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PLATFORM FUTURES

Small Books for Big Platforms

Book 1.
Mobile Ecosystem

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Malavika Jayaram Nishant Shah Vincent Zhong

Small Books for Big Platforms

Book 1.

Mobile Ecosystem

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Introduction

Small Books for Big Platforms — Book I: Mobile Ecosystem

Editors

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The ‘Small Books for Big Platforms’ series, part of the Digital Asia Hub’s programme on Platform Futures, is a comparative cross-area study that explores the opportunities and challenges of data ecosystems and platform ecologies in the Asia-Pacific region. It invites scholars studying the policies, regulations, implementation, digital cultures, and usage of emerging and existing platform structures in the region to provide a critical insight into the multiplicity, potentials, and ramifications of platform societies.

The ‘platform’ in these books is not a monolith: it encompasses a multiplicity of practices, histories and cultures in different parts of the world. Both books revolve around the idea of frictions, particularly when it comes to understanding the emergence, affordances, and governance of platforms.

The ‘small books’ are meant to be sharp, critical, located studies that help map the field as well as develop an inventory of questions that emerge from the localisation of platforms and the regional geo-political landscape within which they operate. The books simultaneously want to foreground the specificity and difference in emerging platform societies, thus demanding for granularised and located understanding of platformisation, as well as the larger shared concerns and connections that help strengthen the continued conversations around competition, innovation, safety, security, privacy, transparency, and distribu-

tion of data-driven and algorithm-driven practices on digital platforms.

Meanwhile, the series is also meant to be provocations that help understand the emerging policy issues, the discourse in different regions, and the opportunities and threats of platform futures in the Asia Pacific region. It is particularly keen on provoking discussions around the 'frictions' of platforms, which do not necessarily follow the discourse of a largely North-West centred theoretical and cultural orientation. We use 'frictions' as a space of provocation because it doesn't offer easy polarisations or binaries, but instead looks at the process through which the platformed societies operate and work, and the spaces where they 'don't quite sit well'. 'Frictions' could be enablers or barriers, causes or symptoms, or points of tension that highlight pre-existing contestations or histories. Instead of platforms as blackboxes, we approach them as 'spaces in the making', and are interested in mapping the different actors, stakeholders, communities, and users who make the platforms and create conditions for their emergence and adoption.

The first two 'small books' are a starting point of this series. Each 'small book' has a defined theme that focuses on Mobile Ecosystems and Data Opportunities and Challenges. Given the fluidity of these focus areas, the tensions and the local urgencies of these emerging fields, it was necessary for us to conceive of these 'small books' as collaborative, community-driv-

en projects which centre the scholarship of renowned scholars and practitioners rooted in multi-disciplinary and multi-sectoral engagements. It is important for us to emphasise that while the scholarship in this book is developed by the authors giving us meaningful and nuanced contributions, it is bolstered by a larger community of peer-reviewers, who have engaged with this work and added to it through a distributed open-review process, participation in workshops, and conversations and dialogues that go beyond the scope of these books. We would like to express particular appreciation to the following peer-reviewers:

Chinmayi Arun	Resident Fellow, Information Society Project, Yale Law School
Nighat Dad	Executive Director, Digital Rights Foundation
Bishakha Datta	Executive Director, Point of View, India
Kingwa Fu	Associate Professor at the Journalism and Media Studies Centre of The University of Hong Kong
Helani Galpaya	CEO, LIRNEasia
Yong Lim	Co-Director, AI Policy Initiative, Seoul National University
Siddharth Narrain	Phd Candidate, School of Global and Public Law, Faculty of Law and Justice, University of New South Wales
Julian Thomas	Director of the ARC Centre of Excellence for Automated Decision-Making and Society, and a Distinguished Professor in the School of Media and Communication, RMIT University.

In this ‘small book’, around the theme ‘Mobile Ecosystem’, Carol Soon, Gerard Goggin, and Julian Thomas and Rowan Wilken contribute key written inputs that pay particular attention to hyper-personalisation of falsehoods propagation and intervention with a case study of Singapore, platform futures in Asian post-mobile societies with a case study of Japan, and geographical information platform with a case study of Google Earth (Australia). Each contribution provides a synthesis of the state of discourse in the field, landmark policies, judgements, regulations, practices, and cases that shape this discourse, a detailed analysis of the challenges and opportunities presented, and further considerations and recommendations on interventions that are needed to build more equitable, resilient, and inclusive futures of platformisation. What’s more, one synthesis piece, developed by Nishant Shah and Malavika Jayaram, is included and provides a bird’s eye view of the emerging knowledge within this theme. With its multi-area focus and Inter-Asia-Pacific framework, we hope that these small books become a vehicle for asking big questions about platforms that our futures are being hosted on.

Synthesis

Beyond the Device:
Urgency and Emergencies in a Mobile Ecosystem

Malavika Jayaram

Nishant Shah

The mobile phone was the leap-frog technology that many of the emerging network societies in Asia were waiting for. Simultaneously bypassing questions of digital literacy and the last-mile connectivity, the mobile phone became a leveller of sorts, cutting through the digital divide in unprecedented, creative, and transgressive ways. The individual and social transformations that the mobile phone has ushered in are undeniable, and perhaps, even unfathomable in the granular changes that they effect — from political mobilisations and civic organisations to misinformation sharing and surveillance.

The ubiquity of the mobile phone, however, has resulted in the creation of platforms that have developed entire ecosystems. While the mobile phone — the instrument itself — remains the most visible 'black box' of digital transactions, it is important to realise that there is a complex, contingent, and iterative set of services, applications, hardwares, regulations, policies, and laws, which have developed to support the new mobile ecosystem. It is particularly useful to think of the mobile as a platform ecosystem because it allows us to recognise the layered infrastructure (human and technological) that goes into the making of these mobile expressions.

This volume of Platform Futures focuses on mobile ecosystems in the face of platformisation, bringing together three contributions that visit the landscape of mobile penetration and ac-

cess through different entry points. Despite the diverse targets of study, each contribution surfaces the contested, fragmented and material histories of mobile platforms in different concomitant parts of the Asia-Pacific region. They highlight the fact that we are not dealing with mere applications on devices, but thinking through mobile platforms as the scaffolding upon which our lives are being rendered, interpreted, and enabled. These sharp, located studies remind us of the need to see platforms as embodied, affective, material, and political, as a vital part of the economic commons.

Carol Soon takes us through the terrain of online falsehoods, cutting through some of the most challenging debates in Asia around encryption, monitoring, surveillance, profiling, misinformation and disinformation, as played out on mobile instant messaging services (MIMS) such as WhatsApp, Signal and Telegram. Although she focuses on the policy landscape in Singapore, she also makes broader observations about the hyper-personalisation enabled by information circulating in closed groups, under conditions of intimacy and trust, and how it can lead to the weaponisation of platforms of communication that collect massive amounts of data. Elevating specific conundrums for policy — such as technical limitations on traceability, and the legal challenges to overcoming them — she describes some of the legislative and non-legislative attempts prevalent in Asia. Carol's contribution reveals that although social media networks have

become critical vectors for the spreading of online falsehoods, they are also the means by which information is being verified by various communities, and testimonies are being created against harmful information in the public domain. Examining the friction between the privacy of encrypted communications, and the public interest in the debunking of falsehoods, she makes the case for hyper-personalised countermeasures in the form of interpersonal interventions, as a long-term strategy.

In contrast, **Julian Thomas and Rowen Wilken** orient us towards the hyper-global rather than the hyper-personal. Conceptualising Google Earth as a platform, they guide us through the complex, often opaque, layers of the planetary geo web, and the imaginary of a digital globe. They unravel the technological, computational, and geo-political layers that comprise a platform like Google Earth, to show how it leads to contestations of sovereignty and power. Rowen and Julian's contribution is a stark reminder that the ways of framing the local and the global, the national and the transnational, as well as the policies and regulations around them, must be recast to engage in what they describe as a new kind of "platform politics", one which looks at the fallacy of borders and the absolute shrinking of the world in a platform.

Framing Google Earth as a set of distinct components, they highlight how some are critical conditions of possibility for plat-

form features or operations, while others create points of tension among key participants in its platform economy. Questioning the relative success of Google Maps versus the potential of Google Earth, they unpack the points of friction when a private platform takes over some of the critical cartographic work of nation states, substituting its own visualisations for those previously undertaken by governmental institutions. Reminding us that the augmentation and diversification of official cartography through alternate names, languages, and valuable historical context, however laudable, inevitably generates tensions around security and sovereignty, they foretell a "…future of increased geo-political involvement in technology, and a new phase of national and global platform politics."

The third contribution, from **Gerard Goggin**, focuses on what might be called the ground zero of mobile application geographies. Recalling that Japan's mobile internet project was the blueprint for the dominant mobile platforms of today, Gerard offers a case study of the Japanese technology giant SoftBank, which has been hugely invested in developing comprehensive digital platform networks such as the messaging app, LINE. Studying the integration of mobile ecosystems with digital platforms, through the typically Asian phenomenon of "super apps", Gerard uses the Japanese model of platformisation as an entry point to consider what is unique and potentially generative about Japanese approaches to mobile ecosystems and post-mobile

platforms.

Paying particular attention to LINE's approach of "culturization", as opposed to the provision of generic, globally standardised services, Gerard also highlights the rhetoric around "sandbox-ing", which seeks to treat platforms in the Asia-Pacific region as young and emergent, and therefore better suited for self-regulation or other voluntary initiatives while they reconfigure business models and navigate market dynamics. Noting that mobile platforms and super apps are increasingly embedded in financial and data extraction policies, he elevates the need for considerable imagination in the area of media and ICT policy, in order to tackle the big questions about platform futures that "…get little airplay or attention in these often internecine market and governmental wars."

As synthesisers for this volume, we recognise the high stakes that the contributions are putting out for us. They are clear that when dealing with mobile ecosystems, we have to think through the registers of the emergent, the urgent, and the emergency. Each contribution demonstrates the need to revisit the narratives that frame platforms and their contexts as emergent. Particularly challenging the fetish of the new and the innovative, they show how our 'emergent' mobile practices are actually embedded in much longer established practices in the region. Carol's contribution powerfully shows us how the framing of 'emergent', shifts the axis of responsibility away from these platforms, as

they present themselves as nascent, underdeveloped, experimental, whereas they constantly fall back on codifying established practices of power and control.

All the contributions also mark the urgency of looking at mobile ecosystems beyond the accepted rhetoric of speed, access, penetration, and usage. There is a fundamental urgency to look at the network neighbourhoods and data profiles that mobile ecosystems create for us. Beyond the mechanics, as Gerard points out, is a larger cultural mobile platform that needs to be unboxed. It is particularly important to understand that the mobile technologies, through their sheer spread, are the gateway to a variety of governmental, political, and economic transactions and the architectures and histories of mobile systems influence the ways in which individual liberties, subjectivities, and rights are being shaped.

It does not come as news to us, and the global COVID19 pandemic has only hammered the point home, the mobile phone and the mobile platform have been valuable critical response tools and lifelines in times of emergencies. The contributions ask whether it is necessary to also look at them as implicated in engineering emergencies and not merely as a tool to resolve and address emergencies. Julian and Rowan's contribution is starkly demonstrative of what happens when private platforms take up public responsibility, and how they create conditions of

vulnerability and precarity even as they seek to address gaps in everyday lives.

Perhaps more crucially, when we think about platforms and the kinds of decisions they make — about truths and falsehoods, about maps and boundaries, or even capitalism and culture — we need to locate accountability for these kinds of decisions, especially during times of disasters, crises, and emergencies. The three contributions, through their depictions of frictions and contestations in the mobile ecosystems space, offer timely provocations, policy recommendations and open questions for future research. We find these small books and their big ideas to be not just insights, but also provocations to re-think the ways in which mobile ecosystems are platforming our futures through the habitual, almost unthinking transactions we make with this device that has become almost an extension of our hands.

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Hyper-personalisation of Falsehood Propagation and Intervention

Introduction

Online falsehoods, in the form of fake news, misinformation and disinformation have received much scrutiny among policy-makers, scholars, and practitioners in recent years. Concerned stakeholders have attempted to counter the effects of online falsehoods through a range of legislative and non-legislative means. In Singapore, the government passed the Protection Against Online Falsehoods and Manipulation Act (POFMA) in 2019 to stem the spread of online falsehoods, deter its producers, and limit its unintended negative effects on online dis-

course. In March 2021, the Singapore government announced that it is considering laws to tackle harmful online content such as violent extremist propaganda and the dissemination of voyeuristic material and intimate images without consent, in addition to thwarting the impact of hostile information campaigns on domestic politics.

As the reliance on mobile devices for news-seeking and information-sharing continues to surge, the increasing integration of functions on MIMS (mobile instant messaging services) fuels their ubiquity in users' everyday lives. In the case of WeChat, the platform combines the utility of WhatsApp, Facebook and Twitter, providing considerable usage flexibility on a single platform — personal messaging, social networking, viral communication and personal finance (Zhang 2018). Given the pervasiveness of mobile devices, the spread of online falsehoods on MIMS is a growing problem that confounds academics, practitioners and policymakers globally, Singapore included. Currently, WhatsApp has about two billion users worldwide, Facebook Messenger three billion users and WeChat one billion users (Bucher 2020). In Singapore, WhatsApp is the most used messaging app, followed by Facebook Messenger, WeChat and Telegram (Bucher, "We are Social").

This chapter situates the problem of online falsehoods in the hyper-personalised nature of communication on MIMS. The dissemination of online falsehoods is compounded by the en-

crypted nature of MIMS which reduces social sanctions and limits the efficacy of countermeasures such as regulation and fact-checking. To respond effectively to these challenges and combat falsehoods in the long run, hyper-personalised counter-measures in the form of interpersonal intervention are required.

Hyper-personalisation of Falsehoods on MIMS

Similar to open-communication platforms such as Facebook, MIMS facilitate personal and group communication. However, communication on MIMS takes on a hyper-personalised nature in several ways. First, content is often circulated in closed groups where one gains access only through an invitation. Users are not able to discover new connections via the app itself, leading to the creation of isolated, hyper-local networks (Shah, George and Prabhakar 2019). The privacy afforded by apps due to their end-to-end encryption, as well as the group function that facilitates high ease of information sharing and organisation of events, heightens the attractiveness of MIMS. Such privacy encourages the shedding of user inhibition when sharing unverified information (Mukherjee 2020; Simon et al. 2016).

Second, as MIMS facilitate informal interactions among people sharing close ties (i.e., friends, family and co-workers), the high trust that exists within such networks fuels the spread of online falsehoods. A study by the author (Soon and Goh 2020) found that the second most frequently cited reason for sharing false-

hoods on social networking sites and MIMS was that the information came from friends and family members. The group messaging features that are present in MIMS systems create ideal relational conditions for the propagation of online falsehoods. Singaporeans most frequently encountered and believed in the false information when it was circulated on social networking sites and Instant Messaging apps such as WhatsApp and Facebook Messenger (Soon and Goh 2020). The problem is aggravated when hyper-localised harmful speech falls through the cracks of intervention, because the significance and implications posed by the problematic speech are not understood by relevant enforcement agencies, such as global corporations (Chinmayi 2019). Third, the intimacy in the language of hyper-personalised communication on MIMS creates empathy and encourages exchange among users. Kischinhevsky et al. (2020) found that during the 2018 Brazilian presidential election, the radiophonic language used in audio messages, combined with the use of colloquial style, heightened the spread of disinformation and fake news campaigns.

The hyper-personalisation of MIMS provides leverage for falsehood producers to sway public opinion, especially during periods of high political activity such as election time. Machado et al.'s (2019) analysis of 200 videos and images shared in 130 public WhatsApp chat groups during the 2018 presidential elections in Brazil, found that the content was dominated by what

the researchers described as “junk news content”. Falsehood producers used hate speech and deception to achieve virality, whereas “professional political content” constituted only a small proportion of the data collected.

Politicians in Indonesia and India have integrated WhatsApp in their campaigning, using the app to disseminate information and rally supporters. In some cases, political candidates themselves were responsible for the spread of falsehoods. What started out as a communication platform has become “weaponised” and is used for spreading misinformation and polarising content” (Garimella and Eckles 2017, 1). Weaponisation often involves the spreading of falsehoods about particular political parties or ethnic groups to stoke tensions and sway public opinion, and in some cases, influence election outcomes. In Singapore, there has been no evidence of weaponisation of MIMS to the extent of manifestly false information being produced to sway public opinion and election outcomes. This could be due to the established frameworks of law, of which POFMA is a recent addition, which take individuals who propagate falsehoods or engage in seditious and defamatory acts to task. However, action taken against members from certain opposition political parties requiring them to publish corrective information alongside alleged falsehoods has brought into question the tenuous line between falsity and interpretation that is arguably fallacious. While the government is aware of falsehoods being circulated on MIMS

(e.g., health-related ones given the ongoing COVID-19 pandemic and on specific policies such as the Central Provident Fund), they have been able to clarify and debunk the false information only after it was reported by members of the public or on other open-communication networks and media platforms. Similar to the experience of other governments, the encrypted nature of MIMS communication impedes detection and intervention.

Conundrums for Policy

Policy action against false information, as evident in both the West and Asia, has taken a legislative slant. Some notable legislations include those of Germany, France, Brazil, Bangladesh and China, in addition to Singapore's (Funke and Flamini 2018). Besides concerns pertaining to the impact of legislation on freedom of speech, the reality is that the efficacy of regulatory approaches is severely curtailed by the MIMS technology and the broader ecosystem within which it operates. MIMS remain elusive to regulators as their encrypted nature renders the identification of falsehoods and perpetrators, and subsequent intervention difficult, if not impossible. Content shared by users is not easily traceable to a source, given that forwarded information is stripped of metadata about its origin. As a result, efforts in verification and curtailing virality — which typically rely on the detection of unusual behaviours (e.g., mass-texting, mass-creation of groups, etc.) — are severely limited (Abdin 2019). This has led to MIMS such as WhatsApp being called the "black-

box of viral information" (Wang 2018). Attempts to break into the black box are mired in legal challenges, as demonstrated by developments in India. In May 2021, WhatsApp filed a law-suit against the Indian government over its new IT rule which stipulates that social media companies will have to identify the "first originator of information" when authorities demand it, on grounds of violation of privacy rights.

In addition to regulatory challenges, the prevalence of images in MIMS communication, both still and moving, impedes non-regulatory challenges like fact-checking. Images with falsehoods take different forms, such as old images that are taken out of context and reshared, memes that contain incorrect statistics or quotes, and manipulated images (Garimella and Eckles 2017). Resende et al. (2019) found that not only were images the most popular type of content shared during two high profile events (a truck drivers' strike and a presidential election in Brazil), images with misinformation were also reshared within shorter time intervals, indicating their high viral potential. In a separate study, Machado et al. (2019) found that links to YouTube videos made up almost 40% of the links shared on WhatsApp during an election. The pervasiveness of YouTube videos on MIMS is a testament to the power of visceral and loaded imagery, a problem exacerbated by the ease with which videos can be edited and used to mimic eyewitness accounts and personal statements

by citizens and experts. As image-based apps such as Instagram and Tik Tok grow in popularity, the challenges posed by falsehoods in the image form are likely to be compounded. Currently, automated fact-checking and existing platform-driven fact-checking measures which omit images are inadequate in detecting this category of falsehoods (Garimella and Eckles 2017; Resende et al. 2019).

Hyper-personalisation of Interventions

Platforms have been rolling out different measures to limit the spread of false information. WhatsApp, for instance, introduced a signpost (a “forwarded” label with two arrows) for forwarded messages and reduced the limit for forwarding a message to five chats at a time. However, an analysis of data sets from Brazil, India and Indonesia by Melo et al. (2019) found that while current efforts by WhatsApp delay the spread of misinformation, their efficacy is limited when it comes to blocking the spread of misinformation campaigns via public groups, particularly for content that has a high potential to become viral. The challenges posed by the medium and the high viral potential of MIMS messages necessitates a hyper-personalisation approach, where users play an active role in stemming and debunking false information in their own networks.

Research on the role of opinion leaders in the domain of news consumption highlights the potential of individuals stepping up within their social networks to call out and debunk falsehoods.

Besides being sources of news, one's social contacts also serve as "trusted filters of news, adding an extra layer of editorial gate-keeping" (Boczkowski, Michelstein and Matassi 2018, 3533). Anspach (2017) found that people who might normally ignore news about politics from traditional media sources may choose to read the same information on Facebook if they see their friends discuss the article on their News Feeds. Furthermore, friends and family members exert a strong personal influence in shaping people's news consumption, at times getting them to consume news that they otherwise would not due to the lack of ideological congruence. Trusted close contacts also play an important role in people's decision on what information to trust. For instance, Facebook users' friends and family members, and the groups that they follow, provide signposts on what news to trust through sharing of and engagement with news by posting, sharing, liking and commenting (Bergstrom and Belfrage 2018). When it comes to countering falsehoods, research done in the context of COVID-19 shows that messages against misinformation from trusted sources have the effect of increasing knowledge about the pandemic and the required preventative behaviour (Bowles, Larreguy and Liu 2020). In Singapore, Soon and Goh's study (2020) highlight the role of social networks in debunking false information. Their study found that people most often asked their family, friends, and colleagues when they wanted to verify

information that they encountered online. Existing digital literacy programmes focus on imparting knowledge on the “what” and “how” in recognising false information and authenticating information. There is an increasing need for programmes to also impart soft skills relating to intervention (e.g., how to respond in a sensitive yet effective manner to family members and friends who forward unverified or false information).

Guidelines and tips that people can use when talking to their family and friends who share false information published by PEN America and First Draft provide a good starting point (Ahmadi 2020).

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Google Earth: A Platform for the Planetary Geoweb

“It’s always springtime on Google Earth”

Google Earth (GE) is a virtual globe, map and geographical information platform. The software combines, distributes, and displays a substantial (multi-petabyte) catalogue of satellite imagery, aerial and street view photography, together with a wide range of other geospatial terrain and vector source data. Its many capabilities include features that allow users to rotate the globe and enlarge specific areas, find locations and link to them, travel from one place to another, view three-dimensional imagery of buildings, track weather patterns, link to information on topics from climate to income, and observe how natural and human-made features have changed over time. A range of additional analytic capabilities enable GE users to detect, quantify and monitor variations and trends in the earth's changing surface at a planetary level.

A Brief Platform Biography

Google Earth was launched in 2005. The streaming and visualisation technology behind GE has its origins in the video games industry. Initially known as Keyhole EarthViewer, it was developed by US firm Keyhole, Inc., a spinoff of a game engine developer, Intrinsic Graphics. Keyhole developed web-based software that allowed people to view streamed satellite images from around the globe, and to zoom from outer space into a closer view of what would appear as a single high-resolution image (Kilday 2018: 21). Keyhole received early investment from the CIA's venture capital arm, In-Q-Tel, and support from the US National

Geospatial-Intelligence Agency before being bought by Google in 2004. That same year, Google established its Geo division by purchasing the Australian firm Where 2 Technologies (which effectively became Google Maps) and ZipDash (which effectively became Google Maps Mobile). Google also purchased @Last Software in 2006, ostensibly to create 3D models of the planet for use in Google Earth.

Following its launch, Google released four versions of its suite of Google Earth products: alongside the free Google Earth app, there was Google Earth Plus, for advanced users (this was discontinued in 2008); Google Earth Pro, targeted at businesses needing to research, collaborate, and present on geospatial data; and Google Earth Enterprise, a fully customisable solution for large-scale businesses and governments. However, the pricing and the versioning of GE has not been sustained over time. As things stand in 2021, the Google Earth Enterprise software (now simply “Earth Enterprise”) has been made open source, and is no longer directly supported by Google. GE Pro is now free to download. The latest version of GE, Google Earth 9, is browser-based, with Android and iOS apps. Although it is accessible on a wider range of browsers and devices when compared to its earlier versions, the shift to a web app has generated alarm among some long term users who are concerned about diminishing support for the full GE feature set. Meanwhile, the older GE Pro desktop app remains available as a free download.

Table 1. A Google Earth Timeline

1998	US Vice-President Al Gore describes his vision for a digital globe
2001	Keyhole is founded. They develop the EarthViewer software
2003	CNN uses EarthViewer to cover the invasion of Iraq.
2003	In-Q-Tel invests. EarthView is used for military purposes during the Iraq war.
2004	Google purchases Keyhole.
2005	Google Earth is launched.
2006	Integration with Wikipedia and Panoramio Google Earth Enterprise is launched Google Earth 4: first major update, including historical data
2007	Street View is launched
2008	Street View is integrated into Google Earth
2009	Google Earth 5: recording feature, bathymetry
2012	Support for 3D imagery
2015	Google Earth Enterprise sales end
2017	Google Earth Pro becomes standard desktop version Google Earth 9 is released for browsers Google Earth Enterprise is open sourced
2021	Timelapse in Google Earth released

(Sources: Bhatnagar 2017; Google Earth Blog 2009; IQT 2003; Levine 2018; Moore 2021; Wikipedia 2021a, 2021b, 2021c)

GE's incremental progression towards free to use and open source versions, reflect its relatively small population of users compared to most other Google mainstream applications.

By contrast, Google Maps — which we can think of as GE's contemporary within Google's Geo division, and is also free to use — has long been a cornerstone of the company's search service and smartphone apps, and has made a considerably greater impact on the internet economy. In the specialised world of geographical information systems (GIS) other platforms dominate, whereas GE has cemented its position as a free, open source tool for general use

What does Google Earth depict?

After almost two decades, Google Earth remains an elusive and unusually playful piece of software — visually fascinating, aesthetically appealing, and affectively engaging. It is important as an expanding and adaptable symbolic resource, extensively used in education, research, and the media. While it presents the planet as it might appear from space, the software actually displays a curated and highly processed aggregation of imagery (Munster 2013). Google Earth does not represent the earth as it is. Clear weather is necessary for an unimpeded view of the earth's surface, so GE presents an unusually sunny planet. Green foliage is attractive, so, in the words of one GE engineer, "It's always springtime on Google Earth" (cited in Nat and Friends

2017). The software recalls the famous feel-good “earthrise” image from Apollo 11 (Farman 2010). On the other hand, GE also traces the boundaries of states in regions where most borders are disputed. It names and defines territories where language and sovereignty are sharply contested, it displays or obscures militarised landscapes, and it presents a planetary visualisation of natural and human environments in a state of crisis. In the Asia-Pacific region, geography of this kind is inevitably politically charged.

GE’s views of the earth are rendered from a synthesised point of view, but its perspectives inevitably inherit historical modes of surveying territory from the air. This includes the complex legacies of photographic and map-making projects of imperial powers, colonial states, and military authorities. GE does not explain or contextualise the legacies of colonial and post-colonial conflicts, or the effects of climate change. As a platform that can be expanded and augmented through non-official sources, it may have the potential to make these things visible. In Australia, for example, place names, both new and old, have particular importance in the context of the dispossession of First Nations peoples. Among the many important initiatives of a burgeoning field, archivists at the University of Newcastle in New South Wales recently spent a year adding 5,500 Aboriginal and European place names to Google Earth, based on a 1931 ledger (UoNCC 2019). Google Earth’s capacity to display chang-

ing imagery over time is also likely to be important in this context: archival aerial photography can reveal important features of a landscape which may no longer be visible, such as meeting places, town camps, and other settlements.

Google Earth as a Platform

Despite the absence of a large user base, Google Earth is best approached as a platform: it assembles and brands huge volumes of licenced and crowd-sourced data from an extraordinary array of sources, including Google's own content; subject to an internal set of rules, it is configurable and adaptable by its users from individuals to large organisations; it deploys globally influential technical standards; and it serves many different markets, from education and environmental planning to news media. GE combines some of the co-ordinating and aggregating functions of contemporary digital platforms with the more traditional functions of a software development platform in supporting tools and information systems for third parties.

GE's platform ecology

Google's "platform ecology" (van Dijck, Poell and de Waal 2018) comprises an array of applications, technologies and businesses related to locational information and advertising. GE is one platform under this umbrella. The relations between elements within a platform ecology may be complex and competitive as well as complementary. Many linkages and intersections exist

between Google Maps and GE, from their shared use of Street View imagery to the GE-like satellite and perspectival visual capabilities of Maps, and the Maps-like features of GE (such as the delineation of roads). Some of the points of friction that arise around the uses of GE (Hutcheon 2009; Open Source Center 2008) — notably the demarcation of contested territories (Pauker 2010) — also arise in Maps (BBC News 2011; Epstein 2016; Powell 2016; Quinn and Tucker 2017; Taylor 2013; Weedon 2019). The differences between the platforms are also instructive. While Maps is tightly connected to Google Search and Google's advertising platforms, GE appears to carry no advertising (although it is often used in advertising). Links to GE rarely appear in Google Search results for general locational queries. So while GE is clearly tied to other elements within this platform ecology, it does not appear to function as part of a more tightly integrated "platform of platforms".

GE in the Geoweb

In broader terms, Google Earth is part of the larger "geoweb" — the aggregate of web-based services, producing, organising and distributing locationally-referenced online information (Leszczynski 2012; Haklay et al. 2008; Graham 2010; Crampton 2000). Leszczynski argues that the emergence of the geoweb signals an important transformation in the structures of geographic knowledge, marked by the emergence of transnational private actors and the creation of new markets for locational in-

formation. This shift, they argue, marks a reconfiguration of the "cartographic project" — that is, the larger governmental project, historically prosecuted by nation states, of mapping territories and boundaries for the purposes of asserting sovereignty, and mapping populations for the purposes of government.

Localisation and national interests

Google Earth is localised only in the sense that an IP address will determine the display language and potentially the content of the app. This raises the question of GE's relations to national governments. The display of disputed borders or key sites may change based on the location of the user, as it does for Google Maps — which reportedly offers different maps of disputed territories based on a user's location. In the light of Leszczynski's (2012) argument about the geoweb and the transformation of the cartographic project, it is striking that so many of the points of friction encountered around the uses of GE arise from tension with nation states and military authorities. There have been disputes or controversies concerning GE imagery of military or otherwise sensitive locations in India, China, South Korea, Australia and Taiwan in recent years (BBC News 2007; Doman et al. 2018; Kumar 2010; Moses 2007; Pauker 2010; Reuters Staff 2010; Weedon 2019). In many cases GE has been willing to resolve the issues by agreeing to display obscured imagery of the locations involved, or, in the following two examples, by demarcating national boundaries in ways that mark them as, in

dispute or contentious.

- The location of the disputed territory Arunachal Pradesh on the GE Indian website is different to its location on the Chinese website (Geens 2009). A GE search from an IP address in Australia shows a dashed border of the territory to indicate that it is the subject of a dispute.

- Crimea is mapped differently depending on whether the search query originates within Crimea or the Ukraine. The border is dashed when searched from an IP address outside these countries to indicate that the location of the border is contentious.

Platform Components of Google Earth

The GE platform can be understood as a set of distinct components. Some of these are important to note as critical conditions of possibility for the platform features or operations; others also create points of tension among key participants in GE's platform economy. These components include: datasets derived from a wide range of sources, comprising imagery, vectors and terrain; computational capabilities in rendering imagery, combined with a distribution platform, capable of streaming data in real time to end users; data and file formats; and an extensible architecture. We explore each of these below.

Datasets

The first key component of the GE platform is the data that underpins it. There are a number of different modes of data col-

data. These modes of data collection include substantial volumes of imagery licensed from other providers. For instance, satellite imagery and data is obtained through partnerships with NASA, National Geographic, and a range of other suppliers. Much of this data is sourced from publicly funded agencies, including regional and national survey and mapping organisations. There is also a considerable body of user-contributed imagery and data. Earlier variations on GE, such as Google Earth Pro and Google Earth Plus, had GIS (geographic information systems) data import capacity. In this way, GE served "as a crowd-sourcing hub" (Liang, Gong and Li 2018: 97). Google also captures its own data. It uses aeroplanes and unmanned aerial vehicles (UAV) to photograph popular areas, and deploys a range of photogrammetry and image-based 3D reconstruction technologies to mass produce 3D city models (Ibid: 97). It also incorporates building and street-level data into GE with data captured via its fleet of Street View cars.

Computation

GE has several key computational capabilities that are worth noting. First, the capacity (developed by Keyhole) to combine and render satellite imagery, and then stream the combined imagery over the internet using clever combinations of high and low-resolution images makes a fairly responsive, interactive globe possible. It also enabled realistic zooming and flyovers well-suited for news media and other high profile applications. Keyhole's

engineering represented a significant technical step forward in the early 2000s. Second, the capacity to drape detailed three dimensional imagery of buildings and natural features over the globe, provides a level of detail which when integrated with Street View photography and high-resolution satellite imagery, surpasses the performance and 3D coverage of competing products. GE is now described as one of the most extensive collections of 3D imagery in existence (Nat and Friends 2017). The unprecedented industrialisation and automation of photogrammetry, the technologies that evolved in the nineteenth and early twentieth centuries using aerial photography (primarily for survey and military use) made it possible to develop this capacity. Third, the rendering of 3D buildings and other features has also benefited substantially from Google's considerable investments in machine learning. GE imagery provides a vast data set for training computers to recognise and predict the shape of buildings and their spatial disposition. This enables highly resolved (albeit estimated) renditions of dense, visually complicated urban environments.

Data and file formats

Another crucial aspect of the GE platform is the implementation of a standardised format for all data being ingested into GE. The standardised format that Google employs (and the required format for those who supply data) is known as KML, or Keyhole

Mark-up Language (a legacy of Keyhole, the firm that developed the format and the first version of GE). KML is an XML-based mark-up language that displays geographical features, annotates and overlays visualisations on two-dimensional, internet-based online maps or three-dimensional Earth browsers. It was specifically developed for GE. Standard features in KML include placemarks, conventionally identified by a skeuomorphic yellow pushpin; descriptions, including hyperlinks; ground overlays, which drape an image such as an erupting volcano over the earth's terrain; paths, which draw lines over the earth's surface; and polygons, which are used to represent structures such as buildings.

File formats often serve as critical points of platform leverage. GE's licensing agreements with providers of publicly funded mapping data, have been criticised for including a requirement that data be provided in KML. This inevitably leads to the allocation of considerable public resources for the enhancement of GE datasets. In 2008, for example, the province of British Columbia agreed to provide high-resolution imagery in perpetuity to GE, and to convert the data into KML, in exchange for five annual Google Earth Pro licenses (Leszczynski 2012). When the licenses expired, the province was required to pay the Pro licencing fees in order to continue using the data.

Extensible architecture

Also crucial to the platform success of GE is the incorporation

of extensible architecture designed to accommodate changes, and to allow the addition of new capabilities and functionality. The most significant of these is customisable "layers". Put simply, GE layers are "added pieces of information above and beyond just the satellite image itself" (Crowder 2007: 65). Indeed, "everything in GE, except for placemarks, that isn't a photo from space is a layer of some kind" (Ibid: 65). Users of GE have the capacity to create their own layers. And, as Catherine Summerhayes (2015: 40) notes, "There are also a plethora of layers that Google Earth itself makes available, including national border layers, advertising layers, weather, cloud cover, seabed viewing layers and so on." One of the best known, and most closely examined examples is the "Crisis in Darfur" layer that was created and maintained during 2007-2009 by Google Earth and the United States Holocaust Memorial Museum (Google and USHMM 2007).[1]

Conclusion

Google Earth is a platform with a puzzle: here is an extensively used service, with an extraordinary global array of uses and users; why was such powerful, technically advanced, and engaging software not more successful? The digital globe was a remarkable idea, a powerful tool widely imagined before it came into existence in the first decade of the new millennium. The idea

1 For critical discussion, see: Parks 2009; Summerhayes 2015; Blair 2007; Campbell 2007; Haines 2007; Hattotuwa 2007.

cross-currents of the era: the participatory web, the wars in Iraq and Afghanistan and their media coverage, and the Kyoto agreement. GE was greeted warmly by governments (mainly), media companies, tech firms and users when it appeared.

Some of the reasons why this platform has not flourished may have already emerged from our brief discussion: the complexities of GE's interactions with Maps, which became a more developed and tightly integrated element in Google's platform ecology; and the fact that the most valuable aspect of the Keyhole acquisition was probably not the digital globe itself — attention-grabbing as it was — but the technology which enabled the different forms of imagery to be so efficiently assembled and rendered.

On the other hand, the turbulence GE has consistently encountered in its dealings with national governments and military authorities may have had little bearing on the platform's fortunes in the longer run. But these points of friction are also worth paying attention to. By positioning itself as a platform for the planetary geoweb, one of the things that GE was doing was substituting some of the work hitherto conducted by the geo-bureaucracies inside governmental institutions (mapping agencies, defence authorities, statistical and even meteorological bureaux) with its own visualisations. The theory that emerged alongside GE's evolution was that the transnational platforms of the then new geoweb were taking over some of the critical cartographic work of states, from the production of maps to their distribution

and application. At the same time, they were augmenting official cartography, making it possible, for example, to add alternative names, additional languages, and important historical content and context. The geoweb is thus both a promise and a problem (Eisler 2008). It is the former, in that it offers governments and traditional mapping agencies new capabilities for map production and low-cost distribution. And it is the latter, in that it concentrates a great deal of cartographic power in the hands of an array of geoweb-related firms. It should therefore not be surprising that so much of the friction generated around GE has been about the security and sovereignty of states. Such a transition could never be straightforward. In this respect, the recent history of GE signals a future of growing geo-political involvement in technology, and a new phase of national and global platform politics.

A Google Earth Glossary

geographic information system (GIS). A framework for capturing and analysing spatial and geographic data. A more formal definition of GIS describes it as "organized activity by which people measure and represent geographic phenomena then transform these representations into other forms while interacting with social structures" (Chrisman 1999: 175). As a scholarly concern, a more recent subfield has emerged, called "critical GIS". Critical GIS calls into question the process of knowledge production using GIS, and gives explicit attention to questions of power and the social and political implications of the development and use of GIS (see Kwan 2008; Wilson 2017).

geolocation. It refers to the identification of the geographic location of a user or computing device via a variety of data collection mechanisms. While there are a range of methods for calculating geolocation, typically, most geolocation services use network routing addresses, cell tower triangulation processes, or GPS signals emanating from devices in order to determine location.

layers. In graphics and digital imaging software, it refers to the different levels at which one can place an object or image file. Within the Google Earth and Google Maps platforms, layers are objects that a user or developer can place on the map. These consist of one or more separate items that are grouped to suggest a common association and are manipulated as a single

unit (typically a tile overlay). As Google explains, “layers may also alter the presentation layer of the map itself, slightly altering the base tiles in a fashion consistent with the layer (Google Maps Platform 2021).

markup language. A type of human-readable language that is used to annotate text and embed tags in accurately styled electronic documents, regardless of what type of computing platform, operating systems, application, or software program is being used (Technopedia, 2021). Some major markup languages include LaTex, Extensible Markup Language (XML), HyperText Markup Language (HTML), and Keyhole Markup Language (KML). The last of these, KML, is Google’s proprietary markup language, designed for overlaying and annotating visualisations on 2D web-based online maps (like Google Maps) or 3D Earth browsers (like Google Earth).

participatory culture. A term qualifying the idea of consumer culture, positioning individuals not as passive consumers of products and services but also as active producers or contributors to the production of goods and services.

photogrammetry. The science of using land-based or aerial photographs to make measurements and derive dimensions about objects and terrain. While photogrammetry is not a new technique, more recently it has become integrated into machine vision technologies and forms an increasingly important part of mobile platform architectures and product offerings, ranging

from Google Earth to Apple's ARKit and Object Capture.

vectors. In the current context, it refers to images, or visual representations, defined by mathematical objects, such as lines, curves, and polygons. Compared to bitmapped images, which are defined by grids of pixels, vector imagery is readily scalable and typically requires smaller file sizes.

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Platform Futures in Asian Post-Mobile Societies: The Case of Japan's SoftBank

Introduction

Integration has been a key feature of the Asia-Pacific mobile ecosystems in the last five years, as represented by the "super apps" phenomenon. The scale, scope, and implications of this development is still largely overlooked and poorly understood, as it is still developing.

It is noteworthy that in the Asia-Pacific region, the innovation of mobile ecosystems is tied to the rise of digital platforms. This can be attributed to the presence of four major countries (Japan, South Korea, China and India) and their considerable infrastructure, knowledge, expertise, capital, huge profitable do-

mestic markets, regional and international connectivity, direct foreign investment, and trade and cultural relationships (Athique and Parthasarathi 2020; Hong 2017; Jin, 2015, 2017; Steinberg 2020). Interestingly, in the area of apps, China is a global outlier, the only major exception to the app store dominance of Apple and Android elsewhere. Over the last decade, China has seen the establishment of its own apps store ecology (Goggin 2021a). Besides the app store landscape however, the four countries are leading players in the strong and vibrant inter-Asian flows and dynamics which shape the dominant features of mobile ecosystems in the region. While there are other countries in the mix, especially some of the Southeast Asian countries such as Indonesia, Vietnam, Malaysia, and Singapore with their mobiles and apps companies, we know much less about these places and actors. They are significant in their own right however, and are often interwoven with the four big forces in the Asian region (Goggin 2021b).

This macro-scale political and cultural economy of mobile ecosystems in the Asia-Pacific works both in tandem and tension with the use, adaptation, and innovation at various scales and levels — especially with everyday mobile digital cultures and practices. Consider for instance, that alongside the widespread ownership of smartphones in wealthy countries and groups, there is a very sizable user base of feature phones by many other demographics; we know little about the mobile ecosystem

of feature phones, despite it being an important business focus and critical user set of baseline capabilities and affordances. Nonetheless, across mobile devices and ecosystems, we see many signs of considerable local innovations in social, cultural, political, economic, and technological dimensions. There is a range of knowledge on these everyday innovations, across users and user groups, industry, government, think tanks, researchers, and policymakers. However, it appears that these understandings are insufficient and dispersed. In any case, restrictive global, regional and local media policy norms rarely allow for easy access to crucial and potentially transformative information and expertise on design, implementation and imagination of systems.

A sketch of the market policy, and political systems in the mobile ecosystem of the region might reveal various perspectives. From an orthodox, neoliberal position (which has been dominant in telecommunication, mobiles, internet, and digital platforms since the 1990s), there is often a lack of effective competition and notable concentration of market power. From other economic and public policy perspectives (especially those concerned with social justice and rights), across many countries in the Asia-Pacific, mobile ecosystems lack the safeguards of effective and democratic legal and regulatory frameworks, especially in relation to worker, consumer, and citizen rights. Since the start of the COVID-19 pandemic in 2020, we have seen

discourses of digitalisation re-emerge, with many actors in government, industry, institutions, and civil sectors taking the opportunity to push new developments in digital platforms, with mobile ecosystems at the leading edge. Despite significant efforts to the contrary, there often has been scant opportunity for voice or listening in these accelerated changes for users and citizens, something evident in COVID-19 tracing apps as well as the push forward on digital transaction systems which is creating intense friction.

I offer this sketch of mobile ecosystems in Asia-Pacific as a context for my case study here: the Japan conglomerate SoftBank, and its implications. Before China, it was Japan that was the pioneering market for technology and innovation in early mobile ecosystems. Japan has held pride of place as a pioneer in information and communication technologies, and in imaginaries of technology intensive societies (Masuda 1980). Specifically, Japan was a pioneer in mobile ecosystems with its fabled iMode system of the late 1990s, building on innovation in mobile technology and cultures and offering at the time a different experience of internet adoption (Goggin 2018; McLelland et al. 2018). As Marc Steinberg (2019) notes, “It was Japan’s mobile internet project that became the blueprint for the now-dominant mobile ‘platforms’ of Apple’s iPhone/iOS and Google’s Android phones - technical objects, to be sure, but more importantly points of transaction or interface that support contemporary

capitalist forms of accumulation" (2).

Japan also developed a number of other key technologies that have fed into the entertainment and communication technologies of our everyday lives: video games and games platforms, the mobile phone camera, mobile music, mobile payment systems, mobile software and apps, and QR codes (a technology enjoying a reprise in the COVID-19 pandemic). That Japan's digital cultures, social concepts and practices associated with the country's technology innovation were of great global fascination is evident, for instance, in Howard Rheingold's 2002 Smartmobs: The next social revolution, in which scenes of mobile-enabled urban life in Tokyo featured prominently. In the intervening twenty years since its inception, Japanese mobile ecosystems have evolved in a distinct set of pathways to offer a different kind of approach to platforms — exemplified in the case of the highly successful LINE messaging app, popular across South Korea as well as Japan — that have shaped the platform economy for consumers and citizens (Steinberg 2019).

Japan has also been at the forefront of developing technologies and scenarios for post-mobile societies (Tomita 2016), most evident in the area of next generation mobile, Internet, and Internet of Things networks, robotics, mobilities (automated and connected vehicles), and AI for social good (Digital Asia Hub 2017). It has also made considerable efforts in creating policy and regulatory frameworks to anticipate and address public

concerns.

In this short piece, I largely draw from Steinberg's (2020, 2021) work on the Japanese model of platformisation in East Asia, as a stepping off point to consider what's distinctive, different, and potentially generative — especially for wider social, cultural, and democratic futures — about Japanese approaches to mobile ecosystems and post-mobile platforms. I develop my analysis via a discussion of the Japanese technology giant, SoftBank. SoftBank had its origin in computer and software industries, but it has also been a key investor in broadband and mobile services, and digital platforms such as LINE. Since then, SoftBank has considerably expanded its purview, making it one of the major drivers amid the array of investors and capital that are shaping emerging technologies in digital platforms, payment systems, FinTech apps, and so on. Especially via its Vision Fund, SoftBank funds have been deployed to back a range of super apps, FinTech platforms, digital and gig economy initiatives across various parts of Asia — most prominently China, but more recently in the fast merging ASEAN region.

In this brief discussion of SoftBank and the rise of the superapp, I hope to highlight the following: the tensions between digitalisation of money and everyday lives and practices; the issues that flow from the political economy of superapp investments; and the implications for policy.

Mobile Life Infrastructure: The Case of SoftBank

The then SOFTBANK Corp. Japan was established in 1981 by Masayoshi Son, the son of Japanese citizens of Korean descent.[1] While a student at UC Berkeley, Son invented a pocket translator, which he sold to Sharp Corporation thus making his first million by age nineteen. After he returned to Japan, Son quickly established SoftBank as a wholesaler of software, then transformed the company over a decade into a leading tech publisher with a stable of magazines (including the Japanese edition of PC Magazine) and computing books. Son then moved into the burgeoning market of international telecommunications competition with a least-cost routing device.

In the first half of the 1990s, Son created ventures and alliances with a range of Japanese and international hardware, peripherals, networking, and infrastructure companies, including the 1994 creation of Nihon Cisco Systems, with Cisco, Fujitsu, Toshiba, and other Japanese firms. In the same year, SoftBank went public, valued at US$3 billion. Another highlight was its 1995 purchase of a 5 percent stake in Yahoo!, which increased to 37 percent in 1996, just before the search company publicly listed. SoftBank and Yahoo! established a joint venture, Yahoo! Japan Corporation, launching a Japanese-language version of the search portal that became the most visited website in the

1 On the early years of SoftBank, I drew from Gasbarre, Salamie and Cohen (2014) in particular, as well as Webber (2021). For other aspects of SoftBank's development and operations, I drew from reports in the financial press, its corporate websites, reports, and filings, as well as the small academic literature (such as Lynskey and Yonekura, 2001).

country. Among its other investments, SoftBank at one time also held a stake in the popular community and user-website provider, Geocities.

SoftBank suffered heavy losses during the telecoms crash of 2001, but eventually found its way as a prime mover in an area where the Japanese market had a particular gap: broadband. SoftBank set up a proprietary high-speed network with Yahoo! investment, known as Yahoo! BB, and controversially gained the right to launch a VoIP (Voice over Internet Protocol) service that underpinned its ability to compete with the dominant Nippon Telegraph and Telephone Corporation (NTT). After acquiring Japan Telecom in 2003, SoftBank bought Vodafone KK in 2006 and rebranded it as SoftBank Mobile, which rolled out the iPhone 3G in Japan in 2008, and introduced a 4G service in 2012. SoftBank became a dominant player in the international mobile market with its acquisition of the U.S. based Sprint in 2013. It also held a stake in various other firms, including U.S. T-Mobile, eventually selling much of its stake back to Deutsche Telekom (T-Mobile's parent company) in 2020.

A jewel in the crown among SoftBank's dizzying cavalcade of investments was an early stake in Alibaba — Son invested $20 million in 2000, which was valued at an estimated $100 billion twenty years later when SoftBank became Alibaba's largest investor. In May 2020, Jack Ma left SoftBank's board, and a month later Son returned the favour, stepping down as director of Alib-

aba Group. In this context it is also interesting to note the major investments of SoftBank in the area of robotics and warehouse automation, evident in their April 2021 $2.8 billion purchase of a 40 percent stake in Norwegian company Autostore — one of a series of moves to secure its control of supply chain logistics to be able to work with Alibaba, as well as others such as Korea's Coupang, as noted in press reports (Inagaki 2021).

In recent times, SoftBank has taken a particular interest in the development of mobile platforms and apps, especially in relation to payment systems. In March 2021, SoftBank merged its Japanese internet business with LINE Corp. and intends on folding LINE Pay into PayPay, creating, as a Nikkei Asia reporter put it, "a tech giant with more than 300 million users across messaging, online news and financial services" (Suzuki 2001). In particular, the merger brings together the two most popular providers of Japanese services in news (Yahoo! Japan) and chat apps (LINE).

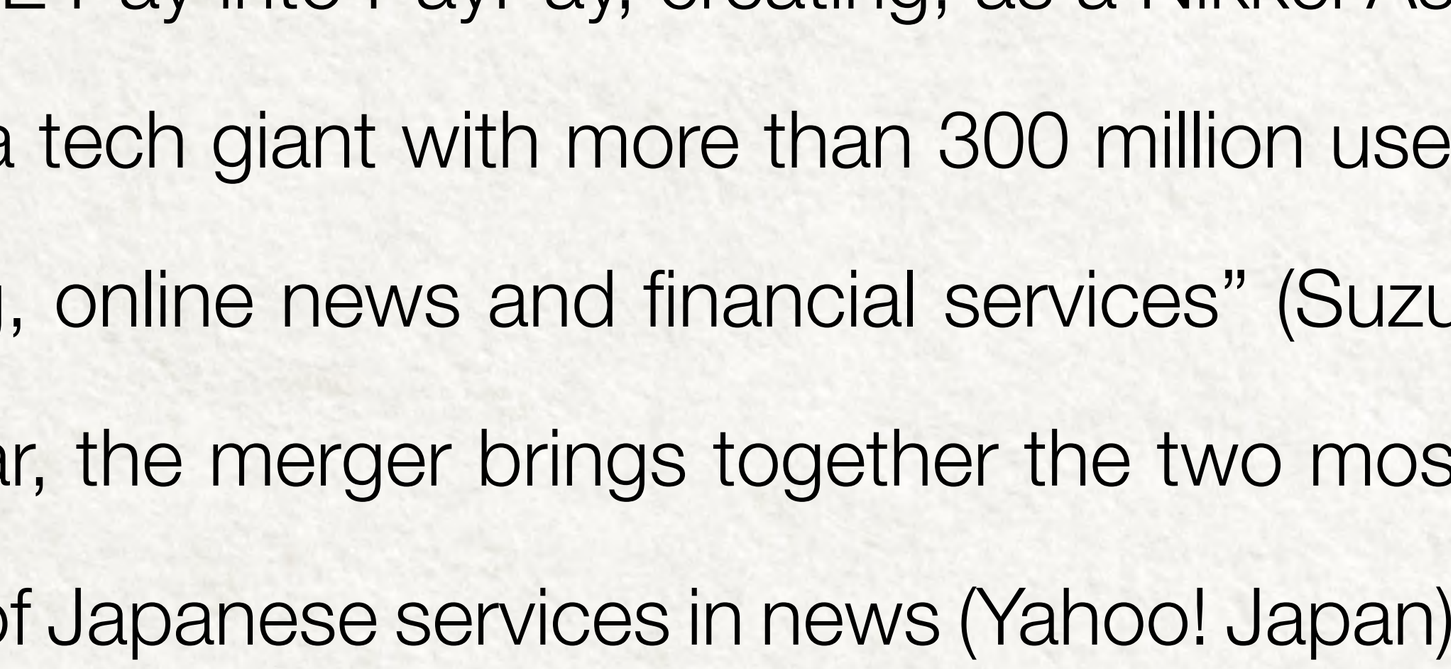

Figure 1: PayPay website, 1 June 2021

(source: https://www.paypay-bank.co.jp/)

The actual corporate vehicle is fiendishly complicated, involv-

ing making the SoftBank affiliate Z Holdings (listed on the Tokyo stock exchange), owner of LINE and Yahoo! Japan. The controlling interest in Z Holdings is held by A Holdings (owning 65.3 percent). A Holdings is housed within the rebadged LINE, and remains jointly owned by SoftBank Corp and South Korean giant Haver (50 percent each). Z Holdings meanwhile, has promised to hire some 5,000 AI engineers over the next five years, as they seek to leverage the new company for LINE's popular markets in Taiwan, Thailand, and Indonesia (Suzuki 2001).

LINE Corporation is now described as, "Advertising service based on the mobile messenger application "LINE," core businesses including the sales of stamp and game services, and strategic businesses including Fintech, AI and commerce service". LINE describes its philosophy as follows:

> After the tragedy [of the 11/3 Japanese earthquake), it became apparent that there was a fundamental need for a global communication tool that could strengthen human relationships. Just a few months later in June, we launched the LINE messaging app. With this approach, LINE has grown into a social platform with hundreds of millions users worldwide, having a particularly strong focus in the rapidly advancing continent of Asia. (LINE 2021)

LINE characterizes its approach as “culturalization”:

> Rather than settle for globally standardized services based on a generic approach, we believe that it is essential to respect the culture and norm of each individual country in order to engage users on a very deep level and evolve in each region. We call it culturalization and it’s at the heart of everything we do … Our vision is to become the “life infrastructure” for our users, always ready to fulfill their needs, 24 hours a day, 365 days a year. (LINE 2021)

LINE and Yahoo! Japan represents companies that SoftBank has sustained holdings and interest in, and which clearly remain important for their overall strategy. SoftBank’s end game has never been easy to discern. The company has been the subject of much discussion as it operates across the spectrum, from company owner and investor, to alliance-former and partner, to venture capital operator (with its Vision Fund), to a hedge fund (Leo, Kana, and Arash 2020). What has remained consistent since the 1990s is the manner in which SoftBank stakes out positions across an emerging technology and business landscape. For instance, along with its investment in LINE, SoftBank has also taken a lion’s share in other super apps operating in Southeast Asia, notably the Malaysian origin app, Grab. In December 2014, SoftBank invested US $250 million in the then GrabTaxi (Lahme 2021, 45), making it the largest shareholder (Hughes 2014). The role of SoftBank as Grab’s ‘long-term strategic part-

ner' (Grab 2016), helping it to raise equity funds, underpinned Grab's besting of Uber — which exited the Singapore market after an unsuccessful attempt to merge with Grab. Lahme (2021) provides an analysis of how Grab as a local competitor fared better than Uber:

> Local competitor Grab on the contrary [compared to Uber] had local people and engineering teams on the ground, more local know-how about specific customer needs and the advantage of being much faster in the decision-making process. In addition, it has designed its mobile app to fit individual markets in which languages and payment platforms are adapted accordingly. (Lahme 2021, 47)

Interestingly, Lahme's analysis chimes in with LINE's philosophy of 'culturalization'. At the time of writing (mid-2021), Grab is in the middle of a $US 40 billion merger with a SPAC (special purpose acquisition company), sponsored by Silicon Valley venture capital firm Altimeter Capital. Against this backdrop of global corporate and financial manoeuvring, Grab has established itself, especially during the pandemic, as a service used by millions of users in Singapore and Malaysia for various services: ride-hailing services, food and product delivery, and digital money and payment. Where these users fit, in the rapidly developing firms and its mobile ecosystems, and what the design and affordance of the apps provide are highly significant questions that remain unanswered.

Implications for Mobile Ecosystem and Platform Futures

Reflecting on this case study, I would see SoftBank as a bell-wether for the driving trends in mobile ecosystems most salient in the Asian region.

Digital capitalism is entering a new phase where the state continues to have a strong role, but in the area of media and ICTs policy, there is still a considerable lack of imagination. While there will be a new stage of mobile and post-mobile network, device, infrastructure, software, and apps development, there are uncertain futures for 5G and Internet of Things (IoT) technologies. When it comes to devices, we can see companies seeking to maintain premium prices for flagship devices while the contradictory dynamics of blurring and differentiation continue to play out between the more expensive and powerful smartphones on one hand, and cheaper smartphones and feature phones on the other.

The dominant business model of apps is surely facing a reckoning, as we can see in the struggle between app stores seeking to maintain their control over mobile ecosystems versus super apps and other kinds of apps trying to set their own terms, gain access to users, and claim a share of the revenue. The next wave of development in subscription models for mobile content will also be decisive in this battle, as well as more generally across content, capability, and connectivity. Then there is

the vast landscape of e-commerce, reconfigured with waves of investment and technology development in automation, data, and AI.

Yet the big issues and options for platform futures get little air-play or attention in these often internecine market and governmental wars. For instance, what are the genuine alternatives to app stores or visions for mobile ecosystems? Where is the serious progress on environmental sustainability of mobile devices, computing, services, apps, and data? From what sources can we find the quantum leap in support and expertise for community and civil society uses of mobile, and access to ecosystems, represented in the important fledgling efforts of platform cooperativism?

At the meso-level of global media policy, I would nominate five obvious areas where advances would be widely supported across publics and stakeholders, and could be realised:

1. Proper consumer protection
2. Voice and governance: with users, citizens, and small enterprises, community and civil society groups being able to articulate and exercise their stake in mobile eco systems
3. Digital rights
4. Better understanding and support for innovation systems, with social and cultural innovation at their heart

5. Digital inclusion and quality of connectivity

Underpinning such efforts, is an urgent, though not easy task to comprehend the state-of-play of mobile ecosystems and platforms as they are developing now, in the early 2020s.

On the positive side, we have a relatively established set of research, critiques, policy and governance discussions — especially in the form of the digital platforms literature. Many of these frameworks, concepts, and insights will be handy, to grasp and understand the implications of the next phase of developments in mobile communications, happening under the guise of super apps talk. We could especially use these approaches in looking at the opportunities to tackle concerns at the national level. For instance, the Japanese government has sought to enforce its Act on Improvement of Transparency and Fairness in Trading on Specified Digital Platforms.[2] Yet in the area of mobile ecosystems, there is a great deal we do not know.

In the area of political economy, we are still trying to grasp the complex web of companies, investments, and alliances seeking to lay claim to and develop super apps — already a successful and wildly profitable form of platforms, as demonstrated by Uber, WeChat, and others — into a much bigger and more pervasive commercial environment (Goggin 2021a). As the case of SoftBank indicates, it is challenging to know which part of the

2 This is something that Yahoo! Japan, in its new guise as the coreas core company of Z Holdings, sought to forestall with a ‘voluntary initiative’ in early 2021 (Yahoo! Japan 2021).

elephant we are dealing with. This is a major challenge when we seek to comprehend what platform futures might look like, and more particularly, how we can imagine and shape them in more inclusive and economically fair forms.

Here the area of FinTech marks a watershed. As we see in the case of SoftBank's reconfiguring of the payment systems in which it has a stake (those of LINE and Yahoo, as well as others), the actors in the digital economy are tackling money head-on. This is a big problem for the billions of users and citizens around the world in the frame here, including those in the Asian region where much of the experimenting and reshaping of the mobile-financial dispensation is unfolding. Everyday cultures, uses, social relations, and meanings of exchange are very much at stake, yet overlooked in the rush to this intensification of digitalisation, as Adrian Athique and others suggest in their work on digital transactions in Asia (Athique and Baulch 2019).

In this light, it was very interesting to see the epochal FinTech listing of Ant Financial shattered on the eve of its IPO, when it was halted by the Chinese government. While the rationale remains murky, especially what kind of regulation of banking and debt the Chinese government is considering (when the big picture is about reigning in the power of Chinese tech capital), it can be interpreted as one of the few ways in which the super-app juggernaut might have been arrested at the near zenith of their speculative projection (Sender 2020). Elsewhere, various

FinTech providers, especially the likes of the fast inflating ‘buy now, pay later’ sector, such as Klarna, Afterpay, Stripe, and others, have extolled the virtues of self-regulation (Yeates 2021), in a time-honoured strategy of making windfall profit despite the clear consumer issues their services raise from the outset.

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