Officially entered market as GrabTaxi in 2011:** Focused mainly on digital taxi ride-hailing services across Southeast Asia 	**Rebranded to Grab in January 2016:** Expanded into several mobility platform services (private cars and motorcycle taxis) since 2014 and disrupted proximate & distant industry incumbents 	**Rebranded as a super app in May 2018:** Transcended the focal mobility industry to diversify into multiple industries on one digital platform to grow user base and usage 
Grab's role in mobility industry of SE Asia	**Complementor** to proximate taxi (non-digital) platform incumbents	**Disruptor** of proximate taxi incumbents (major taxi fleets) and distant automotive OEM incumbents (Toyota and Hyundai)	**Transcendent orchestrator** that transcends focal mobility industry boundaries to enter multiple industries and grows indifferent to the focal mobility industry, yet accepts and leverages the support of multiple incumbents
Grab's focal mobility industry value creation	**Offers a complementing digital platform technology** that aims to help proximate taxi incumbents improve their service	**Offers a one-stop mobility platform** with largest and most efficient regional land transport fleet of drivers from multiple mobility modes; and helps minor taxi incumbents create value through more rides	**Offers a one-stop, everyday digital super app platform** with the largest installed user base across the region; and **becomes a valuable data services complementor to distant automotive OEM incumbents**
Grab's focal mobility industry value capture	**Grab captures a small commission fee** for each ride that matches incumbent taxi drivers with on-demand passengers	**Grab becomes a substitute** for car ownership and traditional taxi services and captures value away from dominant taxi and automotive OEM incumbents	**Grab becomes a larger substitute for both proximate taxi and distant automotive OEM incumbents**; and captures more value away from them as **incumbents feel pressured to recapture value via supporting Grab**

Enabling factors of Grab's role and evolution	**Platform entrant competition:** Winner-take-all price wars against EasyTaxi **Fungibility of digital platform capabilities**: large installed user base, API software, data analytics, and network effects **External VC funding:** Grab does not need to rely on industry incumbent support **Pain points in traditional mobility industry:** lack of safety, service quality and price assurance	**Platform entrant competition:** Winner-take-all price wars against EasyTaxi, Uber, and Gojek (EasyTaxi exits in 2015) **Fungibility of digital platform capabilities**: large installed user base, API software, data analytics, and network effects **External VC funding**: Grab does not need to rely on industry incumbent support	**Platform entrant competition:** Winner-take-all price wars against Gojek and Uber (Uber exits in 2018) **Fungibility of digital platform capabilities**: large installed user base, API software, data analytics, and network effects **External VC and incumbent funding**: Grab uses the funding to focus outside of mobility to grow the platform as a super app

Industry Complementation (2011–2014): Grab Complements Proximate Taxi Incumbents While Competing with Rival Entrants

Evolution in the focal market: Ride-hailing

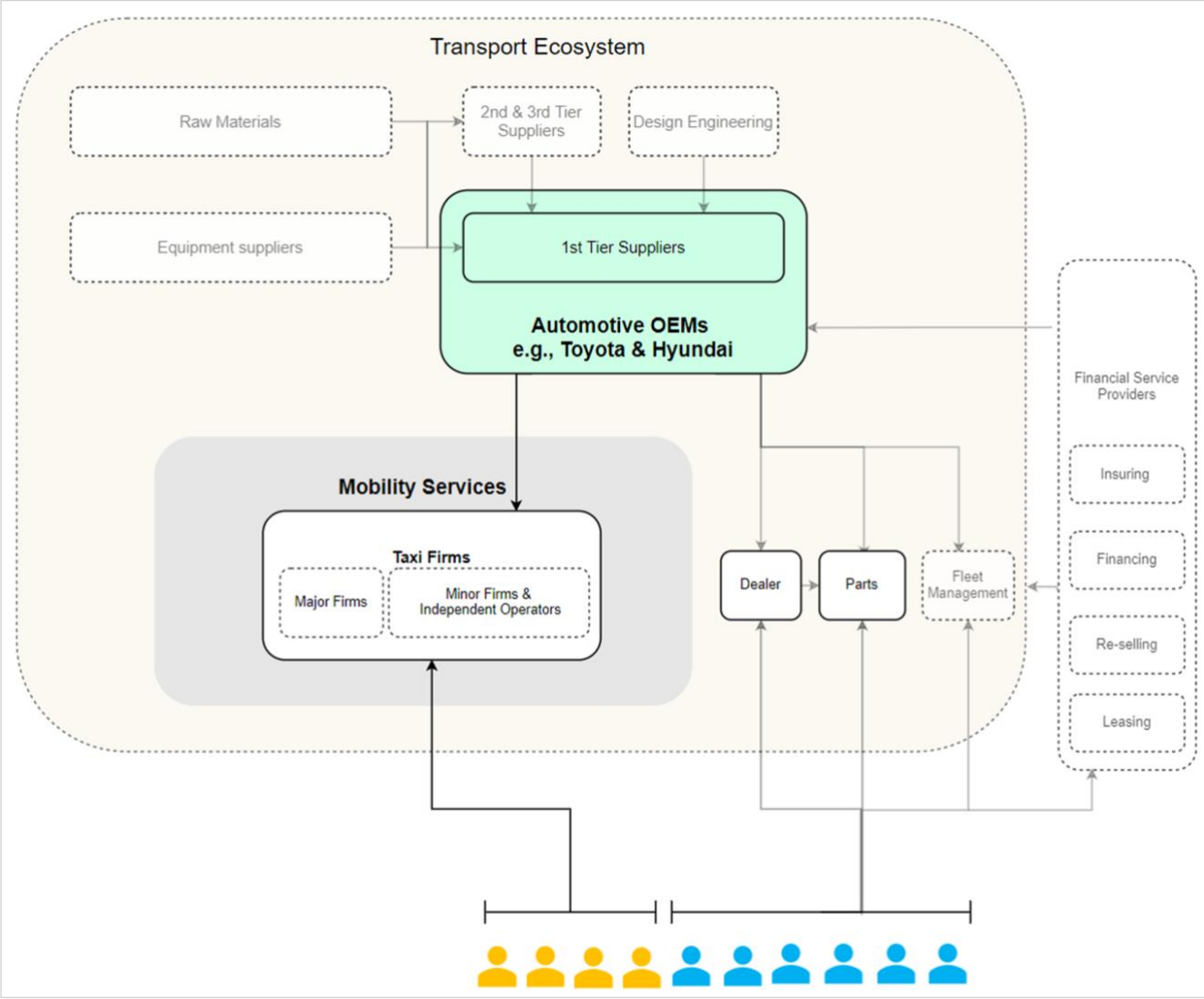

FIGURE 1a. Pre-Entrant Phase of the Southeast Asian mobility ecosystem (pre–2011)

Grab was founded in 2011 by two Harvard Business School graduates from Malaysia who aimed to solve safety and quality problems in the Malaysian taxi industry. As such, Grab launched officially in June 2012 under the local moniker MyTeksi. It later rebranded to GrabTaxi as it entered new markets regionally, starting in the Philippines in early 2013 and then Thailand in June 2013. Figure 1a depicts the IA of the mobility industry in Southeast Asia before this phase. During this phase, the leadership team's strategy was to complement existing taxi fleets by providing a digital platform to enable passengers to book a ride directly with taxi drivers closest to them, and track the rides for safety, convenience, and speed. Grab aimed to garner as much support from the key players as possible—however, setting up such a virtuous cycle was easier said than done. Their first challenge came in June 2013, from EasyTaxi—a rival digital taxi-booking platform entrant from Brazil that was generously funded by Germany's global venture builder, Rocket Internet, which competed with GrabTaxi in Malaysia and then regionally. EasyTaxi pursued an aggressive growth-at-all-costs business model that aimed to edge out Grab in Southeast Asia, forcing its management team (which included Nitaya) to make a series of challenging strategic decisions.

Grab's managers were faced with major internal conflict regarding their scaling and growth strategies at this time. Nitaya had launched Grab's fledgling operations in Thailand in June 2013. EasyTaxi entered Thailand just one month later, giving Grab Thailand a slender first-mover advantage. That month, Grab's CEO shared an article with senior management about the battle between Uber and Lyft in the U.S. under the subject line, "Launch fast, launch early, build the database of best drivers." His directive to the Grab team was, "The first mover advantage closes fast. So we have to move super fast!"

Competition between Grab and EasyTaxi in Malaysia and the Philippines was already fierce. Whichever company could recruit the most taxi drivers would be able to offer faster ride allocation, winning over passengers—and market share—with a better service. On June 25, 2013, Grab's CEO fired off another email: "Our bargaining power changes through time as our presence grows ever stronger. We are clearly market leader now. Let's go talk to Sunlight and Public [other major taxi fleets in Malaysia] again. Let's join forces and fight [EasyTaxi] together."

However, by the end of 2013, the Grab team had to decide whether to scale their driver recruitment by partnering with dominant taxi fleets or approaching individual taxi drivers directly. At that point, Grab was wooing the large taxi firms, which had fleets of a few thousand cars, aiming to support the current industry structure. EasyTaxi, meanwhile, was primarily focusing on recruiting independent taxi drivers by approaching them with promotions in gas stations—substituting the fleets instead of complementing them. In response to EasyTaxi's entry, Grab's CEO reminded: "Fighting [EasyTaxi] will be tough because we don't have the successes and stickiness we achieved in [Malaysia] yet. Even then we are fighting them hardcore every day. They are throwing money at the problem. Short run, we fight like hell. Long run, they can't last at that pace of spending money."

Initially, the Grab Thailand team hoped to start a pilot with a major taxi fleet to secure a large driver base at a stroke. The local Director of Grab Thailand, denoted with the alias "Nana," was a non-operating, minority shareholder who had a relationship with the largest, most reputable taxi fleet in Thailand, which had over 3,000 drivers under management. Nitaya, along with Nana and Deputy General Manager, tried to strike a deal, but discussions stalled for several

weeks. In a subsequent email exchange, the CEO concluded, “The initial thought that we could solve the chicken and egg [problem] by teaming up with [major taxi fleets] is not really the case because their jobs are few and far between.”[2] Malaysian managers revealed that they were facing similar problems with getting fewer jobs from fleets than expected. With validation and encouragement from the regional team, Nitaya issued a new, urgent strategic plan for Grab Thailand to start recruiting taxi drivers direct: “The best way to proceed now is to hit independents [taxi drivers] ASAP […] Thai Team, please be prepared to redeploy our resources into starting our independent [taxi driver recruitment] very soon.” Thus, the team began to pursue both driver recruitment strategies in parallel.

However, by mid-September 2013, EasyTaxi had overhauled GrabTaxi’s slight first-mover advantage with a rumored 1,000 drivers. Thus, Nitaya made an executive decision to focus the Thai team’s efforts exclusively on direct recruitment and forget partnering with fleets. Predictably, her decision inflamed tensions between the regional Grab team and Grab Thailand, which at the time boasted just three senior Thai executives: Nana, a Deputy General Manager, and Nana’s acquaintance, who helped with the fleet partnership but was not an employee. Nitaya ultimately reached a compromise with Nana: Nana could continue trying to work with the major taxi fleet, but Nitaya would hire and manage a new executive team to recruit drivers independently from October 2013 onwards. By the end of 2013, having encountered similar issues with taxi fleets in other countries, the regional management team collectively decided to switch to direct recruitment region-wide. Thus, Grab largely abandoned the strategy of partnering with taxi fleets; essentially, it resolved to ignore them.

Meanwhile, Grab’s CEO had learned that well-funded, global ride-hailing entrants like Uber and Hailo were soon to enter Southeast Asia. On August 31, 2013, he once again exhorted the regional executive team to accelerate driver acquisition: “It’s a super critical heads up!... So we need to prepare for full-out war! […] They will throw everything they have at us.” Uber entered Southeast Asia through Singapore in February 2013 with UberBlack, its on-demand, chauffeured limousine service. However, since UberBlack cost nearly twice as much as a taxi, it gained little traction. For its part, Grab could afford to ignore this premium service, since it was not disrupting its own GrabTaxi business… yet.

[2] Email from Grab CEO to regional management team on August 30, 2013.

Incumbent Responses and Their Effect on Mobility Industry Architecture

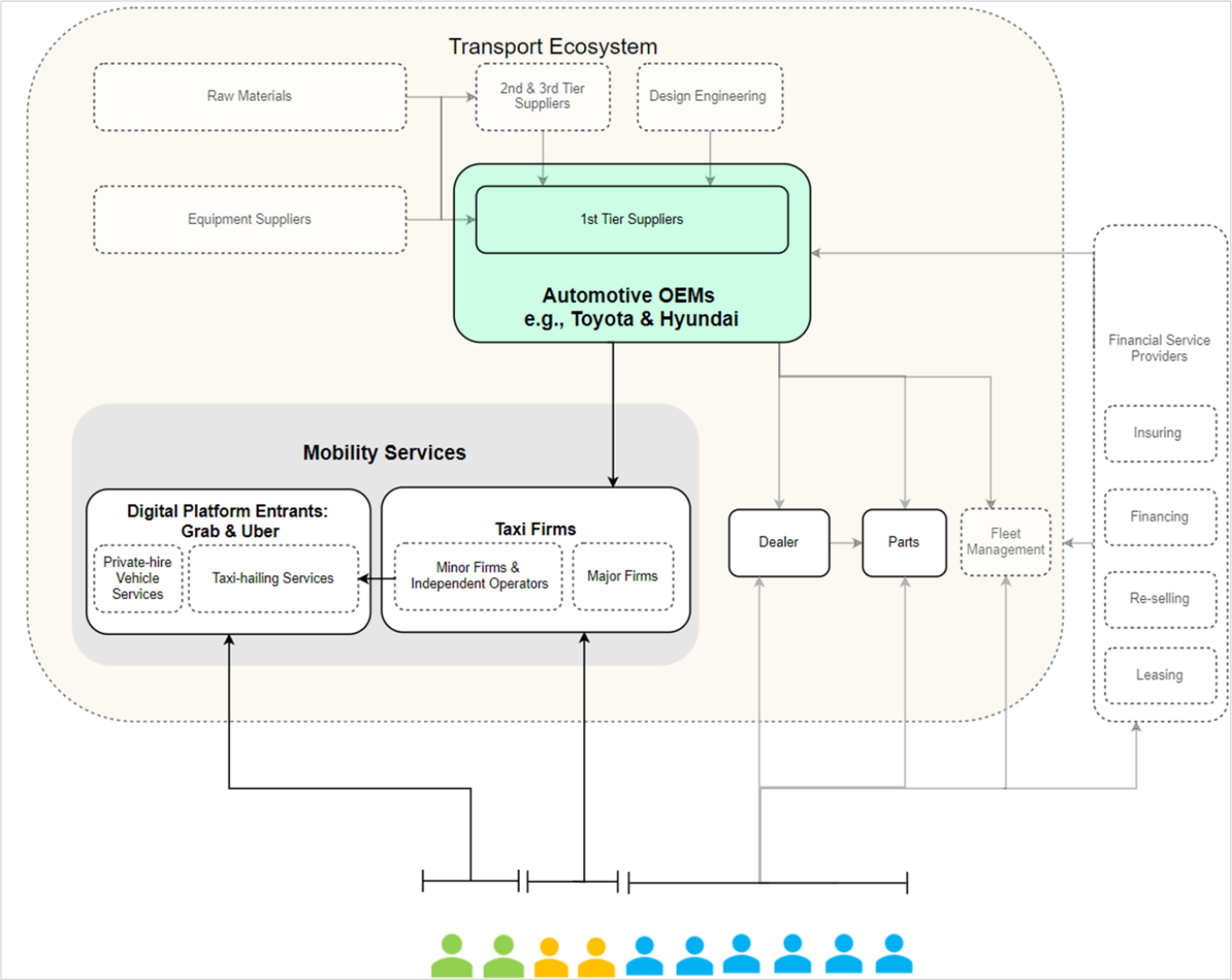

FIGURE 1b. Industry Complementation Phase of digital platform entrants in the Southeast Asian mobility ecosystem (2011–2014)

During this complementation phase, Grab entered the mobility industry as a complementor of the taxi firms and drivers as digital taxi-hailing services grew in popularity among users in Southeast Asia but remained a nascent innovation (as shown in Figure 1b). Taxi fleets declining to work with Grab believed either that they were doing well enough as things stood, or that they could easily build digital ride-hailing apps of their own. Table 2 details how two fleets, Sunlight Taxi and ComfortDelGro, launched their own ride-hailing apps during this phase. Grab remained friendly with other fleets, who wanted to partner with them to compete against the market leaders but focused primarily on competing with EasyTaxi and similar entrants.

Figure 1b also shows how the distant automotive OEM incumbents with a presence in Southeast Asia—Toyota and Hyundai—did not yet respond to the entry of digital taxi-hailing services. Instead, our interviews with executives at Hyundai and Toyota revealed that they were well aware of Grab and its rival platform entrants, but that the early innovation did not yet warrant immediate action at their firms. A Senior Manager at Hyundai, whom we denote as "Chamnien," explained the outcome of his 2014 research report to executive management on the entry new mobility platforms like Uber: "It didn't impact business decisions because we didn't have a dedicated team and organization to manage these efforts."

Industry Disruption (2014–2016): Grab Disrupts Proximate Incumbents and Attracts the Attention of Distant Incumbents

Changes in the (focal) ride-hailing market

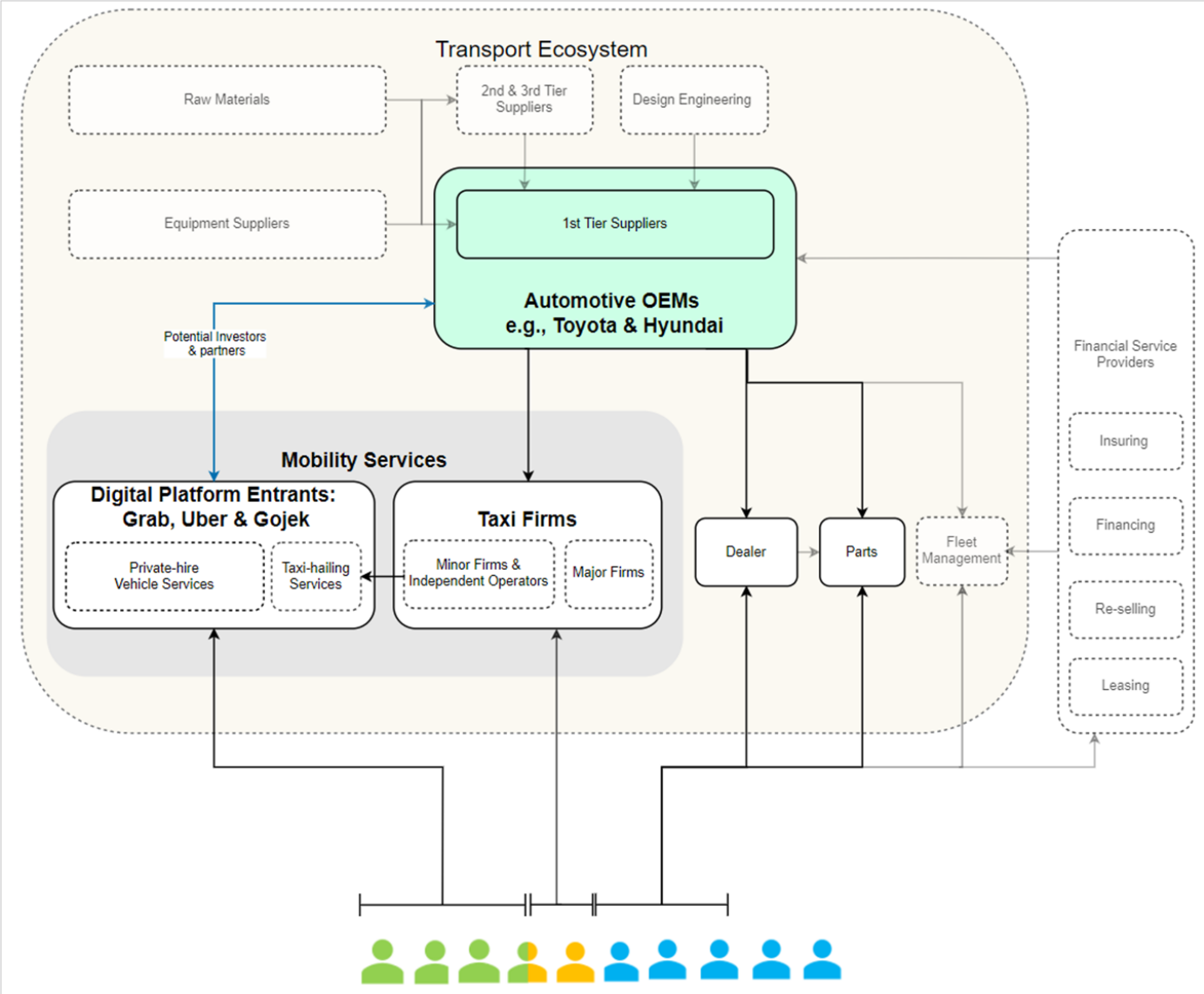

FIGURE 1c. Industry Disruption Phase of digital platform entrants in the Southeast Asian mobility ecosystem (2014–2016)

In March 2014, as expected, Uber launched UberX. This transformative service enabled users to book low-cost rides in private, non-commercially licensed vehicles in Singapore; it was rolled out region-wide by the end of 2014. Singapore aside, UberX was controversial because it operated in a grey area, brazenly flouting the formal and regulatory aspects of the mobility IA; indeed, some authorities initially deemed it illegal. Grab, still known as GrabTaxi, was focused only on its regulated taxi hailing service. However, because UberX was often cheaper and faster to book than taxi rides due to a higher supply of private cars and drivers, it started to disrupt the traditional taxi sector and GrabTaxi's market share.

In April 2014, Grab's regional team and Country Heads held heated discussions on whether or not to launch GrabCar—the firm's answer to UberX. On the one hand, firstly, GrabCar could grow and scale more quickly than GrabTaxi, because there were more private cars than taxis and it would not be subject to regulated taxi fares. Moreover, GrabCar could use dynamic pricing to offer competitive fares and attract more users, just as Uber did. Second, many ride-hailing users preferred to ride in unmarked cars, because having a private driver and owning a car implied higher status—and the quality of taxi vehicles outside of Singapore was particularly poor.

On the other hand, Nana and some Country Heads, had little desire to stake their careers on launching an illegal or unregulated service in their country—especially when they saw how Uber's services had been banned in Thailand and Malaysia. Moreover, the Country Head of Singapore saw no immediate need to launch GrabCar, because taxi services there were of a high quality already. However, the team also appreciated the competitive pressure of Uber's impending disruption. Thus, Nitaya and Grab's senior management team initially decided to implement a decentralized strategy: launch GrabCar regionally and allow each Country Head to decide whether and when to launch it in their market. Nitaya, who was a proponent of GrabCar having seen Uber's rapid adoption in Thailand, was tasked with helping with the rollout.

To address the concerns over illegality, Grab aimed to work with regulators to establish new industry rules and regulations for digital ride-hailing in private cars. In June 2014, Nitaya was promoted to establish and lead Grab's Public Affairs department, which would lobby over the long term for GrabCar to be legalized or endorsed. In the Philippines, Nitaya worked with the Deputy General Manager to collaborate with transport regulators to enact the first nationwide ride-hailing regulations in the world, which were issued in May 2015. In Vietnam, Nitaya also worked closely with the General Manager and a local public affairs consultant to partner with the Ministry of Transport to allow GrabCar to operate legally across the country by the end of 2015 in a two-year exclusive pilot program with registered private cars for hire. This exclusivity meant that Uber's services would remain illegal in Vietnam until it finally received approval in April 2017—a significant competitive advantage for Grab. The firm built a solid market share in Vietnam and attracted significant interest from venture capital investors, raising nearly USD 1.4 billion during this phase.[3] As the CEO remarked, "Grab has grown tremendously over the past year. This round of funding shows the confidence and optimism investors have in Grab's market leadership and long-term potential in Southeast Asia."

[3] Grab was valued at USD 3 billion from its recent fundraise of USD 750 million led by its existing investor, Softbank, in September 2016. Grab reportedly had 400,000 drivers on its platform, over 21 million app downloads, and nearly 1.5 million daily ride requests regionally.

Despite these successes, the decision to operate GrabCar in Thailand remained a bone of contention between the regional Grab team and Nana. As the Thai government upheld its ban on Uber in December 2014, Nana grew increasingly worried that her reputation would be damaged if the ban also extended to GrabCar. Ultimately, the CEO asked her not to interfere with local operations, and reassured her that he would take full responsibility for any ban. This is just one example of how the Grab regional team had to prioritize company growth and competitive strategy over regulatory risks and internal team conflicts.

By the end of 2014, both GrabCar and UberX were growing rapidly across the region. EasyTaxi was no longer a rival; it focused solely on taxi ride-hailing, lost significant market share, and exited the region by the end of 2015. The new platform dynamics created competition between disruptive entrants, who waged price wars with the goal of a "winner-take-all" outcome. In an email to the senior leadership team in June 2015, Grab's CEO reinforced this mindset by pointing to Uber China's initial growth and warning of Uber's impending disruption of Grab. "They will cut and paste in Southeast Asia. It's ruthless how fast they are growing. We need to kill them now. Have to go all out." The price war slashed fares and boosted drivers' earnings as the volume of rides increased, thereby rapidly increasing the market share and scaling of entrants' businesses. Entrants like Grab and Uber also received significant venture capital support to grow their installed user bases quickly, which created a virtuous cycle that generated more excitement surrounding their growth trajectories and market share accumulation, fueling investor support still further. As 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."

By the end of 2015, Grab had launched GrabCar in each country it operated in, and GrabCar became a regional growth and scaling strategy. Now, Grab was no longer reliant on working with focal industry incumbents such as taxi fleets and automotive OEMs (for its private car division). As such, in January 2016, it dropped the "Taxi" from its name, reflecting its evolution into a digital multi-service mobility platform.

Incumbent Responses and Their Effect on Mobility Industry Architecture

The industry disruption phase saw Grab acting as a disruptor (albeit, inadvertently) as the mobility industry converged on a new business model based on digital platforms that connected with multiple incumbents that were both *proximate* and *distant,* as Figure 1c illustrates. Now, automotive OEMs started to engage with digital platform entrants like Grab and Uber in earnest. It was not before time: a slew of industry reports around this time foresaw unsettling changes for OEMs. Collie *et al.* (2017) warned that automotive OEMs' longstanding business models would need to be re-examined in the light of the new mobility paradigm. Some OEMs would reinvent themselves as providers of digital ride-hailing services, while those that failed to do so would become obsolete. As a senior executive at Hyundai confirmed, the OEMs were of the same mind. "We were aware of these reports by BCG and our team had even drafted our own report in 2011 on the future of mobility to show the senior leadership team. In our report, we recommended that Hyundai should invest in and work with new mobility companies like Uber. However, Hyundai did not have an internal team set up to handle this yet." Grab opened discussions with Hyundai and Toyota on potential partnerships for an electric vehicle pilot and connected car mobility projects, respectively, in 2016.

Taxi fleets across Southeast Asia suffered sharp declines in both rides and driver numbers (Tan, 2018). Those that had initially turned down working with Grab—like BlueBird in Indonesia—were compelled to form alliances with another rival ride-hailing entrant, Gojek, in 2016. In addition, both ComfortDelGro and BlueBird had made major investments to launch their own digital booking platforms. However, technology was not their core competence. Also, since taxi fares were heavily regulated, they could not withstand the intense price pressure from ride-hailing entrants. Meanwhile, minor taxi firms continued to partner with Grab and its peers in the region, just to ensure their own survival; for small firms, the impact of extra volumes outweighed any concerns over sectoral cannibalization. The IA of Southeast Asia's traditional mobility industry was changing fast, with proximate taxi incumbents facing increasing pressure to partner with Grab's entrant rivals to compete with Grab, which was consolidating its majority market share across mobility services regionally.

Industry Transcendence (2016–2021): Grab Transcends Industry Boundaries with Super App Business Model as it Changes the Architecture of the Mobility Industry

The shifting dynamics in the expanding focal market (from ride-hailing to super apps)

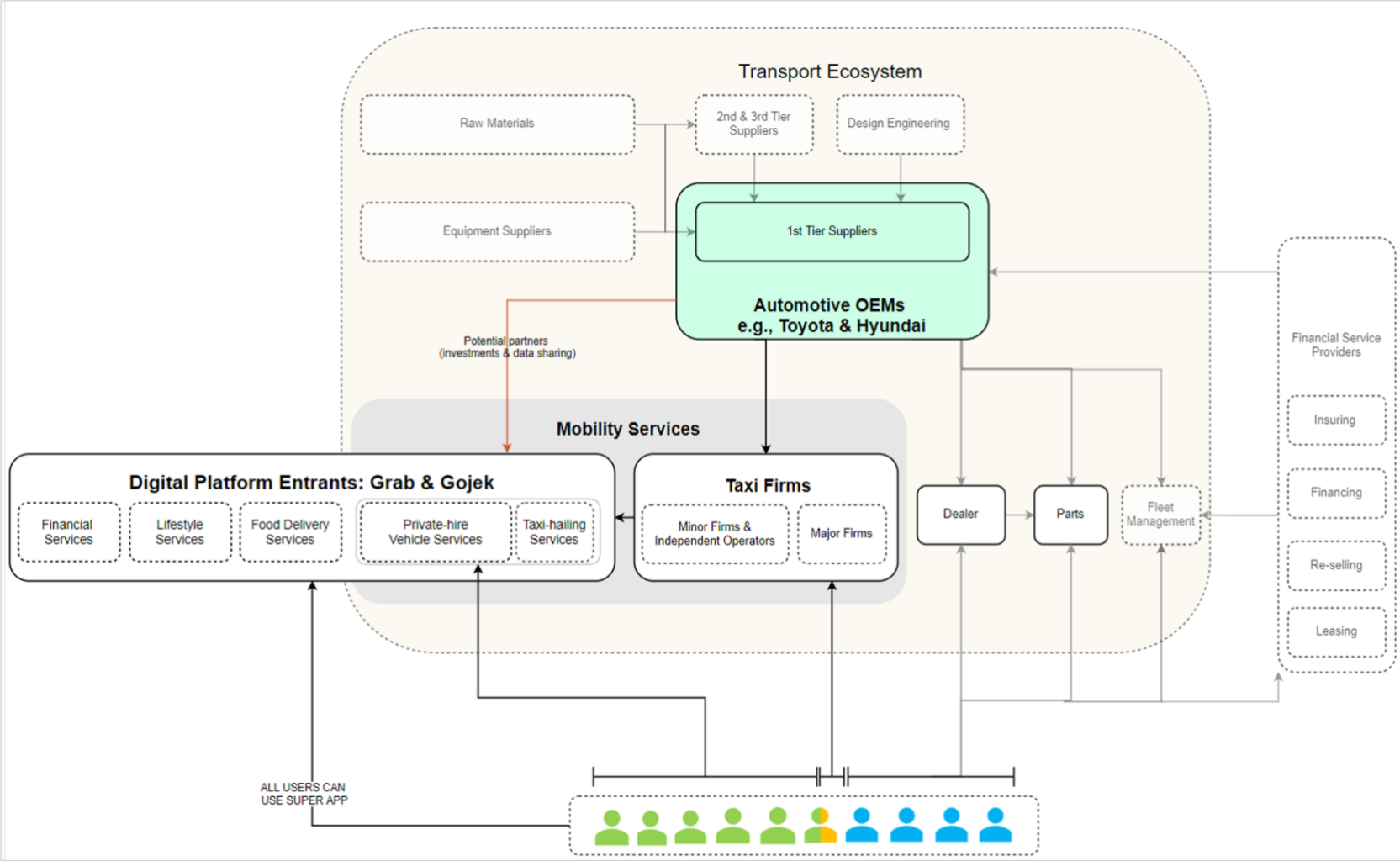

FIGURE 1d. Industry Transcendence Phase of digital platform entrants in the Southeast Asian mobility ecosystem (2016–2021)

In this phase, illustrated in Figure 1d, Grab surpassed Uber in market share, with 95% of the licensed taxi hailing market and 71% of the private car hailing market. Thus, it turned its attention towards competing with Gojek, its more formidable rival in Southeast Asia's largest market, Indonesia—not just in mobility, but in financial and other services too. Right from its official launch in January 2015, the Gojek app offered multiple services that encompassed mobility, food and grocery delivery, and parcel delivery on motorcycle taxis. Gojek added its electronic payments and mobile wallet service, GoPay, in April 2016. In February 2015, Grab announced that it would introduce cashless payments on its app, but it did not officially launch the service, GrabPay, until January 2016. Finally, in November 2017, Grab became a full-fledged digital payments company when it enabled users to use GrabPay at third-party merchants like local shops and restaurants.

In July 2017, Grab announced that it had raised a further USD 2 billion from SoftBank and Didi, the leading digital ride-hailing platform firm in China; this doubled its valuation to USD 6 billion in less than one year. However, much of the VC funding was earmarked to support Grab's diversification into a full-service ride-hailing and financial technology platform with multiple paths to profitability. As the CEO explained, "We are delighted to deepen our strategic partnership with Didi and Softbank. We're encouraged that these two visionary companies share our optimism for the future of Southeast Asia and its on-demand transportation and payments markets, and recognize that Grab is ideally positioned to capitalize on the massive market opportunities" (Russell, 2017a).

During this phase, Grab focused its financial, technological, and human resources on becoming the region's largest digital payments company. As its CEO explained (Russell, 2017b), "Nine in ten [people] in Southeast Asia don't have a credit card and 75 percent are unbanked—it's clearly a big problem and, in our minds, larger than transportation." Competition between Grab and Gojek intensified further once Uber exited the Southeast Asian market after its operations in the region were acquired by Grab in March 2018. In August of the same year, Gojek's CEO announced the firm had almost reached profitability in all of its business segments except for transportation services (Potkin, 2018), further validating the entrants' shift beyond mobility.

In 2019, both Grab and Gojek officially rebranded their business models as *super apps*: digital platforms that offer multiple, integrated products and services for users within a single, convenient mobile app.[4] In March, Grab's CEO articulated a new vision after receiving a USD 1.4 billion investment to grow the super app strategy (Grab, 2019a): "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." Following the Uber acquisition, Grab had vowed to venture beyond transport by focusing on these initiatives: (1) food delivery; (2) more localized transport and mobility solutions; and (3) financial technology services. In July, Gojek also formally rebranded itself as "Southeast Asia's leading super app."

A senior Grab executive, whom we call "Eng" and who was directly involved in launching GrabPay, recounted a contentious internal debate over whether Grab should remain a transport company meeting local needs through a cash payments model, given that many users did not

[4] Eng, from the financial services team, explained that Grab had been inspired by Tencent's WeChat super-app model as an exemplar of digital platform growth. Also, Tencent invested $100 to $150 million into its rival, Gojek, tipping off the Grab team that Gojek would soon launch a super-app model—as indeed it did.

own a credit card and were underbanked. This strategy was mainly supported by Grab's marketing team, who commissioned a third-party report recommending that Grab should stay true to its proven hyperlocal brand identity. On the other hand, other Grab leaders—particularly those from the Engineering and Product teams—believed that the future of Southeast Asia would be cashless. As Eng admitted, "What would be completely true is that there was a huge amount of internal tension regarding transport versus what is now the super app strategy. And that cash [payment] was viewed as a 'key pillar' of the value proposition, while 'cashless' payment and a payments strategy in general were likely to be costly, draining cash, and diminishing that hyperlocal premise of Southeast Asia as a cash-focused economy."

This internal debate continued right through to mid-2017, even after the GrabPay was formally named and launched. The main catalyst for Grab's CEO to finally commit to electronic payments was competitive pressure from Gojek and inspiration from WeChat's success with its super-app model—particularly its focus on electronic payments—in China. As Eng explained, "Gojek's super app model was very impactful. Even though we knew that 99% of all volume on their side was in transport […], food, and delivery, we believed that people were keeping the Gojek app on the phone very heavily because of the idea that they might want to order food or potentially pharmacy [products] or some of the other services in the future. The prospect of being more useful to users in the future seemed to be boosting their retention. I think both Gojek as well as WeChat were key drivers to get Grab to publicly define the super app strategy and attempt to brand it."

Incumbent Responses and their Effect on Mobility Industry Architecture

By early 2017, the mobility IA changed as distant automotive OEM incumbents were beginning to join forces with digital ride-hailing platform entrants globally, and Toyota and Hyundai both opened discussions on strategic alliances with Grab. These distant incumbents became both complementors to and investors in platform entrants, while launching new roles and rules within their firms to interact with platform entrants in unprecedented ways. In response, Grab created a new division dedicated to Strategic Automotive Partnerships.

In July 2017, Toyota made an undisclosed minority investment in Grab and formed a strategic partnership to collect data on Grab's drivers, cars, and rides for its new Toyota Mobility Service Platform—an all-in-one cloud-based digital platform for its new mobility services (see Figure B2 in Online Appendix B). As Toyota's Executive Vice President, Didier Leroy, commented: "We strongly believe this is something we can't do alone, due to the agility of many new competitors" (Autovista Group, 2017). Toyota's President, Akio Toyoda, 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.

Chamnien, the Senior Manager from Hyundai, said that he had engaged with Grab "because they felt competitive pressure to follow Toyota and Daimler in adopting a new vision of

mobility." Initial discussions began from an opportune meeting between the Executive Vice Chairman of Hyundai and Grab's CEO at an international conference. The two had bonded over their shared experience of multi-generational family business in the automotive world, and a mutual interest in digital mobility innovations. As Chamnien explained, "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." To help it partner with platforms like Grab, Hyundai hired a former Samsung Electronics executive to run a team that included several external hires from industries including e-commerce and management consulting.

Toyota's and Hyundai's early discussions with Grab culminated in unprecedented investments and strategic partnerships. Both incumbents viewed Grab's platform data analytics capability as a major value proposition that would enable them to collect valuable driver and ride data for future research and development in new mobility services (see Table 2). In June 2018, Toyota announced a USD 1 billion investment in Grab—the largest investment made by an automotive OEM in a ride-hailing company to date. Toyota was also granted a seat on Grab's executive board, and dispatched a senior executive to work directly with the Grab team on connected mobility. By the end of 2018, Hyundai followed suit with a USD 275 million cumulative investment in Grab. At this point, Grab was valued at USD 10 billion and was engaged in its Series G funding round—yet it was still not profitable.

It was perhaps ironic that Grab used the OEMs' investment to expand *beyond* mobility and pursue its super app strategy. Thanks to their fungible digital capabilities, both Grab and Gojek were able to scale quickly across business verticals. Their API technology enabled them to integrate third-party digital platforms, especially from distant sectors like financial services, and quickly launch their own new verticals like food delivery.

In this phase, the IA changes in the mobility industry enabled Grab to assume a pivotal role as a "transcendent orchestrator" in a new platform ecosystem that attracted incumbents to operate within and support its ecosystem. Distant automotive OEM incumbents vied to become Grab's complementors, following the footsteps of proximate taxi fleet incumbents who now depend on platform entrants for survival. Remarkably, the distant incumbents' outsized investment in Grab was a testament to their alignment with Grab's super app strategy—despite the entrant's lack of profits and focus on other, more profitable industries. Grab's super app model created new value in the mobility industry by ambitiously growing its user base and usage as much as possible by attracting new customers from other industries who may also want to use mobility services in the convenience of an all-in-one platform. This new value that Grab's and Gojek's super app models created led to significant changes in the mobility IA: namely, new ways for distant incumbents to try to capture that value in new roles as the complementors and investors of platform entrants.

5. Discussion

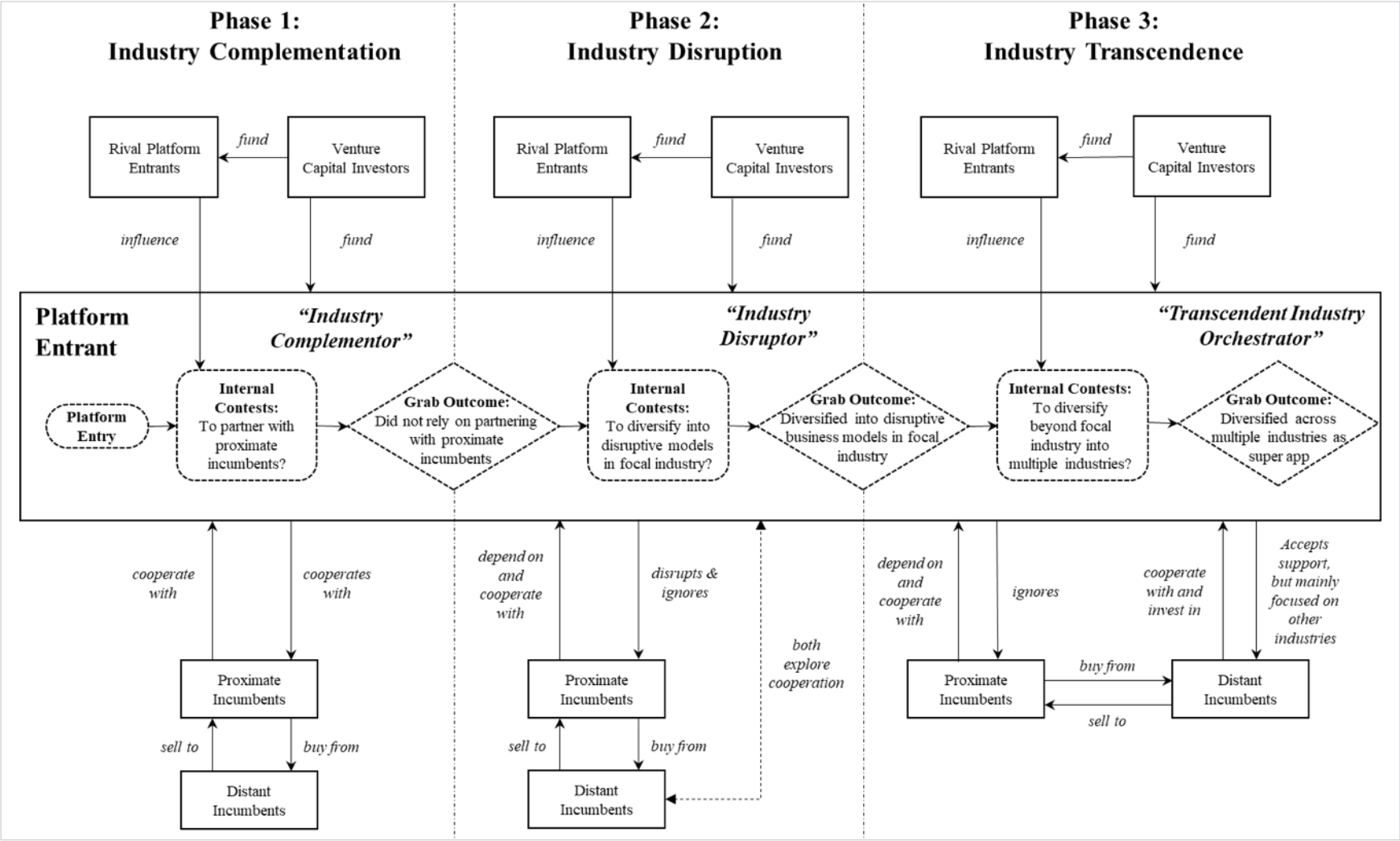

FIGURE 2. Process map of the internal processes of a platform entrant and how it changes the industry architecture of a focal industry over ti

Our study sought to explore how an entrant platform positions itself vis-à-vis the existing IA, working within it or trying to disrupt it, how it connects to different types of incumbents, and how it shifts its boundaries over time. Our analysis is captured in a process map in Figure 2. We used our exceptional data access through the active participation of one of the authors to examine what drove the entrant's strategic choices and triangulated this with archival and interview data. While this was an inductive case study, rather than offer a *de novo* theoretical account, we considered the relevance of existing theoretical frameworks and looked at both their advantages and shortcomings so as to build cumulative knowledge of what underpinned the dynamics we observed, and how Grab could garner so much support from industry incumbents who risked being commoditized by it.

Observations and Phenomenological Contributions

Our study, and the evidence outlined above, allows us to make a number of observations that summarize our take-aways as they relate to existing research.

Observation 1: The strategy of a disruptive platform entrant depends on support from incumbents, but is also strongly dependent on the extent of inter-platform competition

Grab's initial strategy was relatively friendly to existing players, as it worked with taxi fleets to gain support and form alliances. Note that this differs from studies that have emphasized distinctiveness (e.g., Hensmans, 2003), or from the suggestion of Ansari et al. (2016) that platform entrants start out combative, then tone down their disruption later on. This suggests that it may be difficult to advance a process model that is appropriate in a broad range of contexts. Furthermore, we see that Grab's focus was not only on the support of incumbents, but the extent of competition in its focal market. Given the expectation of "winner-take-all" markets, whether justified or not, the strategies of platform entrants are very sensitive to plausible competition in their own segment—a factor that seems to be absent from previous accounts of platform entry. Incumbents' own responses may also depend on the extent of inter-platform competition with rival platform entrants.

Observation 2: The strategic choices of a platform entrant are rooted not only in the interests of the firm, but also the boundedly rational perspectives of key stakeholders and coalitions within it.

With the benefit of direct access to critical decision-making processes within Grab, we can see what really drives choices on engaging with incumbents or platform scope. This provides a far richer account than the "unitary decision maker" model (Allison, 1971). As such, our observations suggest that inferring "strategic intent" on the basis of firm action may be overly ambitious, as the process is actually driven by opposing divisional agendas, managerial uncertainty, political compromise, and protracted internal debates.

Observation 3: The response of industry incumbents to an entrant platform differs depending on how *proximate* or *distant* they are from it.

Our data point to a significant difference between *proximate* incumbents, which clearly see the impacts that a digital platform entrant like Grab could have, and those that are more *distant,* which tend to overlook such impacts—whether they are liable to be a complementor for the platform's offer, or a substitute (Adner and Lieberman, 2021).

Observation 4: The extent to which a platform firm is a complement or a substitute to an incumbent firm is not a given and may change over the course of a platform's evolution.

While the neat delineation by Adner and Lieberman (2021) is analytically defensible, and highlights the paucity of work in disruption in complements, whether a platform is a complementor or a substitute is neither clear and given *ex ante,* nor necessarily stable over time. Often, firms like Grab will offer both complements *and* substitutes through their platforms. Some activities are complementary, like Grab sharing information on riders or cars with OEMs—but others, like Grab's impact on the OEM-owned rent-a-car business, are not.

Observation 5: Disruption in complements tends to draw the most ambiguous response from incumbents—particularly distant incumbents, who may shift from indifference to strong support to concern.

We saw that some of the more distant incumbents, and especially those who could have a complementary link with Grab, became some of its strongest supporters, as the complementarity in the relationship enabled Grab to extoll its own value-add.

Observation 6: Whether an entrant platform competes within the IA, or tries to change it, depends on both its expectations on absolute complementor and customer engagement, and potential growth, which drives the response of the capital markets.

Whether a firm like Grab plays by the rules, or tries to change them, partly depends on the *absolute magnitude* of the opportunity—which, as Jacobides and Winter (2007) note, also shapes scope decisions. However, it also depends on the growth rate that the platform entrant can achieve, as this is a critical driver of both capital market valuations and the availability of capital, which itself helps the firm survive and withstand competition. The significant venture capital and public equity market support for digital platform firms' "growth at all costs" business model—motivated by a "winner-take-all" logic that rewards short-term user acquisition growth over profitability—enables digital platform entrants to secure external financial resources (Khan, 2017).

Observation 7: A platform entrant such as Grab has significantly more leeway than incumbents inasmuch as it has no attachment to a particular sector, and views IA changes in a purely instrumental way.

The paradox of platform entrants is that while they may carefully select an industry to enter at the outset, they are not tethered to that industry from then on. In a real sense, most incumbents care most about their own sector—but entrants do not. The irony is that Grab spent its funding from the mobility sector on expanding into other verticals, aiming to lock customers in and match its competitors (e.g., Gojek). Grab's success was driven by its ruthlessly *not caring* about which industry it belonged to. This lack of industry "loyalty" empowered Grab to grow as a shape-shifting, disruptive market leader across multiple industries, leveraging the support of incumbents as it went.

Theoretical and methodological contributions

First, we contribute to recent research interest in incumbent–entrant dynamics, and the role of platforms (Ansari *et al.*, 2016; Khanagha *et al.*, 2020; Cozzolino *et al,* 2021). The surprising

finding in our case is that some established distant incumbents, who might have been challenged by the disrupting platform, not only supported and cooperated with it, but also generously funded it with $1.25 billion. In contrast with existing views emphasizing the conciliatory strategies and coopting framing that new platform firms are supposed to engage in, we also found that Grab largely ignored both automotive OEMs and taxi incumbents in its nascent growth stage, rather than prioritize coexisting and gaining legitimacy from them through symbolic actions like repositioning themselves as complementors rather than disruptors (Ansari *et al.*, 2016). It never equivocated on its potential to disrupt the sector, and only focused on a shifting set of complementary benefits the OEMs would receive- such as data on car usage, as a motivation for the remarkable investment it asked them to put in. Remarkably, Grab then revealed an aspiration to grow beyond the mobility industry by expanding into new services that would grow its installed user base and make its digital platform more frequently used. Finally, we find that growth prospects, supported by venture capital, significantly affect the dynamics of platform adaptation.

Second, and explaining this unusual finding, we contribute by detailing a specific case of disruption in complements (Adner and Lieberman, 2021), and illustrate its differences from more "traditional" disruption in substitutes. Our detailed analysis of Grab's relationship with its counterparts in the IA suggests that to understand the nature of complementarities, one must tease out the rules, roles, and relationships that underpin them. We also show that Grab was able to succeed precisely because it highlighted these complementarities, thus turning disruption to its advantage. Automotive OEMs invested in Grab, despite the prospect of losing car sales, because they wanted to leverage its user data analytics capability: For example, Hyundai cooperated with Grab to gather user and ride data for research and development on its new electric vehicle model, which it also hoped to pilot with Grab's drivers in Southeast Asia. Likewise, Toyota aimed to leverage Grab's digital platform and large driver base to gather vehicle and ride data for car maintenance research.[5]

Third, we advance work in IA by articulating the rules, roles, and relationships in a sector (Table 3) and provide a novel illustration and some methodological advances in the use of the theory. We show how Grab first acted within the IA, and then outside it—even flouting regulatory requirements. We show how it created the position of Vice President of Public Affairs (originally filled by the first author), whose job it was to push the boundaries of what was allowed to accommodate Grab's vision. We explain how platform entrants do not merely operate within their sector's IA, but also reshape it. We also contribute to the recent discussion on ecosystems (Adner, 2017; Jacobides *et al.*, 2018) by showing the coevolution of the IA and the firm-specific Grab ecosystem in our analysis and Figures 1a to 1d.

Fourth, we advance work on how platform firms set their boundaries (Gawer, 2021) by providing a detailed empirical case study tracing the drivers of a firm's scope decisions in the context of its IA. Relatedly, we qualify work on envelopment (Eisenmann *et al.*, 2011; Parker, Van Alstyne, and Choudary, 2016), which had escaped in-depth empirical research. While envelopment considers how one platform may expand and compete with another, we see that firms such as Grab do not integrate existing platforms, but rather extend the offering through their own. For instance, Grab's entries into financial services and food delivery did not rely on

[5] This insight also supports the new value of big user data aggregation and analytics created by Big Tech firms, which further boost their dominance and disruption of traditional industry architectures (Jacobides *et al.*, 2019; Khan, 2017).

platform plays. A platform firm may expand not by head-on competition with *proximate* incumbents (i.e., other platforms) but by affecting more *distant* ones (financial service firms or food producers), more as a complementor than a substitute. Such evolution depends on creating a bundle that locks customers in as securely as possible, in ways that future research should consider further.

Fifth, our process map in Figure 2, shows how Grab co-evolved with its environment. While offering new insights, this also raises broader methodological questions, such as how far we can stretch our process models. Our findings, for instance, are the inverse of those of Ansari *et al*. (2016), who suggest that entrants start with a radical framing and then emphasize mutuality (see also Khanagha *et al.*, 2020): Grab started by being a more faithful part of the IA with respect to incumbents, only to change course once challenged by other platform entrants like EasyTaxi, Uber, and Gojek. This does not invalidate the results of Ansari *et al*. (2016), but it does raise the question of how specific or general such process models can be, and whether the strategies we observe might be driven by idiosyncratic features that are difficult or impossible for researchers to discern. Relatedly, while we appreciate that our account may be biased by the views of the author who was involved, it does offer a more direct view of what drives strategic platform decisions. We find an interesting analogy with the different accounts of Honda in the U.S.: the BCG report on the one hand, and the historical account that looks at the happenstance that drove Honda's evolution on the other (Pascale, 1984). Qualitative research, we argue, may still be our best approach to understanding emerging phenomena (Miles and Huberman, 1984), but this does raise a challenge of what is the source of inferential basis, and how much we as researchers, and interviewees as informants, rationalize what organizations do.

Limitations

This paper comes with a number of limitations. First, its methodological strength—unique data from an actor involved in the decision-making of a platform firm as it evolved—is also its shortcoming, as, for all the use of notes and triangulation, we cannot rule out the risk of bias. Second, our study, like many other platform studies, is the account of an idiosyncratic case, which limits our ability to generalize. 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 changes that are not mediated by such platforms. Third, the visibility and importance of Grab (which is now worth over USD 20 billion) may make it an uncharacteristic example. The dynamics of established OEMs clamoring to support new entrants might only unfold in the few cases of highly successful and publicized ventures. Relatedly, it may be that the conditions under which Grab grew (a massively booming capital market, with high valuations for technology firms) could be an important invisible driver of these dynamics—suggesting that when circumstances or contexts change, many of the lessons we draw may no longer hold. As such, it is imperative to expand the line of research on such issues in different settings, covering smaller platform entrants, and comparing and contrasting successful and unsuccessful ventures.

6. Conclusion

Given the rapid rise of digital platform ecosystems (Cusumano *et al.*, 2019; Jacobides *et al.*, 2018; Jacobides, Sundararajan, and Van Alstyne, 2019), understanding how such business models and organizational structures relate to disruption and competitive dynamics between firms has become an increasingly relevant area of study. We found that disruptive platform entrants can emerge and succeed with the support of distant incumbents who are motivated by potential complementarities. Our findings help to revisit the traditional disruptive innovation literature, highlight the role and value of considering industry architecture, and raise interesting questions on the use of process models. As organizations, regulators, and scholars adjust their frameworks to better understand how shape-shifting platforms transform industries, we hope our immersive study of a platform entrant's impact on the mobility industry in Southeast Asia contributes to an understanding of important phenomena and theory alike.

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Appendix A. Data Analysis

TABLE A1. Theoretical coding of events leading to industry architecture changes in the new Southeast Asian digital ride-hailing ecosystem introduced by the entrant, Grab, and its impact on proximate taxi and distant automotive OEM incumbents

Focused codes: Phase of Grab's role in industry architecture change	Initial codes: Events leading to industry architecture change	Excerpts/quotations from archival data and interviews
Industry Complementation Phase (2011–2014)	Incumbents explore the potential of entrant innovations	"A few years back, 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)
	Entrants explore diversified business opportunities and expand scope	"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)
	Early entrants do not depend on established incumbents to grow and instead focused on out-competing other entrant platforms	"'Our bargaining power changes through time as our presence grows ever stronger. We are clearly market leader now. Let's go talk to [major taxi fleets who initially ignored us] again. Let's join forces and fight [our digital ride-hailing platform entrant competitor] together,' wrote an anonymous digital ride-hailing platform entrant CEO." (N. Teng, personal email, June 25, 2013)

Industry Disruption Phase (2014–2016)	Incumbents are pressured to engage with and support entrant platforms due to entrant growth	"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 rivals and secure partnerships with the finite pool of top tech and ride-hailing companies..." (CB Insights, 2016) "All major OEMs have now formed strategic alliances with ride-hailing services, accelerating the transition to on-demand mobility services." (Collado, 2016) "Over the years, we have been hearing positive feedback from our drivers who have benefited from the Grab platform. We want to continue to support our drivers to earn higher incomes and believe that Grab's technology will bring more ride bookings to our drivers. We are confident that this partnership, along with our low rental rates, is a win-win situation and will attract more drivers to join our fleet," says Trans-Cab Singapore's Managing Director, Teo Kiang Ang (Grab, 2016).
	Entrant platforms grow fast while focused on out-competing each other and largely ignore incumbents	"With the deal in China, we expect Uber to turn more attention and divert resources to our region. But we have seen that when the local champion stays true to their beliefs and strengths, they can prevail. We see this happening in China, and it will be the same here. They've lost once, and we will make them lose again." – Grab CEO (Russell, 2016)
	Entrant winner-take-all mindset and external VC support fueled entrant 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." – Grab CEO (Sawers, 2015)
Industry Transcendence Phase (2016–2021)	Incumbents reframe vision towards digital platform business models	"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) "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, Sano, and Inoue, 2018)

	Incumbents restructure organization to enable and commit to entrant collaborations	"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) "The strategy and technology division started 2.5 years ago in early 2017 because top management thought Hyundai was behind in reacting to digital innovations and to cover all kinds of new businesses except for manufacturing cars. Hyundai hired a former Samsung Electronics executive to run the team. He was a Korean-American with a background from McKinsey and Accenture. Now, Hyundai can react to ride-hailing innovations with this organization. It took about 3 to 4 months to set up the new team…half of the division are external hires from a range of industries like e-commerce and management consulting." – Senior Manager, Hyundai (personal interview, July 24, 2019)
	Entrants are indifferent to focal mobility industry's future as they focus on expanding their scope to more sectors	"Grab today announced GrabPlatform, as part of its open platform strategy to build Southeast Asia's first everyday super app. Grab will add more highly used everyday services to the Grab app, together with best-in-class partners, who can use GrabPlatform to integrate their services with Grab. Partners can expand more efficiently across Southeast Asia by leveraging Grab's user base and Southeast Asia's largest distribution channels through GrabPlatform, a suite of APIs that enables partners to access components of Grab's technology like logistics and payments." (Grab, 2018) "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 startups and businesses grow and scale, as we have." – Anthony Tan, Group CEO & Co-founder, Grab (Grab, 2018) "SoftBank and the Vision Fund are long-standing strategic investors and we are grateful for their continued support. The investment is a clear statement of belief in our vision to grow Southeast Asia's technology ecosystem as the region's Number 1 super app. Looking ahead, we aim to continue improving the lives of many millions of Southeast Asians by providing enhanced income opportunities through our platform, and giving our users more choice and convenience." – Anthony Tan, Grab's Co-Founder and CEO, on a USD1.4 billion new investment from Softbank in March 2019 (Grab, 2019b)
	Incumbents depend more on entrants for survival and clamor to support entrants as	"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

	entrants leverage incumbents' support to grow	offer our driver-partners additional income opportunities from our growing passenger base." – Melvin Vu, former Head of GrabTaxi Singapore (Grab, 2017) "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). "The pact with Singapore-based Grab forms the Asia prong of Toyota's strategy to tie up with the strongest ride-hailing companies in each region, and then integrate its hardware and software into their services. Toyota is seeking an edge over rivals as carmakers are positioning for an uncertain future in which automated driving and the sharing economy threaten to displace the traditional model of vehicle ownership. 'We recognize that the mobility-as-a-service players control vast numbers of drivers and users, and are gaining supremacy over their local transportation systems,' said [Shigeki] Tomoyama, [the global head of Toyota's connected car division], who now sits on Grab's board. 'It's not realistic for us to try and set up a car-rental or ride-hailing service from scratch in a market like the U.S. or Asia.' Tomoyama wants Grab to rent almost exclusively Toyota vehicles to its drivers, from an estimate of about three in five of its cars currently… Toyota also plans to install data recorders in all 7,000 or so cars in GrabRentals' Singapore fleet by the end of March, and then expand that initiative to the rest of the region. That will help Toyota offer services like insurance and maintenance to the drivers through its connected-vehicle system…" (Buckland *et al.*, 2018)

TABLE A2a. How Grab is viewed by industry players, how Grab views them and what type of relationships are formed between them in the Industry Complementation Phase (2011–2014)

	Industry Complementation Phase (2011–2014)		
	How Grab is Viewed	**How Grab Views Them**	**Type of Relationship**
Proximate Incumbents (Major): non-digital platform firms (ComfortDelGro Taxi and Blue Bird Taxi)	Irrelevant	Potential partners	None (These major taxi firms met Grab, and one in TH piloted with Grab, but all eventually ignored Grab because it was too small)
Proximate Incumbents (Minor): non-digital platform firms (SMRT Taxi, Comfort Malaysia Taxi)	Potential partner	Potential partners	Partnership (Minor taxi firms partnered with Grab to compete with major taxi firms)
Distant Incumbents: upstream suppliers (Toyota, Hyundai, Daimler)	Irrelevant	Potential investors	None (Toyota and Hyundai knew of entrants, but did not have the capability to invest and entrants were still small; Daimler invested in digital ride-hailing entrants in Germany, but unfamiliar with SE Asia market)
Proximate Entrants: digital platform firms (Uber and EasyTaxi)	Irrelevant by Uber Competitor by EasyTaxi	Competitors	None (Grab and EasyTaxi competed intensely. Uber was not competing with Grab and EasyTaxi, but Grab was aware of Uber's global disruption of taxi industry and viewed both entrants as competitors)

TABLE A2b. How Grab is viewed by industry players, how Grab views them and what type of relationships are formed between them in the Industry Disruption Phase (2014–2016)

	Industry Disruption Phase (2014–2016)		
	How Grab is Viewed	**How Grab Views Them**	**Type of Relationship**
Proximate Incumbents (Major): non-digital platform firms (ComfortDelGro Taxi and Blue Bird Taxi)	Competitor	Irrelevant	None (These taxi firms lost market share and launched a digital app to compete)
Proximate Incumbents (Minor): non-digital platform firms (SMRT Taxi, Comfort Malaysia Taxi)	Potential partner	Irrelevant	Partnership (These minor taxi incumbents continue to partner with entrants like Grab)
Distant Incumbents: upstream suppliers (Toyota, Hyundai, Daimler)	Potential partner	Potential investors and partners	Partnership discussions (Toyota and Hyundai witness entrants' disruption of the taxi industry and are aware that personal car sales could be next; and start discussions with entrants like Uber and Grab)
Proximate Entrants: digital platform firms (Uber and Gojek; EasyTaxi exited by 2016)	Competitor	Competitor	None (Grab, Uber and Gojek compete intensely for users)

TABLE A2c. How Grab is viewed by industry players, how Grab views them and what type of relationships are formed between them in the Industry Transcendence Phase (2016–2020)

	Industry Transcendence Phase (2016–2021)		
	How Grab is Viewed	**How Grab Views Them**	**Type of Relationship**
Proximate Incumbents (Major): non-digital platform firms (ComfortDelGro Taxi and Blue Bird Taxi)	Irrelevant	Irrelevant	None (Instead, these incumbents partnered with Grab's lagging competitors, Gojek and Uber)
Proximate Incumbents (Minor): non-digital platform firms (SMRT Taxi, Comfort Malaysia Taxi)	Potential partner	Irrelevant	Partnership (Grab partners with minor taxi firms, but these incumbents depend more on Grab's platform for survival)
Distant Incumbents: upstream suppliers (Toyota, Hyundai, Daimler)	Potential partner	Irrelevant	Partnership (Grab accepts investments and partnership from Toyota and Hyundai, but largely focuses on other sectors it has diversified into)
Proximate Entrants: digital platform firms (Gojek and Uber (exited in 2018))	Competitor	Competitor	None (Grab continues to compete with the one remaining major entrant, Gojek, on the super app model)

Online Appendix B: Grab Corporate Information

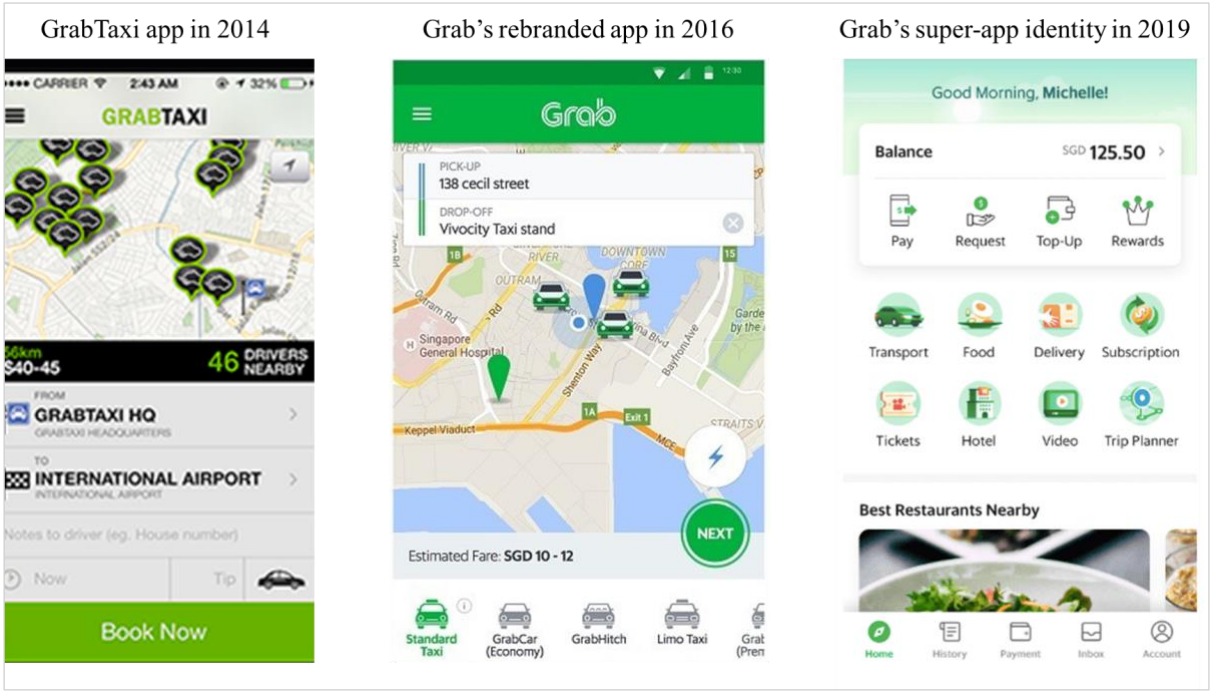

FIGURE B1. How Grab's digital platform application user interface evolved from its initial GrabTaxi identity in 2014 with one taxi-hailing service, to its rebranding to Grab in 2016 due to its range of offerings in the mobility industry, and its super app brand identity with services across multiple industries in 2019 (Grab, 2019c; Shu, 2014; Tegos, 2016)

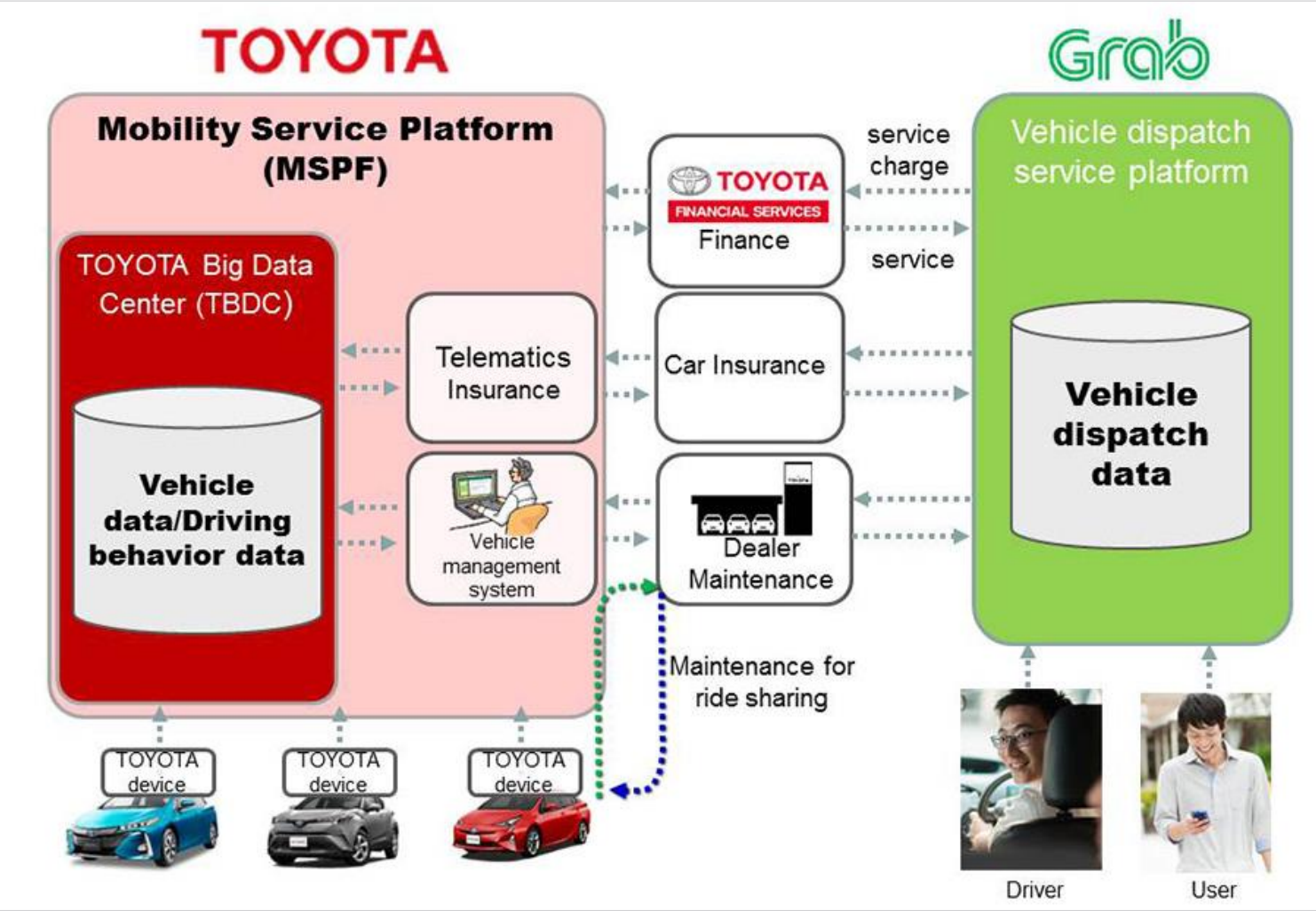

FIGURE B2. How Grab partnered with Toyota's new mobility service platform strategy in 2018 (Toyota Motor Corporation, 2018)

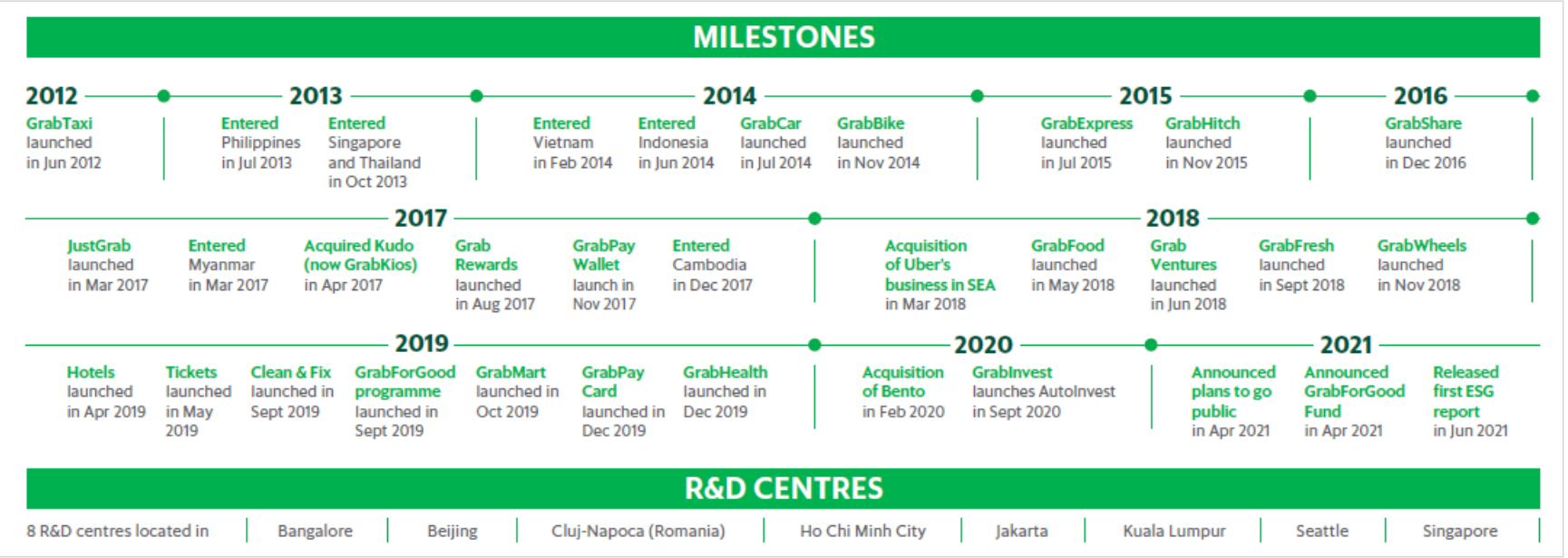

FIGURE C1. Snapshot of Grab's timeline of corporate milestones (Grab, 2021)

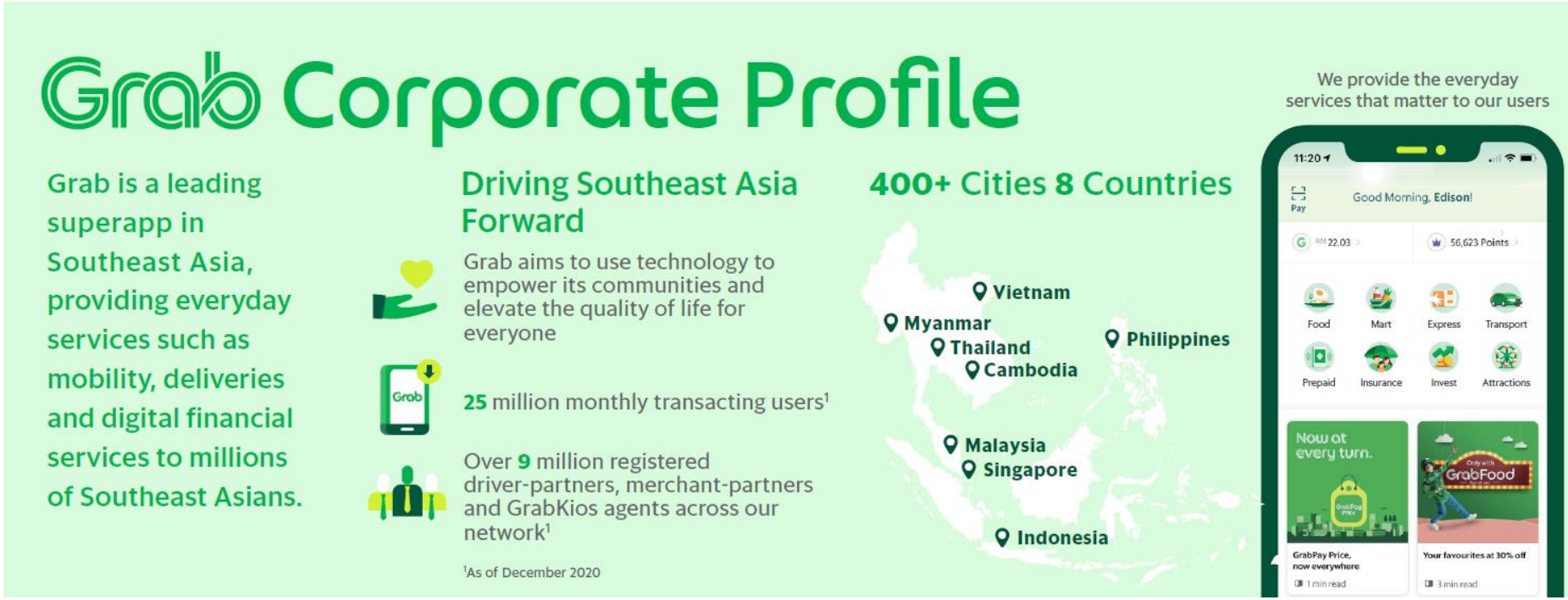

FIGURE C2. Snapshot of Grab's super-app digital platform services, ranging from mobility, food delivery, lifestyle services and financial services as of December 2020 (Grab, 2021)

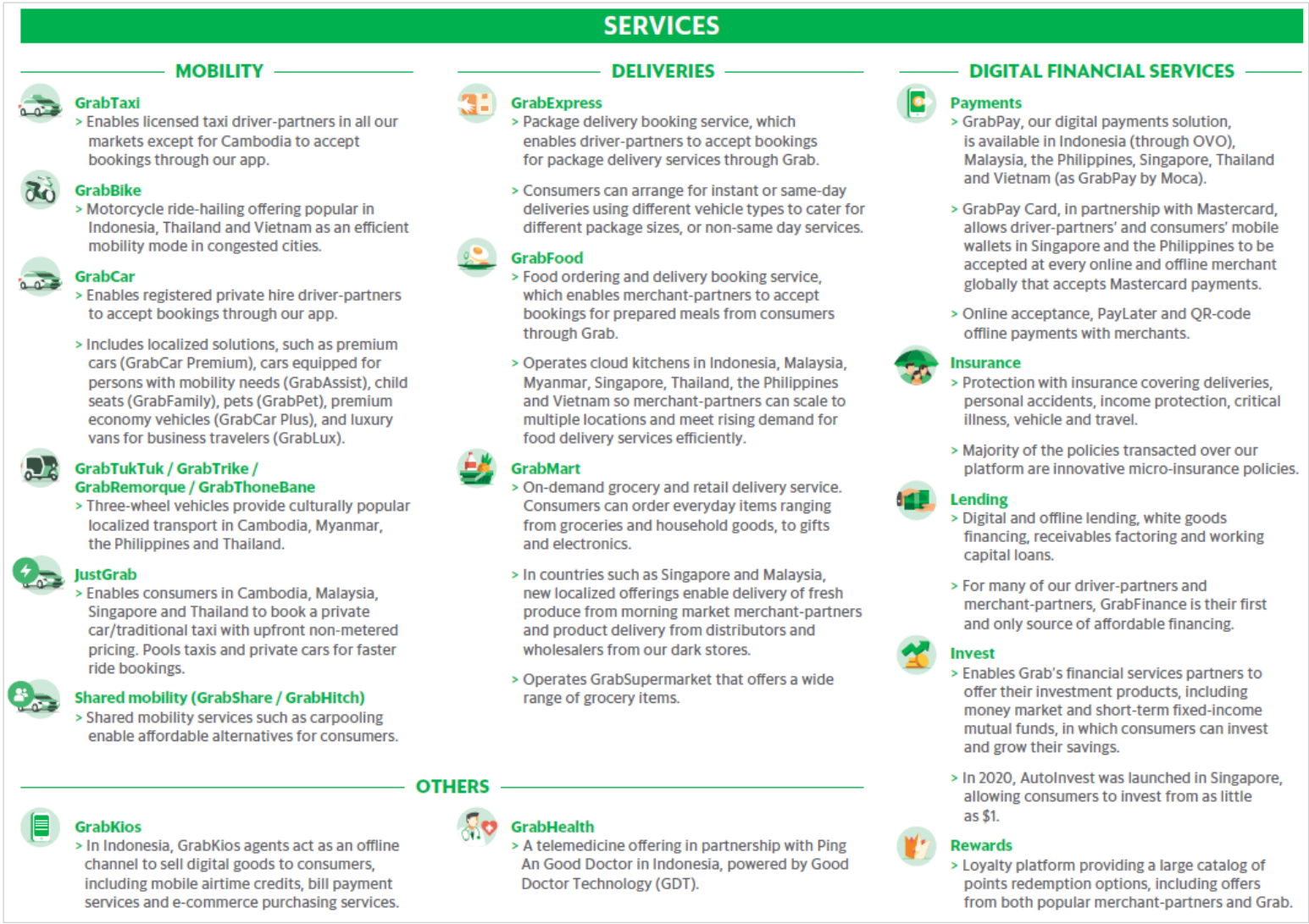

FIGURE C3. Snapshot of Grab's super-app digital platform services, ranging from mobility, food delivery, lifestyle services and financial services, as of November 2021 (Grab, 2021)

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Its clients and partners include large corporates, leading consultancies, governments and NGOs. Projects draw on its affiliates' vast experience and connections to global tech giants, startups, disruptors, entrepreneurs, and governments alike to engage key stakeholders in effective conversations and catalyse action.

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