In the Ecosystem Economy, What's Your Strategy?

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When Nestlé was preparing to go mainstream with Nespresso, its single-use espresso capsule, it knew that users would need a machine specifically designed to work with the pod. So the company cultivated a network of manufacturers. It didn't tell customers to buy a Jura, a Krups, or a Braun—it just decided which manufacturers could be on the list. And because the capsule and its interface were patented, other manufacturers could not make Nespresso-compatible machines without permission.

Nespresso was creating—designing—an ecosystem: an orchestrated network spanning multiple sectors. The firms involved work to shared standards, sometimes on a shared platform, to make their products and services compatible. And they create links among themselves that make it difficult for outsiders to break in.

Designed ecosystems like Nespresso's are increasingly important, owing to the convergence of three big structural changes in our economy. The first is an unprecedented rollback of regulations protecting firms that once had the exclusive privilege of serving particular customer needs. As those protections fall, organizations in other domains are free to partner to provide more-integrated offerings, as when accountancies team up with law firms. The second change is a blurring of the separation between products and services because of regulatory changes and digitization. The latter has also led to offerings with more-modular structures whose components can be recombined in new ways, which in turn has encouraged the rise of product-service bundles provided by networks of interdependent suppliers. The third change involves technology that is revolutionizing how firms can serve their customers. Our dependence on mobile devices, along with the internet's influence on buying patterns, has dramatically expanded the possibilities for linking previously unrelated goods and services—reinforcing the effects of the first two changes.

Given these shifts it is less and less likely that single firms can offer all the elements a customer needs—let alone afford to experiment with them. And so ecosystems, especially designed ones, are on the rise. In fact, in a growing number of sectors the firm and even the industry have ceased to be meaningful units of strategic analysis. We must focus instead on competition between digitally enabled designed ecosystems that span traditional industry boundaries and offer complex and customizable product-service bundles.

Traditional strategy frameworks are of little help when designing or participating in such an ecosystem. An ecosystem-focused framework, as opposed to a firm-focused one, needs to answer five questions.

1. Can You Help Other Firms Create Value?

In ecosystem competition, success is as much about helping other firms innovate as it is about being innovative yourself. Companies that have built a successful ecosystem have often done so incrementally, broadening the value proposition of their core offering by finding opportunities to apply one of its features or functionalities to some previously unrelated product or service.

Consider Google's Nest, which started by developing a smart digital thermostat that can be controlled remotely. It then added an alarm, thus building a bundle that controls both comfort and security. Next, capitalizing on the possibilities of digital interconnections, it created the Works with Nest ecosystem, which lets firms innovate by connecting with Nest. For instance, LIFX designed a Nest-compatible system whereby red LEDs flash if the smoke or safety alarms are activated—a literal lifesaver for the hard of hearing. Fitbit, the wearable fitness tracker, can tell Nest you're awake so that it knows to warm your home. And Mercedes-Benz cars can use GPS to tell Nest to switch on the heat as you arrive. These extensions constitute a value proposition greater than anything Nest could have provided on its own. (Google recently announced that it will be phasing out Works with Nest and transitioning to Works with Google Assistant—an even broader and stronger ecosystem.)

That proposition rests on shared functionality. Nest may have started as a remotely controllable thermostat, but its creators realized that consumers might want to remotely control multiple services and products in multiple contexts. That understanding pointed the way to possible complementors, and Nest gradually migrated to providing remote control for a range of home systems and appliances.

Having identified a critical and shareable functionality, an ecosystem builder needs to consider the incentives and motivations of potential complementors. How will joining your ecosystem look from their point of view? Will they be content to remain complementors, or could they reasonably hope to compete with you? In Nest's case, what value proposition could it offer Mercedes—that is, how could participation improve the way Mercedes embeds itself in its customers' daily lives? How did that compare with other options Mercedes had?

If you don't focus on the needs of your partners, your ecosystem will wither on the vine, no matter how strong your brand and market position; chances are that some other ecosystem builder can offer a better alternative. Nokia's downfall provides a cautionary example. Even though the firm's Symbian operating system started out as the de facto ruler of the mobile telephony space, it was soon eclipsed because Nokia focused on its own narrow needs. Treated as dispensable supply-chain subordinates, app developers and other complementors jumped ship to Android.

2. What Role Should You Play?

Many firms assume they should be the focus and chief architect of any ecosystem they create. That's not necessarily the case; sometimes you are better off sharing the role or being a complementor.

To be the orchestrator and prime mover of an ecosystem, you need a superior product or service that is hard to replicate. This means some combination of IP protection, a large network of users, and strong branding. Nespresso, as mentioned, patented its capsule. The apps powering Uber and Facebook are so user-friendly that those companies very quickly built large user networks. And Apple's patent protection and user base are bolstered by a strong brand and large scale, positioning the company to orchestrate pretty much any ecosystem in which it participates.

Organizational and cultural factors are also critical. Few would disagree that orchestrators need the agility to respond to new challengers, the humility to understand customer needs, and the vision to inspire complementors. But to say that isn't necessarily to state the obvious; consider the impact a single-minded focus on shareholder value and cost control can have on a company's ability to demonstrate those qualities. Firms with that focus are often, and sometimes rightly, accused of favoring the capture of short-term profits over the creation of long-term value—and given the time needed to shape an ecosystem's parts into a successful whole, that orientation could compromise a firm's ability to be an effective orchestrator. A company whose identity is deeply rooted in its technology or management system might also struggle. For example, an obsession with control could get in the way of engaging with entrepreneurial scientists, while a preference for organic, internally generated growth could lead to clashes with complementors equally protective of their turf.

If you lack the qualifications to build an ecosystem but have an IP-protected product or service that could anchor one, your best bet most likely involves attracting the interest of a large company that could buy into or license your idea. If a small-scale HVAC installer had come up with a remotely controllable thermostat, it probably could not have attracted the ecosystem of complementors that Google did. But it could have approached Google with the idea and served as a complementor while benefiting from licensing revenue. For many medium-size firms, a key strategy is to embed in many ecosystems. LIFX, for instance, connects with customers through Amazon's Alexa, Google Home, and Apple HomeKit.

Even if you bring a great product or service to the party and have the organizational and cultural capabilities to attract complementors, it might make sense to orchestrate in partnership with another firm in order to reach critical mass. Daimler and BMW recently announced plans to jointly create a managed-mobility ecosystem combining car sharing, ride hailing, parking, and other services. Concerned about disruption from firms such as Uber and Lyft, the automakers decided to collaborate on high-end services anchored to their brands—their chief differentiator and element of value, which a wholesale migration to mobility-as-a-service (MaaS) might well erode.

A big company can also buy into an ecosystem, which can be particularly helpful if its contribution is interchangeable with other firms' offerings. Toyota recently invested $1.5 billion in the Southeast Asian ride-hailing company Grab, reasoning that MaaS will drive demand for reliable low-cost cars. That partnership, the company hopes, will give Toyota not just a direct edge as a car supplier but also an understanding of car usage patterns that could confer an advantage over rivals such as Hyundai and Nissan.

Some notes of caution for mainstream firms: Even if you are large, you may be vulnerable to disruption from Google, Apple, or other tech giants, and participating in one of their ecosystems as a complementor may have significant advantages over trying to orchestrate your own—especially when it's hard to assess what combination of products and services will satisfy the final customer, or when the range of potential combinations is very broad. You should probably not be responsible for entrepreneurial and creative inputs; in the video game industry, for example, developers organize flexibly through video game engines to take their offerings to consumers. And even if you ultimately want to build your own ecosystem, participating in another one can help you gain experience, understand the needs of customers and complementors, and build the skills that orchestrating requires.

3. What Should the Terms for Participation Be?

Research on ecosystem governance is still in its early days. But governance failures are easy to identify. For instance, as described earlier, Symbian failed in part because Nokia neglected to take other parties' interests into account. Contrast that with Apple's record with app developers.

There are two key governance choices.

Access.

Early in the process an ecosystem builder needs to decide whether the system should be *open, managed,* or *closed.* In an open ecosystem (such as Uber's drivers), complementors need only meet certain basic standards to participate. In a managed ecosystem (such as Apple's App Store), there are clear criteria for complementors and possibly some limits on their number, along with specific guidelines—on functionality and pricing, say. In a closed ecosystem (such as VW's connected cars and Philips's digital health), approval of complementors and rules of participation are tightly controlled.

Catherine Nelson

In general, the more open the system, the easier it is to attract complementors and a wide range of products—but quality is more variable. The degree of openness should be determined in part by what matters most to the final customer. For a mobile app platform with a diverse customer base, for example, an open ecosystem—one offering lots of choice —might make sense. But if quality and safety concerns arise, barriers may be in order. Think of DiDi, China's largest ride-hailing company. Reeling from the 2018 murders of two passengers by drivers for its Hitch service, the firm chose to become more closed; it suspended Hitch and now rigorously vets prospective DiDi drivers.

Attachment.

As you determine how accessible to make your ecosystem, you'll also need to consider how exclusively attached to it you want your complementors to be—how much they need to cospecialize with you. There will be trade-offs for all parties. If your mobile operating

system forbids app developers from porting their programs to other platforms, the developers will certainly have a stake in your success. But the restriction might cause them not to join if they have opportunities elsewhere. Conversely, if you impose no barriers to redeploying an app, you'll find it far easier to recruit complementors, but they will have no particular attachment to your ecosystem.

The degree to which an orchestrator can lock in complementors generally depends on the attractiveness of that orchestrator and what alternatives are available. A hugely attractive orchestrator such as Apple, which can link an app developer to a large and loyal network, can probably require more attachment than a new entrant can. Compared with Apple, Android was easy to join; Google wanted it to gain traction before scaling up. Symbian ignored its developers' increasing alternatives and collapsed when those developers decamped to Apple and Google.

Their power and attractiveness, along with a lack of alternatives, have historically given tech giants such as Apple and Google relatively free rein to aggressively manage access and attachment to their ecosystems. But as technologies and attitudes change, less hierarchical ecosystems are growing more popular. WeWork's meteoric rise resulted from the fact that it not only provides shared office space but also builds communities: The WeWork app allows members to collaborate with and provide services to one another with little interference. Not-for-profits, too, are setting up nonhierarchical ecosystems; one example is the Ellen MacArthur Foundation's CE100 network, which supports firms that promote the so-called circular economy. Some smaller ventures have gone in a similar direction: The London-based platform upstart Common Objective matches up companies in the fashion industry without imposing its own "rules of the game."

In ecosystem competition, success involves helping other firms innovate.

More radically, the rapid growth of ledger technologies such as blockchain opens up new possibilities for creating sets of interconnected companies. The members of these ecosystems are linked not through a hub firm but through a distributed system—designed by one company, perhaps, but used by many. Consider Blanc Labs' Nekso, the biggest challenger to Uber in Mexico City. Instead of assembling a fleet of individual drivers who connect with customers through an app (the Uber model), it built an interface that allows taxi companies to band together in a network passengers can choose from, providing the same seamless experience Uber offers but through a decentralized ecosystem.

4. Can Your Organization Adapt?

An ecosystem's members must be able to quickly adapt, because the needs of the final customer, along with the desire and ability of complementors to collaborate, can shift dramatically.

Take Nike's FuelBand, an early fitness tracker that connected with other Nike products. After the arrival of Fitbit and other competing products, Nike discontinued production; the market could easily serve the need it had met, diminishing the value-add of a tracker tied to its own brand. The company also failed to defend its software and became a third-

party app, salvaging what it could through a deal to codevelop a version of the Apple Watch. Like many other traditional, vertically integrated firms, Nike was slow to recognize the inevitable, and thus it lost its chance to orchestrate the wearables ecosystem.

Apple's success with the iPhone, in contrast, was fueled by the company's recognition, in 2008, that its original strategy of providing all the phone's apps was wrong. Steve Jobs—who was initially opposed to non-Apple app providers—made an impressive U-turn, creating the iPhone App Store. This both allowed the firm to share revenue from apps sold and encouraged others to find ways to leverage the phone.

Participating in an ecosystem requires an outward-facing culture and the ability to manage relationships with a host of complementors. Those skills don't come easily to established players, which tend to default to one of two approaches: to create a vertically integrated, tightly controlled network, as Nokia did, or to hop on the bandwagon of open innovation and production, providing only a platform and leaving ecosystem management up to users. The risk there is that without some central impetus or incentive from the host, other parties may fail to engage. That happened with Watson, IBM's AI developer platform: Initial developer enthusiasm did not translate into activity and engagement.
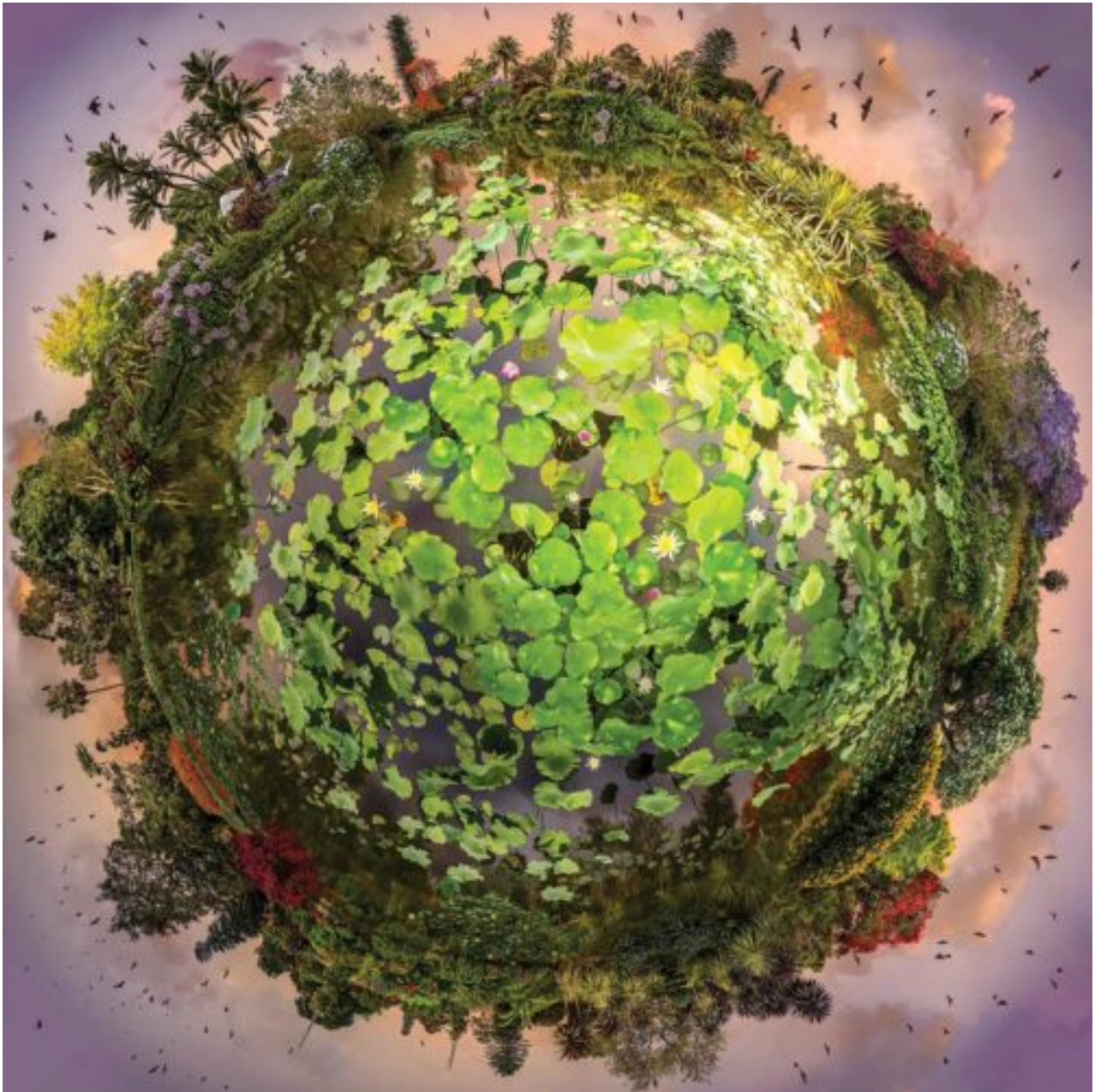
Catherine Nelson
About the art: Blending her training as a fine artist and her expertise in cinematic visual effects, Catherine Nelson creates surreal universes by photographing and digitally fusing hundreds of images.

There really aren't any default strategies for building an ecosystem. You need to decide carefully where and how to open up and then do so in a way that fits your competitive environment. Nest got this right: Concerned that by opening up the alarm function it would compromise its ability to control the home, it made a strategic decision to engage in alarm and monitoring itself rather than link up with Alarm.com or Honeywell. It invited complementors in other, nonstrategic areas instead. For its part, when Alarm.com entered the thermostat market, it chose to enable Nest connectivity; having a smaller installed base and less muscle than Google, it placed a premium on the ability to infiltrate more houses, more effectively, even if that reduced its aspirations for control.

Moving beyond strategy, to build an ecosystem you will need to manage your organization. The old part of it—that which currently generates revenue—will want to keep innovation under the firm's control and will treat complementors with suspicion, whereas the new parts will need to be externally focused. Big firms often separate the two parts, regarding the core as a margin-preserving inertial supertanker and hoping that a small fleet of "speedboats," some of which manage ecosystems, will pull the firm forward. Banks and insurance companies, for instance, often try to preserve their legacy structures and IT systems, hoping that a few add-ons will bring them into the digital, ecosystem-enabled age. But to succeed, ecosystems must be more closely aligned with the core.

New organizational structures are emerging that are better suited than traditional ones to these challenges. One example is the Chinese manufacturer Haier's *rendanheyi* model. Haier is organized around independently managed "microenterprises" that it may or may not own. IT facilitates information and data flows across the microenterprise units, each of which becomes, in a sense, an internal ecosystem with relatively porous boundaries, enabling the firm as a whole to position itself in a broader ecosystem.

5. How Many Ecosystems Should You Manage?

Some successful orchestrators manage a number of synergistic ecosystems, each covering a different part of the business and leading to a different path for expansion.

The Chinese tech giant Alibaba grew by creating an expanding set of connected ecosystems, starting in one market and shifting to others as it capitalized on customer information and refined its understanding of customer needs. It began with 1688.com (a wholesale marketplace), created Taobao (a C2C marketplace), moved into TMall (a third-party-seller B2C ecosystem), and expanded to Juhuasuan (a sales and marketing platform). And it is a part owner of Ant Financial, the world's most valuable fintech firm, which aims "to expand its ecosystem by penetrating more consumption scenarios in daily life."

The most obvious consequence of this dynamic is the growing dominance of national e-commerce and e-services by a small number of firms. In China, the almost equally huge Tencent and Baidu compete with Alibaba, which in many ways they resemble. Their Western equivalents are Google, Apple, Facebook, Amazon, and Microsoft. Aspiring to provide a unified service, these companies are shifting into ever more sectors, often through interfaces such as voice-activated assistants that appear seamless to the consumer. Mobility firms are doing similar things. Uber's expansion—think of Uber Eats and all the ventures of Uber Everything—demonstrates the company's ambition to integrate multiple ecosystems and manage the customer interface. Southeast Asian mobility firms such as Grab (Singapore) and Go-Jek (Indonesia) have gotten into payments as well, aiming to make themselves indispensable to the final customer.

As Marco Iansiti and Karim Lakhani recently noted, such hub firms are becoming formidable strategic bottlenecks that can direct the lion's share of value to themselves. But although it may seem that the future belongs to big, established firms with deep pockets and technological prowess, smaller upstarts (like Alibaba when it started, less

than 20 years ago) and nontechnology firms have the potential to muscle in. The Chinese insurance and financial services conglomerate Ping An began by becoming more technologically savvy and soon ventured into adjacent areas, starting with health care and extending to lifestyle, in the process becoming the world's most valuable insurance group. It did so by creating focused ecosystems such as Ping An Good Doctor, which combines AI with physicians to provide medical advice, and Ping An Haofang, the country's largest online property platform. It has invested in Autohome, China's largest used-car marketplace, and in entertainment, through an alliance with Huayi Brothers. It then combined those verticals with some of its own units, including Ping An Bank and Zhong An insurance, to create the PingOne account: an offering that seeks to capture every customer interaction.

When building an ecosystem, you must decide carefully where and how to open up.

For complementors, different ecosystems represent different pathways to market—and most integrators are complementors in rivals' ecosystems (you'll find Microsoft Word in Android, Google Maps in Apple, Apple software in Microsoft systems, and so on). Firms choose to "multihome" according to what specific ecosystems allow, the cost of redeploying in other ecosystems, and the benefits of cross-ecosystem customer reach.

A firm's role in one ecosystem may drive its participation in (or orchestration of) another, and there is plenty of room for strategizing. Samsung, the biggest user of the Android ecosystem—it sells more than 40% of Android phones—threatened to create a rival OS ecosystem if Google didn't make certain concessions. The companies reached a compromise, but they continue to compete over functions such as digital assistants, and the boundaries between Google's and Samsung's phone ecosystems continue to be hotly contested. Strategic interactions of this kind between firms and their associated ecosystems will only increase.

From Private Benefit to Public Good

The rise of ecosystem-based competition not only requires a new strategic framework and organizational model; it has significant implications for policy and regulation. In particular, the increasing success of integrators and their ability to become all-powerful orchestrators across an ever-growing number of ecosystems raises serious questions about a new form of market power.

Governments must strike a balance that both keeps their business environments healthy and safeguards their societies. Little global consensus has emerged about where that balance should lie. The rapid growth of many Chinese firms has relied on their unfettered ability to access data, while Europe sets tight restrictions on that activity. Will those limit economic growth in Europe relative to China? Maybe, but Europeans may consider the price worth paying, given the social benefits of privacy protections.

Whatever social priorities they set, all countries will need to change the analytical foundations of competition law, which has long focused on managing the market shares of individual firms. As a recent report prepared for the UK Treasury argued, we need to

adjust our approach to competition and regulation. In particular, we need to examine the terms of engagement in ecosystems, how orchestrators and integrators exert their power, what customer data those parties own, and how they interact with complementors. And while there is only one Apple, there are 2 million app developers. The fate of complementors may have more far-reaching societal effects than the high-profile fortunes of an orchestrator will have, and as we contemplate regulatory action, we must consider ecosystem governance, rules of engagement, and the well-being of the myriad, de facto weaker, complementors. We must also ask whether firms' desire to expand their reach and control an increasingly broad swath of activity restricts competition. To that end, the M&A of ecosystem plays should be scrutinized.

Further Reading

"Alibaba and the Future of Business" Ming Zeng "Managing Our Hub Economy" Marco Iansiti and Karim R. Lakhani ...

In approaching these challenges, policy makers should avoid the trap of treating all emerging ecosystems as commercial monsters in need of control. Ecosystems can provide new ways of bridging private benefit and public good. IDEO's CoLab circular economy portfolio advises firms in the textile and food sectors on reconfiguring their ecosystems to encourage the reuse of resources and the reduction of waste. Traipse's My Local Token provides localized digital currencies for U.S. downtowns that reinforce connections between residents and tourists on one hand and local businesses on the other. Velocia is creating a rewards ecosystem that encourages the use of public transit alongside on-demand services such as carpooling and carsharing to improve people's commutes. (Disclosure: I have advised all three of these companies.).

Conclusion

Business is undergoing a paradigm shift as a result of digital innovation: The very nature of competition is changing. Competing is increasingly about identifying new ways to collaborate and connect rather than simply offering alternative value propositions. But as the scope of opportunity expands, so too does the confusion of executives confronted with digital ecosystems. The complexity of those systems doesn't mean we should give up trying to make sense of them; it means we need to adjust. We must shift from rigid strategies based on prescriptive frameworks to dynamic experiments based on a process of inquiry. Start by asking yourself the five questions I've just proposed.

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