Defining Your Digital Ecosystem: The First Step in a Machine First™ Transformation

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It is a boardroom scene we see far too often: An executive team and board directors huddle for a day or more to plot out the digital transformation of their company. Early on, the conversation centers on what the firm's long-time competitors are doing on the digital front. It goes something like this:

"Competitor A has shifted most of its marketing from non-digital to digital channels," the chief marketing officer exclaims. *"We need to do that too."*

The chief strategy officer chimes in: *"Competitor B has launched a whole new digital business that will start cannibalizing its core business."*

And then it's the supply chain head's turn: *"Competitor C is taking orders online directly from end consumers for certain items now and bypassing distributors to deliver them."*

No doubt, they are all important issues to discuss. However, they actually aren't the best place to begin the increasingly important conversation about how a company should digitally transform itself. Whether the approach one takes is of the Machine First or another variety, a digital transformation should begin elsewhere. That place is the **digital ecosystems** in which a company operates.

What do we mean by this?

> *A digital ecosystem is a complex network of stakeholders that connect online and interact digitally in ways that create value for all.*

Every digital ecosystem extends across multiple industries. Companies that view their customers, competitors, and business partners through the lens of a single industry are far less able to recognize the new types of customers, competitors, and business partners they will need to interact with as their sector increasingly goes digital. Or when they do recognize them, it is often too late.

The specter of digital ecosystems supplanting traditional industries as the organizing construct has played out in industry after industry—especially those whose products or services can be fully digitized. The road-map business provides an excellent example.

The Digital Ecosystem That Rerouted the 20th Century Road-Map Makers

In the U.S., the 20th century industry of companies that produced paper road maps was a lucrative one for companies like Rand McNally and Thomas Brothers. But in the 21st century, they have been overtaken by online mapping companies that have viewed the industry quite differently: not only to help drivers get from point A to point B, but to find, evaluate, and secure services they need along the way: restaurants, gas stations, hotels, and parking.

In short, digital companies like Google, Garmin, MapQuest, and others saw road maps not as a paper product but rather a digital ecosystem of needs that people have for information and booking services when they're on the go.

Over the last two decades, this new breed of mapping company has turned the business into a much larger ecosystem than the one William Rand and Andrew McNally could have imagined when they incorporated their company in 1873.[1]

With the launches of Google Maps (in 2005) and the iPhone (2007), Google turned the map industry on its head. Instead of getting money from consumers looking to buy maps, Google collected revenue from businesses that wanted to shout out their locations to those consumers. By 2015, the U.S. market for location-targeted mobile ads was $9.8 billion, and was predicted to grow to nearly $30 billion by 2020.[2] Morgan Stanley estimated that Google Maps alone generated $1.5 billion from local advertisers in 2017, and predicted it would haul in $5 billion by 2020.[3] And that doesn't include revenue that online map makers can tap from car manufacturers' vehicle guidance system, railroads, and farmers—part of what is projected to be a $40 billion market by 2024.[4]

In this way, the entry of online map-makers over the last 20 years has exploded the world of the old paper map-makers. Despite filing for bankruptcy protection in 2003,[5] Rand McNally still exists today, owned by a private equity firm but operating at a smaller scale than in its glory days.[6] It focuses on telematics for truck fleets, connected cars, and consumers who still love its paper Road Atlas.[7]

[1] Rand McNally history page, https://www.randmcnally.com/about/history

[2] BIA Advisory Services, "Location-Targeted Mobile Ad Spend to Reach $29.5 Billion in the U.S. in 2020," press release, June 16, 2016, accessed February 26, 2019: http://www.biakelsey.com/location-targeted-mobile-ad-spend-reach-29-5b-u-s-2020/.

[3] Robert Elder, "Google Maps finds a way to monetize," Business Insider, March 21, 2017, accessed February 26, 2019: https://www.businessinsider.com/google-maps-finds-a-way-monetize-2017-3.

[4] Global Market Insights, "Mobile Mapping Market size worth over $40 billion by 2024," press release, September 12, 2018, accessed February 26, 2019: https://www.gminsights.com/pressrelease/mobile-mapping-market.

[5] Bloomberg News, Feb. 12, 2003. https://www.nytimes.com/2003/02/12/business/company-news-rand-mcnally-files-for-bankruptcy-with-recovery-plan.html

[6] Aaron Elstein, "Map publisher Rand McNally charts a course back to glory," Crain's New York Business, Aug. 27, 2015. Accessed March 6, 2019. https://www.crainsnewyork.com/article/20150827/TECHNOLOGY/150829890/map-publisher-rand-mcnally-is-profitable-and-ready-for-a-big-comeback

[7] Rand McNally website. https://www.randmcnally.com/about/patriarch_partners

Traditional Strategy Thinking

Ecosystem Mindset

The Mindset That Ecosystems Require
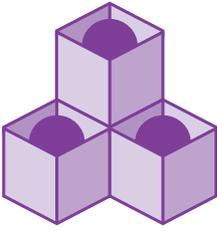
Traditional strategy thinking relies on command and control, with established metrics and layers of decision-making that can make change as slow as steering a tanker ship. In contrast, in a world of ecosystems, a company surrenders some control so that it can play with other stakeholders in a decentralized network. It's an environment that rewards resiliency, sensing changes in rapidly shifting markets, and responding nimbly.
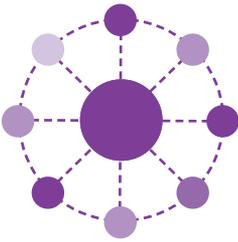
Instead of concentrating on linear supplier, customer, and distributor relationships, companies that adopt an ecosystem mindset focus on adding value in new ways to many more stakeholders. They look at how each party in the ecosystem can bring value to the other parties.

At the heart of every digital ecosystem is a platform business model. The one that Amazon has been building since 2000 explains what this is all about.

Amazon built a strong technology infrastructure to support its online retail business. It then rented out its computing centers to other companies. That business is called Amazon Web Services (AWS). AWS is one of the hubs through which Amazon orchestrates its own digital ecosystem. Businesses like Netflix, Capital One, and 3M use AWS to support their digital operations. Third-party software developers build offerings through it, creating new reasons for businesses to rent its capabilities.

Digital platforms like Amazon's will drive the ecosystems of the future.

But Amazon not only lets other companies use AWS to provide their digital services. Amazon itself uses AWS as a launchpad for new digital ventures like Amazon Studios, a streaming video service. And Amazon has integrated acquisitions like grocery chain Whole Foods to establish a new customer channel for its Prime members for home delivery and other services. This is all to say that Amazon's industry is no longer just retailing. The digital ecosystem in which it operates includes retailing but goes far beyond that—to IT services, media, and more.

Digital platforms like Amazon's will drive the ecosystems of the future. Establishing a new platform and plugging into ecosystems requires executives to rethink traditional modes of business.

Getting used to these kinds of arrangements requires executives to have a very different attitude about business. In addition to seeking profits, participants in ecosystems must also be oriented around a collective purpose. The resulting efforts accelerate innovation and the delivery of value.

Some of the platform benefits of collaborative action are visible now. GitHub, an online community for 28 million software developers to collaborate on projects and share code, is an example of a platform that serves as a catalyst for accelerated innovation and learning. ***By working together, software developers around the world can find solutions much faster than they could by working in isolated groups.*** Developers, their organizations, and customers gain value from better software. GitHub collects fees for the use of its platform.
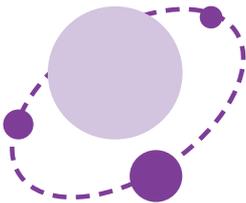
Microsoft, which has long had third-party partners developing software for its operating systems and Azure cloud platform, saw GitHub as a valuable addition to its ecosystem and purchased it for $7.5 billion in 2018.[8]

Beyond adopting a platform view of business, another prerequisite to work effectively in a world of digital ecosystems is building a resilient organization. This requires a kind of ambidexterity: optimizing the current organization for digital business while building new digital business models. Some firms set up a separate business unit to do this—with devoted leaders, ample staffing and resources, and reporting to the CEO.

Winning in the World of Ecosystems

So what must a company's leaders do to be successful in a world of digital ecosystems? First, consider what role your company can play. (Note: It's likely you will play multiple roles in overlapping ecosystems.) There are three primary roles: *ecosystem orchestrator*, *modular producer*, and *consumer*.
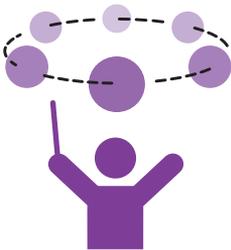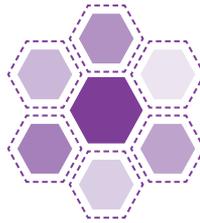
Ecosystem Orchestrator   **Modular Producer**   **Consumer**

Ecosystem orchestrator. These companies connect various stakeholders and create shared value for the community. They take on the risk, complexity, and challenges of supporting stakeholders. They enable others to make and sell goods and services through the ecosystem.

[8] Microsoft press release, "Microsoft to acquire GitHub for $7.5 billion," June 4, 2018, accessed February 27, 2019 at: https://news.microsoft.com/2018/06/04/microsoft-to-acquire-github-for-7-5-billion/.

Consider Ping An, the Hong Kong-based company that started as an insurance firm. It has since moved into banking, auto sales, health care and other businesses by building a technology foundation on which it can launch new services. Ping An's strategy has been paying off: Revenue has rocketed almost five-fold between 2010 and 2017, from $29 billion to $145 billion.[9]

Jonathan Larsen, chief innovation officer at Ping An, says its platform—which includes a cloud-based infrastructure that relies on artificial intelligence, automated services, and deep learning through big data and analytics—enables the company to scale its businesses and seize new opportunities. For example, its Lufax financial service has 37 million customers who use the platform to borrow and lend money. Ping An's Good Doctor service connects doctors for online consultations with 230 million Chinese patients. And in 2017, the company acquired Autohome, a $1 billion online car marketplace.

Ping An has also launched services such as facial recognition scans to eliminate identity fraud. Its technology platform has automated lending. And it sells its credit platform to 300 Chinese banks.[10]

Ping An invests in new firms. And employs 23,000 R&D engineers and 1,000 data science experts in seven research institutes and 25 research labs including those in Palo Alto and Boston. This is even more remarkable given that Ping An does not sell services in the U.S.[11]

The **modular producer** monetizes value in multiple ecosystems. One example is PayPal. The online payments system provides financial services used in multiple digital ecosystems as a lingua franca of ecommerce. Its core service can meet the needs of buyers, sellers, consumers, and businesses.

[9] Ping An annual reports from 2017 (http://www.pingan.com/app_upload/images/info/upload/fefe8a8e-fd10-4814-b7b2-aaecf814ff6d.pdf) and 2013 (http://www.pingan.com/app_upload/images/info/upload/5e41531f-63f0-4428-a00a-0625327ee293.pdf) accessed March 6, 2019.
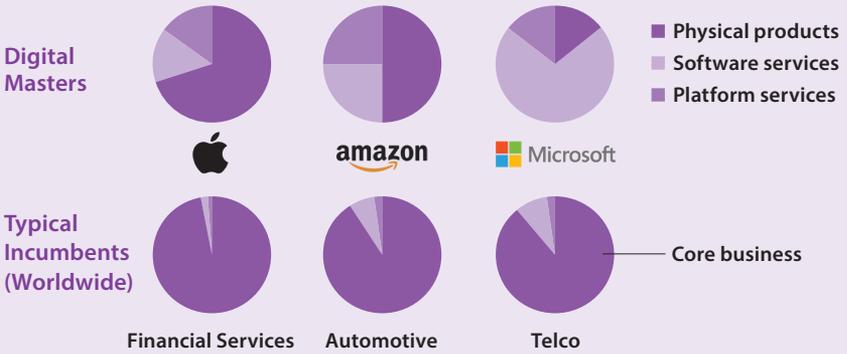
[10] Jonathan Larsen, Ping An chief innovation officer presentation at Platform Economy Summit, November 20, 2018, available via YouTube accessed February 28, 2019 at: https://youtu.be/lGcMen4qD-M.

[11] Jonathan Larsen, Ping An chief innovation officer presentation at Platform Economy Summit, November 20, 2018, available via YouTube accessed February 28, 2019 at: https://youtu.be/lGcMen4qD-M

Figure 1: The Makeup of a Platform Business Model

Digital companies invest heavily in platform business models compared to typical incumbent businesses.

Business Model Portfolios (Relative Allocation of Capital)

Digital Masters: Apple, amazon, Microsoft

Legend: Physical products, Software services, Platform services

Typical Incumbents (Worldwide): Financial Services, Automotive, Telco — Core business

A consumer extracts value from an ecosystem. A consumer can be a person or an enterprise. When you pay for an Uber ride, you are a consumer in the transport ecosystem that Uber has orchestrated. Consumers can also be producers. The company that bought goods at Amazon can sell them on the online marketplace next week. Both are ecosystem stakeholders.

The boundaries are fluid. Firms can play in multiple ecosystems, creating a business model portfolio. Apple makes things like phones and computers while also hosting a third-party applications' marketplace. Microsoft of course sells software, hosts a cloud computing platform, and makes video game consoles (See Figure 1).

Platforms can become huge businesses. Amazon turned its IT infrastructure into Amazon Web Services, which generated $25 billion revenue in 2018. Uber has made its ride-hailing service a digital mobility platform. Machine First capabilities that automate once highly manual business processes are key enablers of digital transformation.

Creating an Ecosystem Strategy

With those three roles in mind, executives should then take three steps to develop an ecosystem strategy:

1 Identify the ecosystems in which your company must play a part.

Analyze your current business—where you play, who your partners and customers are, and where the emerging threats and opportunities lie. Develop visual models to show how your operations fit into existing and emerging ecosystems. These models should identify the stakeholders you engage with, the value propositions each party delivers, and the value exchanges of goods, services, money, credits, information, and intangibles.

2 Determine which roles you should play in relevant ecosystems.

Draw models of ecosystems, including existing ecosystems and where you play in them, and ecosystems in which you can play a major role. Delineate the value propositions, core interactions, ecosystem stakeholders, conditions that could accelerate change, and the obstacles.

To be an ecosystem orchestrator, a company must have, or build, a platform that creates large network effects. This requires an initial focus on a core interaction that attracts stakeholders to your platform. For example, for Uber the interaction was between passengers looking for drivers. From there, your company can provide additional interactions.

As a modular producer, a company can grow and monetize its offerings without the additional challenges of orchestrating others parties' interactions. Such monetization could include creating data services based on expertise of its market or customers. It can turn those insights into consumable products.

What's more, companies must develop a sound application programming interface strategy so that ecosystem stakeholders can automatically connect online to its data.

Notably, a company can play multiple roles, such as an orchestrator in one ecosystem and a producer in another.

3 Determine how to monetize your role in ecosystem.
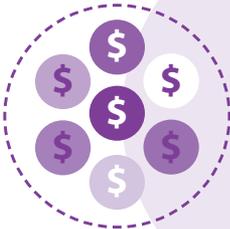
Examine your core capabilities and determine whether you have assets you haven't monetized in the past but could now in an ecosystem. Determine how you could create value from those assets. An ecosystem modeling exercise allows an organization to articulate exactly how it captures value from their participation. Value does not necessarily have to be revenue; information flows and intangible value can be just as important.

Examples like Uber and Naspers demonstrate different approaches to developing an ecosystem strategy.

Uber Orchestrates Mobility

San Francisco-based Uber leverages its platform business model to drive a mobility ecosystem. It supports a network of on-demand transportation and delivery by connecting driver-partners, riders, and other stakeholders. Uber is a rideshare service for passengers. It is a shipper for last-mile-package deliveries. And it is a courier, supplying groceries to homes and businesses.

Uber leverages a number of technologies: smartphones, social media channels, third-party app developers, mobile app stores, personal digital assistants like Amazon's Alexa, payment service providers, analytics, location services such as mapping providers, geospatial services, and route optimization algorithms. Financial services enable transactions.

By putting these technologies together in its mobility ecosystem, Uber completes 15 million trips daily in more than 600 cities in 65 countries.[12]

Naspers Transforms from Publisher to Platform Host

Naspers, a South African company established 105 years ago as a magazine publisher, has become a completely different enterprise over the last 20 years. It used to be all about physical assets such as magazines, newspapers, and TV stations. In 1995, Naspers measured its market capitalization in several millions of dollars.

Two decades later, Naspers is a platform-driven company. It runs an online classified advertising business to connect buyers and sellers. It runs ShowMax, a veritable Netflix of South Africa, as a successful online video service that delivers cash for further investments in technology and platforms. Naspers also benefits from an early-2000s investment in Tencent, the Chinese technology platform.

In 2018, Naspers generated $20 billion in revenue, up 38% from 2017, driven by ecommerce and returns on its Tencent investment. Profits rose 47% to $3.4 billion.[13] Its market value tops $100 billion.

[12] Uber website, accessed February 28, 2019 at: https://www.uber.com/newsroom/company-info/.

[13] Naspers 2018 annual report, accessed February 28, 2019 at: https://www.naspersreports.com/ui/pdfs/Annual_financial_statements.pdf

No Time to Waste

Once executives adopt an ecosystem mindset to evaluate their existing business models and envision future platform opportunities, the biggest challenge is execution—just as in other paths to digital transformation. It takes an ambidextrous approach to optimize the present business model while inventing new businesses that harness data, AI, automation, the cloud, new skills, and new relationships with customers.

Digital ecosystems may seem futuristic. But as companies with multibillion market valuations such as Amazon, Uber, Ping An, and Naspers show, these ecosystems are in play today. Thus, executives in every company need to create their digital ecosystem strategy now.

Those that do could find the new digital markets in which they need to play to be far bigger than the industries in which they've operated for years.