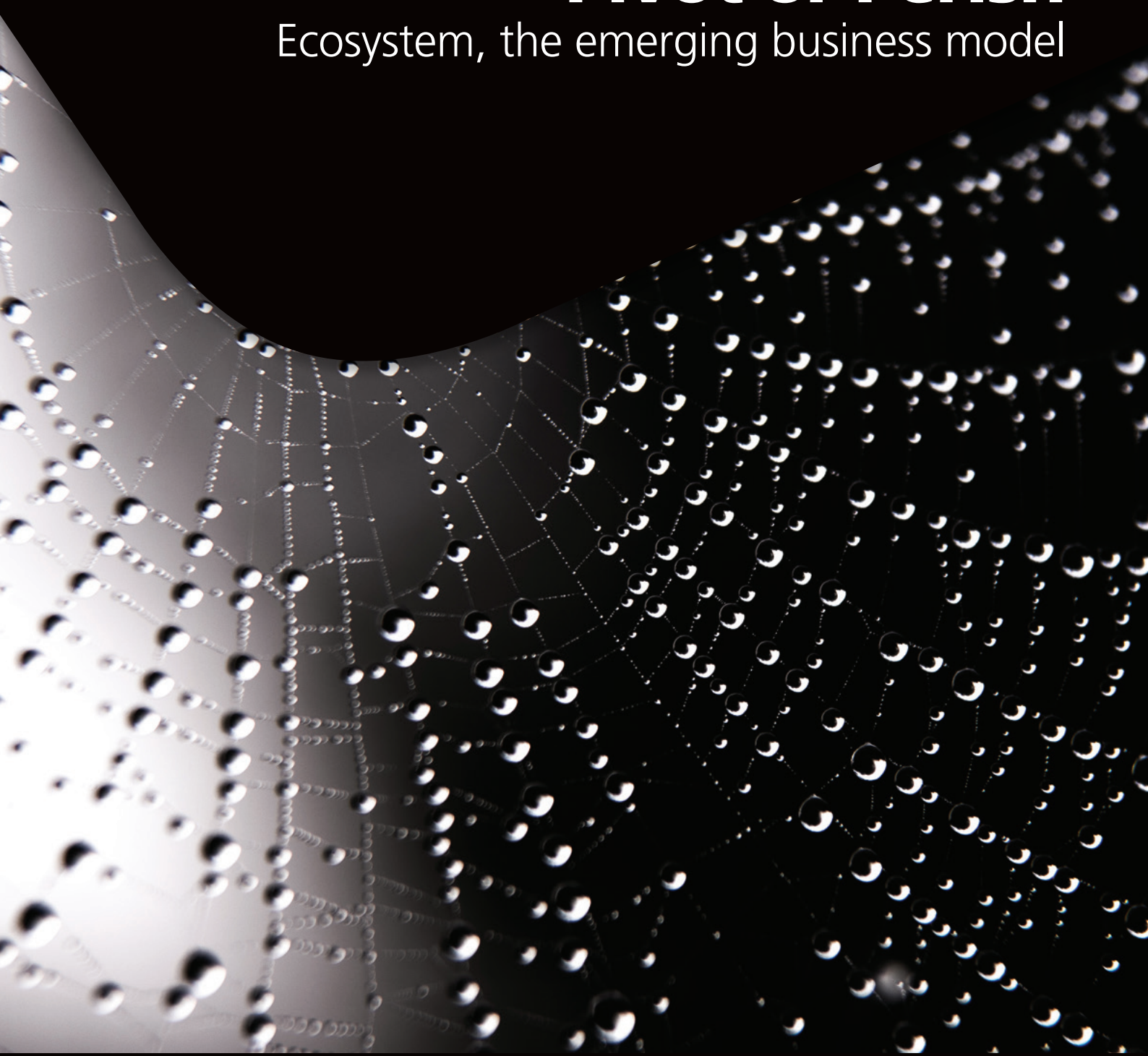


SECTOR BRIEFING

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Pivot or Perish Ecosystem, the emerging business model



Pivot or Perish

Ecosystem, the emerging business model

Sachin MITTAL
Equity Analyst
DBS Group Research
sachinmittal@dbs.com

Produced by:
Asian Insights Office • DBS Group Research

🌐 go.dbs.com/research
🐦 [@dbsinsights](https://twitter.com/dbsinsights)
✉ asianinsights@dbs.com

Goh Chien Yen *Editor-in-Chief*

Martin Tacchi *Art Editor*

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Executive Summary

The evolution of business models

Post-World War- 1980

Conglomerates with operations across industries

Access to cheap capital-fuelled acquisitions while diversification helped during economic shocks

1980 - Now

Rise of Specialist firms focusing only on one industry

Specialised firms eliminate inefficiencies in targeting and servicing customers. Use of Spin-offs and divestitures to unlock the value while focusing on growing the core.

Future

Rise of Ecosystems blurring industry boundaries

Firms have a 360-degree view of their customers and their purchases across industries. In addition, firms can integrate offerings from other industries to its customers.

Sources: American Sociological Review, DBS Bank

We define an ecosystem as bringing together entities in disparate industries to create new offerings or capture value that individual companies or sectors may not be capable of creating on their own. Through ecosystems, marketers gain the ability to cater to customer needs, without prompting the customer to look further than the company for a product. Customers expect an end-to-end customer experience irrespective of the fact that certain aspects may or may not be under the full control of the company in consideration. Twelve large ecosystems are expected to emerge over time, accounting for over **30% of the global revenue pool by 2025¹**.

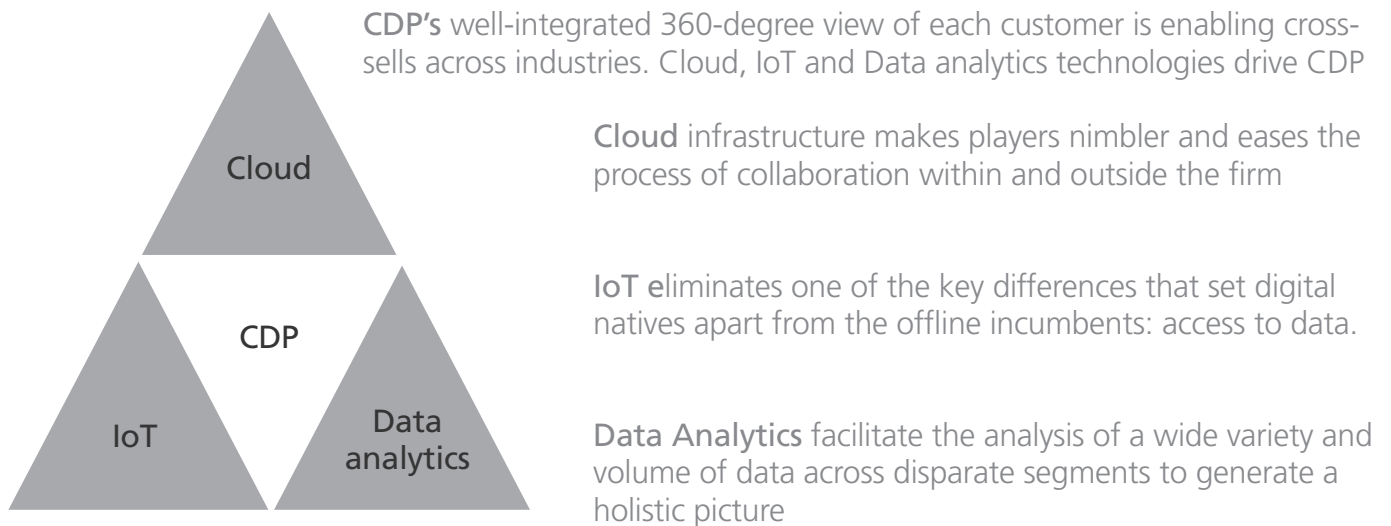


New sectors are likely to emerge from partnerships across traditional sector boundaries.
Examples: Automobile + Insurance; Transport + Hospitality etc

Sources: DBS Bank

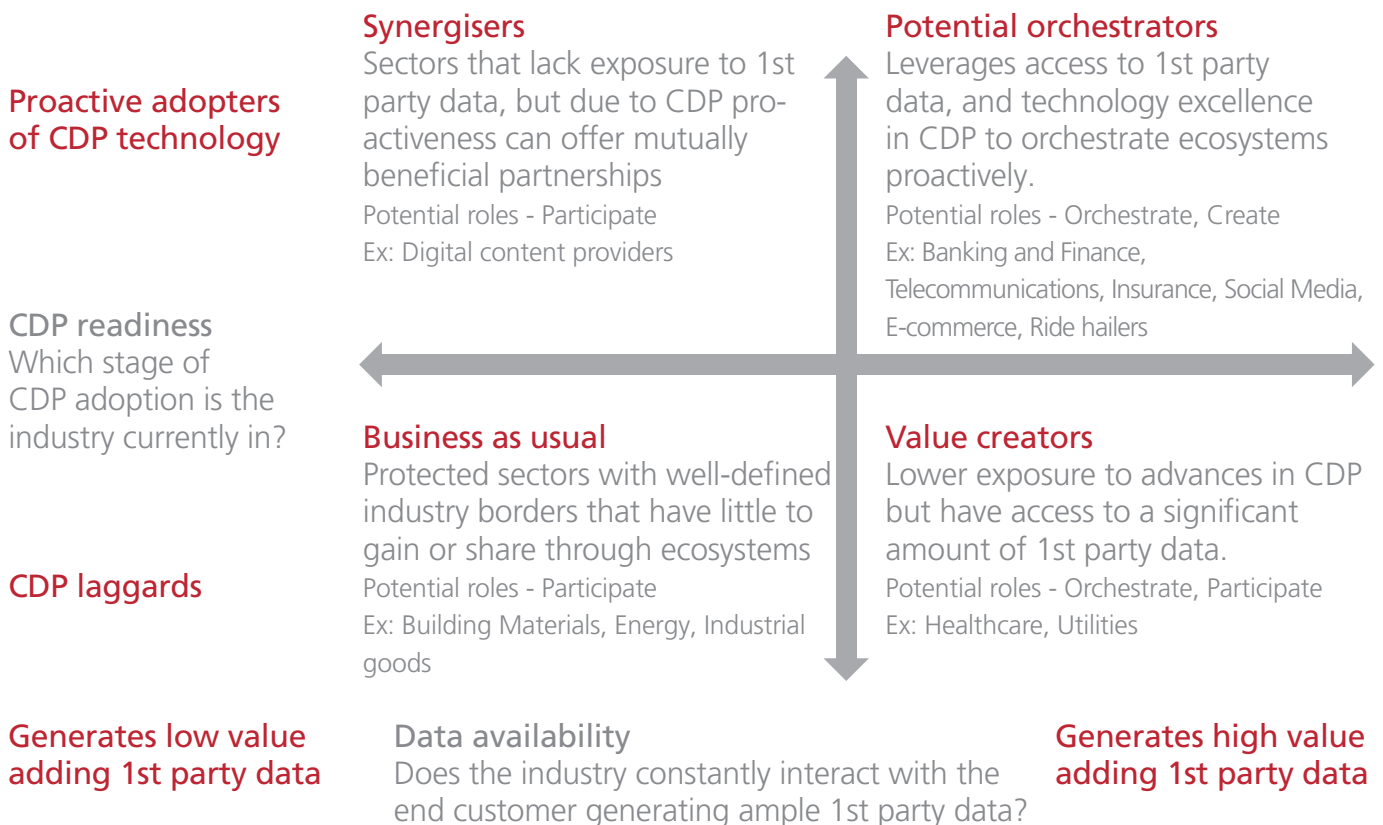
Recently, developments in Customer Data Platform (CDP)'s well-integrated 360-degree view of each customer sharply improves the chances of successful cross-sells, augmenting the potential for value creation and innovation within and outside industries through partnerships. When building ecosystems, first-party and second-party data is the key to success. Our research indicates that large traditional players in industries such as banking and finance, telecommunications and insurance, with their ability to collect and analyse data would be at a distinct advantage.

Recent evolution of Customer Data Platform (CDP) is the key driver behind ecosystems



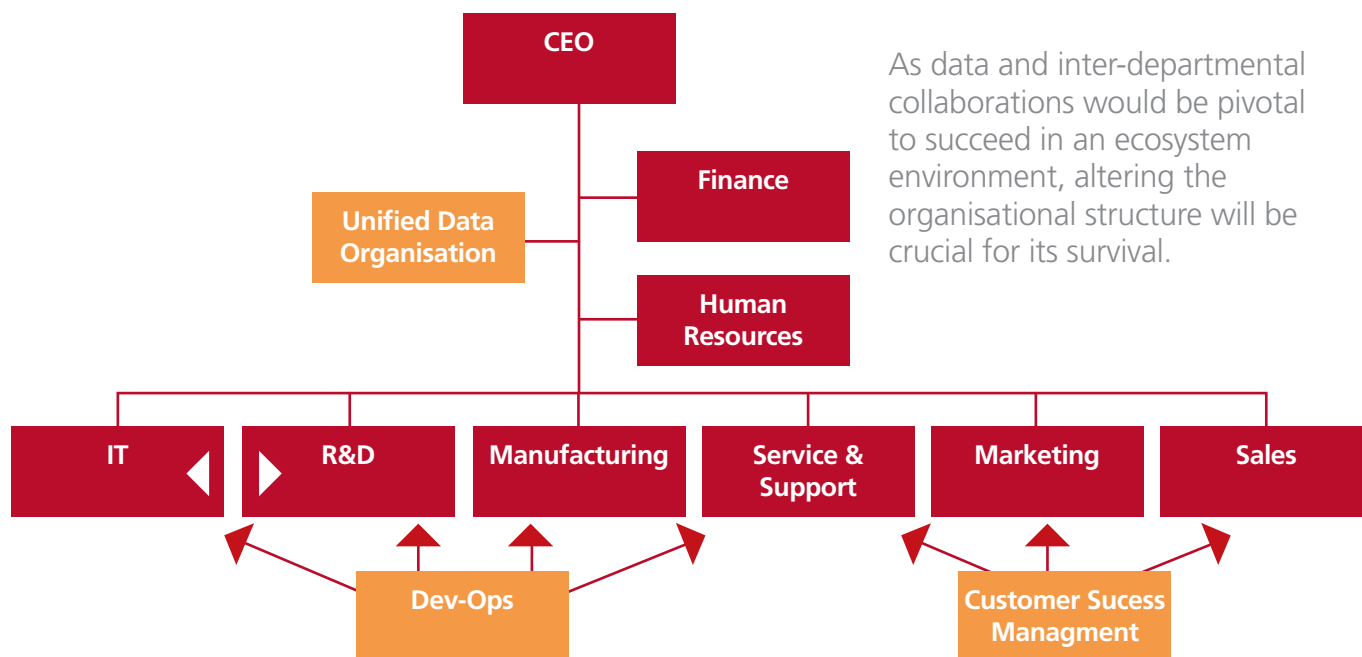
Source: DBS Bank

Sectors that are likely to emerge as winners in the ecosystem










Source: DBS Bank

Organisational structures need to evolve to capture ecosystem opportunities



Source: Harvard Business Review, DBS Bank

Three-way battle among digital players, banks and telcos to be ecosystem-orchestrators in Asia

Country		Potential for Orchestrating ecosystems		
		Banking	Telecom	Independant Digital Players
The Philippines		Low Poor cloud adoption and AP collaboration by banks	High Gcash and PayMaya by telecom operators dominate the e-wallet space	Moderate GrabPay and AliPay are present, albeit smaller than domestic players
Indonesia		Low	Low	High
India		Low	Low	High
China		Low	Low	High
Malaysia		Low	High	Moderate
Thailand		High	Low	Moderate
Singapore		High	Low	Moderate

Source: DBS Bank

Evolution of Business models

Historical evolution of business models

Post-World War- 1980

Conglomerates with operations across industries

Access to cheap capital-fuelled acquisitions while diversification helped during economic shocks



1980 - Now

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Future

Rise of Ecosystems blurring industry boundaries

Firms have a 360-degree view of their customers and their purchases across industries. In addition, firms can integrate offerings from other industries to its customers.

Sources: American Sociological Review, DBS Bank

Before 1980, less than 25% of the Fortune 500 largest industrial corporations made all their sales within a single broadly-defined sector. ITT, an Industrial manufacturer, was a multinational conglomerate in the 1960/70s having acquired around 275 companies in various sectors. However, with scale, its debt surged, while profits and the value of its stock sagged. ITT ditched its conglomerate model and today specialises in producing specialty components for aerospace, transportation and energy markets. Tencent, once specialising in gaming and entertainment services, is now developing an ecosystem covering payments, Online to Offline (O2O) services, shopping etc. surrounding its WeChat app.



New sectors are likely to emerge from partnerships across traditional sector boundaries. Examples: Automobile + Insurance; Transport + Hospitality etc

Sources: American Sociological Review, DBS Bank

Tencent – Leading consumer digital ecosystem in China



Content Creation

Tencent games, music and video



Social Media

WeChat, the most popular social media platform in China has over 1 billion monthly active user accounts



E-Commerce

JD.com and Pinduoduo hold the 2nd and 3rd positions in terms of ecommerce market share in China



Transport

Tencent owns a stake in Didi, China's leading ride hailing app with 550m users processing over 30 rides daily



Ecosystem



Payments

2nd biggest –wallet with 40% market share in mobile payments in China



Online to Offline Presence

Tencent-backed Meituan offers a range of services including food delivery, hotel bookings, salon appointments etc. The service already has 310m users and generates revenues of ~US\$5.2b



Offline Presence

Tencent owns minority stakes in Yonghui (supermarket chain) and Wanda (a developer of commercial properties)



Financial Services

First online-only bank in China – Generated an ROE of 19% in 2017

Source: Techcrunch, Business Insider, Financial Times, DBS Bank

What is an Ecosystem?

While the term can be defined in many ways, for our purposes, we define ecosystems as the “coming together of disparate industries and sectors to form webs of integrated offerings to create and capture value that the sectors would not be able to individually”. Our definition excludes ecosystems that do not transcend the boundaries of a sector. For example, an ecosystem formed around the supply chain within a sector would not fit our definition of ecosystems.

Platforms vs. Ecosystems What’s the difference?

Both ecosystems and platforms often bring various third parties together to offer services to a target market. Prominent platforms include smartphone application platforms such as Google’s Playstore and Apple’s App store or IoT platform such as Smarthings by Samsung or Predix by GE.

Every ecosystem needs to develop a unified point of interaction with the customer, which ultimately becomes the ecosystem’s platform. WeChat for example, is the platform that Tencent uses for its consumer ecosystem aggregating key consumer segments such as food delivery, shopping, health, and wealth management. While it is difficult to draw a clear line between platforms and ecosystems, we see two key differentiators between the two.

Tighter integration
among selective
partners in an
ecosystem

Ecosystems are governed by tightly knitted partnerships between the orchestrator and the participants. The orchestrator of an ecosystem would be highly selective of who joins the ecosystem as the partner’s relationship, vision and goals has to ultimately benefit the end goal of the orchestrator. The relationships are also likely to be more integrated and mutually beneficial, with the participants and orchestrators closely working with each other for the betterment of the overall ecosystem. Pure platform companies without an ecosystem approach are less selective and prefer breadth over depth. The relationship between the orchestrator of a platform vs. the partners is also likely to be much less integrated, and purely transactional in nature.

Participants play a big
role in shaping up the
ecosystem

Platforms are typically created by key players and every other party simply become users of the platform. For example, Google Playstore offers a platform for users of the Android operating system to access a wide range of applications. Google created the platform, with the developer community and customers becoming users of the platform. In ecosystems however, there is a wider range of roles that third parties can play in an ecosystem-based platform. While ecosystem creators stand to gain more in the long run, both roles allow companies to build a formidable presence by delivering differentiated experiences since partners are allowed to participate and define how the ecosystem evolves.

A good example of a company that effectively creates and shares value with its ecosystem is eBay. eBay has developed state-of-the-art tools including eBay's Seller's Assistant, which helps new sellers prepare professional-looking online listings and Turbo Lister service, which tracks and manages bulk listings. Additionally, eBay shares the value that it creates with member vendors of its ecosystem. Performance standards delegate much of the control of the network to users, diminishing the need for eBay to maintain centralised monitoring and feedback systems. The company charges commissions that are no higher than 7% of a given transaction, well below the typical 30-70% margins most retailers would charge. By sharing the value, eBay continues to expand its healthy ecosystem while benefiting participants simultaneously.

Also, take the examples of Tencent's WeChat ecosystem and Apple iStore platform. Tencent is highly selective of the partnerships it forms. Its partners are required to make significant contributions to Tencent's ambition of making the WeChat platform a one-stop platform for consumer needs. Tencent also develops very close relationships with its partners, often going to the extent of becoming an equity holder in the partner's business. Apple's app store on the other hand, prefers breadth and encourages more developers to join the iStore community. Apple's relationship with its developer community is also purely transactional and is primarily governed by a fee-based model.

How large can an ecosystem be?

Approximately 81% of respondents to a survey believe that industry boundaries will dramatically blur as platforms reshape industries into interconnected ecosystems². Twelve large ecosystems are expected to emerge over time, consolidating over 100 different value chains and defined sectors to account for over 30% of the global revenue pool by 2025³. These twelve large ecosystems would connect practically all activities of one type into an extremely large industry group, dominated by a few large players in each industry.

China, a global leader of the ecosystem approach, is already undergoing this transformation. Baidu, Alibaba, and Tencent (BAT) ecosystems lead the digital economy currently, accounting for ~30% of China's GDP or RMB 22.6tn (US\$ 3.35tn)⁴ already. Estimates indicate that the percentage could grow to as much as 48% by 2035 as digital ecosystems continue to expand and deepen their foothold across a wider range of segments⁵.

Data platforms are the driving force behind ecosystems

Customer Data Platforms (CDP) have the capability to bring together disparate data from customers into a single environment to provide a synchronised, well-integrated 360-degree view of each individual customer. This goes beyond the capabilities of a Data Management Platform (DMP), which targets an IP address based on the cookies without knowing much about the actual customer. The emergence of CDPs has provided marketers with the

ability to bring together data from different sources, be it data from Internet of things (IoT) sensors, social media or anonymised data purchased from third parties, to form a true view of customer needs and even predict how the needs of customers might evolve. This has greatly improved the chances of marketers completing successful cross-sells or innovating new products through partnerships.

Types of data used in CDP

1st party data

comprises data collected directly by a site's owner. Even though 1stparty data is essential to having detailed customer profiles, it is not enough.



2nd party data

is 1stparty data belonging to a 3rdparty who shares it under a partnership agreement. 2nd party data allows to build a much more complete user profile and forms the initial step in ecosystem development.



3rd party data

is made of information that is collected and sold. The use of 3rd party data provides a much broader view than that offered by other data categories and helps to complete the customer profile.

Source: DBS Bank

Why do CDPs push firms towards ecosystems?

Collaborations to obtain second party data

The key to the successful implementation of a CDP lies in data. While companies have access to a plethora of first party data, this often fails to convey a true 360-degree view of customers, as first party data often tends to be specific to customer needs served by the company. By forming partnerships across industries, corporates can widen their view of the customer, thereby allowing them to successfully implement a CDP platform. Such mutually beneficial partnerships could be a stepping stone for companies to implement their ecosystem strategies.

Integrated products to drive customer retention

CDPs have the ability to recommend to marketers a product or service a customer is likely to look for in the future. However, these insights will be for naught if the company is incapable of satisfying said need of the customer. This is where ecosystems come into play. Through ecosystems, marketers gain the ability to cater to customer needs without prompting the customer to look further than the company for a product. Take the simple example of a mortgage product by a bank. A customer looking to purchase a mortgage product would most likely need a lawyer to finalise the paperwork of the purchase of his/her home as well. Having this insight for a banker is meaningless unless the bank has established a partnership with a law firm that can cater to the legal needs of the customer, possibly at a discounted price. This helps the bank meet the end-to-end needs of the customer while weaving a tight web to prevent the customer from looking outside of the bank for all of his/her credit needs.

Example: Rakuten Ichiba: This is Japan's single largest online retail marketplace. It provides loyalty points and e-money usable at stores, both virtual and real, as well as issues credit cards to millions of members. It also offers financial products and services that range from mortgages to securities brokerage. And the company runs one of Japan's largest online travel portals—plus an instant messaging app, Viber, which has some 800m users worldwide.

Ecosystems act as gateways

WeChat for example, enables users to shop, check into a hotel, message a friend, read the news, and chat with a doctor—all through a single interface. Users need not toggle between portals, manage separate log-ins, or spend mental energy maintaining multiple services. This also improves customer stickiness and loyalty towards the orchestrator and its ecosystem.

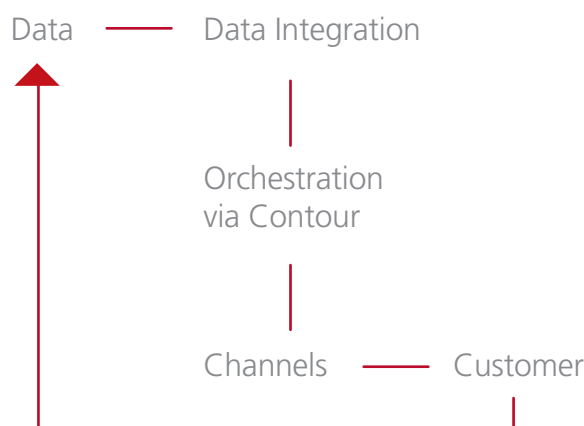
Evolution of consumer data platforms

Data Management Platforms (DMP)

A technology platform used for collecting and managing data from any source, mainly for digital marketing purposes. Primarily leverages cookies to gain insights into consumers, but the ability to draw insights from data is limited.

Customer Data Platforms (CDP)

Integrating an ever-increasing number of data sources to get a 360-degree view of the customers



What's enabling the transition

Developments in AI

Artificial intelligence can help uncover patterns from various points of interaction with customers, thereby providing an opportunity to suggest products and services tailored to the unique needs of customers.

Developments in data analytics

Enhancements in data crunching enables manipulating silos of data in real-time, providing instant solutions to customers.

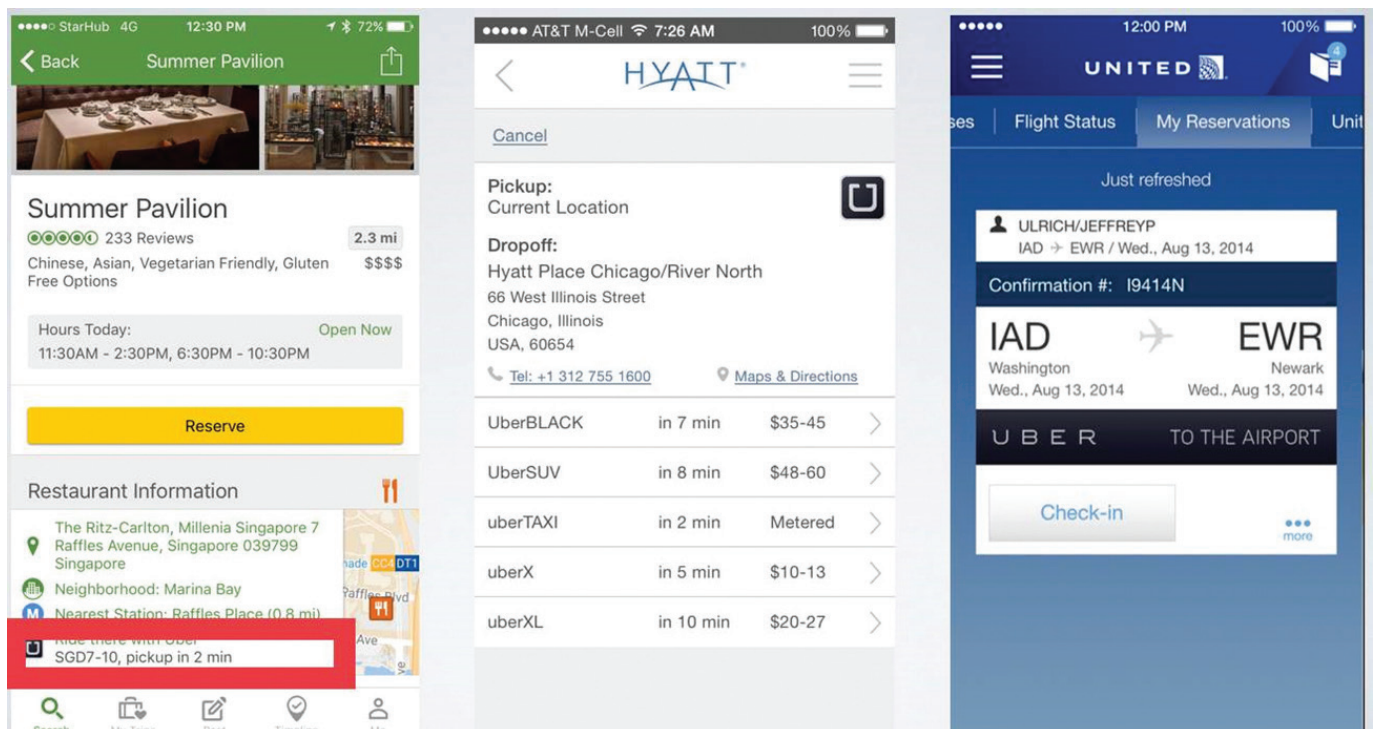
We project CDP to be a key driving force behind ecosystems as it allows orchestrators and creators to leverage data for product integration after identifying and upcoming needs and wants of consumers.

Source: Email vendor selection, DBS

Roles in an Ecosystem

- 1 'Participate' – In this model, a company gets an opportunity to embed its products or services into a popular app/platform operated by a partner. The partner dictates customer relationships as the company merely leverages assets and connections of the platform to create a market for the products or services offered by the company.

For example, Uber participates at apps such as TripAdvisor, Hyatt, United Airlines etc. When you click on the Uber function within the various partner apps, it takes you directly to the request Uber ride page within the Uber app, with your start and end destinations keyed in. For Uber, they get more traffic, usage, and revenue due to their services being engaged. For TripAdvisor, Hyatt, United Airlines, they get more customers who prefer it over other apps which might not offer similar seamless experiences.



Source: TripAdvisor, Hyatt and United Airlines

Vendors advertising and selling their products and services over a platform such as e-bay, car rental companies leveraging carpooling apps like Uber to find riders, and hotels advertising their accommodation facilities over Expedia are examples of the participate model. In each situation, the individual service provider lists itself under the facilitating platform, which is accessed by hundreds and thousands of potential customers on a daily basis for their requirements. The companies using this platform perform a participating role.

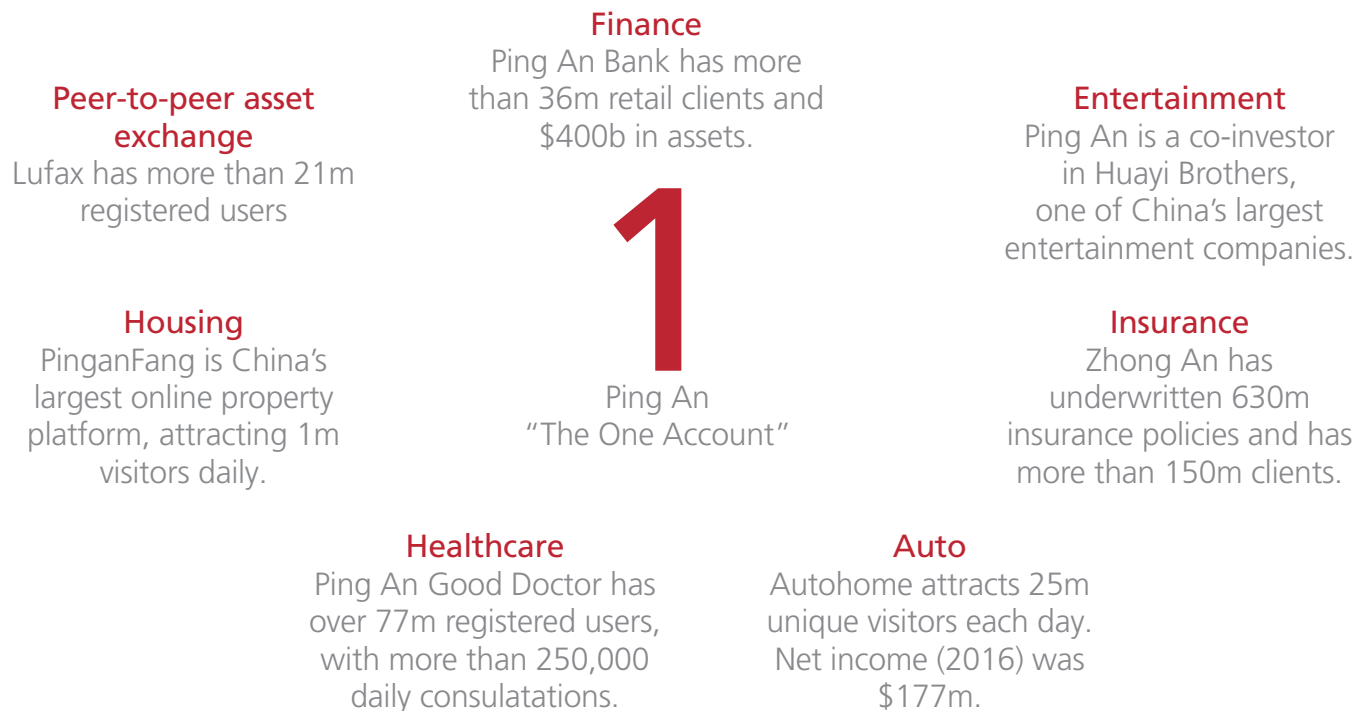
- 2 'Orchestrate' – In this model, the company will undertake the formation of a front-end platform to attract customers. The front end will be ubiquitous, prompting large scale adoption. Both customer relationships and assets utilised for the platform are owned by the developer. The front-end platform provides a market place for products of both third parties and the developer.

One prominent success story of a company performing an 'orchestrate' role is WeChat. By August 2018, WeChat reported having over 1 billion monthly active users (MAUs). WeChat has also evolved from being a simple messaging platform to something ubiquitous resembling a full-fledged mobile operating system. In the past seven years, WeChat has established an extensive ecosystem centered around this mega messenger application, becoming a vital part of China's mobile internet. The service has acted as the gateway for China's internet users to expand beyond online communications tools to other digital activities, including e-commerce, digital payments, and online wealth management.

- 3 'Create' – In this model, a company will focus on building a complete ecosystem in a white space. Similar to the Orchestrate model, the customer relationships and digital assets are owned by the ecosystem developer. However, the products and services available on the platform are also owned by the developer and the developer might venture into building more products or services if needed by customers rather than making way for third parties to use the platform. In other words, the developer will control both the front and back-end of operations in a 'create' role.

Ping An, a company that went from being a pure-play insurance provider to an ecosystem creator is one example. Despite its roots as a property and casualty insurer, Ping An now offers a broad range of financial and non-financial services. The insurance provider has expanded its reach to offer healthcare consultations, auto sales, real estate listings, and banking services to more than 350m online customers through a single customer portal called the One Account. This ecosystem approach also generates customer traffic for Ping An's core services and has helped the company become the world's most valuable insurance brand.

Ping An's ecosystem approach is centred around its One Account portal



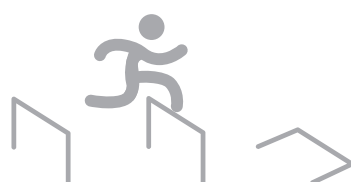
Source: Ping An, DBS Bank

Emergence of new sectors blurring traditional sector boundaries

Industry convergence is the disruptive blurring of two or more previously distinct industries

Reconfigures industry information using CDP.
Transforms disparate pieces of information into actionable insights showing the broader picture, enabling cross-selling.

Barriers to entry fall.
CDP, driven by advances in cloud, IoT and data analytics, blurs barriers to entry. The previously segregated industry characteristics are overthrown.



A new sector emerges as a result of industry consolidations.

Source: DBS Bank

How traditional industries are merging to form new sectors

Value addition from new sectors that are likely to develop due to cross-sector partnerships/mergers across traditional sector boundaries by 2025

US\$ tn		
Combined revenue of global businesses		190
New sectors that are likely to develop cross-sector partnerships/mergers across traditional sector boundaries		
B2B services	9.6	
B2B marketplace	9.4	
B2C marketplace	8.3	
Health	6.0	
Travel and Mobility	5.6	
Housing	5.0	
Digital content	3.3	
Other	9.0	56.2
As a % of total global business revenue		30%

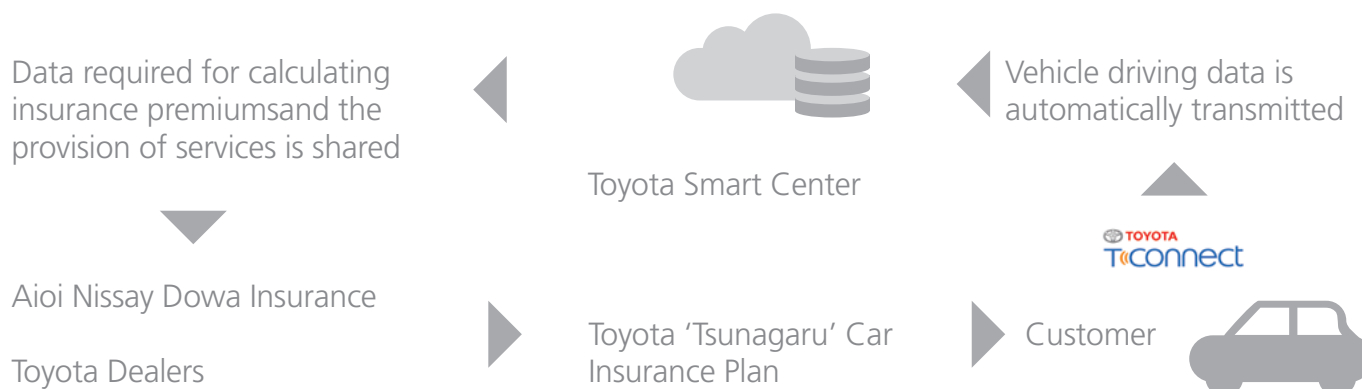
Source: McKinsey, World Bank

Twelve major ecosystems are expected to emerge around fundamental human and organisational needs, accounting for ~US\$ 60tn in revenues by 2025 (~30% of all global revenues)⁶.

Mobility The advancement of telematics technologies has led to major changes in the automobile landscape, such as the creation of a variety of new products and services that utilise automobile-driving data, enabling the automobile industry to partner with a wide variety of other traditional industries to form the mobility sector.

Automobile + Insurance

Toyota and Aioi Nissan Dowa launch telematics-based insurance (UBI) solutions in Japan



Source: Telematics News

Toyota and Aioi Nissan Dowa Insurance have jointly developed Japan's first driving-behaviour-based telematics automobile insurance (usage-based insurance). The plan is available to owners of certain units of Toyota connected cars and uses driving data gathered via telematics technologies to adjust insurance premiums based on the level of safe driving every month. Total insurance premiums comprise a combination of basic insurance premiums and usage-based insurance. Under this plan, up to 80% of usage-based insurance premiums can be discounted.

How: The advances in IoT and data analytics have laid the foundation for this partnership.

Transport + Hospitality

Hyatt is the first hotel brand to integrate its mobile app with Uber, a technology platform that connects riders with transportation on-demand. In more than 100 cities around the world in which Uber operates where Hyatt hotels are located, an Uber button now appears under the My Reservations section of the Hyatt app from the day of check-in to the end of the stay. It offers guests the option to use available Uber transportation options to travel from their current location to their Hyatt hotel while also providing an estimated wait time.

How: Uber's extensive data analytics capabilities make this partnership a success.

Housing Sector boundaries blurring in the traditional housing sector is leading to an integrated journey for the customer, through which they can look for property, buy a house, get a mortgage, home insurance, moving services, refurbishing, concierge services, and potentially also find somebody to sell to; that is, almost everything related to buying and owning a property in one place.

Real Estate + Banking

In Australia, Commonwealth Bank's housing platform combines chosen locations and public data to assist customers with property searches and valuations. With sales price details of ~95% of Australian homes, the app has been launched by the Commonwealth Bank in a bid to deliver more immediate buying and selling information to the public as they view each property, helping buyers to ward off rogue sellers who attempt to inflate property prices. The app allows the users to see the last sale price of the property. If the home is for sale, the app will bring up a listing from realestate.com.au with details such as home layout and pictures. The app includes a mortgage calculator, links to home loan and house valuation services, as well as demographic and pricing data for individual suburbs.

How: Commonwealth Bank's CDP and data analytics know-how have enabled the bank to form partnerships in the real estate sector.

Real Estate + Insurance

Hive is a smart heating system that allows users to control the temperature and hot water in their home from an application on their mobile device. Hive, the smart heating business of British Gas, has partnered with European insurance provider Axa to offer Hive customers Axa-underwritten home insurance policies. As part of partnership agreement, users who buy Hive products are redirected to Axa's website. From an insurance perspective, Hive can mitigate the risk of accidents, such as burst pipes, as it has an in-built frost protection mechanism that turns the heating on whenever the temperature dips below seven degrees Celsius.

How: Fewer accidents mean fewer payouts, making this a sensible partnership. This partnership is a result of advances in IoT technology.

Health

The marring of sector boundaries around the health sector has led to several traditional sectors coming together in symbiotic relationships to achieve greater value for themselves than they could capture alone. As an example, Apple launched the Healthkit open platform, which offers Apple device users the option to share their health and activity data across affiliated applications on their smartphones. This integration allows users and other stakeholders including physicians, researchers, hospitals, and developers of healthcare and fitness apps to access data to provide patient care and develop fitness trackers etc.

Health + Insurance

John Hancock, one of the oldest and largest North American life insurers, has stopped underwriting traditional life insurance and instead sells only interactive policies that track fitness and health data through partnerships with Apple and Fitbit wearables. The move by the 156-year-old insurer, owned by Canada's Manulife Financial Corp., marks a major shift for the company, which unveiled its first interactive life insurance policy in 2015. The insurer is now applying the model across all of its life policy coverage. John Hancock's US life insurance customers can choose from a basic Vitality programme in which customers log their activity in an app or website and can receive gift cards for major retailers after reaching their milestones, or an expanded programme that offers wearable devices and discounts of up to 15% on premiums, among other benefits.

How: The advances in data analytics and cloud technology have enabled John Hancock to move into UBI insurance policy in partnership with wearable companies.

Health + Transportation

Uber Health partners with healthcare organisations to provide reliable and comfortable transportation for patients, caregivers, and staff. Over 100 healthcare organisations in the US, including hospitals, clinics, rehab centres, senior care facilities, home care centres, and

physical therapy centres are already using Uber Health. The Uber Health API (Application Programming Interface) allows users to:

- Arrange flexible ride-scheduling for patients, caregivers, and staff - Coordinators can schedule rides on behalf of patients, caregivers and staff to take place immediately, within a few hours, or up to 30 days in advance. This allows for transportation to be arranged for follow-up appointments while still at the healthcare facility.
- Provide access to patients without a smartphone - Riders don't need the Uber app, or even a smartphone, to get a ride with Uber

How: Uber's extensive data analytics capabilities make this partnership a success.

Digital content

Digital content + Telecommunications

iFlix's revenue model is mostly based on partnerships with telcos whereby the telcos sell iFlix's offering as a part of a bundled service. The company relies on tie-ups with telcos when expanding into other markets. As an example, in Malaysia, iFlix collaborates with mobile operator Digi to bundle data to its postpaid subscribers for exclusive use on iFlix, and partners with Maxis to offer the service for free to its premium fibre broadband customers.

How: Advances in cloud technology have facilitated this partnership.

Digital content + Transportation

Spotify and Uber have teamed up for in-car streaming music. Customers are able to link their Spotify and Uber accounts, then access their playlists from Spotify's iOS and Android apps during Uber rides with drivers that have opted in to use the feature. While Uber users will be encouraged to pay for Spotify Premium, Spotify Premium subscribers are now encouraged to use Uber as their preferred form of transportation as opposed to other taxis since they know that they can personalise their ride.

How: Uber's extensive data analytics capabilities make this partnership a success.

Digital distribution (B2B market place+B2C market place)

Digital distribution + banking

Snapdeal is extensively partnering with banks and digital wallet companies to offer discounts and deals to customers worth INR 1bn. The company expects to partner with at least 15 banking and five digital payment companies in FY18/19. 12 banks (HDFC Bank, ICICI Bank, State Bank of India, Citibank, American Express, Axis Bank, HSBC, Kotak Mahindra Bank, Yes Bank, Standard Chartered Bank, IndusInd Bank, Federal Bank) and two digital wallet companies (FreeCharge, Mobikwik) are onboard to date.

How: The potential for CDP-based cross-selling is the foundation of these partnerships.

Digital distribution + Logistics

Y Ventures and Singpost are collaborating on developing an e-commerce buying platform which will focus on cross-border purchases on behalf of consumers and consolidated deliveries and logistics-related technology. AORA, a global buying platform will be developed in partnership with SingPost to facilitate community-centric product discovery, cost-efficient payments, genuine product reviews, and seamless end-to-end logistics services. AORA will solve e-commerce inefficiencies most merchants face through its blockchain payment gateway AORA Pay, which could save up to 8% on fees, a decentralised product and merchant credibility review and reward system, and worldwide logistics services with door-to-door delivery.

How: Y Venture's capabilities in data analytics has become the foundation for this partnership.

B2B services

B2B services + Across all industries

Intuit, the owner of accounting software QuickBooks, and Lloyds Bank have formed a bank feed agreement that will enable UK QuickBooks customers to import transactions from their Lloyds bank accounts. The bank feed agreement saves time for small business owners and accountants, reducing data entry errors by automatically and securely transferring financial information. Existing subscribers to QuickBooks, of which there are ~100,000 in the UK, will not be charged for connecting their Lloyds accounts with the bank feed service. Intuit offers bank feeds with three of the main UK retail banks (including Lloyds), covering ~60% per cent of the UK high street banking market.

How: Cloud technology has enabled the success of this partnership.

Examples of the emergence of new sectors blurring traditional sector boundaries

New Sector	Merge/partner within industry	Partner across industries	Examples of partnerships across industries
Mobility	Freight and Logistics, Component suppliers, Warehouse management, Car dealers, Car rental, Car/ bike sharing	Insurance	Toyota and Aioi Nissan Dowa Insurance have jointly developed Japan's first driving behaviour-based telematics automobile insurance (usage-based insurance)
		Hospitality	Hyatt is the first hotel brand to integrate its mobile app with Uber, a technology platform that connects riders with transportation on-demand. Uber uses big data and analytics to display Uber logo in the Hyatt app until the checkout date from the check in date.

New Sector	Merge/partner within industry	Partner across industries	Examples of partnerships across industries
Housing	Building Construction, Component suppliers (Eg: Cement, Wood, Steel), Professional services (Eg: Cleaning, Facilities Management, Furniture movers), Parking, Rental, Architecture	Banking	In Australia Commonwealth Bank's housing platform combines chosen locations and public data to assist customers with property searches and valuations.
		Insurance	European insurance provider Axa has partnered with British Gas, which is offering its customers Axa-underwritten home insurance policies.
Health	Healthcare equipment and services (Eg: Medical equipment, nursing homes, infant care), Fitness apps, Health shopping platform, Healthcare SaaS providers (Eg: Medication management, Clinical communications), Virtual medical consultancy	Insurance	John Hancock, one of the oldest and largest North American life insurers, has stopped underwriting traditional life insurance and instead sells only interactive UBI policies that track fitness and health data through partnership with Apple and Fitbit wearables.
		Transportation	Uber Health partners with healthcare organisations to provide reliable, comfortable transportation for patients and caregivers and staff. Over 100 healthcare organisations in the US, including hospitals, clinics, rehab centres, senior care facilities, home care centres, and physical therapy centres are already using Uber Health.
Digital content	Gaming solutions, Broadcaster/content generator, Ad solutions, Content storage/hosting solutions, Content management systems	Telecoms	iFlix's revenue model is mostly based on partnerships with telcos whereby the telcos sell iFlix's offering as a part of a bundled service.
		Transportation	Spotify and Uber team up for in-car streaming music. Customers are able to link their Spotify and Uber accounts, then access their playlists from Spotify's iOS and Android apps during Uber rides with drivers that have opted in to use the feature.
Digital distribution (B2B market place+B2C market place)		Banking	Snapdeal is extensively partnering with banks and digital wallet companies to offer discounts and deals to customers. The company expects to partner with at least 15 banking and five digital payment companies in FY2018-19. 12 banks and two digital wallet companies are onboard to date.
		Logistics	Y Ventures and Singpost are collaborating on developing an e-commerce buying platform which will focus on cross-border purchases on behalf of consumers, and consolidated deliveries and logistics-related technology.
B2B services		Across all industries	Intuit, the owner of accounting software QuickBooks, and Lloyds Bank have formed a bank feed agreement that will enable UK QuickBooks customers to import transactions from their Lloyds bank accounts.

Which industries are likely to converge and why

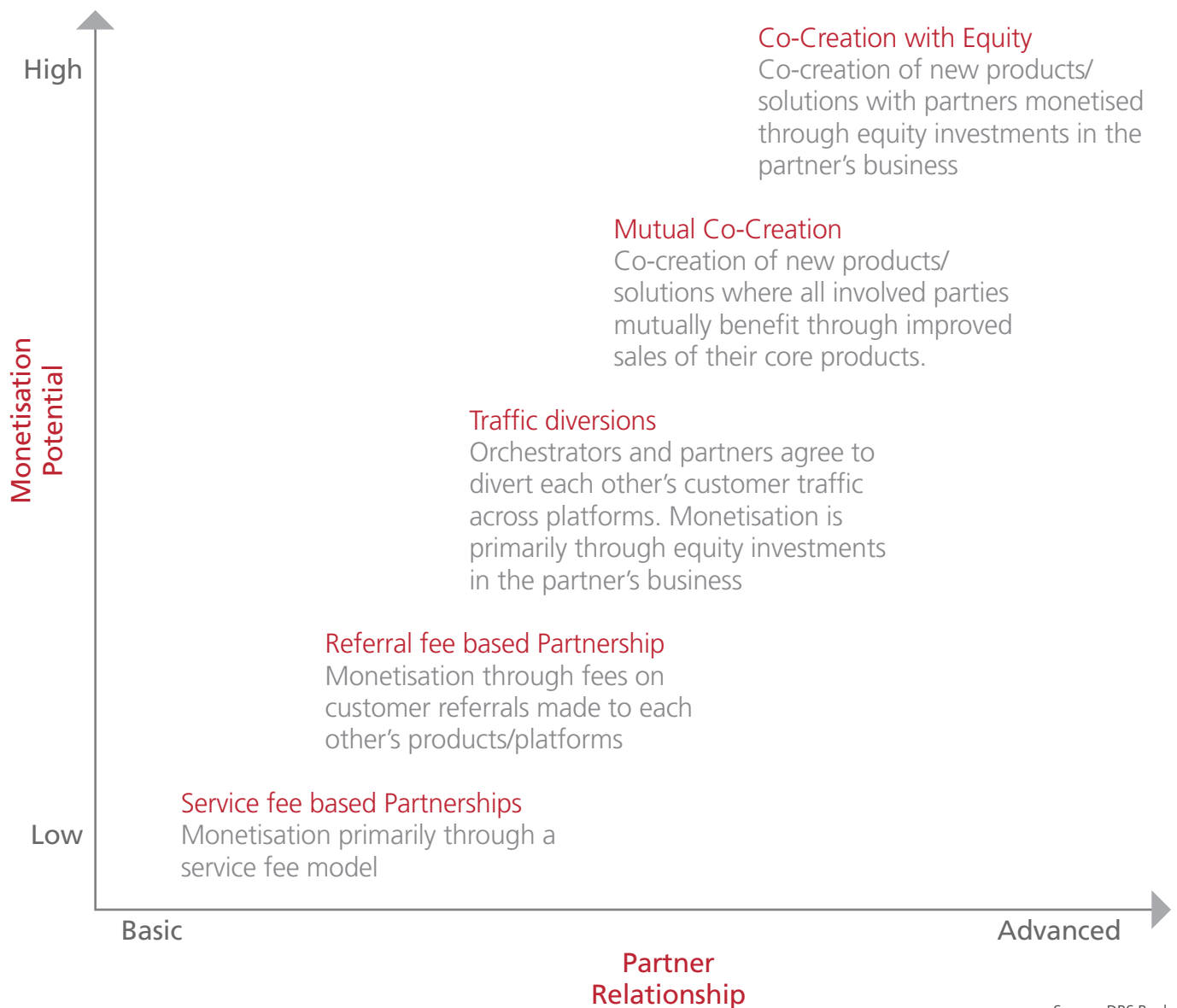
Industries with high customer pain points, high customer data availability, and low industry CDP savviness are most likely to converge with industries on the opposite spectrum.

1. Traditional industries with high customer pain points are vulnerable to convergence. The rise of digital technologies has democratised consumer access to knowledge, given customers a more powerful voice, allowed more informed decision-making, and enabled greater choice between providers. One such example is in the power and utility space. Renewables, smart metering and smart grids are reshaping the sector, with utilities, insurance, automobile and real estate companies forming partnerships blurring traditional sector boundaries. Customers themselves are also redefining the industry. In addition to demanding greater price transparency and competitive pricing, as well as energy-efficient, environmentally friendly solutions through smart meter installments, today's customers are actually becoming producers of energy through residential solar installations.
2. The increasing role of CDP in transforming disparate pieces of information into actionable insights about the broader picture enabling cross-selling. This requires a combination of capturing innumerable data points and turning them into predictive, actionable opportunities for both businesses and consumers. Advances in Cloud, IoT, and Data analytics are making such connections possible. With the extensive use of CDP, Uber has disrupted the taxi industry and could do the same for package and prepared food delivery sectors.

Factor	Vulnerable to convergence if	Why
Customer pain points	High	In some instances, each customer's specific needs can only be satisfied through CDP based cross-selling. Eg: Automobile + Insurance = Usage-based Insurance (Toyota + Aioi Nissan Dowa)
Customer data availability	High	Some industries are customer facing and hence, privy to a large amount of first party customer data. Industries without this luxury may attempt to build partnerships with such industries. Eg: Health + Transport = Transportation based on patient demand (US Health care facilities + Uber)
Industry CDP savviness	Low	Incumbents in some industries have low technology exposure to CDP even though they possess a vast amount of disparate customer data. Such industries opt to partner outside the industry to get CDP insights for cross-selling. Eg: Hospitality + Transport = All-inclusive holiday package (Hyatt + Uber)

Source: DBS Bank

Monetisation models of ecosystems



Service fee-based Partnerships

In this model, the orchestrator charges the participants of the ecosystem a service fee for the use of its platform. The model is successful with ecosystems that are already well developed and is likely to be applied on early stage partnerships in ecosystems as both parties explore the mutual benefits each other can accrue through the partnership.

In June 2018, Google announced a new pricing strategy for users of its previously free Google Maps API, hoping to monetise the growing number of partners that use the

maps platform. Accordingly, Google has simplified eighteen different APIs into just three: Maps, Routes, and Places and will charge users US\$200 each month for Maps, Routes, and Places. Other add-on services are also available on a variable pricing scale.

Referral fee-based partnerships

In this model, the orchestrator charges the ecosystem's participants a fixed fee or a commission for completed transactions that take place through the orchestrators' platform. The charges would be applicable on both the orchestrator and the participants.

Amazon for example, charges an 8%-15% referral fee⁷ from third party sellers on confirmed transactions that take place through the platform. Third party sellers gain access to Amazon's 310m+ active user base⁸ while referral fees help Amazon monetise its dominance in ecommerce through fees.

Traffic Sharing model

Here, the orchestrator invests in the partner's business or forms an equity-based partnership (eg: Joint Venture) to mutually share customer traffic between the two partners. No fees or commissions are charged under this model and monetisation is solely through the investment made in the partner's business.

Tencent's WeChat ecosystem has a number of partnerships monetised under this model. Tencent owns 20% of Meituan Dianping, one of the largest O2O delivery platforms in China, and allows users of WeChat and QQ mobile apps to make orders through Meituan Waimai, Dianping and Mobike platforms (three key services offered by Meituan Dianping) and settle payments made on these platforms through WeChat Pay. Meituan Dianping benefits from gaining access to over 1 billion monthly registered accounts on WeChat while Tencent benefits from the addition of O2O services to its ecosystem, helping to increase the time users spend on the platform, which already accounts for ~30% of all time spent on mobile apps in China⁹. While there is no indication of the revenue-sharing arrangements between Tencent and its partners in the ecosystem, Tencent's returns through the ownership of Meituan has been rewarding. Tencent's stake in Meituan Dianping is currently valued in excess of US\$11bn (vs. Tencent's publicly announced investments of ~US\$4-7bn).

Mutual Co-creation model

Here, the orchestrators and the partners come together, integrating each other's core capabilities to form new products or solutions that could directly or indirectly improve the sales of the core products of both partners. Monetisation is primarily through improvements in addressable market and improved sales of core products.

StarHub, the second largest telecom operator in Singapore, partnered with UOB, the third biggest national bank in Singapore, to roll-out new digital solutions targeting SMEs through StarHub's SME focused digital marketplace. UOB, together with StarHub, will launch a range of automation and business streamlining tools on the marketplace and both parties will work with each other to provide real-time transaction insights to SMEs.

Co-Creation with Equity model

The service offerings combine StarHub's digital capabilities along with UOB's data and financial insights and the two parties would be able to tap in to each other's existing SME networks when rolling out the new services. The service offerings could benefit both UOB and StarHub when attracting new SME customers (e.g.: offering discounted services through the platform for new SME customers) while helping them maximise the lifetime value of its existing SME client base.

Under this model, the partners and orchestrators come together to develop and create new solutions, integrating their core offerings and capabilities. The potential for monetisation is high and is typically through investments in the partner's business or an equity-based partnership (e.g.: Joint Venture). Both parties can also benefit from improvements in the addressable market and monetisation of the new product/solution.

DriveNow was founded in 2011 as a JV between BMW and car rental firm Sixt, with each company owning a 50% stake in the venture, offering premium car-sharing for short term mobility in metropolitan areas. At present, the service has about one million customers in 13 European cities. The car share service allows users to rent a BMW/Mini vehicle via a mobile phone app and pay on a per minute basis for usage of the vehicle. BMW provides the premium vehicles and the technology within the cars while Sixt contributes car-hire know-how and a comprehensive customer registration network. The initiative benefits BMW as BMW is able to limit the cannibalising effect of ride-sharing in key metropolitans on car ownership while Sixt benefits from an expanded customer base and a fleet of high end BMW vehicles. The JV was valued at ~EUR 418m in March 2018.

Digital to physical – How will ecosystems evolve?

Digital natives pioneered the development of ecosystems, leveraging their digital prowess, network effect brought about by their engaged and broad customer base and low marginal costs involved in expanding beyond geographical and sectoral boundaries. However, digital natives have increasingly shown an interest in combining the digital and physical realms. Amazon's acquisition of organic grocery seller, Wholefoods, and expansion of the cashier-less Amazon Go stores or Alibaba's acquisition of the food delivery start-up, Ele.me, and expansion of the Hema retail stores all signal interests in digital natives to expand their ecosystems to the offline world.

The dawn of the tail-end of supernormal growth for digital natives, coupled with improving technology adoption by traditional players, should create a conducive environment for the formation of digital-physical ecosystems. The combination of the digital capabilities of the digital natives, coupled with the physical assets, vertical expertise, and relationships of traditional incumbents could lead to the formation of value assertive partnerships between these players in our view.

Key concerns – Ecosystems

1 Challenge of interoperability

Technology

Technological challenges and barriers for business ecosystems occur due to incompatibility of information technologies used, such as architectures, platforms, and physical infrastructures. Incompatibility presents challenges to store, exchange, process, and communicate both data and information to and from loosely coupled entities within the ecosystem.

Organisational structures

Participating organisations have different structures and often follow a different logic of organising in terms of decision-making, responsibilities, and autonomy. There are different semantics, cultures, and styles of communication. Coherency between decision-making principles can be a main prerequisite for the evolvability of ecosystems. This coherency is important for a strong relationship and a minimum amount of trust between autonomous partners.

2 Challenge of participant dynamics

Individual level

Even though business ecosystems evolve from system dynamics, it is behaviour, engagement, attitude, and competence at the individual level which leads to sustainable value co-creation. Creativity, connectivity, collaboration, and regard for the ecosystem community are some of the crucial competencies that are required on an individual level for the business ecosystem to be sustainable.

Organisation level

To succeed, business ecosystems should be hierarchically organised, with a dominant partner who plays a strong coordinating role and is responsible for the information flow among other dependent/complementary partners. For an ecosystem to be sustainable, the principal organisation has to define the standards for enhancing interoperability among the diverse partners and distribute information as deemed necessary. The managerial competences for coordination and interaction should only be with the dominant partner.

3 Challenge of sharing data with partners

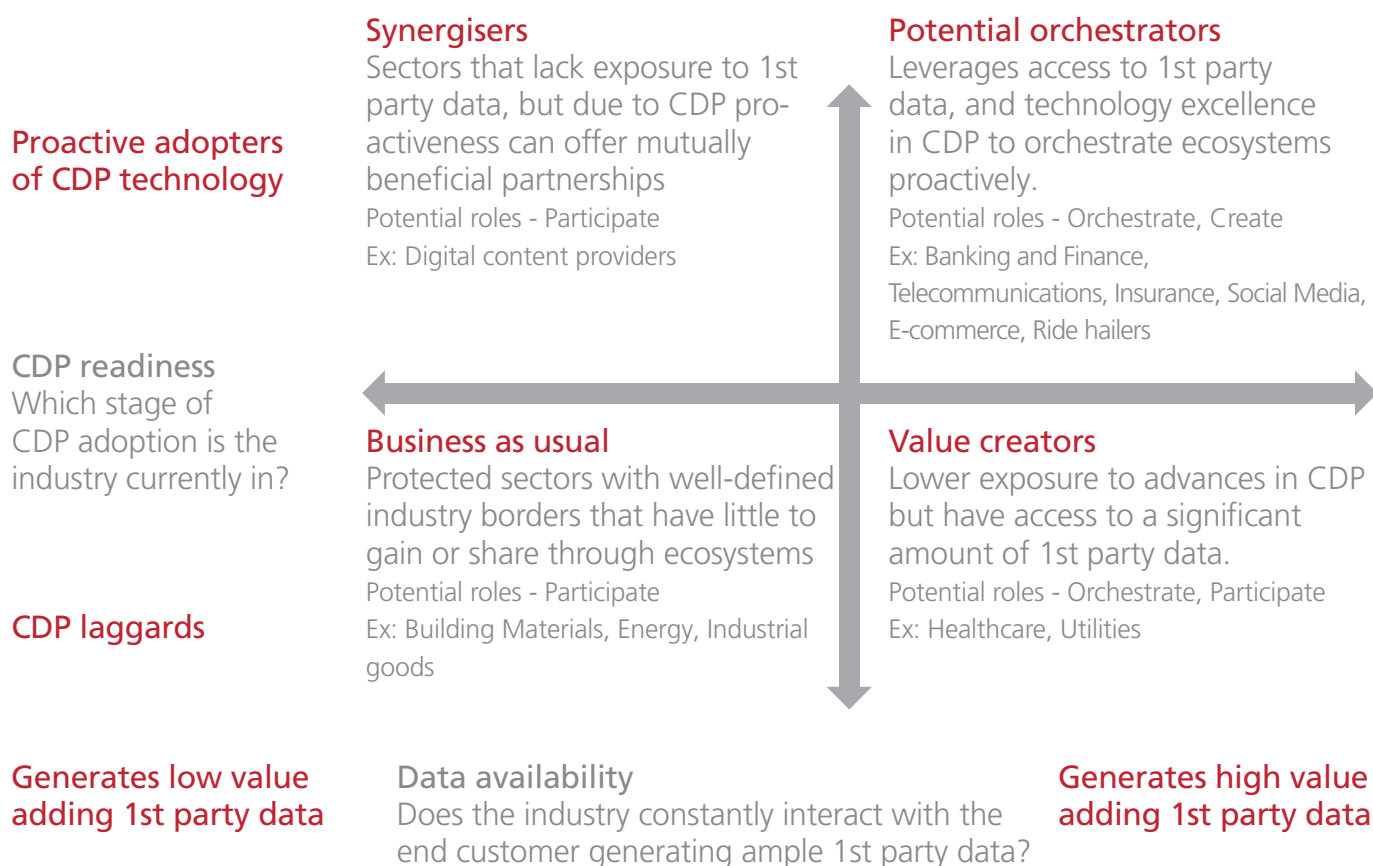
As the cost of data collection and storage becomes cheaper and computing power increases, the value of data to a corporate improves. The key currency of a business ecosystem is data and the key foundation in establishing ecosystems would be the willingness between partners to share their data sets. However, issues with trust, anti-competition guidelines, and agreements with customers may hinder such collaborations, effectively stalling the growth of ecosystems.

4 **Inherent difficulties in partnering with rivals/potential rivals**

Ecosystem partnerships among those in the same industry carry the inherent challenge of balancing the need to collaborate with the need of protecting intellectual property. An example is the auto industry, which is currently grappling with a key issue surrounding intellectual property. Companies developing autonomous cars are faced with conflicting incentives when it comes to sharing data and ideas. The fastest way to get to market is through sharing data and using data shared by others. However, a competitor may get to the market first based on information shared. But, there are ways around this issue. As an example, Toyota and BMW started sharing data with a startup that works to improve autonomous driving systems. The data is aggregated and anonymised so that all automakers are able to employ the service without releasing any proprietary information or customer data¹⁰. ❌

Key sectors Possible emerging winners from ecosystems

CDP readiness and data availability to decide which sectors will pioneer ecosystems.



Source: DBS Bank

Potential Orchestrators

Orchestrating or creating ecosystems would require a number of pre-requisites, among which CDP excellence and well-integrated 360-degree access to data prove to be vital. We believe that industries where technology excellence is already a pre-requisite for survival (e.g.: banks need to continuously keep investing in the latest technological developments to remain competitive) and industries that cater to the needs of a wide array of industry segments generating ample 1st party data (e.g.: banks have clients across almost all industry sectors) would pioneer the development of ecosystems. These sectors already possess the CDP technology that is required to reap the optimal benefits of forming ecosystems and they can leverage their existing relationships and their vertical specific knowledge to form mutually beneficial ecosystem partnerships.

Examples of potential orchestrators

Banking and Financial Services

Banking has long been a leading adopter of latest technologies. From mainframes in the early 80's to CDP in the present day, adoption of latest technologies has been a key element of securing a competitive advantage and surviving in the banking industry. Banks also have established relationships with almost every industry segment. The corporate client base of a bank is likely to comprise of a wide-array of industry segments (as it is in the interest of a bank to diversify across industry segments) which provides banks with access to potential partners along with direct access to 1st party data of the verticals their potential partners operate in. This provides banks with a strong platform to become potential orchestrators of ecosystems.

Banks around the globe have started exploring the benefits of such partnerships. China's ICBC bank launched "Rong E Gou" in 2014 a cross-border e-commerce platform with sales of over CNY 1.3t in 2017. Kaspi Bank, one of the largest retail banks in Kazakhstan, followed a similar path to open Kaspi Store, a marketplace that allows Kaspi's corporate customers to sell their offerings online. Kaspi receives commissions from every sale and is also able to offer financing products to customers when they make purchases. Expanding beyond simple mortgage offerings to cater to the underlying need of the customer to buy a property, ING Bank in the Netherlands is experimenting on integrating third party services facilitating property transactions with its banking services.

Telecommunication Service Providers

Majority of telecom operators across the globe today have become integrated operators, having diversified beyond fixed and wireless communications into sectors such as the provision of ICT services, cybersecurity, content creation etc. By doing so, telcos have established relationships across a wide array of industry segments and developed dense vertical specific knowledge, which coupled with the telcos' excellence in CDP, make them potential orchestrators of ecosystems.

Social media services

From their humble start as mere social media apps and messaging services, social media platforms have come a long way, the most prominent of all being WeChat. Founded in January 2011, WeChat has evolved from a simple messenger app to a one-stop app covering most of the day-today requirements of its users including social media, payments, online shopping, food and grocery delivery, taxi hailing, healthcare, wealth management etc. Because of WeChat's all-in-one ecosystem, its users are more likely to adopt new transaction features than users of any of the other messaging service globally.

Value creators

These are sectors with ample access to first party data. However, until value creator sectors partner with sectors with CDP capabilities or develop in-house CDP capabilities in future, first party data will remain as dark data. At present, due to lack of exposure to CDP, the players in this quadrant have only a few industries they can tap on their own to form mutually beneficial partnerships as they lack cross- industry relationships and a deep understanding of the requirements of other verticals. This hinders their role as potential orchestrators of ecosystems outside their core industry till they develop in-house CDP capabilities.

Take the Healthcare sector for example. The sector maintains few relationships with other industry segments limiting the ability of healthcare players to form mutually beneficial partnerships. For instance, a healthcare player could easily find a common ground with a provider of insurance products but a similar mutually beneficial partnership with an operator of retail stores could be difficult to forge.

However, raking value creators into ecosystems outside their core sectors could greatly benefit other participants of these ecosystems, as the data and insights held by value creators are unique and offers ample opportunity for other sectors to leverage on these insights to develop a great value proposition to their customers. For example, think of how a grocery retailer with insights into the health conditions of a customer can customise the retail basket of that customer or offer new value-added retail services. The key challenge lies in attracting value creators to such ecosystems, as the benefits of forging such partnerships for value creators are often limited as access to data on spending habits of customers could have little value add for a provider of healthcare in developing new products.

Synergisers

Synergisers are sectors where the extensive use of CDP technology has proven to be a key element of success and competitive advantage. While players in these sectors continuously interact with other adjacent sectors, their relatively less exposure to meaningful first party data does not allow them to become orchestrators of ecosystems. Digital content providers are a prime example of synergisers. While digital content providers use CDP for their core operations, they lack access to meaningful first party data required to orchestrate or create ecosystems.

Business as usual

These are industries with well-defined industry borders that have little to gain or share through ecosystems. The CDP readiness of these industries is also low, thus leaving room for players to concentrate primarily on their core operations. These sectors offer limited value assertive partnerships to other segments (for e.g.: an oil refinery would have limited insights to offer a partner outside the energy sector) and hence are unlikely to be enthusiastic in partaking in ecosystems outside their traditional industry sectors. Sectors like energy, industrial goods, and basic materials fit this criterion. These sectors enjoy high natural entry barriers and operate within well-defined sector boundaries with limited interactions with other industry segments. While certain sectors such as energy are well-advanced in terms of technology, they may find it difficult to develop partnerships that are mutually beneficial outside their sectors, given the highly technical and specialised nature of operations in these sectors.

Are you ready for ecosystems?

We believe organisational structure and partnership readiness will be key pre-requisites for an ecosystem.

Organisation structure

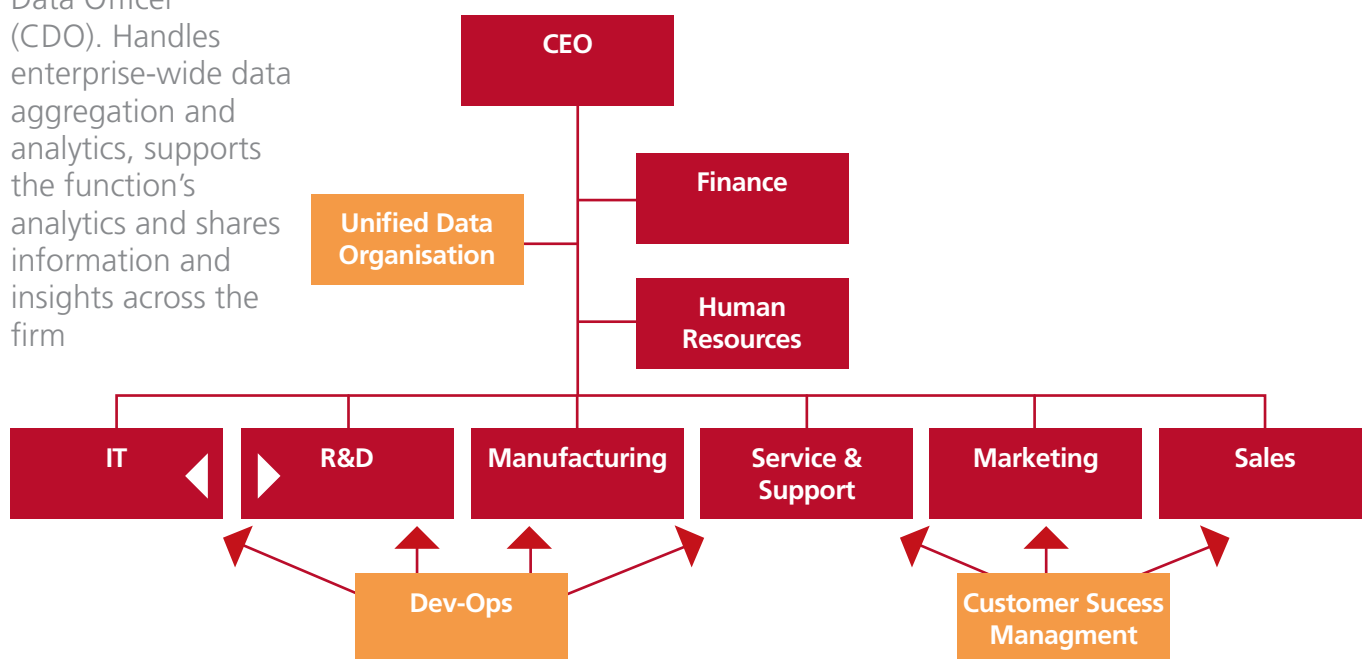
As data and inter-departmental collaborations would be pivotal to succeed in an ecosystem environment, altering the organisational structure will be crucial for its survival. Thereby, an

organisation will have to introduce layers for management of information, which might require the creation of positions in the likes of Chief Data Officers.

As organisations operate or participate in multiple industries in an ecosystem model, the activities of those separate units need to be integrated to coordinate and align them. This will generate the need to create a specific department to handle data, including the capture, storage, and analysis and the establishment of senior level executive positions to help in coordination. Further, ongoing inter-departmental collaborations in product development and improvement would ensure insights captured across each department are incorporated in the final product of the organisation. In the classic structure, a typical organisation is divided into functional units, such as R&D, manufacturing, logistics, sales, marketing, after-sale service, finance, and IT. These functional units enjoy substantial autonomy. However, with the emergence of smart, connected products and services, this classic model is challenged. Intense, ongoing coordination of the organisational structure becomes necessary through business functions.

Advances in CDP pave way for a new organisational structure

Led by a Chief Data Officer (CDO). Handles enterprise-wide data aggregation and analytics, supports the function's analytics and shares information and insights across the firm






Deep collaboration reflecting the new need for IT in product development with IT teams embedded in R&D teams.

Draws teams from R&D, IT, manufacturing, and service. Oversees product updates, post-sale service and enhancements, and efforts to shorten product-release-cycles.

Takes charge of the ongoing customer relationship and ensures that customers gain maximum value from the product

Source: Harvard Business Review¹¹, DBS Bank








Key mobile wallet players who can be potential orchestrators of ecosystems

		Key Wallet Players		
The Philippines				
Indonesia		 		
India				
China				
Malaysia				
Thailand				
Singapore				

Source: DBS Bank

Mobile wallet is probably one of the most frequently used ecosystem-platform by consumers in any country. Mobile wallet players capture first-party data about consumers purchases across various sectors and can also attract various companies from disparate sectors as participants in the ecosystem. ❌

Three-way battle among digital players, banks and telcos to be ecosystem-orchestrators in Asia

Country		Potential for Orchestrating ecosystems		
		Banking	Telecom	Independant Digital Players
The Philippines		Low poor cloud adoption and AP collaboration by banks	High Gcash and PayMaya by telecom operators dcominate the e-wallet space	Moderate GrabPay and AliPay are present, albeit smaller than domestic players
Indonesia		Low	Low	High
India		Low	Low	High
China		Low	Low	High
Malaysia		Low	High	Moderate
Thailand		High	Low	Moderate
Singapore		High	Low	Moderate

Source: DBS Bank

Appendix

Major shift to cloud, to reach 83% by 2020¹²

LogicMonitor's survey is predicting that 41% of enterprise workloads will be run on public cloud platforms (Amazon AWS, Google Cloud Platform, IBM Cloud, Microsoft Azure and others) by 2020. An additional 20% are predicted to be private-cloud-based followed by another 22% running on hybrid cloud platforms by 2020.

Cloud technology enables the delivery of IT resources on demand. Adopting cloud infrastructure would a). Make traditional players nimbler, by allowing them to adjust their IT infrastructure according to operational demands, b). Ease the process of collaboration within and outside the firm and bring in real-time visibility to company's operations across the organization, and c). Help unleash the true potential of IoT by collecting and processing data on the cloud. Cloud would become an essential IT enabler for the dawn of ecosystems.

Mainstream IoT adoption, prepare for digital-physical interaction

The advent of IoT would connect physical products with the online world, providing traditional manufacturers and service providers with access to data on product performance and how their customers use these products and insights they never had access to before.

This marks a significant turning point for incumbents in the offline world as IoT eliminates one of the key differences that sets digital natives apart from the offline incumbents, i.e. access to data. With access to unprecedented quantum and variety of data, the incumbents' ability to create value accretive products by establishing partnerships across different industry verticals improve significantly, paving way for the adoption of the ecosystem model by offline incumbents. Data would also become the currency for setting up ecosystems, as ecosystem partners would assign value to their potential partners based on the value assertive nature of the data they bring forth to the relationship.

Rising movement from business intelligence to data analytics

Approximately 75% of organisations in Germany and the UK have confirmed that they are moving from business Intelligence to data analytics, with the majority regarding themselves as 25%-50% through their transformation process¹³.

Ability to analyse a wide variety and volume of data across disparate segments to generate a holistic understanding of customers would prove crucial for the success and proliferation of ecosystems. Players with the technological infrastructure to collect, store, and analyse customer, product, and exogenous data better would see this capability becoming one of their key competitive advantages as these players would be able to better serve customers and their stakeholders. Players with superior data analytics capabilities would also have a lot to gain by orchestrating or taking part in ecosystems. ❌

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Pivot or Perish

Ecosystem, the emerging business model

Sachin MITTAL
Equity Analyst
DBS Group Research
sachinmittal@dbi.com





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