

THINKERS  
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# The Power of Ecosystems

Making sense of the new reality for organizations



in partnership with



Curated by **Stuart Crainer**

This collection of ideas and insights is dedicated to the  
memory of Alessandro Di Fiore, our friend, partner,  
collaborator and a true lover of ideas.

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## Foreword

# Creating New Value Spaces through Business Ecosystems

**Zhang Ruimin**

*Chairman and CEO, Haier Group*

**“**The fourth industrial revolution is disrupting almost every industry in every country.” This claim from Klaus Schwab, Executive Chairman of the World Economic Forum, in 2016 rings true today, more than ever before.

As underlying productivity has grown, new products and services have mushroomed. The role of countless enterprises has been gradually confused and obscured from such exuberance. For most enterprises and organizations, their central tasks have become either the creation of a mega-hit product that seeks huge commercial success, or keeping close tabs on their competitors’ moves. But over the long term and from a sustainability standpoint, these strategies are like drinking poison to quench one’s thirst. They fail to address the true underlying issue.

One central question is, what is the organization’s purpose? Its purpose is to provide value and service to users. As Stuart Crainer, Director of the Business Ecosystem Alliance, says in *The Financial Times Handbook of Management*, “Every customer has a lifetime value, and how much lifetime value a company can satisfy becomes the true measure of its success.” Lifetime users support the growth of enterprises through the storm of the fourth industrial revolution. In light of this, Haier has remained close to users’ changing needs during each of its strategy phases. In the past, users demanded high-quality

products, so Haier achieved quality excellence. Now, user needs have become scenario-based and increasingly diverse, so Haier has begun to build ecosystem brands to foster the development of lifetime user communities.

In the context of the fourth industrial revolution, the external business environment has become increasingly complex and volatile, so organizations, naturally, must adapt. Changes in scenario-based user needs are both opportunities and challenges for enterprises. By opportunities, I mean that enterprises have additional chances to push the envelope. Challenges include all sorts of crises lurking in the misty jungle of business. In the current market, the fact that demand is shaped by product and service categories has become a near-permanent assumption. Therefore, we must broaden our business horizons and look beyond the boundaries of the organization to larger business ecosystems.

The value of individuals is limitless, and the power of communities is infinite. The creation of lifetime user communities and business ecosystems cannot be achieved by one organization or an exceptional leader alone. As Karl Marx said, we must also achieve the free and universal development of individuals in enterprise management. In 2005, Haier began to implement its Rendanheyi model. Through pay-by-users and other programs, Haier pushed its employees closer to users and empowered employees to act autonomously and creatively. Through the EMC (Ecosystem Micro Community) contract and other arrangements, the company delegated the powers for business, people, and remuneration decisions and opened access to external partners.

Guided by the Rendanheyi model, Haier began to experiment with business ecosystems in 2016 and formalized its ecosystem brand strategy in 2018. The ecosystem brand strategy focuses on building business ecosystems with industry partners on one end and engaging users to build lifetime user communities on the other. In August 2021, Haier Internet of Food (IoF) launched the industry's only ready-to-cook meal IoT solution platform – Alphesh. This relies on Haier IoF's open ecosystem to build an ecosystem model for transactions, engagements, and experience iterations with users and ecosystem resource providers. Catering businesses can offer their own pre-made meals on Alphesh, and users can

place purchases to have the food delivered. Users can then place the ready-to-cook meal in their steam oven for one-click cooking. This is an effortless solution for users, from purchase to preparation. Such a solution reflects the two differentiated advantages of Haier IoF. The first is openness. Through a shared ecosystem, Haier IoF has connected the dots from restaurant brands to processing plants, food ingredient providers, cold chain logistics, and top chefs to deliver an upgraded one-stop solution from food purchase to preparation. Second, Haier IoF's services are constantly upgrading and evolving. From Peking duck to Master Chef recipes to the Alphesh platform, Haier IoF continues to iterate and reinvent user experience to create lifetime users.

As Haier has made new inroads into business ecosystems, it has also invented strategic management tools such as the Rendanheyi Scorecard and Win-Win Value-Added Statement. GE Appliances (US), AQUA (Japan), and other Haier cross-cultural acquirees have achieved remarkable results after implementing the RDHY Scorecard. During the COVID-19 pandemic, GEA achieved double-digit revenue and profit growth, despite negative growth trends in the American appliances market. Twenty twenty-one was GEA's fifth year in the Haier family and its best year ever in terms of performance results and total revenue. Over the past five years, GEA has rapidly expanded its market share at four times the industry growth rate, with revenues nearly double compared to pre-acquisition levels and with profit margins nearly three times higher, making it the fastest-growing appliance company in the United States. Based on these spectacular results, the European Foundation for Management Development (EFMD) has developed the Rendanheyi Management Innovation Certification System, modeled on the RDHY Scorecard, and launched the Global RDHY Certification Center this year.

We are pleased to see that under the Rendanheyi model, global enterprises are now involved in building business ecosystems. We are not competing in a zero-sum game, but creating new value spaces together in a "co-petitive" relationship. Such an elevated strategy closely bonds ecosystem partners and users together to drive progress in the business environment.



Today, scholars and entrepreneurs around the world have spontaneously formed 10 Rendanheyi Research Centers, and more than 300,000 companies in 74 countries are participating in building business ecosystems under the guidance of the Rendanheyi model.

The advent of the fourth industrial revolution has given us a new perspective on the world and has propelled us in our search for the “management paradigm” which is in alignment with this era. Unity and co-creation have become the new motifs of our time.

*The Power of Ecosystems: Making Sense of the New Reality for Organizations*, curated by Stuart Crainer, thoughtfully brings together pioneering scholars from around the world to discuss organizational transformation and business model innovation under the ecosystem model. It broadens the horizons for management exploration in the IoT era. I strongly encourage you to read this book.

It is also my sincere wish that the BEA will drive global enterprises to chart the path of organizational development for the future.

**Zhang Ruimin**

*Chairman of the Board of Directors and CEO, Haier Group*

# Introduction

The Japanese company Shimizu traces its history back all the way to 1804 and its founding by Kisuke Shimizu. One of its early projects was building a wing of Edo Castle part of the Tokyo Imperial Palace. Now it is a thoroughly twenty-first century company with more than 10,000 employees and activities in construction, engineering and architecture. It is unusual in that it houses these three disciplines under the same roof—elsewhere they are siloed.

As well as bridging across different professions, Shimizu prides itself on bringing technology to bear on its projects. It built a zero energy building as long ago as 2013 and in 2018 was using next generation construction robots in its work. It's emerging frontier business covers everything from underwater to outer space. A key recent realization at Shimizu is that the large-scale building projects it is involved in are not simply about bricks and mortar, or cement and steel. Instead, it now regards its buildings as ecosystems. The ecosystems provide homes for human communities and are linked by an operating system which is part of the construction. Ecosystems also demand nurturing and ongoing relationships.

Looked at in this way, a long established product – a building – is reinvented in front of our eyes. For a company like Shimizu viewing its work as the creation of ecosystems is potentially game-changing, an entirely new way of looking at its work and the world it helps create. And with new perspectives come new commercial and creative opportunities.

Shimizu is not alone. Increasingly companies throughout the world in an array of different industries are coming to the realization that they exist within and spend their time creating ecosystems. Their worlds are reinvented.

The attractions of ecosystems are persuasive. At a recent Business Ecosystem Alliance event, Alok K. Agrawal, CSO of Celestica, put it this way: 'The electronics hardware industry is highly consolidated,

so there is limited opportunity for further scale. For this reason, I expect that partnerships and ecosystem development are going to be the way of the future, with the COVID-19 pandemic being an accelerator. Ecosystems drive value for the customer which means it's going to be a focus. This industry has gone through many cycles. I view the next few years as the ecosystem-partnership lifecycle phase.'

The realization is that ecosystems are a means of bringing organizations closer to their consumers. This, in itself, creates more opportunities. Kalina Nikolova, Vice President of Business Operations and Strategy at Verizon Media explains: 'Ecosystems have to think, not just about how to create the value but how to divide the value. Of course, everybody thinks, what is my role in the ecosystem? And how can I capture the most value? But it is also about how do we grow the pie together, because then there's more value for everyone. It's about creating more user connections so that people visit more often and spend even more time. It is about creating better connections between them and the product. That's what's going to make them seek out a product. This is the Holy Grail for advertisers, retailers, etc. The new playbook is about how ecosystems can grow the pie so that there's more value for everybody.' In the era of connections, ecosystems can make a real difference to the reach and power of an organization's connectivity.

With these new agendas in mind *The Power of Ecosystems* provides a smorgasbord of new perspectives and best practice in the world of business ecosystems. It is not the final word – best practice and leading edge thinking is changing too fast for anything to be definitive – but it is hopefully a starting for you and your organization to think about how you can maximize ecosystems for the good of your organization – and for the good of humanity.

**Stuart Crainer**

*Director, Business Ecosystem Alliance*

# Orchestrating workforce ecosystems

Elizabeth J. Altman, Katherine C. Kellogg, and David Kiron



**T**oday's businesses rely increasingly on external contributors to perform mission critical work and to accomplish strategic objectives. A recent global management study found that over 87 percent of respondents consider some external contributors – long term contractors, gig workers, app developers, professional service firms, and software bots – to be members of their workforce.

Firms now face a significant operational and strategic challenge: how to efficiently and effectively implement an *integrated* workforce ecosystem, in which external workers play a large role *and* internal employees have opportunities for advancement, learning, and development. We argue that a centrally coordinated workforce ecosystem – one that includes employees and external contributors creating value for customers, the enterprise, and the organization's stakeholders while pursuing their own goals -- can help firms find, engage, and retain the right talent at the right time for the right length of time. Orchestrating a workforce ecosystem requires managing the interdependencies and complementarities that exist between and among internal and external players of various types.

Workforce ecosystems are becoming more common because of demand-side and supply-side factors. On the demand side, companies facing skill shortages due to digital transformation, AI adoption, and automation are embracing and enabling higher skilled external contributors. Organizations recognize that they can fill gaps in ways beyond the traditional approach of hiring full or part-time employees. They value the ability to find workers with differing backgrounds and skillsets who may live (and want to work) outside the company's geographic neighborhood. Businesses are focusing on diversity, equity, and inclusion initiatives. Open and flexible ecosystem structures support these activities by enabling people to contribute in novel ways. Corporate leaders also increasingly desire flexibility to grow and shrink workforces as business models change and conditions wax and wane (as seasonal industries like retail have done for generations). As markets rapidly evolve, organizations must quickly adapt and increase the pace of implementation. As the nature of work becomes more short-term, skills-focused, and team-based, firms can better deliver products and services using a variety of internal and external contributors.

On the supply-side, highly skilled workers, often with advanced technical degrees and certifications,

are increasingly available through external marketplaces. Societal shifts related to desires for work-life flexibility and greater mobility add to supply-side forces driving workforce ecosystems. While many prefer the stability of full-time employment, more and more people are interested in working remotely without geographic constraints and with flexible hours and benefits and consider gig work to be a viable long-term career path. Similarly, entrepreneurial and established firms want to gain access to new markets by joining ecosystems; in the process, they become valuable contributors to workforce ecosystems. For example, Amazon's Marketplace includes over 2 million independent sellers offering products and services to their mutual customers. Digital labor platforms of a more general nature (e.g., Upwork, Toptal, Freelancer) and those catering to niche categories (e.g., LiveOps for virtual call centers and TopCoder for technology freelancers) that efficiently match workers with clients are growing in popularity. Traditional staffing agencies (e.g., Manpower), particularly with shared systems for tasks like performance management, remain prevalent and effective, especially for large-scale and long-term engagements.

In the past, firms could manage internal workforces using a set of workforce management practices from talent acquisition to performance management and compensation, to learning and development. Today, leaders are seeking and adopting a more integrated approach that extends to external contributors. Firms use a mix of workers, engaged through a variety of sources, to create and deliver products and services and work in flexible, adaptive, and complementary arrangements. Some fulfil long term needs while others address critical shifts. For example, the U.S. National Basketball Association (NBA) needed to very quickly marshal workers with new skills when they moved their 2020 season to operate in a 'bubble' in Florida during the pandemic. They required digital media and audio-visual technology skills and needed to re-think business models to monetize their product (basketball games) without any in-person fans. To keep players and staff safe they needed medical and safety expertise. To succeed, they drew upon all types of workers, including contractors and professional services firms, to augment their employees and infuse new types of talent. These external workers collaborated with internal employees as the NBA quickly deployed new systems to deliver their offerings.

## An integrated approach to orchestrating workforce ecosystems

While more organizations depend upon both internal and external workers, most organizations use reactive, local, and uncoordinated approaches to enlisting and retaining external talent and complementary contributors, which we define as *workforce ecosystem complexity*. Managers in different departments with diverse needs use combinations of external and internal workers. These dispersed efforts may not be aligned with a firm's overall strategic priorities and, if uncoordinated, undermine the pursuit of new strategic directions.

Leaders realize such uncoordinated efforts are both cost and resource inefficient and risk demotivating internal employees. Yet, they struggle to establish a centrally managed workforce ecosystem with interdependencies and complementarities that benefit all parties. They are asking the following questions:

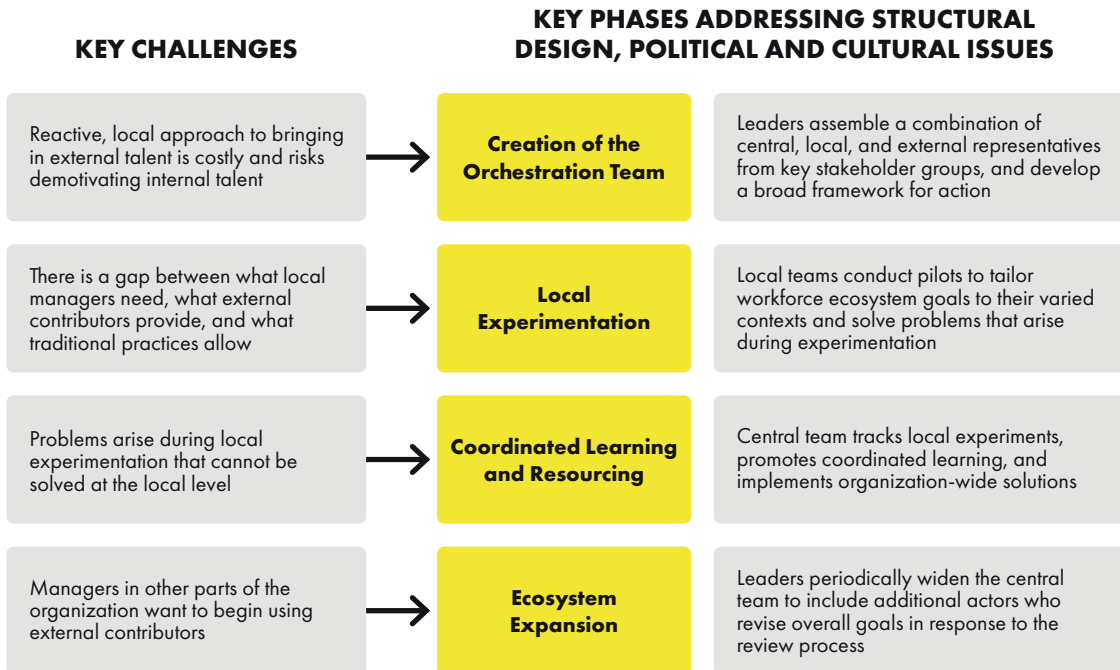
- How do you identify the right set of stakeholders to create an integrated workforce ecosystem approach?
- How do you get stakeholders to engage in local workforce ecosystem experiments to tailor shared goals to specific contexts?
- How do you promote coordinated learning from local experimentation?
- How do you improve your workforce ecosystem implementation process over time?

Firms are starting to address these issues by, for example, adopting software systems (e.g., [SAP Fieldglass](#)) to manage diverse types of external workers in a more integrated way. [PayPal](#) engages freelancers in multiple countries with varying labor regulations and uses a centralized system to manage compliance risk and control costs. Similarly, [Siemens](#), Europe's largest electronics company, engages over 6,000 external workers with US\$150 million in annual spend. While divisions within this organization initially managed these engagements separately, they have moved to an integrated system enabling unified reporting and management. Across industries, we see organizations grappling with the intricacies,

costs, and opportunities of workforce ecosystems and adopting solutions to more holistically manage them.

Building upon our previous research on workforce ecosystems and workforce development practices, we present a summary of workforce ecosystems and propose a phased process that firms can use to orchestrate workforce ecosystems. We expect this process to be most appropriate for large established organizations just starting to embrace workforce ecosystems. However, key elements should be helpful for all types of organizations adopting workforce ecosystems. Essential to the orchestration process is identifying *structural design, political, and cultural* challenges, and using a four-phase approach to address them. (See Figure 1.)

**Figure 1. Four Phases of Orchestrating a Workforce Ecosystem**





## Phase 1: Creating the Orchestration Team

One element of workforce ecosystem orchestration is leaders recognizing that a multiplicity of hiring managers across different functional areas, product teams, etc. are tackling a common problem. They are expeditiously filling skill and functional gaps by using digital market platforms, traditional staffing agencies, and other marketplace tools, at various scales. However, very few firms have developed a comprehensive approach to managing internal and external marketplaces and contributors.

The first step is to assemble a central orchestration team to develop a working plan, goals, and metrics for workforce ecosystem orchestration in consultation with relevant local and central, internal and external, stakeholders. Who should be on the orchestration team? To answer this question, it is helpful to consider three kinds of issues: *structural design* (division of labor, goals, incentives), *political* (resources, power, and status), and *cultural* (individuals' search for meaning and identity).

From a structural design standpoint, start by taking an inventory of departments that already bring in external workers. Also identify groups that will soon face skills gaps because of a mismatch between skills required for evolving work and current available skills.

Politically, it is important to choose local champions with resources and status to effectively lead the transformations, usually general or line managers responsible for product or service offerings. Choose champions to lead pilots in their own business units and to serve on the central orchestration team. Good champions are well-respected in their own organizations, understand the importance of workforce ecosystems, and are ready to take action. Choose several employees from the pilot departments and several external workers to provide worker voice in the orchestration process.

Involvement by leaders from central functions is also important for workforce ecosystem orchestration. Find an HR leader who can help with employment issues. Involve an IT member who can bring expertise on information systems (e.g., platform integration, data governance, etc.) and topics such as security and access, since external workers often need to see sensitive data and interact with internal systems. In a large

consumer products firm we recently studied, senior managers from both HR and Procurement emphasized the necessity of building cross-functional teams to manage workforce ecosystem development. When leadership remains siloed, integrated ecosystem management processes are bound to fail.

Culturally, a critical role to include on the central orchestration team is that of boundary spanner. This person serves as the go-between, or bridge, between the central orchestration team and local teams. This person plays the essential role of protecting local teams from too much central involvement while ensuring that the central team gains lessons and value from local experimentation.

## **Phase 2: Promoting Local Experimentation**

The central orchestration team can introduce pilot programs designed to generate comparable experiences and outcomes. The central team should provide local pilot teams with guidance that explains the importance of a coordinated workforce ecosystem and how it addresses local managers' needs and supports organization-wide learning and experimentation.

Regarding structural design challenges, many teams struggle to staff projects with external workers; to divide projects into concrete tasks; and, to identify necessary skills for each task. Teams also may find it difficult to assess the competencies of external workers, and to ensure work quality. Geographic variation adds complexity. How a manager legally interacts with a contractor in the UK is different than how one does so in Thailand. Finally, teams may have a hard time working with a revolving set of external colleagues. Local teams should experiment with various solutions to identify which ones best address these issues.

Regarding political challenges, internal employees may resist external workers whom they see as threatening their own opportunities. Managers can help smooth collaboration by emphasizing how employees can offload less interesting work and learn new skills by collaborating with people with different competencies. Another challenge arises as marketplaces become more prevalent and workers gain more autonomy to move more easily between groups. Local managers may feel a loss of control over team

composition. Leaders need to recognize this and highlight benefits of adopting more dynamic workforce practices.

Regarding cultural challenges, existing employees may struggle with the shift in role from individual contributors to facilitators. Managers may need to adjust performance management processes to accommodate these new roles. We often see an employee-first mentality within companies that prioritizes internal workers. Thus, freelancers often feel like outsiders. To build a more inclusive workforce ecosystem, managers need to foster a sense of community by including external workers in team-centric activities and recruiting freelancers who exhibit solid teamwork skills.

### **Phase 3: Coordinated Learning and Resourcing**

As teams engage in pilots, local champions should regularly meet with the central orchestration team. They should report on performance, roadblocks, best practices, and support needed from the central team. The central group can help with structural design, political, and cultural issues that arise locally, but require central solutions.

Regarding structural design challenges, organizational policies and procedures help employees get work done in traditional ways while also protecting intellectual property and complying with regulatory constraints. However, some traditional structures developed to protect the organization may cause difficulties when local teams increase their reliance on external contributors. The central team can help solve these problems by escalating them and facilitating changes. For example, they can change policies to allow local teams to more easily hire freelancers, develop training for collaboration with external workers, and introduce new performance measurements to reward solution seeking rather than problem solving.

Politically, free rider problems may arise when local managers benefit from increased availability of resources to hire contractors but then don't follow the guidelines to free up resources for this hiring. The central team can address this by monitoring progress against agreed upon solutions. Another political challenge that may arise is lower-ranking employees on the local teams not feeling comfortable speaking

up about issues for fear of being seen as complainers. Employees on the central team can speak on behalf of their local counterparts; rather than being perceived as resisters, they can be solicited for valued opinions.

Finally, regarding cultural issues, counterintuitively, while CEOs and local managers may see the benefits of workforce ecosystems, senior managers and HR leaders may be slower to embrace them. Senior managers may resist because they are daunted by the complexities involved in changing deeply embedded policies, processes, and technologies. HR leaders may continue to focus on the internal workforce and continue to use traditional workforce management practices for recruiting, managing performance, and rewarding employees while leaving challenges associated with engaging external contributors to those in Procurement and elsewhere. The central team can help address these challenges by spreading locally developed solutions. However, for the organization to invest in these changes, local teams must be willing to use proposed solutions sometimes developed by other groups. This is often not easy. We've found that it doesn't work to ask managers to make a big sacrifice with the hope that it will lead to a big gain. Local managers are usually not willing to take this leap of faith. What does work is making provisional commitments, agreements to experiment with a new solution to determine if it works well in a particular local context, before committing to use the solution in the longer term. Boundary spanners on the central team can work with local champions to both gain these provisional commitments and assess how well new solutions work in particular local contexts.

#### **Phase 4: Ecosystem Expansion**

Finally, goals, metrics, and practices should be periodically revised in response to problems and possibilities revealed by the review process. Because goals and the means for achieving them are explicitly conceived as provisional, problems identified in one phase can be corrected in the next.

Two important structural design practices in the ecosystem expansion phase are adopting processes, tools, and systems that have been shown to be successful across multiple local experiments, and collecting

information on performance across key metrics. For example, a large pharmaceutical company that engages extensively with external workers learned through local experiments that categorizing external workers can help expedite hiring and managing them. In response, the organization now categorizes contingent workers across the highly dispersed company into three types: managed services (areas where they don't have internal core competencies such as catering, maintenance, etc.); consulting services (where contributors such as management consultants come in under contract); and contractors (including individuals recruited for a specific capability or skill).

By standardizing categories, the organization has a common way to describe external workers within their Workday software system, allowing them to create more insightful analytics and reporting, and to reward local managers who are successfully implementing the workforce ecosystem.

Politically, two key practices for ecosystem expansion are broadening the central orchestration team to include new stakeholders and developing a collection of workforce ecosystems that span organizational boundaries. For example, a large multinational service provider we studied highlighted the benefits that both they and their clients are accruing now that they have begun much more actively working together, including sharing senior level employees for extended assignments (for 6, 12, and 18 months). Clients benefit by gaining access to new talent during the assignments. And, the firm sees benefits by providing new experiences to their own senior leaders, many of whom have never worked in client organizations.

Culturally, two useful ecosystem expansion practices are developing tools and forums for distributed learning and getting C-suite leaders to promote culture change by signaling and storytelling. Tools allow local managers to measure themselves along key dimensions that have been identified as critical during piloting, and forums allow for peer-to-peer sharing of best practices. C-suite leaders can signal their support for a mobile and fluid culture that discourages talent hoarding by individual managers and provides employees with more growth opportunities within the organization by drawing attention to managers who are piloting workforce ecosystem projects. Leaders can also use storytelling to vividly paint opportunities available to internal employees who successfully transition to adopting workforce ecosystem orchestration practices.

In conclusion, by using a phased approach to orchestrating workforce ecosystems that addresses structural design, political, and cultural challenges, firms can integrate internal and external contributors to perform mission critical work and accomplish their strategic objectives.

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## **Related work by the authors includes:**

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# **COVID-19 and the rise of platform ecosystems in healthcare**

Sangeet Paul Choudary

# 2



**B**igTech platform moves into healthcare have been accelerated by the Covid-19 pandemic. While most of these platforms created new digital tools and infrastructures in response to the pandemic, they also made further inroads into the industry launching new consumer services (such as Amazon's Amazon Halo and Halo Band) and enterprise infrastructure (such as Google's Cloud Healthcare API). The pandemic has also accelerated shifts in consumer demand – consider how the demand for remote healthcare has created new opportunities for such platform firms. (For instance, Epic Systems had less than 50,000 appointments on its telehealth services in February 2020, but 2.5 million by April.)

As traditional industries like healthcare transform to platform-enabled ecosystems, incumbent firms need to better understand this shift in an industry's architecture and its resultant impact on the incumbent firms' ability to capture value.

## **The rise of ecosystems: a shift in industry architecture**

### **Ecosystemic organization of activities across an industry value chain.**

Through most of the twentieth century, businesses scaled through vertical integration, integrating multiple activities across supply, production, and distribution. This offered greater control across value chain activities. It also minimized the transaction costs that emerge in inter-firm coordination.

Transaction costs determine an industry's structure -- the manner in which firms organize themselves and interact with other players. To minimize transaction costs, most firms engaged in vertical integration. Most industries, accordingly, took on a vertical architecture with a few large vertically integrated firms competing with each other.

**Digitization of activities across an industry value chain fundamentally changes this vertical industry architecture and enables the rise of multi-sided platforms to reconfigure the organization of value chain activities.** Digitization reconfigures firm boundaries and scope, enabling a more modular industry architecture, where value chain activities may be orchestrated by multi-sided platforms.

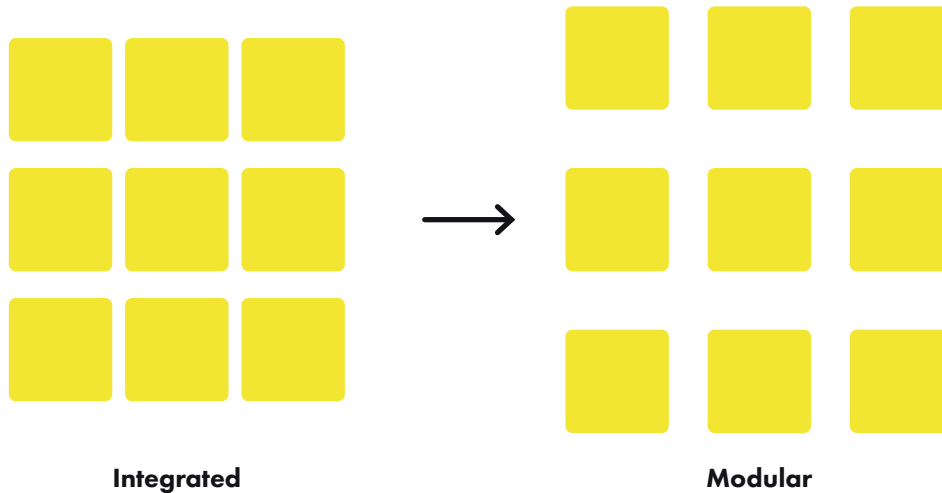
First, digital technologies enable increased data generation, aggregation and analysis, reducing transaction costs and enabling firms to more effectively coordinate without requiring vertical integration.

Second, digitization reduces asset-specificity and increases interoperability as digital assets are reprogrammable and repurposable and hence, more fungible. A key factor driving vertical integration was the increased lock-in -- and renegotiation risks -- created by relation-specific assets. Increased fungibility of digital assets also opens up new opportunities for innovation. Using application programming interfaces (APIs), firms can effectively open up information assets and services to external stakeholders, enabling inter-firm coordination and open innovation.

Third, connectivity and digitization change the way resources and actors may be identified and monitored. This changes the nature of control, further impacting the scope of the firm. Control may be exercised over resources and actors without requiring explicit ownership or traditional employment relationships. As a result, asset-light firms, which specialize in data aggregation and analysis, gain greater power in the value chain and to coordinate activities that lie outside their firm boundaries.

Finally, digital technologies also enable greater value creation through complements. This enables firms to more easily co-create value with creators of complements. For example, mobile applications act as complements to a smartphone's operating system, increasing the scope of the phone's functionality. Similarly, cloud-hosted software programs like Slack, the enterprise chat software, and Zoom, the video communication tool, interoperate with a wide variety of applications using APIs, thereby enabling a large scope of functionalities for consumers.

As a result of these factors, the links in the vertically integrated value chain start to break up and new specialized competitors emerge that are more agile and innovative in delivering a specific task in the value chain. The vertically integrated industry architecture increasingly gives way to a more modular 'layered' ecosystem where firms at every layer specialize in a particular value creating activity.



### SHIFT IN INDUSTRY ARCHITECTURE

In these modular ecosystems, firms specialize and increasingly retain those activities where they possess superior capabilities. This has a positive reinforcement on the evolution of firm capabilities as they increasingly specialize in the activities they retain, while weakening capabilities in the activities they let go of. This further drives firm specialization and increases modularity.

The adoption of APIs for inter-firm coordination further drives this modularity. With more business processes being managed through cloud-hosted services, APIs enable process modularity and communication across business processes, and eventually across firms along the value chain. APIs change the nature of inter-firm collaboration and allow superior coordination, further reinforcing this modularity.

Greater adoption of modular technology coupled with increased firm specialization reinforces the shift to a more modular industry architecture and allows firms to increasingly become more innovative at their specialized activities.

However, increasing modularity also leads to higher coordination costs, limiting the gains from specialization. Moreover, while digitization reduces many forms of transaction costs, certain transaction costs - particularly those related to safety, quality, and property rights - increase and may require new forms of governance and mediation.

These coordination costs may be resolved through two mechanisms: **promoting open standards and setting up proprietary platforms.**

**Open standards:** In certain parts of the value chain, firms may need to engage in collective self-governance by setting up open standards. Standards are specifications that determine the compatibility of different technological components. Standards increase the ability of firms building these components to coordinate their activities, leading to greater coordination across the value chain.

The adoption of a common standard by all market participants increases the availability of other complements. This creates a network effect where greater usage of the standard is strengthened by the availability of more complements and superior inter-firm coordination as a result, driving further adoption of the standard. This eventually leads to winner-take-all outcomes where a single standard may dominate.

**Proprietary platforms:** A platform is a business based on enabling value-creating interactions between external producers and consumers. To facilitate inter-firm coordination, a platform provides an open, participative infrastructure for these interactions and sets governance conditions for them. Platforms generate value by reducing transaction costs and coordinating diverse external actors. They also benefit from network effects, particularly indirect network effects, where greater participation by producers of complements increases the platform's value for consumers and vice versa.

Platform firms own key control points or competitive bottlenecks which other ecosystem firms need to access. The ownership of these control points provides strategic leverage to the platform firm. Firms may engage across a spectrum of openness at different parts of the value chain, combining open standards with proprietary platform strategies. The mix of strategic choices is driven by the trade-off between value creation (encouraged through openness) and value capture (managed by setting up control points).

## Ecosystemic organization of the healthcare industry

Increasing modularity across the healthcare value chain coupled with falling coordination costs are driving the shift of the industry towards ecosystem-based organization of activities.

Care delivery is increasingly becoming modular, as it is unbundled from traditional care facilities. The proliferation of sensor-enabled wearables has driven the rise of self-assessment by consumers and remote monitoring of patients by providers, unbundling care from traditional facilities. Urgent care clinics, retail medicine, and telehealth, have also created new models of care delivery.

Producers - healthcare providers, pharmaceutical manufacturers, and healthcare device manufacturers - are increasingly adopting cloud-hosted infrastructure to manage their business processes.

The unbundling of healthcare delivery from traditional institutions and the shift of healthcare production to cloud-hosted infrastructure are driving greater modularity in healthcare consumption and production respectively.

While modularity of healthcare delivery increases consumer choice, the lack of data interoperability creates a fragmented patient journey, as patients cannot easily port their data from one provider to another, or integrate data from wearables with their data. Despite greater consumer choice, the coordination costs to drive end-to-end patient care increase. Electronic Health Records (EHRs) were originally set up with the goal of achieving data portability across health systems. But, EHR providers evolved their formats independent of each other, increasing data silos.

**However, two key shifts -- increasing data interoperability and improvements in AI and machine learning -- are driving down coordination costs, leading to the rise of ecosystems in healthcare.**

The first shift - increasing data interoperability - is being driven through the adoption of FHIRs or (Faster Healthcare Interoperability Resources), which create standards for data exchange, allowing developers to

build APIs to access datasets across different systems. FHIRs allow sharing of specific pieces of information, such as symptoms, procedures or diagnoses, without passing along entire documents, which further increases modularity as well.

The second shift -- improvements in artificial intelligence (AI) and machine learning (ML) -- reduces coordination costs and changes the economics of healthcare production and delivery.

AI and ML play two key roles in healthcare. First, ML models that analyze structured data -- imaging, genetic, EMR data etc. -- may be employed to study patient populations or perform diagnosis for specific patients. Second, natural language processing (NLP) techniques process unstructured data -- clinical notes, voice recordings etc. -- to create machine-readable, structured data. This structured data can then be analyzed using ML.

Advances in AI and ML commoditize prediction. With growing data interoperability and accessibility, predictions become more accurate as well as more applicable across a wider scope of diseases. This reduces the cost of medical diagnosis, which can now be increasingly performed by machines. This, in turn, makes it feasible to perform diagnosis more frequently and easily, and also unbundles diagnosis from traditional care providers.

This enables an increasing number of diagnoses to be performed as ongoing self-assessments, aiding disease management outside the care facility. Doctors and radiologists can now spend less time diagnosing, and make more granular judgments on the appropriate intervention on the basis of these diagnoses.

Next, the ability to extract data from unstructured notes and voice records reduces operational overhead at the hospital. A home-based voice assistant can better capture patient data without requiring the patient to visit a care facility.

By commoditizing data capture assessment, and diagnosis, the frequency of these activities may be increased, while also unbundling them from in-facility patient interactions.

Effectively, improvements in AI and machine learning, coupled with increasing data interoperability, further increase modularity in healthcare production and consumption and also reduce coordination costs.

## Infrastructure strategies in healthcare ecosystems

Google and Amazon already serve many healthcare clients on their cloud infrastructure. Google provides clinical and operational infrastructure that underpins production across healthcare operations, diagnostics, drug R&D, surgery, and claims management. This combines a HIPAA-compliant Google Cloud with the Google Healthcare API, enabling healthcare providers to store and aggregate data across multiple sources. Further, Google's DeepMind enables access to diverse, siloed data in a standardized format, enabling a wider scope of data elements to be analyzed for clinical decision making. Google's infrastructure also includes capabilities like DeepVariant, which provides an open-source deep learning tool for genomic analysis, aimed at the life sciences industry.

Google also bundles key complements to its data management infrastructure, which extend its coordination infrastructure across the healthcare ecosystem. These complements include:

- 1: Complementary datasets:** Research programs run by Google collect health data from participants and store these datasets in Google Cloud. These datasets may eventually be accessible to researchers using the platform.
- 2: Diagnostic services that aid clinical decision making:** DeepMind's Streams app, a complement to Google's infrastructure, detects acute kidney injuries by analyzing diverse datasets on Google Cloud.
- 3: Robotic surgery capabilities:** Verb Surgical, co-created by Google's Verily and Johnson-and-Johnson, is building robotic surgery complements to Google's infrastructure.
- 4: Data capture tools:** Google's MedicalDigitalAssist uses speech recognition to transcribe conversations and extract notes by recognizing medical terminology. Google's Study Watch is another

important data-capture complement to its infrastructure and may be deployed to volunteers in clinical studies.

Unlike Google's AI focus, Amazon's infrastructure play is more focused on healthcare operations and on computation-intensive research. Using its existing strengths in supply chain management software, Amazon is likely to provide pharmaceutical logistics management capabilities as part of its infrastructure. Amazon's acquisition of GRAIL indicates that Genomics -- which requires computation-intensive analysis -- is a focus area for its infrastructure strategy.

Similar to Google, Amazon (AWS), bundles complements to its infrastructure, including:

**1: Data mining capabilities to extract datasets:** Amazon Comprehend Medical analyzes EHRs to extract data and store it in AWS. Amazon Transcribe Medical transcribes medical speech in primary care settings.

**2: Datasets:** Amazon's acquisition of GRAIL provides complementary datasets and analysis tools for genome sequencing.

By bundling these complements, Google and Amazon strengthen their respective value propositions as healthcare infrastructure.

## Aggregation strategies in healthcare ecosystems

Apple's Health Record aims to be the central health record for users, combining data from acute care -- currently stored in EHRs -- with data from a variety of wellness and disease management devices and services, using FHIR-based integration. Apple's partnerships with health systems and EHR vendors enable it to integrate EHR data with the Health Record. Apple also partners with Health Gorilla, a clinical data API exchange, to integrate diagnostic data.

Apple's Health Record acts as a key control point attracting five diverse communities of producers



looking to access these consumers -- developers, device manufacturers, healthcare providers, pharma companies and medical researchers.

First, Apple provides access to its health record API to third parties through a software development kit called HealthKit. Every app connecting to HealthKit may access data from the Personal Health Record. Prominent device manufacturers, like Nike and Jawbone, use the HealthKit API to integrate their devices as complements to the Personal Health Record. Next, Apple's CareKit enables care providers to develop apps that monitor patients across the care pathway, particularly to manage chronic diseases. Finally, Apple's ResearchKit enables medical researchers and pharma companies to conduct studies leveraging the iPhone's user base. Apple makes it easier to identify, target, and recruit eligible candidates for a research study, based on their health record data.

The Apple Watch Series 6 includes an electrocardiogram and a blood oxygen monitor. Medical device complements may include diagnostic tools that physically connect to the iPhone or integrate with the Apple Watch.

Google's research experiments with the Study Watch indicate that it is likely to use connected wearables to assess, diagnose, and manage diseases. Alphabet's subsidiary Verily is working on a range of data capture and diagnosis mechanisms to enable a superior condition assessment, diagnosis, and disease management experience. Verily's Study Watch -- a sensor-based wearable device for non-invasive, continuous monitoring -- plays a strategic role in data capture and monitoring of several health conditions, by collecting 'biometric health information'. For instance, the Study Watch includes an electrocardiogram (ECG) and a heart rate monitor, which may be used to help detect cardiac issues and better predict heart episodes.

The Study Watch also captures environmental data, and could alert patients regarding environmental conditions that could trigger chronic lower respiratory disease. Verily's Personalized Parkinson's Project combines data from the Study Watch with clinical data to identify the onset of Parkinson's Disease.

Google's data capture tools -- MedicalDigitalAssist and Suki -- may help Google move into mediating

doctor-patient interactions. Google's investments in Ready -- an on-demand network of paramedics and nurses -- and Amwell -- a telehealth operator -- provide some of the assets which could be integrated with MedicalDigitalAssist and Suki, to enable doctors to remotely serve patients while also capturing notes and managing documentation for these interactions more effectively.

Amazon's ecommerce leadership affords it a natural aggregation play, especially with the acquisition of Pillpack. Amazon's wearable Halo captures a variety of healthcare indicators using 3D body scans and voice tone analysis. Amazon Alexa developed software that would meet HIPAA regulations. After gaining HIPAA compliance, Amazon also onboarded six business partners to bundle complementary Alexa Skills for the healthcare industry. These skills allow consumers to make appointments, access medical instructions, or track a prescription, among other things.

## Open standards development in healthcare ecosystems

Open standards development may help change the competitive dynamics in an industry by commoditizing incumbent advantages. While traditional firms, particularly EHR vendors, resist interoperability in healthcare, platform firms often work together to promote open standards. Google and Amazon have joined efforts to support FHIRs through Project Blue Button, which aims to make it easier for patients to view and download their health records. They are also implementing the standard in their cloud infrastructure and consumer-facing applications. Google's Cloud Healthcare API provides a solution for storing and accessing healthcare data in FHIR format, while Apple has implemented FHIRs in its consumer-facing Health Records.

Through a combination of open standards and proprietary platforms, these firms work on reducing industry-wide coordination costs, while also setting up control points that make other value chain actors dependent on them.

## Conclusion

The shift to ecosystems has transformed the economic organization of many industries. Using healthcare as an example, this article lays out the strategies that platform players pursue when industries move to ecosystemic architecture. During such shifts, incumbents get increasingly commoditized as platform firms manage key decision support for providers (e.g. diagnosis decision support in healthcare) and ongoing consumer relationship management (e.g. remote assessment and disease management for patients in healthcare). In fact, as platform firms expand across the value chain, they may set up competitive bottlenecks that reduce incumbents' ability to capture value.

Industry incumbents seeking to craft responses to such platform moves must understand the different moves these platforms make in an ecosystem and craft responses accordingly. Some firms may choose to pursue platform strategies of their own. Others may either partner with platforms or engage in collective action through consortia.

While this article illustrates these concepts with examples from the healthcare industry, the strategies and effects detailed here may be applied across industries. Managers in industries which still haven't been organized as ecosystems should also proactively consider collaborating on common industry infrastructure and user data standards and formats to prevent platform firms from taking those positions in the future. Regulators, in turn, should craft regulation separately for aggregation and infrastructure plays in ecosystems, especially as their market power may be attributable to different factors.

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**Outcooperating the competition: Building platform-ecosystem last movers by embracing a long-term and inclusive perspective**

Simone Cicero

3

When we speak about ecosystems and platforms, new forms of organizations, and the role of software in the development of such organizational forms, we often lack a shared framework, a business and technology architecture which acts as a reference point. But, in reality, a convergent view of digitally enabled ecosystems with interacting parties is emerging potently from market practices. It is worth highlighting as it can provide a foundation for further thinking. We will look into these emerging patterns of organizing markets and into a potential way to orchestrate and design a set of incentives that can make it possible for an ecosystem to be a cooperative 'last mover', in the sense of creating an ecosystem weaving initiative that aims at becoming the standard, the place to be for innovations to happen.

The essential question we investigate is the possibility of creating ecosystem strategies that reduce the case for destructive competition and maximize the case for collaboration, plugging in, integrating special capabilities, composability, modularity and, eventually, wholly systemic actualization where all parties thrive. Such a system would be post-competitive and represent a powerful new way to redesign markets for accelerated innovation.

## The components of a platform-ecosystem

Modern software powered platform-ecosystem initiatives are essentially based on three key spaces of value creation where exchanges happen:

1. the marketplace;
2. the main 'product' features (the essential UX);
3. the so-called extension platform.

Indeed, a weaver of a platform powered ecosystem normally aims at and operates to:

- create a marketplace that enables certain experiences of exchange of niche product/services between parties (producer-consumer), normally monetizing through a 'take rate';

- provide a main user experience with regards to a set of enabling services and products -- centrally provided by the platform owner -- often in the form of a SaaS offering or other more capital intensive services (such as logistics) targeted often at producers in the marketplace and, in a more limited set of cases, to consumers;
- create an environment where other third parties can develop so-called 'extensions' to the main user experience in the form of apps, templates, and plug-ins. In many cases this happens by adopting a so-called 'reverse API' paradigm, where extensions are effectively pieces of software that run in tight connection with the main UX and are often optimized (following strict UX guidelines); these apps connect for data, and further workflow execution, to other pieces of software running in external contexts where the users may also have a connected identity, information and data (such as a Shopify seller that syncs ecommerce with a bookkeeping solution through an extension).

Normally, in most of the cases, the integrated stack would end here, hiding at least three more key layers. Indeed in the platform-owned back end you would find:

- a certain 'grammar', so-called domain-model in domain-driven design terms;
- a data layer where all data generated are kept safe and accessible;
- eventually, the infrastructure on top of which the system runs.

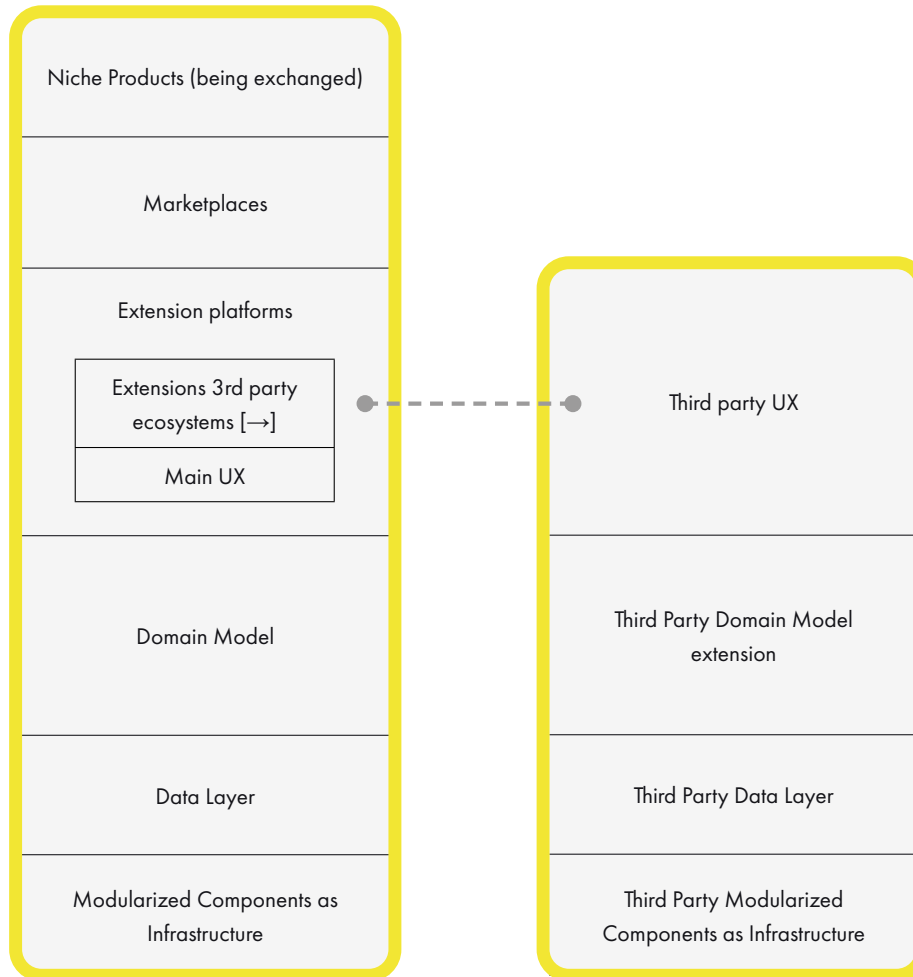
All these need to exist to grant system execution. The stack can therefore be seen as:

Niche Products (being exchanged)	<i>The P/S provided by the parties in the P/S marketplace, normally tending to niche.</i>					
Marketplaces	<i>The marketplace functionality of organized experiences that help producers and consumers connect on the marketplace</i>					
<table border="1"> <tr> <td>Extension platforms</td> <td rowspan="2"> <i>The extension platform that provides both the Main UX (normally controlled by the platform owner) and the Third parties made extensions that allow the Main UX to integrate more elements and connect to external systems that may pertain to different domains.</i> </td> </tr> <tr> <td> <table border="1"> <tr> <td>Extensions 3rd party ecosystems [→]</td> </tr> <tr> <td>Main UX</td> </tr> </table> </td> </tr> </table>	Extension platforms	<i>The extension platform that provides both the Main UX (normally controlled by the platform owner) and the Third parties made extensions that allow the Main UX to integrate more elements and connect to external systems that may pertain to different domains.</i>	<table border="1"> <tr> <td>Extensions 3rd party ecosystems [→]</td> </tr> <tr> <td>Main UX</td> </tr> </table>	Extensions 3rd party ecosystems [→]	Main UX	
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Extensions 3rd party ecosystems [→]						
Main UX						
Domain Model	<i>"The system of abstractions that describes selected aspects of a sphere of knowledge, influence or activity (a domain). The model can then be used to solve problems related to that domain" (3)</i>					
Data Layer	<i>The data produced by the system.</i>					
Modularized Components as Infrastructure	<i>The set of resources that help the main UX run, varying from IT to logistics and more.</i>					

It's important to note that (as the symbol [→] hints) the extensions that run on the platform may also use an extended domain model and can store data on different data layers and run on different modularized components as infrastructure. For example, the accounting extension that allows the ecommerce owner to



keep books synchronized with sales may store data in a private and controlled space and possibly connect with a public tax filing infrastructure.



## Understanding and challenging the framework

Normally such a platform framework would be run by a large company. This company would aim at gaining a certain defensible advantage through a defensibility flywheel, such as a scale advantage, a lock-in becoming essential to the adopters' workflow, or a proprietary technology or data advantage.

After becoming 'too big to shortcut' the platform would play a game of balance between control -- by controlling all the interfaces between the layers -- and enablement -- by providing services valued by all the entities involved. Entities let go of a degree of independence to be able to reap the benefits of being part of the ecosystem. The benefits might include greater demand generation or improved efficiency. The platform owning company would likely seek defensibility and control of the ecosystem by leveraging reinforced multi-sided network effects.

Given all this what are the challenges that prevent new approaches to running an ecosystem that are more inclusive and less centralizing? And would such a system be desirable or simply a more efficient means of achieving innovation?

## Liberating interfaces

The essential role of interfaces is well captured in David Akin's Shea's Law which states: 'The ability to improve a design occurs primarily at the interfaces. This is also the prime location for screwing it up.'

We want to explore the effect of two major drivers. On one hand, we want to explore what happens when we **liberate the interfaces** that exist between layers and components from the monopolistic control of one single ruling party. We believe that clear and stable interfaces increase the overall capability of the system to generate broader plurality, optionality, and bring more resilience.

On the other hand, we also envision that **transitioning towards a shared governance on interfaces and embracing less centralized incentive structures**, would bring a longer-term

focus: we assume that -- as some studies have shown -- organizations that are co-managed and co-owned show a broader tendency towards what in Hirschman's Exit, Voice, and Loyalty framing is labelled as 'voice' and 'loyalty'. Essentially this makes them better equipped for the long term.

Creating clear interfaces between layers would also be essential to facilitate the evolution of each of those layers. It is clear that a different pace of layering will affect the infrastructure and domain model layers -- much slower in evolving -- versus the services and products layer that normally evolves much faster.

## The role of the main UX

In a system architecture like the one outlined above, the provider of the main UX would be in charge of:

- implementing the core set of 'product' functionalities specified in the domain;
- providing the differentiating element on top of the core domain functionalities (such as with capital intensive services that plug into the functionality);
- building its own marketplace(s) of services;
- building its own marketplace of extensions;
- managing policing, and security of both marketplaces.

By standardizing the interfaces between the main UX and the extensions it would be possible to have multiple players provide alternative main UXs. Services marketplaces could also have a low bundling with the main UX(s). For example, a marketplace featuring consultants aiming to provide consulting services to adopters of the software stack would need the experts to be familiar with the domain model and main UX, and wouldn't require deeper integration. Envisioning the possibility of also including in the domain model the single marketplace entity and its reputation, it would be technically possible to imagine experts being able to provide services across different main UXs marketplaces by leveraging the same reputation. In the

case of such an *untangled* UX, and thus hard to attain defensibility, the main differentiator for the main UX providers would be that of full compatibility with the ecosystem of service providers and extensions, and furthermore, that of providing the best experience across the core set of features plus adding differentiating features, by retaining compatibility with the whole ecosystem.

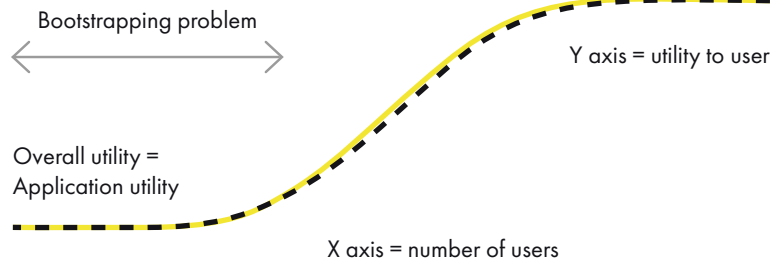
The thickness of the main UX depends on the grade of standardization in the business process enabled: the more standard the process, the thicker the main UX is nudged to become. It would be also possible to imagine such an ecosystem to sport a very thin main UX, even a disappearing one: in this case, the extensions would all share the same domain model but implement a partially overlapping set of features, allowing interoperability but providing their own 'view' on the domain. The reason to have a main UX, and not only extensions, would be to provide basic curation services (policing and security) helping the adopter navigate the extensions' market. Also, the main UX provider would be best suited to run the services marketplaces. Main UX providers would be in charge of standardizing transactions (for example with a payment system, distribution, and reputation-based browsing).

The case to have a main UX and the inherent difficulty in standardizing the interface between the main UX and the extensions indicates that a likely outcome could be that of having a strong coupling between a main UX and a certain ecosystem of extensions.

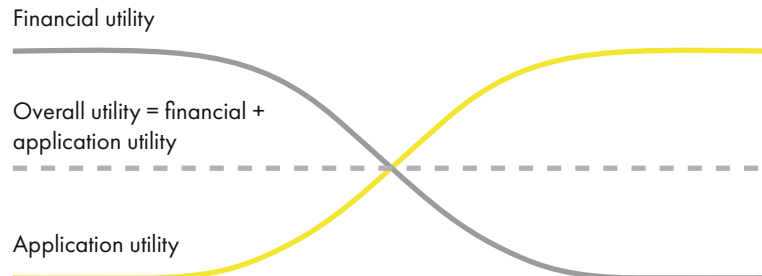
A thick main UX player would have to deliver a tangible amount of enabling value to the ecosystem by running the transactions engine (for both the extensions and the service marketplaces) and the overall evolutionary learning engine at scale. The thicker the main UX, the more empowerment and services to be provided to the ecosystem will be needed to justify the thickness. As defensibility options would be certainly limited for the main UX provider though, due to the openness of the domain model and interfaces in such an unbundled market, building trust and empowering features for the ecosystem would require a different financing path. The current financing path for network-based/platform based organizations is indeed largely based on investing upfront with the aim of creating defensibility and lock-in: platforms struggle to overcome the so-called chicken-egg problem and rely on massive subsidies in the early stage to create

the attraction that -- in the longer term -- allow them to create network effects. In an unbundled ecosystem, such as the one we're exploring, we would be seeing (and to some extent we're already seeing) the application of new incentive design approaches that allow an early and steady creation of trust between users and the platform by cementing a reciprocal set of incentives for success from the beginning. Tools such as *Bonding Curves*, *Augmented Bonding Curves* or similar crypto primitives designed to create early stage utility (either financial, by giving rights to future profits or functional, by allocating special governance rights) while network effects and product maturity are still not materialized, may fruitfully contribute to building such early trust and solve the problem explained by Chris Dixon in his landmark work on *crypto tokens*.

### TRADITIONAL NETWORK EFFECT



### TOKEN NETWORK EFFECT



Finally, it's worth saying that in such an open architecture both *direct to customer* extensions and a parallel main UX mediated distribution may also co-exist. An example of such a separation and standardization of interfaces may be seen in the development of the Wordpress ecosystem where thanks to the standardization of the domain model, and the openness of interfaces we've seen a plethora of different approaches emerging such as with headless CMSs, second order ecosystem such as Elementor's built on top Wordpress domain model and back end, and more.

## The domain model, data layer, and infrastructure

The domain model on top of which the system would run would then act as a common, shared model of the system and would contain all the definitions, and the actions that are worth specifying to ensure consistency and compatibility across the different implementations of the main UX and between main UX and extensions. The domain model would represent the actual underlying protocol and would also be the root of the implementation of the data architecture. Such a domain protocol would clearly need to be subject to shared governance processes to ensure all points of view are respected and that changes in the domain model do not dramatically impact a subset of the ecosystem players.

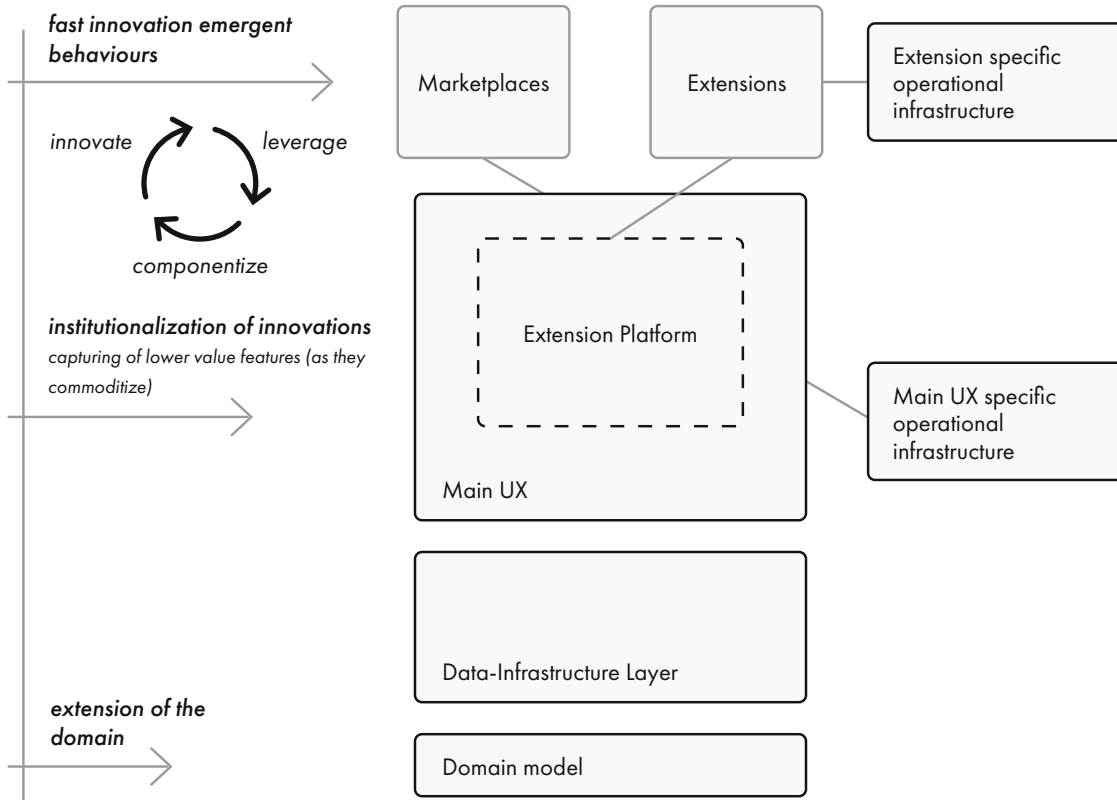
The data layer would need to be transparent, accessible and auditable supporting some level of federation between local clusters to allow certain spaces of information to remain closed -- but compatible and available for settlement. To some extent, the common infrastructure and the data model could also overlap in such a system, especially in the possibility of an implementation based on a permissionless digital ledger. In this case, multiple nodes would be responsible for the execution of the open ledger and the validation of all the transactions, token engineering would be needed to ensure the relevant incentives for the nodes composing the network to run the validation work.

More federated architectures could be also designed and reduce the ledger validation work by designing trustless settlement layers between clusters made of trusted entities (such as by settling inter-organizational transactions, while keeping intra-organizational transactions in a trust-based environment).

The type of interface and data model coupling would vary with the type of data being exchanged: with exchanges needing the historicization, typical of financial transactions, sitting on a distributed ledger means distributing the validation work to nodes. If the need to share a data model for interoperability doesn't entail having consistent ledgers with auditable information then the need for shared infrastructure would likely disappear, technically leaving the possibility for other types of provisioning of common infrastructure to emerge, such as with cloud providers.

## The extensions

In such an architecture, extensions run on the premise of using the same shared domain model (that is reflected in the interfaces) -- to ensure their compatibility to all the main UXs -- and possibly extend the domain model or just use a complementary extension of such a model into other domains. Extensions could technically also be able to wrap and integrate different operational infrastructures (such as further logistics or computation infrastructures for example) and make them available to the parties. In the pace layering view, extensions are the most likely to capture new and emerging behaviors and are subject to strong innovation pressures to keep competing. The main UX(s) and the common domain model continuously exercise an attraction mechanism for features that emerge in the extension ecosystem or in the marketplaces as they mature: in an ILC cycle extensions and marketplaces likely generate most of the innovations and that is to be gradually integrated into the main UX by continuous *institutionalization*. This cycle is continuous: as the main UX grows it may bureaucratize and become too monolithic and big. This makes the case for breaking it down into smaller niches of the market and a subsequent further specification of the domain model, effectively giving space to the birth of a further, more vertical, ecosystem.



## Outcooperating the competition

In a usual context we would see a single organization investing widely, iterating fast and creating a main UX and a data-infrastructure layer on top of a proprietary domain model.

This company would likely start providing a single user value proposition in the main UX and gradually



introduce marketplace features and extensions. Other trajectories also exist albeit this would be the most anticipatable today. So when would a pluralistic, cooperative model be worth applying? Why is this traditional model here to be overcome? What are the interfaces that make sense to agree on?

One could argue that -- if possible -- agreeing on a shared protocol representing a common domain model would make sense to allow inter-system cooperation and interoperability. But in a world of take-all winners such a proposition doesn't make sense: as you're competing for a certain niche and your value proposition depends on acquiring network effects you shouldn't focus on enhancing low layer interoperability. The existing financing and technological patterns that have pushed towards a winner take all perspective are being challenged by several essential innovations. First, as we've explained briefly, mainly thanks to decentralized finance and governance patterns and crypto-tokens design, new ways to finance early stage ecosystem development in a more pluralistic way are emerging. Furthermore the emergence of these technologies further reduces transaction cost and make self-executing multi party contracts (effectively partially autonomous organizations) possible and puts into question the centralized approach to platform building and ecosystem weaving by just making alternative ways possible.

Minimizing the attractiveness of *exit* by ensuring the stability of interfaces (a major element of concerns of third parties that accept to produce under a platform enablement regime) would increase trust in the platform and would push the development of specific IP inside the extensions while leaving the platform enabling services to be the basis of a larger ecosystem: the need to compete with the ecosystem would be minimized, while the need to compete 'within the ecosystem' would still be present and create innovations that would be gradually captured and institutionalized by a trusted party -- the main UX provider -- and inside a trusted governance and financial process -- the domain model evolution. Considering that all interfaces will be open and externalizable one could argue that competition would not disappear but just be moving away from the interface. Interfaces and the domain model, instead, would effectively have to be managed under a 'Commons' regime and would require a governance process inspired by the eight key principles pointed out by Elinor Ostrom.

In this perspective, in no way could we imagine innovation to happen through the governance process that would, instead, be more a guarantee of ecosystem stability and thriving. The main UX providers would compete among themselves and with the extensions for user attention but a lot of the network value would accrue in shared, non-enclosable spaces.

One could argue that the natural tendency of the market would naturally push for ecosystems to compete with each other and thus invalidate most of the ideas outlined in this article. On the other hand, standardization processes have always been part of the history of industry development, and the Internet itself, and experiences in shared-governance ecosystems are growing providing promising results in terms of growth and innovation enablement. Open Compute Project -- a shared governance platform born to 'apply the benefits of open source and open collaboration to hardware and rapidly increase the pace of innovation in, near and around the data center' is now projected to intermediate and facilitate circa \$12 billion of gross merchandise value in 2023. Uniswap, a decentralized exchange protocol that connects 'developers, liquidity providers and traders' and lets them 'participate in a financial marketplace that is open and accessible to all' is now able to enable almost \$1 billion in transactions every day and is governed through the interplay of a public forum, a governance token that has been distributed to the stakeholders in the community in a certain issuance moment (UNI).

Based on early research and interviews, we foresee that, as a complement of the goodwill and long term commitment, creating interlocking financial incentives -- that increase skin in the game for all participants into each others' success -- may represent a promising way to keep the case for cooperation higher than that for exit, fork and competition. As an example, organizations developing extensions should be provided with options to access not only the governance processes related to the domain model and protocol, but also be given the possibility to access equity of the main UX provider they decide to connect to. As we've anticipated, a coupling between a particular main UX provider and an ecosystem of entities is anticipatable: extensions evidently delegating some decision making power to the main UX may trade this loss of power in exchange for a stake in the success of the main UX they optimize for. These incentives

-- traditionally related to equity holding and transferred through complex and bureaucratic processes -- are being streamlined through new technological approaches of which indubitably token engineering is the most representative.

## Conclusions and further work

In this article we presented a view of how the emerging trends in tech, infrastructure and development of ecosystems are gradually making possible a different approach to ecosystem building. This approach is more integrative and cooperative, and seeks to, at the same time, enable competition for innovation in certain spaces, while incentivising cooperation and the creation of shared innovation through interface standardization, shared governance and new types of financial incentives. The emergence of new technologies is making these new directions possible, case studies confirm that this direction already constitutes an appropriate approach to ecosystem building. Such an approach to ecosystem building is advisable to incumbents and upstarts that intend to weave long term ecosystemic initiatives and embrace a perspective of openness and long-termism versus land grab and exploitation.

This research stream emerged as at Boundaryless, in collaboration with other entities, we're exploring the opportunity to create a software-powered ecosystem around a common protocol of organizing by embracing a long-term, and cooperative approach that can outcooperate the competition.

**Simone Cicero** is co-creator of the Platform Design Toolkit and co-founder of Boundaryless. He was included in the 2020 Thinkers50 Radar list of upcoming thinkers.

## Resources

Simone Cicero, 'The 3 key challenges in making your organization platform-ready', June 2021; <https://stories.platformdesigntoolkit.com/the-3-key-challenges-in-making-your-organization-platform-ready-293999c7c7d>.

Simone Cicero, 'Pricing in platforms and marketplaces', June 2021; <https://stories.platformdesigntoolkit.com/pricing-platforms-marketplaces-151ab67b130a>.

**Relationships > assets:  
Haier's ecosystem  
revolution**

Bill Fischer

**4**

Few ideas are attracting as much attention as that of ecosystems. Casually described as 'constellations of partners' or 'networks of networks,' these metaphors can blind us to the intricacy of the details that undergird the workings of such revolutionary organizational forms. The Haier Group, with its early participation in ecosystem relationships, and wide range of ecosystem examples, offers an unparalleled insight into the key elements of ecosystem dynamics. While most ecosystems become complex, very quickly, there is no reason why simple ecosystems cannot serve as more easily observable microcosms of their larger brethren. In fact, a senior executive at the Haier-owned General Electric Appliances (GEA) characterized looking at Haier from afar as an experience in fractals, where each level observed -- Haier headquarters in Qingdao, the microenterprises which comprise it, and the employees themselves -- all work in essentially the same fashion, to achieve the same general principles. One way of thinking about Haier's success in repeatedly transforming itself over nearly four decades is that its corporate DNA runs deep by replicating itself at each organizational fractal.

With this in mind, we will start with a very simple ecosystem designed around a new business model innovation for what was originally a single-offering microenterprise, the vaccine cabinet market, and use this to establish some of Haier's ecosystem basics. We will then move into far more complex ecosystems, which are literally changing the very definition of the industries they are a part of, while remaining faithful to the same ecosystem basics that we have seen in the vaccine example.

## Smart Vaccine

For years, Haier has been a leader in small refrigerators for the home and dormitory. In its search for adjacent markets, it recognized the opportunity to adapt these refrigerators for hospital usage. China's 52,000 vaccination stations represent a major market opportunity.

Mr. Gong Yi is in his early forties with two young children and, as a result, is a frequent visitor to one of these vaccination stations, where 100 million young children are inoculated each year against childhood diseases. He also was the R&D Director of a microenterprise within Haier that made the large majority of

refrigerator cabinets in which these vaccines were kept prior to their administration. On one visit, as his children waited their turn for inoculation, he suddenly realized, as he watched the staff go about their work, that, because of the large number of patients being served, the single door on the very fridge that he had produced was never closed; he understood instinctively there was no way under such conditions that the vaccines could be kept at their desired temperature.

Gong Yi's story provides an insight into how being close to a customer a new way of working is arising that could change the nature of organizations. Gong Yi was determined to fix the problem that he had identified. So he recruited another two colleagues and petitioned the biomedical platform on which their present classical vaccine cabinet was hosted, for permission to launch an entirely new microenterprise that would offer a different business model into the same marketplace as they had been dealing with previously. Initially, the new value-proposition involved just changing the vaccine cabinet door; creating an eight-door refrigerator, which meant that when any door was open only 12.5 percent of the vaccines would be at risk of being warmed. The platform's approval, if given, would mean that Haier would have two microenterprises, in parallel, offering two different versions of what was essentially the same product, a one-door, and an eight-door vaccine refrigerator. Approval was quickly given by the platform, which had decided that it would allow the market to judge which of these versions was preferable.

Once in business, however, Gong Yi and his colleagues had a different, greatly expanded view of the customer experience. They hated the queuing and confusion associated with bringing their children to the vaccination station without being able to make reservations. They were repelled by the drab and often unwelcoming ambiance of these stations. They thought that the entire experience was enervating and felt that the refrigerator was merely one part of the problem. They then expanded their business model to offer turn-key renovations of the entire vaccination customer experience and built an ecosystem to support their microenterprise in delivering this turn-key renovation.

There is a standardized process used in all 52,000 vaccination stations in China involving four different steps that Gong set out to improve:

1. **Getting an appointment:** The traditional process begins by arriving at the station early and queuing in an unruly crowd to gain a priority number. Gong's new approach accomplishes this via a WeChat SmartPhone app that can be done from home and that another Haier microenterprise was contracted to design, so that queuing is no longer necessary.
2. **Registration:** The entire check-in process, including registering the physician's prescription for the inoculation, is also conducted via a special WeChat account designed for registration, again by a contracted software microenterprise operating within the Haier organization.
3. **The vaccination itself** is now administered at a custom-constructed ergonomic desk which makes life easier for the staff who may be delivering as many as 300 inoculations a day, and involves a larger eight door cabinet which has the capacity to hold 700 boxes of vaccine. They also now monitor the entire factory-to-station cold chain for vaccine safety. In the past, injections were only given in the morning, while the paperwork and inventory control took up the entire afternoon. These improvements were contracted-out to external carpenters, as well as internal microenterprises within Haier experienced in supply chain activities within hospital environments. Today, thanks to Mr. Gong's improvements, the clinics are open for vaccinations all day long.
4. The last stage in the process is a required 30-minute **observation period**, which takes place within refreshed and attractive facilities, well-stocked with toys and safe furniture, and featuring colorful and local cultural themes so that waiting is both enjoyable and a source of additional income. The smart-phone-operated rocking horse, for example, generates per-ride revenues that are shared between the vaccination station, the rocking-horse provider and Haier.

It is no exaggeration to say that the Smart Vaccine microenterprise has changed both the vaccine customer experience throughout China and the industry structure of which they are a part. Haier continues to make the traditional one-door, unconnected, vaccine refrigerator, but Mr. Gong says that 'we are not really competing against each other, this is more like iPhone 5 vs. iPhone 10. In addition, we are the publisher of new customer experience needs, so that the other microenterprise partners, both inside



and outside of Haier can respond.' They now sell an integrated offering that opens up opportunities for new business and they also then share the marginal revenues resulting from the exploitation of these new opportunities. What Mr. Gong is really doing, on a small scale, is building an ecosystem to change the entire nature of the customer experience.

Haier's Smart Vaccine project contains, in a microcosm, all of the essential elements of the new ecosystem revolution that is taking place there. It began with intimate observation of the customer's situation (literally zero-distance with the customer in this instance); it was easy to get a microenterprise started (three colleagues and a simple proposal to the platform); very quickly the vision expanded greatly to addressing and stretching an entire customer experience, rather than merely replacing a refrigerator door; the microenterprise was too small to do this by itself, so it needed to enlist partners from other expertise domains (very quickly, within a few months of starting, they had thirty different categories of ecosystem partners, such as carpenters for the desks, and software creators for the apps); the microenterprise sold an integrated package and shared the value-created among its ecosystem partners; each customer engagement led to more opportunities for the entire ecosystem. The smart vaccine cabinet microenterprise grew out of the refrigerator product line of Haier's traditional business, but the present offering of the smart vaccine microenterprise is different from simply being an extension or even an adjacency of the original product line. In this way, Haier is rapidly moving into new markets that it had never dreamt about in the past.

## **The Internets of Food and Clothing**

Not surprisingly, as we all move closer to the smart home of the future and the impact of the hyperconnectivity of the Internet of Things on our daily lives, Haier's long-time refrigerator and washing machine product lines become natural incubators for all sorts of radical experiments, most on a larger scale than smart vaccines, but essentially following the same logic and approach. Once again, this is driven by profound shifts in the customer experience.

For more than three decades, from the original founding of the Qingdao Refrigerator company to Haier's achievement of being the world's largest home appliance manufacturer, the customer journey that Haier experienced was, on average, only one or two engagements every fifteen years for any particular offering. Today, with the fast-growing introduction of interconnected home appliances, customers are radically changing their purchase behavior and the customer journey. Home appliances are no longer purchased piece by piece, but are being bought as an ensemble, resulting in as much as a ten-fold increase in average customer spend, because they are buying all of their interconnected appliances at the same time; and expecting them to work together, at the same time, immediately upon delivery.

Haier is also now engaging with clients multiple times a day, as they search for recipes, serving suggestions, wine-pairings, the tracking of provenance and freshness for purchased produce, cooking lessons, entertainment and many more conversations than Haier had ever before. As Haier has moved from what CEO Zhang Ruimin has portrayed as being a 'provider of solutions', to being a 'confederation of ecosystem partners, where from time to time different partners coalesce to address a specific customer experience', he believes that 'what matters is not what you do, but what you can empower others to do'. The challenge here, of course, is no longer trying to capture the customers' attention, as they are actually coming to you of their own free will, but to have something to say to them, and this is where Haier has turned to ecosystem partners to participate in these conversations.

An example of such partnering is seen when the washing machine people at Haier found themselves facing questions about the laundering of exotic materials (designer silk scarves and leather bags) that they couldn't answer. In response they formed an ecosystem around such challenges, involving fabric makers, detergent producers and Haier's washing machine experts. Led by Mr. Feng Xu, who was hired in from a fabric producer, a community of interested parties was assembled, who might otherwise never have had a connection with Haier, or with each other.

One early partner, a well-known Hangzhou textile manufacturer, Wensli Silk, had customers who were complaining that their silk garments were too fragile to be cleaned by conventional methods. Haier's

Internet of Clothing provided washing machines with what was called AirWash technology: a method that uses a very small amount of water, and a different type of detergent that is easily vaporized. When put into Wensli's stores, the silk washing problem was solved. There are no longer broken fibers due to washing, and so the silk retains its brightness and feel. One tangible result was a 30 percent increase in Wensli's revenues in the first month after the AirWash washing machine was placed in these stores. A more durable result, however, was the ecosystem relationships that co-created AirWash, including detergent partners, that, in turn, led to the establishment of a detergent microenterprise that is now also on the Internet of Clothing platform. In a very short time, a better customer experience was co-created through partnering and an ecosystem was born.

Similarly, an ecosystem emerged around labeling technology that could provide washing machine-readable laundering information on clothing tags, so that Haier's smart machines could read the tags and treat the clothes appropriately. Clothing tag makers were interested because for them this was a path out of what had been a factory-only business; now they were serving an entirely different market of B2C producers and the new opportunities were immense.

One of the tag producers, Xiaoyi, has, as a result, expanded the scope of their product portfolio from exclusively industrial to include household use, and has seen their market valuation rise from RMB 100 million to 400 million, as a result. In fact, the IoC platform owner at Haier, Mr. Li Yang, believes that his platform has gradually shifted from being Haier-focused to being platform-focused, and now to being ecosystem-focused. He believes that with increased experience, 'we can be a better collaborator with one another and open up opportunities for all. Previously, 80 percent of our business was our core product (washing machines). Now that core business is only 20 percent of our revenue, and 80 percent is new business. One example is a partnership with Yeehoo, a high-end retailer of infant clothing, where we have placed our AirWash washing machines into Yeehoo stores. These are washing machines with AirWash capabilities for use with fur, wool and silk. Yeehoo offers them as an additional service for high-end customers who have such specialized cleaning needs.'

Ms. Zhang Meling, a Yeehoo store manager, explained that 'because we are a high-end brand for

infant clothing, we attract a clientele who have cleaning issues with exotic fabrics. We now address these needs as well as their infant clothing needs in our same store. We have developed a patented product and technology for making infant cotton clothes with green and organic materials, suitable for sensitive baby skin, and Haier's AirWash is perfect for cleaning these garments. We have also added the scanning of RFID tags to identify the materials and the products we sell. This is important because such specialized products can command a 50 percent premium price'.

When ecosystem partnerships result in new revenues, such as AirWash cleaning in Yeehoo and Wensli stores, or increased use of Xiaoyi's RFID tags, or recipes used in Haier's smart kitchens, the additional value created is distributed among the co-creating partners according to a pre-negotiated formula. This ensures that value is not only captured, but shared. Value sharing is an explicit part of all ecosystem co-creation relationships, as we also saw with the smart vaccine project partnerships.

Similar explorations are occurring in the Internet of Food ecosystem, where the Australian wine distributor, Swan, discovered through IoT generated data from the customers' smart kitchens that they had greatly misjudged the taste preferences of Shanghai's cosmopolitan wine consumers, who preferred cabernet sauvignon to the merlot favored by Zhejiang's high-end consumer. In Beijing, which had long been a hostage to limited produce variety in the Winter, China's largest organic farmer, Tony's, is replacing the ubiquitous cabbage with a wide variety of new greens and experimenting daily using the IoT generated data direct from consumer refrigerators. Being part of the ecosystem is much more than merely scaling up new offerings.

Haier recognizes that it needs to sell both solutions and customer experience as part of the same offering; *Haier is offering a smart home, not just intelligent appliances*. Not surprisingly, this has led to major organizational changes at Haier, such as increasing the number of their sales people who formerly were interior decorators so that they can have a different conversation with customers. Haier's customer exhibit centers are now offering cooking lessons for more curious customers, and Tony's is even welcoming customer's children on 'farm tours'.

## Microenterprises, platforms and ecosystems

When Haier's leaders reconsidered their organizational structure in the early-2000s, home appliances were still regarded as stand-alone devices. A refrigerator was a machine that kept food cold; a washing machine spun clothes, detergent and water together. Haier was a consummate solutions provider. Its machines provided high value, but they only addressed a small slice of what was going on in the kitchen or laundry room as hyperconnectivity became a norm, and there was no integrating force that spoke for the customers' ultimate dreams.

For Haier, adjusting to this new world of the smart home meant restructuring the company into a new type of organization with three interrelated architectural components: microenterprises, platforms, and ecosystems:

**Microenterprises**, the first Haier microenterprises appeared in 2016 and were initially extensions and then adjacencies of Haier's traditional appliance lines. Today, they are the basic structural element of Haier, and have sufficient autonomy to quickly address challenges, solutions and partnerships that they deem worthy of attention. They succeed or fail on their ability to move fast, make good decisions and deliver measurable and sharable value to the partners that they work with. One way to think of them is as small bets being placed on a future that their members see intimately because of their zero-distance with the customer.

Microenterprises also get employees to act and think like owners, as they own equity in their microenterprise. Often, when successful, they fragment into new microenterprises which address new and different customer experiences: the smart vaccine project growing out of a prior vaccine cabinet microenterprise, or the detergent microenterprise growing out of the exotic materials microenterprises are examples of this. They appear always to be in a state of change.

Frequently, several microenterprises coordinate to deliver a better customer experience through what is called an Ecosystem Micro Community. These are temporary arrangements arising when coordination

between solution microenterprises (hardware) and experience microenterprises (shipping and logistics, for example, in the case of interconnected units) are required.

**Platforms** typically grow out of successful microenterprises. They are larger organizational entities that can more easily coordinate microenterprise growth and behavior within a common application focus: food, clothing, biomedical activities, etc. Platforms are vehicles which can initiate efforts to make big moves; they are not layers, but interconnects. Because they share common customers or institutional settings, platforms are also excellent vehicles for scalable learning. Platforms interpret the relationships between outside-in, and the inside- out. They dampen the frictions that undoubtedly arise.

**Ecosystems** are different from platforms because they have no formal structures. They are customer-experience-oriented, boundaryless networks of stakeholders – within and outside Haier – committed to a shared outcome, or, as a member of Haier's biomedical ecosystem platform put it, they are 'communities of common destiny'.

Participants in an ecosystem are willing to co-create and share value, and to share and synthesize data, in ways that would otherwise be beyond the capability of any one organizational entity. While any ecosystem member can invite others to join, Haier has a centralizing advantage. Its products are naturally the source of entry portals, touch-points and data collection. Its intention, however, is not to over-influence any ecosystem, and direct member-to-member transactions can occur within an ecosystem, without involving Haier.

The Internet of Clothing with its 2000 members and the smart vaccine microenterprise with thirty categories of partners, differ greatly in terms of complexity and scale, but are following the same general principles of organizing, or *unorganizing*, that characterize all of what Haier is doing today. This fractal nature of Haier is a source of its strength, an alignment based on similarity of behaviors and attitudes at every level of the organization in the way that relationships are engaged. As a result, it is entirely possible that Haier's future lies more with its ecosystem relationships than it does with its heritage business lines. In many ways, CEO Zhang might consider that a victory, as he has long called on every employee to be an

entrepreneur, to be a CEO. The ecosystems, and the microenterprises, that they spawn make that outcome far more likely than any alternative organizing approach.

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# How using digital ecosystems can transform an incumbent business

Mark Greeven with Oliver Pabst

# 5



Climb a mountain, ski a backwoods trail, or just go on a hike, and the chances are Switzerland's Mammut will be with you. Founded as a ropemaker in 1862, the manufacturer of assorted outdoor equipment and apparel has in recent years diversified and globalized far beyond its humble origins.

By international standards, however, Mammut is everything but what its oversized name suggests. With sales of more than 260 million CHF (\$283 million) the company is among the top ten in a very fragmented market. The group has fewer than 1,000 employees, stretched across Europe, China, Japan and North America. The target consumer group of the brand is also not exactly mass market, although with much deeper loyalties. The high-quality products and unique brand experiences of the international premium brand are highly appreciated by mountain sports fans around the world.

Mammut's relatively small size and limited resources (until its sale in April 2021 to Telemos Capital, a London private equity house, the company was for years part of Conzzeta, a Swiss mini-conglomerate) have urged the company to explore cost effective and innovative ways to boost business and improve profitability. Brand identity and consumer loyalty were strong. Significant interconnections also existed with other businesses. But there was massive potential for more.

Under Oliver Pabst, chief executive for the past five years and himself a keen outdoor sportsman, Mammut turned to building digital ecosystems to overcome some of its problems. It has struck close strong partnerships and, in line with the main challenge across the outdoor goods sector, striven to reduce the environmental footprint of its products and processes. It offers a casebook study, in miniature, of how companies, irrespective of their size or sector, can gain competitive advantage by exploiting digital ecosystems, despite the apparent dominance of technology giants like Amazon and Alibaba.

## **Putting the consumer first**

Mammut's story starts with the consumer. Pabst knew he could build on a proud tradition and rock-solid brand loyalty. His freedom of action was enhanced by the fact that, rather than being kept on a very tight leash by some corporate giant, it was left pretty much to itself by its parent. Its range had moved from ropes

to outdoor equipment and apparel, including backpacks alongside trousers and jackets, and was valued by buyers as rugged and reliable – essential qualities in building and maintaining trust in outdoor pursuits that contain an element of risk, meaning dependence on kit and outfitting is paramount.

Pabst saw the significant potential for synergies through working with other companies catering for outdoor sports lovers. That went beyond just sturdy footwear or warm, windproof jackets. 'There's a whole range of complex needs that our consumer wants. Thinking in an ecosystem, where we can leverage multiple complementary items, offer services or other products, actually becomes a very natural extension of what we already do,' says Pabst. '

'I believe we cannot build and create the future as an organization alone. So, it is about creating the future together between us and sets of complementors.'

## **The value of digital ecosystems**

'We understand the product we're offering is part of the solution, but not everything,' he adds. 'That is the whole power of ecosystems. If we organize ourselves as an ecosystem, perhaps even orchestrate one, we might succeed in making the consumer happier by offering more items and services that are relevant. At the same time, we will learn more about this consumer; not only how mountain enthusiasts uses our ropes or backpacks, but also when and where he or she is climbing, what locations are really cool because they always show up in pictures, and what kind of training needs such consumers might have. The ecosystem not only satisfies the consumer. It also lets us discreetly learn ever more about that consumer and get ever closer.'

That same strategy, of course, is viable across the business spectrum: think of healthcare, where companies focus on medicines, solutions or bills, but where there may be many other things the patient needs or thinks about. Or take agriculture: a company may today just sell seeds. But its customer - the farmer - may care most about producing the best crops. Hence scope to provide additional training,

rather than just peddling seeds. Such examples show that, when combined, ecosystems can be very powerful tools. They provide a digitally enabled way of allowing groups of interdependent businesses and organizations to link their customer offerings. And they provide feedback. Together, that can create significant competitive advantages for those willing to try.

But while often acknowledged in boardrooms and among top management, barriers can exist when it comes to implementing a digital ecosystem. Six questions invariably arise:

- Around what will the company build its ecosystem?
- Who in the organization should lead and be responsible for the initiative?
- What are the pressing customer needs to be addressed? (something only answerable by actually talking to the customer).
- With which external partners should one collaborate to raise value? In other words, is it better to seek out new partners, or do more with existing ones?
- How can you learn in a smart way about your customer? After all, any ecosystem must also allow you to capture insights.
- And finally, and most common: where to launch the initiative? Should it be global, or a very specific experiment limited to one location? Does it involve just one product or division, or a much broader range of goods?

## **A mammoth journey**

Mammut's experience covers all this ground. Planning and developing its digital ecosystem has been a corollary of the company's diversification from its original core products. 'We are moving from above the treeline to around the tree line to below the tree,' explains Pabst via a highly visual image of how it has 'descended' from catering to mountaineers and skiers to, most recently, urban wear. 'That's why we call it

an *urban expedition* - a pretty accessible and broad range.'

All is built around a redefined sense of purpose. Mammut's goal is 'to create a world moved by mountains'. What that means is that a love of mountains - their majesty and scenery - and the various pursuits that can be followed there, and the outdoors in general, are Mammut's mantra.

The message covers both internal operations and co-creating with others. To work, and to inspire staff to come up with new ideas, Pabst's 'purpose journey' has been shared widely and internalised across the company. 'You need a mindset that is inclusive and super curious. Because when you start a journey, you very often don't know where it will end,' he observes.

Consistency and authenticity require the same message to apply in every partnership. 'It rules for complementary products, offers and services, and for co-creation with others. It's an ecosystem because we not only offer our core products, but more. We even offer mountain experiences, through our Alpine School.' The key consideration throughout is that everything adheres to the 'moved by mountains' dictum.

Mammut acknowledges there is an element of risk because an ineradicable feature of building ecosystems is uncertainty. Companies do not know for sure at the start that their plan will work for their consumers. A further peril lies in the fact that they are going beyond the boundaries of their own organization by working with partners, which naturally have their own purpose, interests, and ways of thinking.

'Even if you ask your consumer and you build every single insight from your consumer, at the very beginning, you don't know what is really super relevant and what a consumer is really ready to pay for - partly because you're bringing together new things. That's why I think, it must be driven by an open, and inclusive mindset,' says Pabst.

That means any initiating group within the company must be comfortable with the plan, the company's own sense of purpose, and be willing to accept mistakes along the way. 'We tried out a lot of things that didn't work,' admits Pabst. Fortunately, most endeavors went well. Three examples of mobilizing external partners stand out.

## Discovering and mobilizing three key partners for Mammut's ecosystem

Take FATMAP – a start-up producer ‘of the best digitized mapping material you can get’, according to Pabst. Mammut integrated and later invested in FATMAP’s products, which allow a ski tourer or climber to prepare for a trip by checking the itinerary, assessing the time required and accessing the vast additional quantities of information available via the digital map. The software even allows users to share their outdoor adventures. ‘It has been quite successful, allowing Mammut to share consumer insights and better understand its consumers,’ he says.

The same applies to Mammut’s digital ecosystem collaboration with Strava, one of the biggest communities globally for biking, running, and, to a lesser extent, swimming. The idea was to combine ideas from ‘vertical’ sports (like Mammut’s) with those of a more ‘horizontal’ nature. It ended up becoming a close collaboration. It began with a local adventure challenge. After lockdown, Mammut invited its consumers, and Strava asked its members, to participate in a local adventure challenge. In the end, the initiative engaged more than 300,000 people in Mammut’s key European markets. In total, people cycled some 1.6 million kilometres. That included two young female cyclists, who alone covered some 800-900 kilometres. The entire initiative, which produced an astonishing reach of more than 35 million through social media, was only possible by bringing Strava into Mammut’s ecosystem.

The development of Climbox – the world’s first climbing tracker is another good example of Mammut’s unique approach to ecosystem creation. A very talented software developer, himself a passionate climber, brought to Mammut the idea of developing the backend AI and App to track vertical movement. Existing trackers measured only horizontal displacement. Here too, joining forces allowed Mammut to launch a ground-breaking product of particular value to its consumers – the 2021 ISPO Gold Winner for the best global product in Outdoor Equipment. But the ecosystem building did not focus exclusively on business opportunities and the power of new technologies. As a matter of fact, after a handful of years experimenting with building an ecosystem, the organization started to embrace ecosystems as a mindset. And that has led them to venture in unknown, but important, waters.

## How an ecosystem mindset drove Mammut into sustainability

Driven partly by its consumers' concerns, and in no small measure by its own staff, Mammut has also tried to develop its social and philanthropic activities – naturally, in a way compatible with its core business. ClimbAID, for example, was founded in 2016 by a young man who travelled to Lebanon to help children affected by civil war develop an interest in climbing, boosting the motivation and self-confidence of such disadvantaged youngsters along the way.

Mammut joined and supported the scheme, both in Lebanon and, latterly, in Switzerland, where it invites refugees to climb indoors and outdoors with company staff. 'We see a clear need to support these people and help them integrate in our society,' says Pabst. Much of the motivation to become more active on social inclusion came from staff and consumers. 'At the same time, we get very positive feedback internally from our people and from our consumers as well. We even send members of our team here to support the initiative in Lebanon now.'

Social engagement has also been pursued through Together for Glaciers, an initiative that forms part of the worldwide Protect Our Winters movement. Designed to protect ancient glaciers from the ravages of climate change and global warming, the scheme involves various forms of engagement and targets precisely Mammut's own consumer group.

Pabst describes the growth of Mammut's greater social engagement as the symbiosis of two factors. 'One is our mindset to be curious, open, and innovation driven, so by definition looking for new business models.' The second was the influence of business academics illustrating the benefits of digital ecosystems.

### Any limitations?

Are there any limits to the types of collaboration, or the size of potential partners? Could such ventures include, say, universities just as well as corporates? 'I think conceptually there are no limits when it comes to execution,' says Pabst. The key constraint is culture and the need for a good fit, he argues. 'The cultural

element to it is extremely important.’

Mergers and acquisitions can contribute to a company’s range of partnerships, but are not essential, Pabst believes. That is partly because of the great potential for exploiting and deepening existing partnerships. ‘I don’t have a yes or a no. I think it is very much driven by opportunities. We invested in FATMAP. By contrast, Strava was too expensive to invest in. You have to look at it from your own strengths and what you can add and how much you can drive, So, ultimately, I believe in collaboration and partly in M&A.’

Academic research into the subject reflects roughly the same divide. Many organizations regard ecosystems only in terms of investing in new ventures and finding new partners. Much evidence suggests that can be helpful, especially for companies with deep enough pockets. But in many cases a company already has plentiful partners to explore complementarities with.

## Thinking big but starting small

Mammut’s experience shows how a venture can start with a very few dedicated people. By going through and launching initiatives, ever more members of staff, and eventually the entire organization, become engaged. ‘Thinking big, but starting small, has been a key lesson about ecosystems for Mammut. We managed to bring a lot of people on board, with a digital mindset, a data driven mindset, even founders or co-founders of start-ups, and a lot of people working in a digital environment, because it’s a prerequisite, from my point of view, to understand the extent to which a digital mindset supports building an ecosystem,’ reflects Pabst.

‘So now people understand what it means to have the core—whether it’s our products or services – and to have complementary offers. I wouldn’t say it falls into place, but you bring it together. The bigger challenge is to bring the glue to it – meaning data points and how to digitize it and share it. And here we are struggling for a lot of reasons – digital infrastructure, resources and regulatory constraints. But I think we are on a good track.’

Mammut's approach recognizes the scope to work with other brands – including direct competitors – where there is identifiable mutual advantage. Pabst sees no conceptual limitation to, for instance, working with Patagonia (a particularly eco-conscious outdoor goods brand) on cross brand activism. He is already linked to many counterparts via an European industry group, the EOG. 'If you really want to make a change, if you want to get to a better place, if we are taking care of all of planet, it's only possible by doing it together. This is why Mammut started the Together for Glaciers movement. There's no chance trying to work on your own here in terms of reducing your CO2 footprint; it's impossible. You need to enlarge that approach. And that's why we have to cooperate and collaborate. Building digital enabled ecosystems is not only possible but imperative.'

## Pitfalls

The case of Mammut shows the power of ecosystems beyond the digital platforms and large technology incumbents. Medium-sized, product-based businesses, like the century-old Swiss Mammut, can leverage digital ecosystems to transform their business. But, implementing business ecosystems is not without challenges. Our research and experience suggest four major pitfalls to avoid:

**Pitfall 1: Building an ecosystem around everything.** Mammut was, for example, conscious from the start of the need to build its initiative around a clear anchor – in its case, climbing. Although the ecosystem as a concept has few boundaries, implementing it for an incumbent business it has to be rooted in a strong core business, rather than spreading the organization thin around a multitude of exciting opportunities.

**Pitfall 2: Start only when the whole organization is on board.** As we have seen with Mammut, ecosystem building starts small, inside the organization with a group of enthusiasts, and the support of the CEO. It takes time for the rest of the organization to get used to the idea of building business across traditional business boundaries, with external partners. Instead of waiting or doing large scale cultural transformations, get started and prove that the ecosystem mindset leads to tangible results.



**Pitfall 3: Scouting mostly for new partners to build the ecosystem.** Pabst also recognized the potential in working with existing partners, rather than wasting too much time searching for new ones. Moreover, with a strong digital instinct, he was acutely aware of the need to bind together the various parts of Mammut's budding network – ideally through shared digital services.

**Pitfall 4: Start big with a global launch.** Mammut recognized the need to start small. It began its shift into digital ecosystems modestly and on a limited basis, rather than launching big global initiatives that can easily lose traction.

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**Oliver Pabst** is the CEO of the iconic and pioneering Mammut SWISS 1862 mountaineering brand.

# Rainforests as a model for economic growth

Victor W. Hwang

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**W**hat makes ecosystems like Silicon Valley tick? Can we bottle that magic? Can we replicate it to transform the way communities, cities, and countries grow?

Answering these questions has been my mission for over two decades. Despite enormous public investments globally, only a few regions like Silicon Valley have become enduring innovative, entrepreneurial ecosystems – human networks that generate extraordinary creativity and output on a sustainable basis.

My experiences as an entrepreneur, investor, and economic growth consultant have provided me unique insights at the intersection of private venture and public policy. I've worked with hundreds of organizations to foster entrepreneurial innovation, including development institutions such as the World Bank and the U.S. Agency for International Development, foreign and domestic governments, Fortune 500 corporations, economic development organizations, philanthropists and philanthropies, and many others. I recently led the Entrepreneurship work of the Kauffman Foundation, often regarded as the world's leading philanthropy for entrepreneurs. Last year, I launched Right to Start, an advocacy campaign to make entrepreneurship a public priority for all.

Over the past two decades, my work has evolved into a comprehensive model to explain and build ecosystems: *The Rainforest*. The Rainforest model offers a new way of thinking by combining direct observations about the innovation process with emerging science on human psychology, evolutionary biology, design thinking, and social systems. To understand ecosystems, we must comprehend the dynamics of human nature, the invisible transaction costs that divide us, and the development of social norms that allow people to overcome barriers and create prosperity.

## **What is the Rainforest?**

What is the difference between a farm and a rainforest? This is not a trick question. The modern discipline of business management might be described like running agricultural farms. It is focused on controlling systems, using tools to finely calibrate accuracy, precision, and productivity. The greater the

control, the better the output. Companies are rewarded for efficiency, like farmers generating greater crop yields using better fertilizers, pesticides, and farming methods.

By contrast, in ecosystems, the greatest productivity comes from environments that resemble not cropland but rainforests. In nature, a rainforest functions not because of the mere presence of raw carbon, nitrogen, hydrogen, and oxygen atoms. Instead, it thrives because the elements combine to create new and unexpected flora and fauna. A rainforest is an environment with special characteristics – for instance, humidity, nutrients, and temperature – that encourage the creation of new species of animals and plants greater than the sum of their elements. A rainforest takes lifeless inorganic matter and creates systems of thriving organic matter.

Natural rainforests do not predetermine the evolution of new species, but they provide the right setting to foster their serendipitous evolution. The most promising life forms emerge in unpredictable ways from highly fertile environments. Human ecosystems are similar to rainforests. We cannot force specific innovations into existence sustainably, but we can design and shape environments that cause innovation to be born and thrive.

The Rainforest model requires a paradigm shift, because the agricultural model dominates management thinking. On a farm, we pull the weed that doesn't belong. In a factory, we fire the assembly line worker who deviates. In the Rainforest, however, what looks like a weed might be the most valuable new plant in the entire ecosystem. Think of companies such as Google and Facebook in their early days – they were indistinguishable from weeds when they started. In Rainforests, the oddballs are the gamechangers. We want to nurture weeds to grow.

Thus, we arrive at a paradox. A company that seeks to manufacture cheaper, better, more profitable products must run operations like a predictable farm. But a community that seeks to generate high levels of innovation would do the opposite: emulate an unpredictable rainforest. While plants are harvested most efficiently on farms, weeds sprout best in Rainforests.

## The science of the Rainforest

The Rainforest model is derived from the natural sciences. Increasingly, science is validating that human economic systems are also biological systems. Edward O. Wilson, arguably the most influential biologist in the past century, supports this notion. He once told me (he was my former professor) that understanding the principles of ecosystems is the ‘next big thing’ in biology and will require input from business and economics.

According to Wilson, evolutionary biology demonstrates that while selfish individuals tend to win against other individuals, groups of altruists tend to win against other groups. In other words, great teams beat great individuals, as a universal principle across all species. This evolutionary tension – between individual needs and group interests – explains why only a few species of animals, including bees, wasps, ants, termites, and human beings, have developed complex social instincts enabling them to take over much of the planet. Bee tribes, however, are static and hard-coded, while human tribes are dynamic and soft-coded. If a predator attacks a bee colony, that colony has to fend for its own survival. A startup can take on a large corporation by recruiting talent from around the world.

In human societies, unlike bee populations, the boundaries of tribes can be redrawn continuously to address evolving needs. Diverse human beings come together continuously to rally for common, pragmatic goals. That’s true, to some extent, everywhere. But in strong ecosystems like Silicon Valley, assembling diverse groups repeatedly is easier and less expensive. The transaction costs of organizing teams to solve ever-changing problems are simply lower.

However, human nature can get in the way. Our brains are instinctively tribal. We are designed to trust people closer to us and to distrust those further from us. High social barriers outside of close circles of family and friends are the norm in the world. Human nature, with its innate prejudices, can create enormous transaction costs in society.

What we think of as free markets are actually not that free. They are still constrained by transaction costs

caused by invisible social barriers based on:

- geographical distance,
- lack of trust,
- differences in language and culture, and
- inefficient social networks.

Those social barriers can be high, and they can keep people isolated. Social barriers create transaction costs that stifle valuable relationships before they can be born. The instincts that once helped our ancestors survive – favoring distrust over trust when it comes to strangers – are hurting our ability to maximize innovation today.

Rainforests like Silicon Valley are able to overcome these transaction costs caused by social barriers through a distinct set of social behaviors. These social behaviors correspond to the mechanisms that are necessary to maximize the free flow of talent, ideas, and capital in a human network. These behaviors, however, require that individuals rise above short-term selfishness and focus on long-term mutual gain. The key factors in the strength of human innovation ecosystems are:

- diversity of talents,
- trust across social barriers,
- motivations that rise above short-term rationality, and
- social norms that promote rapid, “promiscuous” collaboration and experimentation among individuals.

Rainforests depend on leaders who actively bridge social distances and connect disparate parties together, like the role of *keystone* species that tie biological ecosystems together. Honeybees and

hummingbirds are among the commonly known keystones in nature. In strong human ecosystems, keystones are those people whom “everyone knows.” They forge critical connections across boundaries that keep Rainforests alive.

Generally, people in Rainforests are motivated for reasons that defy traditional economic notions of ‘rational’ behavior. We call these “extra-rational motivations” because they rise above simple concepts of rational or irrational. Rainforests function when the combined value of social norms and extra-rational motivations outweigh the human instincts to fear.

## **The Rules of the Rainforest**

Entrepreneurial innovation is built on its own set of unwritten laws. A successful Rainforest benefits from lower transaction costs because of unwritten behavioral norms that fill the gaps when traditional social structures don’t exist.

American individualism is often attributed to the frontier experience of the American West. Silicon Valley would likely never have existed without the culture of the frontier. But not just because of its emphasis on individualism, as most people assume. Silicon Valley is also the inheritor of the frontier spirit because of its unique collectivism. As historian Frederick Jackson Turner observed over a century ago, the tension between the individual and the collective is key. The frontier was conquered not just by individualists, but by a culture of pragmatic cooperation. Rainforests have replaced tribalism with a culture of informal rules that allow strangers to work together efficiently on temporary projects. Silicon Valley is an extension of that culture: marked by social networks where individualism is tempered by the need to participate within a community.

We have identified seven simple Rules of the Rainforest derived from the cultural norms that facilitated cooperation among pioneers on the American frontier. These Rules are woven into the invisible fabric of daily life in Silicon Valley and other strong ecosystems.

Rule #1: Break rules and dream.

Rule #2: Open doors and listen.

Rule #3: Trust and be trusted.

Rule #4: Experiment and iterate together.

Rule #5: Seek fairness, not advantage.

Rule #6: Err, fail, and persist.

Rule #7: Pay it forward.

Today and throughout human history — whether in Silicon Valley, the Gold Rush, the Dutch guilds, or various industries — we see a similar process. People tend to create informal rules when formal laws are insufficient to govern the practicalities of real-world interactions.

Moreover, the Rules of the Rainforest are only one-half of a binary system, a clash between two opposing social contracts. One social contract is based on values of production, with its zero-sum norms. The other is based on values of innovation, with its positive-sum norms. Both social contracts are legitimate in their own ways, but they are completely opposite in effect. If we write the social contracts down, making the implicit explicit, here is what they look like:



<b>Rules of the Rainforest</b> (positive-sum norms for innovation)	<b>Rules of the Farm</b> (zero-sum norms for production)
<ol style="list-style-type: none"><li>1. Break rules and dream</li><li>2. Open doors and listen</li><li>3. Trust and be trusted</li><li>4. Seek fairness, not advantage</li><li>5. Experiment &amp; iterate together</li><li>6. Err, fail, and persist</li><li>7. Pay it forward</li></ol>	<ol style="list-style-type: none"><li>1. Excel at your job</li><li>2. Be loyal to your team</li><li>3. Work with those you can depend on</li><li>4. Seek a competitive edge</li><li>5. Do the job right the first time</li><li>6. Strive for perfection</li><li>7. Return favors</li></ol>

Each of the two columns above is a sound worldview. They are valid in their own right. However, upon reflection, you might notice that the two columns are perfectly opposed, item by item. And they lead to opposite results. The rules on the left side lead to creativity, serendipity, and uncertainty. The rules on the right side lead to productivity, efficiency, and predictability. Neither set of rules is wrong. The opposite of 'trust' is not simply 'distrust'. The opposite of 'excel' is not simply 'do a bad job'. People tend to see their own value choices as positive, not negative.

We can simplify these opposing social contracts even more, reducing them to the essential values being expressed. Each value below correlates to the corresponding rule above.

Values of Innovation	Values of Production
1. Openness	1. Excellence
2. Diversity	2. Loyalty
3. Serendipity	3. Dependability
4. Fairness	4. Success
5. Experimentation	5. Quality
6. Play	6. Precision
7. Giving	7. Reciprocity

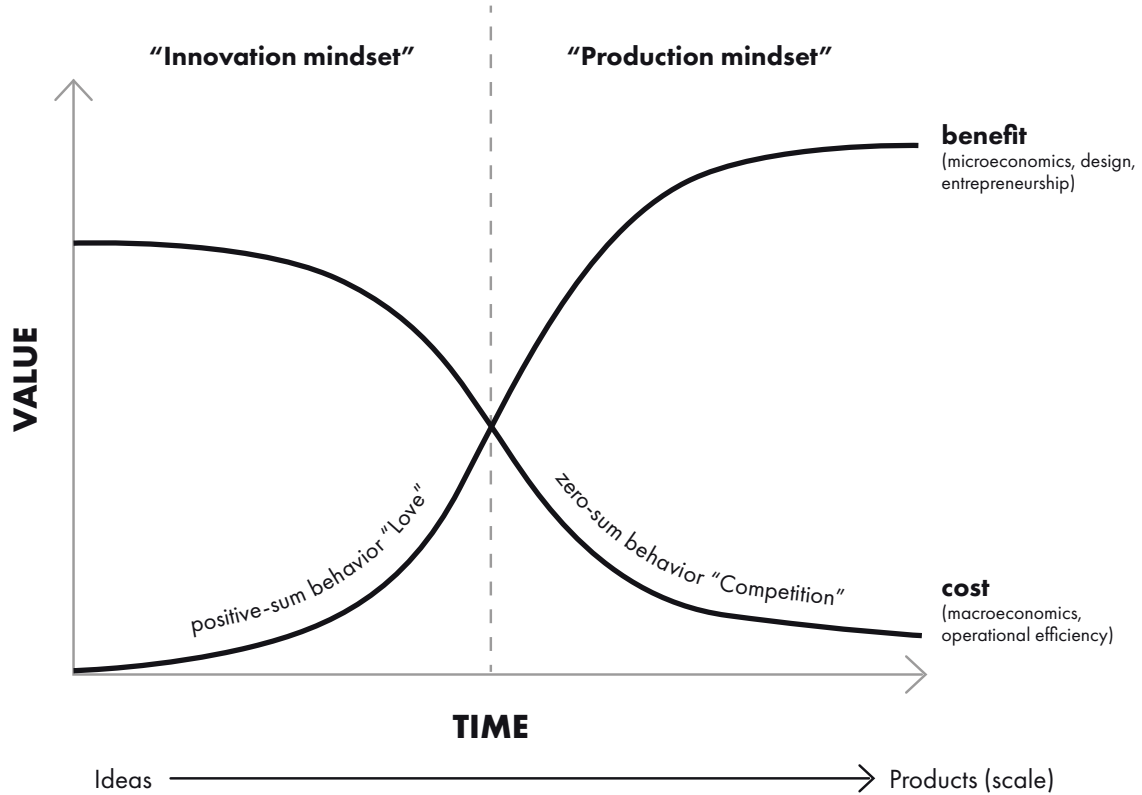
Successful companies must exist in both worlds – innovation and production – simultaneously. That’s hard to do. Innovators on the left often think of managers on the right as cold-hearted and lacking in vision. Managers on the right often think of innovators on the left as frivolous and impractical. But in reality, both sides need each other. Ideas that live only on the left side are stillborn. Institutions that get stuck on the right side become dinosaurs.

Good ideas fail because they cannot cross the cultural barrier between innovation and production. Silicon Valley’s success, arguably, comes from embracing the duality of both mindsets. For example, venture capitalists in the Valley must deal with hard numbers, but they’re also open to the idea that the next great entrepreneur might be a college dropout. You probably won’t recognize the next Mark Zuckerberg at first, so keep your mind open.

## The Rainforest Curve

Modern leaders must learn how to drive innovation as an evolutionary, ecosystem-based process. To

assist leaders, here's a simple diagram that captures the Rainforest model, inspired by my collaboration with Stanford scholar Ade Mabogunje. It incorporates the two clashing worldviews and shows how they interrelate. It also explains why so many good ideas fail to grow, why old businesses get stale, and why only certain businesses thrive. I call this diagram the *Rainforest Curve*.



As ideas grow into products, from left to right, their beneficial value to a user increases. That's the upward curve extending from the bottom left to the top right. The process of value creation is driven by

positive-sum behaviors, like collaboration, team-building, and shared risk-taking. Think of the passion that a startup team invests in building their company. You see this behavior manifested in real life by entrepreneurs, designers, inventors, artists, researchers, and innovators.

As ideas grow, however, they cross a downward-sloping cost curve, which exerts real-world constraints. Those constraints include capital limitations, finite labor, or scarce resources. The cost curve is driven by zero-sum behaviors, like competition and squeezing out inefficiencies. Reducing the cost curve is what gave birth to the field of business strategy.

The intersection, where the curves meet, is like an invisible brick wall. Most new ideas, great breakthroughs, and startup companies die on the left. Most aging institutions, corporations, and governments die on the right. The crossover is the hardest part.

## How to build Rainforests

To build Rainforests, we must transform culture. Public attempts to foster innovation that do not focus on changing human behavior are doomed to fail. People learn culture not from top-down instruction, but through:

- learning while doing,
- role modeling,
- peer-to-peer interaction with diverse partners,
- feedback mechanisms that penalize bad behavior, and
- making social contracts explicit.

In addition, building and maintaining Rainforests requires specific forms of leadership and capital sources. Leaders, such as keystones, must practice and enforce social norms, while bridging between social networks to bind greater communities together for common action.

The Rainforest model is more than a metaphor. Innovation ecosystems are not merely like biological systems; they are biological systems. Talent, ideas, and capital are the nutrients moving through this biological system. Human systems become more productive the faster the key ingredients of innovation – talent, ideas, and capital – flow throughout the system. When particular social behaviors allow talent, ideas, and capital to move even more freely – as they are in Rainforests – we find that human networks can generate extraordinary patterns of self-organization.

The Rainforest model explains the largely invisible mechanisms that underlie innovative, entrepreneurial ecosystems like Silicon Valley. It is not creative destruction alone that is sufficient. Far more important is *creative reassembly*, the ability of humans to combine, recirculate, and recombine into ever-increasing patterns of efficiency.

Over the past decade, the Rainforest model has influenced the fields of economic development and entrepreneurship support. Hundreds of communities have adopted Rainforest-based ideas and practices – whether they realize it or not – which in turn has impacted hundreds of thousands of entrepreneurs and innovators.

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## **For more information on how Rainforest concepts have been translated and applied into practice, here are some resources:**

Rainforest books and free tools at [www.victorh.co](http://www.victorh.co)

Kauffman Foundation Ecosystem Building Playbook at [www.kauffman.org/playbook](http://www.kauffman.org/playbook)

Kauffman Foundation ESHIP Summit on building entrepreneurial ecosystems at [www.eshipsummit.org](http://www.eshipsummit.org)

Official professional certification for Entrepreneurship-Led Economic Development, by the International Economic Development Council ([link here](#))

America's New Business Plan, a comprehensive policy roadmap for entrepreneurship, at [www.startsupnow.org](http://www.startsupnow.org)

Right to Start, a nonpartisan campaign to elevate entrepreneurial opportunity as a public priority by building an ecosystem for entrepreneurs and policymakers, at [www.righttostart.org](http://www.righttostart.org)

# **Growing opportunity**

Janka Krings-Klebe and  
Jörg Schreiner



**T**he rise of digital technology has fundamentally changed the way how business works. Businesses today compete and cooperate through digital channels on a global scale. In such a globally interconnected world, flexibility, speed and adaptability are in high demand. These traits provide the cornerstone for customer-directed innovation at speed and scale. Digital business ecosystems have proven to be a very powerful – if not the most powerful – innovation setup known today.

Roughly twenty years ago, Nvidia emerged as the leading company for graphical processing chip sets, mostly used for gaming platforms, PCs and mobile computing devices. It turned out that some of their chips were also perfect hardware platforms for machine learning applications. Nvidia was quick to enter this market, soon supplying Tesla and other companies with customized hardware for their cars, thereby taking autonomous driving to the next level and making Nvidia more independent from the declining PC market.

The challenge for companies in dynamic markets is not to launch innovative products like this once every few years. It is to do it all the time. Amazon does so. Haier does so as do companies including Nucor, Handelsbanken and Morning Star. These organizations have a thirst for innovation at the core of their business. They always look to improve their operations and to increase the value they can provide for customers. Their organizational structure perfectly reflects this habit (see Figure 1) with autonomous teams working closely with the demands of customers. They can easily create a new business to meet an emerging opportunity. The whole organization is dedicated to continuously starting, operating and closing multiple business operations.



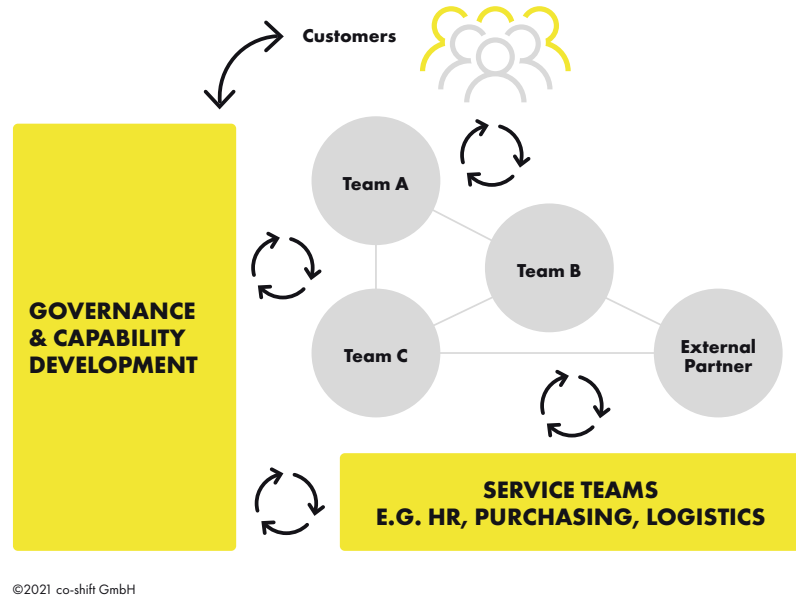


Fig. 1: The customer centric organization

These innovative organizations work like an ecosystem, all parts competing and cooperating at the same time in a business setup that fosters flexibility, speed and customer-directed innovation.

How to create such a business setup? How can traditional organizations transform into something similarly powerful? Companies like Haier and Amazon show the way to do it: corporations have to internally transform their operations into a highly dynamic ecosystem and learn to manage and govern every part of this setup according to principles of adaptivity. This is a fundamental organizational requirement to successfully take part in business ecosystems. It must become part of an organization's DNA. Companies lacking this ability cannot hope to profit from ecosystems.

## From hierarchy to ecosystem

Looking at how business was done for decades and still is, you usually find an efficiency driven monoculture. Most business organizations focus on efficiently producing a limited number of different products for a stable market. Innovation in this context means incrementally improving on existing products or operations. Processes and structures typically emerge according to the needs of the dominant business. IP-management, risk management, financing and staffing of operations are perfect examples. These are by their very nature self-limiting. Today, companies follow governance principles that simply leave no room to quickly act in constantly changing market environments. These management practices, optimized over decades to serve one dominant business, are road blocks to taking part in ecosystems. They limit the available space for new or deviating business. Those outlying business opportunities are not welcome, as they disturb the main business and reduce short-term revenue. That is why moon-shot innovation or new business opportunities are usually strictly separated from a company's main business.

Over decades, this strategy worked well due to stable market conditions. But in a hyper-dynamic environment with multiple players in the market, a strategy of putting all your eggs into a single basket and taking every effort to protect this basket for a long time, becomes increasingly dangerous. It is a road block for adaptation and taking part in business ecosystems.

Is there a way to reverse this strategy? Of course, there is. Handelsbanken, Nucor, and Haier all have followed this way for their impressive transformations. Corporations need to learn to manage and govern all their operations according to market-based principles of adaptivity to customer needs and innovation opportunities. These market-based principles can be applied to internal operations, thereby changing all management and governance practices.

Learning to do this is the most important step in this journey. Corporations cannot skip it and there is no shortcut. This step is crucial for succeeding in the transformation and to establish corporate learning. In practice, this means starting small with a few teams, learning fast, removing emerging barriers, and changing processes and structures to better align with market needs. New-found practices then need to

rapidly find their way to all places in the organization where they add value. Developing flexible business practices in such a gradual approach has proven to be a successful path for transformation efforts. With this first step, corporations can achieve remarkable adaptation and innovation capabilities. The constant alignment of structures and processes with customer needs ensures that the corporation stays relevant. Being able to perform this alignment at high speeds and in multiple spots at the same time then feels like the company fluidly adapts to emergent customers, business opportunities and market needs. It is a perfect organizational setup for participation in cross-company ecosystems and a prerequisite for starting ecosystems. Companies must not even think about ecosystems if they lack this flexibility.

With flexible cooperation practices in place, joint business across companies becomes much easier. Extending these flexible practices to accommodate new external partners is simple. At this point, ecosystems can fully leverage their strengths for the participants to quickly take advantage of emerging business opportunities.

## **Decoding business ecosystems**

The most powerful ecosystems are set up as an open marketplace, thereby breaking down a crucial barrier to innovation: They are unlimited in the resources and business capabilities they can provide to their customers. Marketplaces can unlock resources and services that are traditionally locked inside a single business operation and make them available to many other business operations.

The organizational structure of these ecosystem setups constantly and fluidly matches resources and capabilities to new opportunities. It makes them incredible fast, flexible, and able to perform very well across a wide field of vastly different business operations.

It is an organizational structure based on principles of entrepreneurial autonomy and reusable services, largely aligned through digital interfaces. Amazon and Haier work like marketplaces of business services on a common digital transaction platform. Business operations can quickly be set up by combining customized front-end operations with standardized back-end services. These back-end services are readily

available for any kind of business operation. They offer a comprehensive catalogue of basic services, like accounting, cloud storage, invoicing, payment, or shipping, that every business operation needs. They also offer a lot of specialized and unique services, such as Amazon Wallet or Haier's open R&D partnership ecosystem Hope. Each service in essence provides a high-performing business capability, that can easily be integrated into many kinds of business operations. Combined, this business architecture can quickly gain track across a wide spectrum of markets or industries. It can explore many more business opportunities in parallel than traditional businesses. It can scale up profitable business operations much faster. It can very easily establish a system of distributed control and management that is much more efficient than traditional organizational structures.

Business operations in such platforms can quickly scale up or down and adapt to new demands and opportunities. They can easily acquire and integrate new competencies and resources. They give access to competencies and services that would otherwise be too hard or too costly to build. They can provide limitless opportunities to entrepreneurs and innovators. They can considerably bring down the risks traditionally associated with starting a new business operation.

The following scenario shows how ecosystems can elevate entrepreneurship to the next level.

## **Sally's story**

An entrepreneur, let's call her Sally, has spotted a business opportunity, and she has an idea how to turn it into a product. She can easily acquire all lacking competencies for her new business operation at fair and flexible conditions through services of partners in the ecosystem: From seed financing, prototype development, purchase of materials, targeted marketing campaigns, to all kinds of development and manufacturing competencies, sales, logistics, branding and accounting. All these functions and competences of a business are available to Sally through digital channels and standardized transactions, including contracting and payment. Sally has full transparency about the offered services and can easily pick the competencies that she needs.

The platform powering the ecosystem makes these competences quickly available as a service for her business operation. The platform's business design and operation tool set allow her to quickly design the insides of her business operation as a sequence of integrated services and contracts delivering value to customers. Standardized digital transaction protocols and contract templates facilitate the execution of the contracts. They ensure that all participants in the ecosystem can exchange money, goods, and information at fair, safe, and secure conditions. Digital contracts and transaction records are automatically logged in a tamper-proof way, thus promoting trust among participants in the ecosystem.

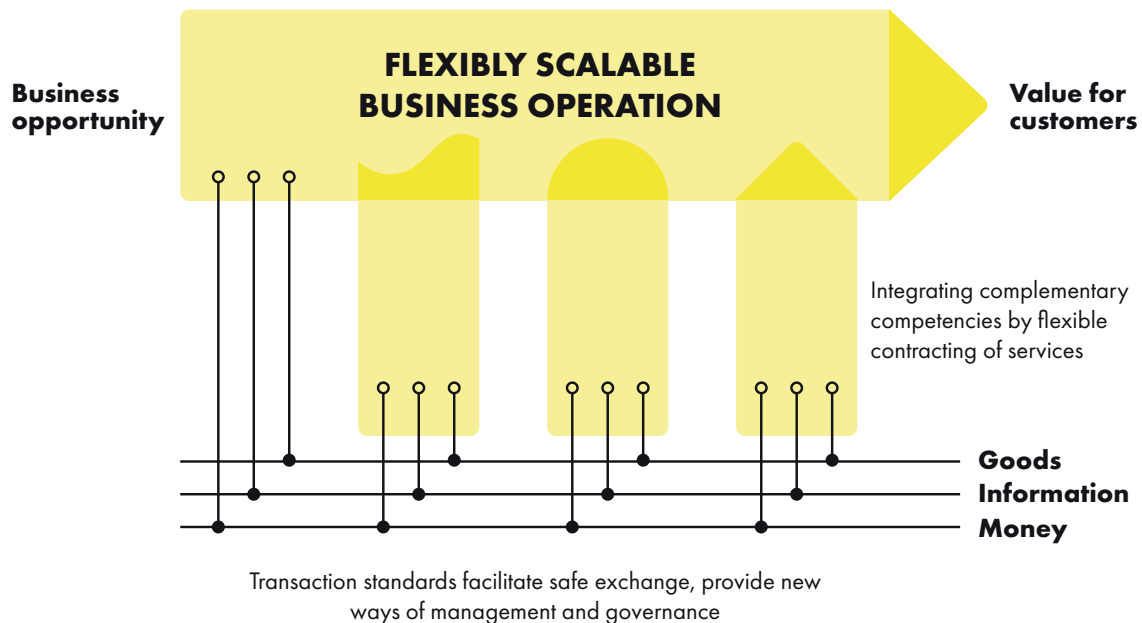
The business design and operation tool set of the platform, its contracting options and standardized transaction protocols enable Sally to fully control the design of her business operation, to monitor its performance, to make adjustments where necessary, and to quickly reproduce, scale and adapt it for different customer groups. In short, digital tools facilitate and automate many managerial tasks of Sally. They are as easy to use as digital project management and workflow tools, but are for more powerful and adaptable, able to automate many tasks and transactions. They support her in every business phase: From inception to operation, growth, diversification and finally closure or sale of the business.

For Sally, this means she can start her business operation small, experiment and incrementally adapt her products' value to customer needs. If successful, she can quickly scale her operations up and down according to demand. Sally can focus her efforts on delivering value to her customers, and flexibly adapt her business to excel in its purpose. She can take on more risks, because she doesn't need to build up all competencies with her own resources. Much of the needed resources and capabilities are quickly and easily available in the ecosystem. She can even spin off parts of her business operation as a service to other participants in the ecosystem, thus contributing to its overall strength.

## **Designing highly adaptive business ecosystems**

The basic design of a business operation in a business ecosystem is a combination of services delivering value to customers (Figure 2). All parts of the business operation exchange goods, money and information through the digital transaction protocols of the ecosystem. Any service in this ecosystem can also be regarded as its own business operation, performing value for others. It can also contract other services. In

this way, business operations can become aggregated into more complex services. They can take on the kind of complex business challenges typically performed by large corporations. Despite the resulting size and complexity, such operations can remain similar fast and flexible than a startup, because the digital transaction backbone provides excellent data about markets and business operations in real time, enabling excellent control of large-scale and complex operations. It goes far beyond the levels of control that hierarchical reporting lines and traditional controlling functions can achieve. The digital backbone provides control and feedback loops that work in real-time, and which can largely be automated and facilitated by digital assistants.



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Fig. 2: The basic design pattern of digitally facilitated ecosystems is infinitely scalable

## Designing the governance of digitally facilitated ecosystems

In business ecosystems, the majority of decisions are made at the edges, at the point with the biggest impact, usually very close to customers. It is essential to give up control at these edges, and to learn from constant experimentation how to make the most of each new challenge and opportunity. Giving up control at the edges doesn't mean giving up all means of governance and control inside digitally facilitated business ecosystems. Indeed, the reverse is the case.

The digital technology powering them is also a quick multiplier for all effects that their business operations have. They can affect single business operations, bigger clusters of business operations, the ecosystem itself or even the surrounding economy and society – for good and for bad. Balancing the interests of business owners with the long-term interests of other stakeholders therefore is more important than ever in a world dominated by digitally facilitated ecosystems.

The digital transaction records in the ecosystem provide efficient means of governance. They contain valuable and tamper-proof information about the ecosystem participants, their areas of business, services performed, emerging trends and issues. All this information is available in real time, giving ecosystem managers timely insights into associated parts of the local economy. They can use these insights to improve the digital tools in the ecosystem, making it more powerful and attractive.

More importantly, they can be used to execute efficient governance on different levels:

1. They can direct economic activity towards alignment with local and national policies.
2. They can balance legitimate interests of different stakeholder groups.
3. They can ultimately swiftly execute sanctions or legal actions against criminal, corrupt or unethical behavior in the ecosystem.
4. Legal systems and jurisdiction for these business ecosystems ultimately need to be controlled by the societies in which they operate. It is crucial to have this kind of control in order to achieve a dynamic and fair balance of interests of all stakeholders affected by the ecosystems.

Looking at how current large businesses increasingly dominate economies, how they execute power over individuals, suppliers and also consumers, and how it becomes ever harder for small businesses to compete against these giants, we think it is high time to reverse this trend.

Every new participant, added business operation and service contributes to the growth of the ecosystem, its power to perform, and the impact it has on society and overall development of the economy. Monitoring and governance of its activities therefore becomes a necessity.

Governance of businesses determines the opportunities that people have in their jobs. Good governance and leadership in businesses can provide more, and better opportunities. It makes people happier in their jobs.

Politics has a crucial role to play here: it creates the legal and regulatory framework for business and entrepreneurship. It can shape this framework in such a way that companies also serve the interests of society. Politics can also ensure that the expansion of the digital economy creates sustainable opportunities for participation in all population groups.

Digital business ecosystems can contribute hugely to this vision: controlling access to digitally facilitated ecosystems and achieving control over the digital standards used for transactions in a digitally facilitated ecosystem gives leaders powerful new tools for governance. This power belongs in the hands of governments who work for the prosperity of society and the happiness of their people. They can use it to provide more, and better, opportunities for people in their organization to become successful entrepreneurs. Entrepreneurs, in turn, can share their success when their businesses contribute to improve the economic opportunities of millions of people.

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**Need, technology, and  
behavior: driving us  
inevitably to an ecosystem  
future**

Kaihan Krippendorff



In 1993, a little-known illness infected 732 people across four states in the western US. The mysterious sickness led to the deaths of four children and left 178 other victims with long-term medical complications. The culprit? The *Escherichia coli* bacterium, now better known as E coli. The outbreak, linked to 73 Jack in the Box restaurants in California, Idaho, Nevada, and Washington, has been called the most infamous food poisoning in contemporary history. As an immediate result, all of the suspected restaurants were closed. Every point in the beef supply chain required scrutiny and resulting safety concerns changed the beef industry forever. In the year and a half after the outbreak, Jack in the Box lost approximately \$160 million from both lawsuits and lost sales.

We've come a long way since that 1993 incident, but fragmented supply chain data still makes it difficult to pinpoint the origin of a food poisoning outbreak. But, imagine a future in which shutting down an entire supply system due to an outbreak won't be necessary because we can trace the source of contamination to a shipment from a specific slaughterhouse in minutes. This is what companies like animal health company Zoetis and technology giant IBM are working to create right now.

I've worked with Zoetis' head of corporate strategy, Tess Caputo. She explained how technology is enabling the evolution in the beef industry to prevent food safety outbreaks in the future. The beef supply chain is fragmented—a cow could be owned by three or four farmers in different states before the beef is packaged and sold to consumers. When a cow changes hands at auction, it's difficult to keep a record of the feed it consumed, where that feed was produced, medications it received, and any previous owners.

Now, with retailers and consumers demanding transparency of the provenance of animals and the medications and treatment they receive, farmers and animal health organizations are partnering with tech companies to generate greater insights into an animal's history. These partnerships become part of a greater ecosystem, backed by blockchain technology, that attaches a unique ID to each cow, records every time it receives medical treatment or is sold, and offers a traceable, trustworthy view of the animal's complete background. Imagine if each cow had an identification number similar to a car's vehicle identification number (VIN) that you could use to quickly pull up its entire history. This transparent recording

system is also useful in the dairy industry, where diet, environment, genetics, and medicine can all affect the amount of milk produced. In the event of a food safety emergency, government agencies will be able to locate the source with more precision and manage outbreaks without shutting down entire supply chains.

A similar ecosystem, the IBM Food Trust, brings together producers, suppliers, and retailers to create a smart and sustainable food supply. IBM's blockchain offers participants better visibility into their supply chains and allows information sharing between parties that is seamless, efficient, and secure. The Food Trust, made possible by an ecosystem of partners working together, helps to increase food safety, unlock supply chain efficiencies, reduce waste, and improve all participants' bottom lines.

The same trend is occurring across nearly every other industry. From healthcare and media to telecommunications and energy, industry players are disengaging from competitive rivalries to begin establishing collaborative ecosystems. Three factors are driving this shift:

1. **Need:** Across sectors a shift is underway, moving players away from myopic interests of investors and customers toward a focus on larger, societal needs.
2. **Technology:** New technologies are emerging that enable us to meet these needs in ways we could not before.
3. **Behaviors:** With new technologies in hand and needs to apply them to, it is natural that humans and their organizations are changing their behavior, adopting new ways of thinking and organizing.

## New needs come into focus

Industry ecosystems are not new. But the need for them is becoming more prevalent.

In my book *Driving Innovation from Within*, I share the story of a Danish carpenter named Christian Riisager who inspired an ecosystem around wind energy in the 1970s. He had designed a large windmill that could produce 22-55 kilowatts of wind power—enough to make wind a commercially viable

resource. Instead of launching his own company to mass-produce the idea, he formed the Tvind School, a community of corporations and institutions including other innovators and technology firms. Backed by a team of supporters, Riisager's innovative idea could scale rapidly. This pattern of ecosystem development is essential to medical innovation (e.g., magnetic resonance imaging, antiretroviral treatment for AIDS, and stents) as well as other transformative innovations such as e-mail and open-source software. In our society, the greatest innovation often comes not from individuals and startups, but from the collaboration of corporate and institutional employees.

Communities like these are becoming increasingly common because the need for them is elevating. Ecosystems develop around a shared purpose, and their prevalence is rising as major societal challenges, such as global food supply, climate change, income inequality, healthcare reform, immigration, and overpopulation are being thrust with greater urgency into societal consciousness. In a podcast interview, innovation and leadership scholar Navi Radjou told me, 'In 2020, companies realized that things like social justice, climate change, and rapidly responding to social needs in times of crisis is not just "corporate social responsibility" anymore. It's becoming the core purpose of companies.'

Another guest, Michael Raynor, managing director of Deloitte LLP, ominously warned that our planet will become uninhabitable unless we can reduce carbon emissions by 50 percent in the next ten years and hit zero carbon by 2050. The immediacy of these challenges has woken us up to a new purpose of a corporation—to think beyond profits for shareholders and work for the benefit of all stakeholders, including customers, suppliers, employees, society, and the environment. That purpose gives companies a goal to rally behind, and a reason to unite.

When I was in business school, strategy was a competitive process. To succeed, an organization needed to build out economies of scale and raise barriers to entry with the aim of winning more market share than its competitors. Today, a shift is underway. In order to solve broad societal challenges and better serve customers, the nature of competition is shifting. Technological advances such as the internet of things (IoT) and a growing network of autonomous connected devices that need to communicate with each

other have rendered it impossible for a company to exist in a vacuum. Coopetition, or collaboration among competitors to produce mutually beneficial results, is becoming much more broadly accepted and, often, necessary.

As I rewrite the second edition of my book *Outthink the Competition*, I find myself softening the language and the references to warfare metaphors between business competitors. Although the strategic playbook garnered from warriors like Sun Tzu and Napoleon Bonaparte is still highly valuable, businesses today aren't as interested in 'killing' or 'crushing' their competitors. In fact, they may need to form strategic partnerships with longtime rivals to supplement their capabilities and grow their markets. I spoke with Ram Charan, worldwide expert on business strategy, execution, corporate governance, and building high-performance organizations, who told me, 'Most people want to divide the existing pie. The brilliant strategists expand the pie or create a new pie. They shape the new market space.' Of course, in their influential book *Blue Ocean Strategy*, Renée Mauborgne and W. Chan Kim began urging businesses toward this perspective because, and Mauborgne explained to me in an interview, they wanted to propose looking at strategy as additive and creative rather than reductive and zero-sum.

A shared purpose, whether it means solving a grand societal challenge or meeting increasing customer expectations, naturally calls organizations to collective action and increases opportunities for all members to solve problems that matter.

## **New technologies enable us to coordinate around the needs**

Once the seeds of community form around a shared purpose, an evolving society needs to make it easier for people to coordinate around that shared purpose. This is where new technologies come into play: Through open technology and social networking sites, communication happens faster than ever before. We can access more information, store it, validate it, and coordinate ourselves to move toward our common goals.

In 2021, a group of individual investors, including many first-time day traders, took on experienced

hedge fund managers and overthrew the professionals' plans to short GameStop stock and drive the price down. The newcomers, empowered by a Reddit community called WallStreetBets, coordinated to let fellow investors know when to buy and hold their shares. They rallied around GameStop, driving up the stock price and causing mass panic for hedge fund managers. One hedge fund, Melvin, lost so much money that it had to arrange outside investments to stay in operation.

In an inspiring story of communities coordinating themselves, a Facebook group dedicated to poking fun at the Baby Boomer generation learned that a man the group members had previously mocked was selling personal items to help him pay for a liver transplant. His life depended on affording the operation. So, the group decided to use the power of the Facebook platform to help him instead. They raised \$50,000 to pay for his operation and provide care afterwards.

Communities like these are forming everywhere. On a trip to visit family in New Orleans, I came across a story of little red glass beads and a plan to save the city's bar scene. A New Orleans parade group raised over \$2 million on the GiveForms fundraising platform to keep the city's bars afloat during and after COVID lockdowns. Residents can pre-purchase the \$10 beans in advance. The organization will donate the funds immediately to bars and restaurants who need to pay their bills while they remain closed. In 2022, the beans can be redeemed at establishments all over the city. In all of these cases, groups of individuals infused with a shared purpose, empowered by connected technology platforms, are setting the stage for communities to coordinate themselves.

We have access to more information than ever before—data from smart cities, farms, manufacturing plants, construction sites—and a greater ability to process and store that information through cloud and edge computing. Decentralized blockchain technologies validate the data and allow groups to coordinate without an official leader. With the advent of open-source technology, machines today are smarter and more interconnected.

To fully enable smart homes, cities, and plants, our devices need to be in constant communication. This network of autonomous connected devices requires brands and companies to open their network of

communication with each other. In turn, humans and companies are more connected. We can read news on Twitter of an earthquake halfway around the world seconds after it happens. Our actions and decisions, including what we waste, the products we buy, the ingredients in our food, and the energy we consume can be more easily tracked, observed, and shared. They have real implications for human lives around the globe. Not only is the need for ecosystems to emerge growing (due to the greater prevalence of large shared challenges) but the effort required to coordinate ourselves to meet those needs is dropping (thanks to technology).

## **Technology changes our behavior**

Often without our full awareness, shifts in technology transform our human behavior. It starts on a small scale, almost unnoticeable, until a few years pass and our lives are completely transformed. One day, my daughter and I were riding in the back of a taxi in Colombia. The car was an older model with windows that still used a lever to be rolled down. When we arrived at our destination, my wife tapped on the outside of the window on my daughter's side and motioned for her to roll down her window. My daughter didn't know what to do. She searched for the button to lower the window, but there was none to be found. Technology has adapted her beyond the concept of rolling down a car window.

Today, when I visit my parents and my mom rattles off a list of driving directions, I find myself completely zoning out, knowing that I'm going to enter the address into Google Maps when I leave her house and mindlessly follow my phone's guidance. I see similar changes in younger children, when they try to touch a TV screen and are left perplexed when it doesn't function the same as a phone or tablet. And you'd be pressed to find a group of teenagers, or even adults, sitting waiting at a bus stop without taking out a phone to distract themselves. Technologies deliver ease into our lives, and once we grow accustomed to them, we've changed behaviors forever.

Technology is changing not only our individual behaviors but our collective ones. Over the past decade, companies like Uber, Lyft, and Airbnb started to transform our behaviors by introducing us to the

sharing economy. We began to shift trust from brands, like buying an individual car from Ford or reserving a room at a Hilton hotel, to platforms where we now rent rides from strangers and stay in Airbnb rooms far from home. Dating and meetup apps connect people around shared interests and open us up to trusting in members of a community who we might not otherwise have met. Throughout history, we've learned to shift our trust from a small network of close family and neighbors, to well-known brands, to platforms. Now, the introduction of blockchain technology, which is known for its ability to verify contracts and transactions between parties without a 'centralized' officiator, allows us to trust in a decentralized system without a designated leader.

Tom Malone, founding director of the MIT Center for Collective Intelligence, in his book *Superminds* argues that humans think together in various forms such as hierarchies, markets, democracies, and communities. While traditionally organizations have leaned heavily on hierarchies as their dominant organizational model, we have started seeing a shift in approach over the last decade, with the embracing of internal democracies, marketplaces, and communities playing a greater role in the allocation of resources and collective decision-making. We see the same trend of adoption of looser, decentralized approaches taking hold between our organizations. Not only is technology changing how we operate interpersonally, but also inter-organizationally.

## **The cycle spins us toward a new future**

When that group of empowered individuals on Reddit realized they could take down GameStop short sellers, it sparked a realization: What other, greater purpose could they take on next? Open access to information, rapid communication, and trust in systems are shifting what individuals believe is possible and triggering new needs. As consumers, our expectations have increased. We expect instant gratification—we can get any out-of-season food item on a grocery shelf (or delivered to our homes), Amazon packages at our doorsteps in one or two days, and a full library of entertainment options on our phones, televisions, and tablets. We are more empowered to come together quickly, backed by connected technologies and enhanced trust in systems. And our growing global challenges demand the best from all of us.



New needs have always inspired the creation of new technologies and then the behavioral changes adopting those technologies implied. We decide we need to go to the moon, so we develop new rocket technologies and organize a space administration. During the COVID crisis, like many people, I suddenly needed groceries delivered, so our family adopted new technology—Instacart’s grocery delivery system—and since then, my behaviors have changed. I rarely visit the grocery store anymore, except for specialty items.

But what is often overlooked is that these three drivers—need, technology, and behavior—do not operate in a linear fashion. They form a self-reinforcing loop. New technology shifts behavior which in turn creates the possibility of solving new needs. Our ambitions burgeon. Let’s go to Mars! Let me learn to play guitar on a Sunday afternoon, rather than pushing a cart around the grocery store.

We see this recursive force at work now on a larger scale. Suddenly, we realize that seemingly intractable problems (needs) that seemed out of our reach are now solvable, thanks to new technologies and behaviors. In *What Technology Wants*, Kevin Kelly proposes that technology acts like a living organism, that our devices want to be connected to propel us to a future of realizing our maximum potential. He argues that if evolution were to restart from the beginning, we would see the same inventions and that technology is an extension of biological evolution.

We invent technologies to satisfy our needs and desires, and those technologies invoke new needs and new desires. It is not a linear process, but a never-ending cycle based on rapid change, constant connectivity, and a greater sense of purpose. The futures to which this cycle, and the higher global consciousness they lead to, may take us are too multifold to fathom. But the possibilities are exciting. They form a flywheel driving us toward an era of ecosystems that will ultimately unite us into a new, more interconnected global consciousness, the ultimate ecosystem.

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**Planting banyan trees:  
strategic leadership in the  
age of ecosystems**

Jeffrey Kuhn



It has been a decade since Stephen Elop, Nokia's then-CEO, published his Burning Platform memo on the company's internal employee website. Since then, ecosystems — and whether to build, buy, or join one — have become a hot topic in boardrooms around the world.

In his communiqué, Elop lamented the calamitous decline of Nokia's vaunted handset business after it was trounced by a one-two punch from Apple and Google. He acknowledged that the game had changed and questioned whether Nokia was fighting the right battle (let alone using the right weapons), writing: 'The battle of devices has now become a war of ecosystems . . . our competitors aren't taking our market share with devices; they are taking our market share with an entire ecosystem.' Unfortunately, Elop's wake-up call was too little, too late; competing ecosystems launched by Apple and Google had already eclipsed Nokia's handset empire, essentially elbowing it out of its own business.

The stunning decline of Nokia's handset business (at its peak, Nokia had nearly a 50 percent share of the global handset market) offers a cautionary tale to leaders of storied firms who have spent decades shoring up their supply chains and building impenetrable moats around their businesses only to have their markets co-opted by digital interlopers that apply ecosystem logic to siphon swaths of customers seemingly overnight. As Nokia painfully discovered, ecosystems do not observe traditional industry boundaries, nor play by the conventional rules of strategy. Given their protean nature, incumbent firms are unsure what they are competing against, let alone how to compete.

## **Paradigms lost: from walled fortresses to open ecosystems**

For much of the twentieth century (and even today in many capital-intensive industries), established enterprises have operated with a 'closed' Chandlerian construct — a pervasive managerial belief system promulgated by its namesake Alfred D. Chandler, Jr., a business historian at Harvard Business School whose influential writings shaped the contours of industrial capitalism. In Chandler's industrial paradigm, clear lines of demarcation delineate producers from consumers and value creation from consumption. Value is presumed to be created inside the enterprise with resources owned by the enterprise and then

pushed out to the market for consumption. Aggregation of the factors of production is paramount in achieving organizational mass and economies of scale; byzantine hierarchies and mechanistic managerial systems are central to reducing variance, optimizing physical assets, and achieving a cost advantage. Successful firms are said to run like well-oiled machines. Competition is a clash of titans — a game of organizational heft and clever chessboard maneuvering to achieve structural advantage and outwits rivals.

The Chandlerian construct suited the pre-digital age because the future looked a great deal like the past. Industries were composed of a handful of companies competing in structured markets that evolved linearly, with few strategic surprises. Incrementalism would suffice. Of course, those days have long since passed, and many of Chandler's precepts have outlived their usefulness. Low-cost digital technologies have lowered barriers to entry precipitously, giving rise to new types of competitors and new ways of organizing economic activity and creating customer value.

Facing digital disruption, many old-line firms have undergone a religious conversion of sorts and have deployed a spectrum of 'open' organizational strategies and structures: multisided platforms, user-innovation communities, and ecosystems to (co)create customer and economic value using resources outside the enterprise. For example, in 2014, agricultural equipment manufacturer Deere & Company (John Deere) launched MyJohnDeere.com, an ecosystem for agricultural producers that integrates a network of smart farm equipment, in-field sensors, and third-party software applications that provide weather, equipment performance, soil and irrigation, and crop data to farmers through a personal computer or mobile device. Danish toy company LEGO is another example. In 2020 it launched LEGO® World Builder, a crowdsourcing platform that brings fans and creator communities together to develop original stories in collaboration with LEGO's creative team. And in a broadside against Amazon, Walmart joined forces with e-commerce platform Shopify to provide its legions of sellers access to the Walmart.com retail platform. In the digital economy, fluid business configurations such as these are commonplace.

Firms deploy business ecosystems for a variety of reasons, from building a defensive perimeter to shield against ecosystem envelopment (think Nokia) to enhancing its customer value proposition (think

MyJohnDeere.com) to capturing recurring revenues from ecosystem partners (think Apple's App Store). Ecosystems can take many forms but are generally defined as a confederation of organizations that collectively deliver coherent, integrated products, services, and experiences to customers, often through a digital platform. Business ecosystems are typically hosted by a central player with an established, market-leading brand who serves as the curator and orchestrator of the offerings provided by the ecosystem's partners. As illustrated in the Haier example that follows, the host plays a keystone role in establishing cooperative principles and revenue-sharing agreements among ecosystem partners and in providing an identifiable brand and coherent end-user experience.

## **Planting banyan trees at Haier**

The movement is natural, arising spontaneously.

— I Ching

The Haier Group offers a vanguard example of the inner workings of an emergent, ecosystem-based business and the generative role that open organizational structures play in (co)creating customer and economic value and infusing new thinking and capabilities into the enterprise.

Established in 1984, Haier is a leading provider of large and small household appliances and consumer electronics, serving customers in more than 160 countries. Over the past four decades, the firm has undergone a remarkable metamorphosis, from a mainstream white goods manufacturer to its current incarnation as an ecosystem-based enterprise encompassing a labyrinth of interconnected businesses, from smart cities to education to health care. The firm's unique, propagation-based growth model has germinated an autopoietic ecology of microenterprises that provide a steady stream of 'edge' businesses — bold, new-to-the-world ventures at the periphery of the core that pull the enterprise into the future.

As an open enterprise, Haier invites scholars from around the world to study its pioneering

microenterprise model. In 2019, I had the honor of visiting Haier's global headquarters in Qingdao, a picturesque coastal city in northeast China, to observe operations; interview a cross-section of microenterprise teams; and engage in strategic dialogue with executive leaders, including Haier CEO Zhang Ruimin.

I had followed Haier over the years through business journals and was familiar with its unconventional organizational model. Rather than till familiar soil and examine the nuts and bolts of its microenterprise model, I opted to break new ground and research the firm from a strategic, enterprise-level perspective. To prepare for my pilgrimage, I read several books and a stack of case studies and articles on the firm and eventually arrived at a conceptually oriented question that would provide a wide berth for my research: How does one lead an emergent, ecosystem-based enterprise strategically (compared to a conventional, hierarchical organization), and how does this recast the role of senior leadership?

At first glance, Haier's hydra-like structure and intricate value creation and capture mechanisms can be difficult to decipher, even for seasoned strategists. My initial trip to Qingdao was admittedly one of those jump-into-the-rabbit-hole, paradigm-pummeling experiences, and I struggled to find my strategic True North: a recognizable core business to anchor my thinking. Upon returning home, I went into monk model — researching, reflecting, and writing — for several months until the implicit logic of Haier's sophisticated strategy and business system eventually revealed itself.

Unknowingly, the seeds of my synthesis had been sown during the first few minutes of my visit to Haier, when during a tour of the firm's executive building, my host paused in front of a live banyan tree planted in the lobby and described how the tree's aerial root system sprouts new roots and trunks when its downward-growing branches touch the ground, expanding the tree's footprint. (To put this into perspective, the Great Banyan tree in Kolkata, India, is believed to be 250-years old with more than 4,000 root-cum-trunk structures that collectively create a 156,000-square-foot-canopy.) Standing there in awe with my host, I appreciated the cultural significance of the majestic banyan tree as a symbol of immortality, but failed to grasp its strategic significance until several months later, when I realized that the banyan tree was a

metaphor for Haier's propagation-based growth model: a talisman of its regenerative capacity. The answer to my research question had unknowingly been right in front of me, hidden in plain sight, but I lacked the conceptual lens to perceive it: strategic leaders plant banyan trees.

## Adapting Haier to the digital age

Since the dawn of the internet, Mr. Zhang had been keenly aware that industrial society was approaching a turning point and transitioning to a new digital economy in which the vertically integrated empires of the industrial era stood little chance against the horizontal ecosystems of the digital age in satisfying customers' personalized needs. In a world of 'zero distance' enabled by the internet, he was convinced that Haier would cede its market leadership if it did not master the logic of the digital economy and transform into a fluid, entrepreneurial enterprise embodying the connectivity and dynamism of this new era.

Building on earlier efforts to imbue a market mindset and shift the organization's center of gravity closer to the customer, in 2005, Haier introduced the Rendanheyi model which created a dynamic network of employee-run microenterprises. Rendanheyi loosely translates to 'employees and users become one'. *Ren* refers to employees, *dan* to user value, and *heyi* to connecting employees with users in a process of co-creation. In this new model, microenterprises operate autonomously and its team members are self-employed, self-organized, and self-motivated. They set their own strategies, make decisions independently without first gaining approval from higher-ups, elect their own leaders, hire (and fire) team members, procure services from internal or external providers, and determine their own compensation plans in accordance with agreed-upon performance targets. Harnessing the laws of natural selection, market-facing microenterprises are required to secure external funding — an important market signal — and invest personal funds in the venture, so that they have ample skin in the game. If a microenterprise cannot secure venture funding or advance orders through crowdfunding, Zhang suggested, then its business is not viable.



## IoT ecosystems

The internet had introduced sweeping changes to the industrial order and Zhang was confident that the Internet of Things (IoT) would engender even greater changes that would create new customer needs and new sources of economic value. Haier originally conceived the Rendanheyi model as a vehicle to create zero distance between its employees and users and to regain the entrepreneurial spirit of small firms. However, as the model matured, Zhang noted a powerful synergy between Haier's mushrooming network of microenterprises and the IoT era, whose shape was beginning to take form. In this new era, he concluded, competition would be between ecosystems and ecosystem brands for life-long users, and value would be created with Haier-orchestrated ecosystems.

Since its introduction, the Rendanheyi model has undergone several incarnations, commensurate with technological shifts in the external market landscape. In 2019, Haier introduced Rendanheyi '3.0' to support its IoT strategy by recasting its platform structure into a constellation of interconnected ecosystem-based businesses that provide users with integrated IoT-based offerings. Haier's Smart Home Customization Ecosystem, for example, includes its Internet of Clothing, Internet of Kitchen, and Internet of Entertainment businesses. As Haier's ecosystems take root, its products become mediums through which users can co-create unique personalized experiences through a community of ecosystem partners, generating recurring ecosystem revenues and a cycle of increasing returns for both Haier and its ecosystem partners.

A signature example is Haier's Link Cook Series smart refrigerator which features a 21.5 inch high-definition touch screen that includes a calendar, a grocery list, menu selections, video and music streaming apps, social media and email access, and video and voice chat functions provisioned by ecosystem partners. Using IoT technology, the refrigerator can scan its contents and automatically replenish groceries through ecosystem partners, provisioned by Haier's Internet of Food ecosystem. Like an iPad, users can configure personalized experiences with a host of software applications and ecosystem partners that are bundled into the appliance's home screen. Haier's smart refrigerator offers a window into a customer-centered future in which users can access a wide array of personalized offerings and experiences through a single gateway — in this case, a refrigerator — without leaving the ecosystem.

## Strategic leadership in the age of ecosystems

Ecosystems play an important strategic role in creating and capturing value in conjunction with ecosystem partners and in safeguarding businesses from digital encroachment. The agricultural ecosystem orchestrated by John Deere, for instance, provides Deere a direct, curated relationship with its customers, and protects its flanks from incursions from AgriTech start-ups seeking a foothold with farmers: Deere's customers. Empires and moats still exist in the world of ecosystems, but they take on a different, digital form. Consistent with Chandler's industrial economy, size still matters because the ecosystem's value increases as more users and complementors participate, and the age-old stratagems of occupying the commanding heights, erecting barriers to entry, and protecting one's flanks remain relevant.

To illustrate, I have outlined below the headlines from an analysis I conducted concerning the customer, competitive, and economic drivers of Haier's ecosystem strategy:

1. Maintain a direct, curated relationship with end customers to protect the firm's flanks against direct competitors and digital interlopers.
2. Create unique, durable points of differentiation to combat the relentless forces of commoditization.
3. Enhance the intrinsic value of offerings through comprehensive user interaction, ecosystem, and value co-creation mechanisms to counter the law of diminishing marginal utility.
4. Grow an installed base of life-long users to capture recurring ecosystems revenues.

The parallels with classic competitive strategy are striking, but that is where the similarities end. There is a vast difference between leading an open, ecosystem-based enterprise optimized for emergence, and a closed, industrial-era colossus optimized for equilibrium.

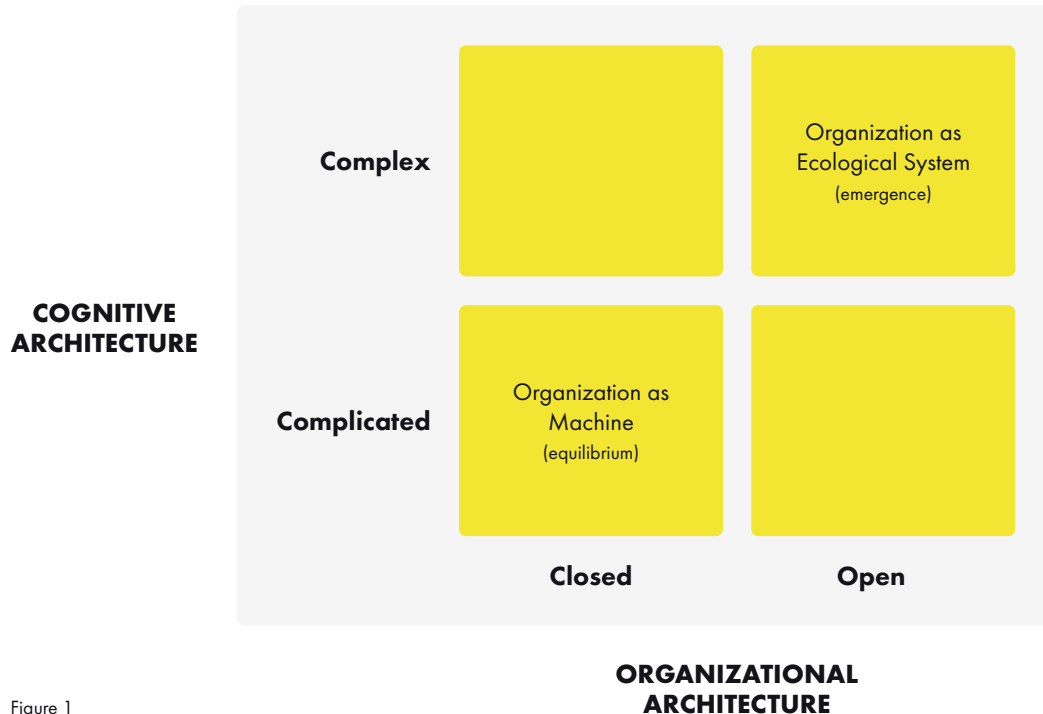


Figure 1

As the term implies, leading an ecosystem requires construing (in one's mind) an organization as an ecological system, not as a machine — the dominant paradigm of the industrial era. As depicted in Figure 1, evolving one's leadership worldview from a mechanistic (lower left quadrant) to an ecological systems perspective (upper right quadrant) requires two simultaneous transformations to catalyze the journey: from closed to open organizational architectures (horizontal axis) and from complicated to complex modes of thinking (vertical axis). An easy way to understand the latter is by comparing an Airbus A320 to a rainforest. An Airbus A320 is a complicated system. One can take it apart and put it back together piece

by piece without changing its form. A rainforest a natural ecosystem is a complex system with dynamic properties that are in a constant state of flux. The slightest variation in any of its interdependent elements, such as a shift in weather patterns or the introduction of a new species, can affect the entire system in unforeseen ways. The same holds true for business ecosystems.

The mechanistic worldview of the industrial era — and its twin tenets of efficiency and control through ownership of the factors of production — has been etched into the minds of generations of denominator managers and continues to cast a long shadow over the way we think about and lead organizations. An ecosystem is not a machine. You cannot break it into discrete parts to understand how it works, and there are no levers to pull, gears to lubricate, or flywheels to spin — only seeds to plant (preferably banyan tree seeds), soil to nourish, and interactions to orchestrate. Darwin will take care of the rest.

### **When the student is ready, the teacher will appear**

On my final day in Qingdao, I had the opportunity to meet with Mr. Zhang to share a synthesis of my interviews and engage him in conversation concerning the concept of leading with an ecological systems perspective and its association with *autopoiesis*, or organizational self-renewal. Most CEOs would sit there with a blank look on their face if I mentioned a term like *autopoiesis*, but Mr. Zhang is in a league of his own. To leaven the discussion, I shared that I had been seeking the Holy Grail of organizational renewal for more than two decades — a self-propagating, self-renewing enterprise — and had finally found it.

From there, we delved into the vital symbiotic relationship between personal renewal and organizational reinvention, drawing on Mr. Zhang's leadership odyssey from hard-nosed field commander to ecosystem orchestrator as a point of comparison. In Haier's early days, like many of his contemporaries, Zhang and his management team drew extensively on Chandler's industrial-era playbook. However, as the competitive logic of the digital economy became clearer, he recognized the top-down leadership paradigms of the industrial era would be counterproductive in the bottom-up ecosystems of the digital age. In this new era, senior leaders were to be servants of the system, rather than bosses of employees, and he

likened his role to that of a gardener who ‘creates favorable conditions and mechanisms for species in the Haier ecosystem to prosper in their own in a sustainable way’.

At the end of our conversation, Mr. Zhang expressed hope that the Rendanheyi model would grow roots deep enough to withstand the relentless winds of organizational change, and as the enterprise matured into an autopoietic ecology of microenterprises, the question of who occupied the CEO chair would become less and less important.

As a researcher, life-changing conversations such as these are rare, and I gained a trove of insight concerning strategic leadership in the age of ecosystems through this experience. In the spirit of full disclosure, however, I must admit that my related quest to define Haier’s core business — and whether it even has one — remains a work in progress, but I have a hunch that it involves banyan trees.

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Special thanks to the Haier Model Research Institute (HMI) and Columbia Business School for hosting my research.

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**Crossing the chasm: from  
linear organizations to  
living ecosystems**

William Malek

**10**

Case study after case study reveals that the principles of Rendanheyi (the Haier Business Model) to be a major catalyst for business growth, transforming struggling companies into vibrant and future-fit organizations. But even in today's weakened economy, with entire industries in trouble and the need for business agility widely acknowledged, few companies have yet to discover the way to implement the Rendanheyi model to address their own needs.

A recent global survey by Fujitsu illustrates the situation in some detail. Selected findings are reproduced here verbatim (note the language):

- The problem is that 58 percent of businesses admit their decision-making is heavily or fairly centralized.
- 51 percent of businesses agree or strongly agree that too much of their data is currently stored in siloes. There is, however, an acknowledgment that this has to change.
- Some 64 percent know that it makes business sense to decentralize data and allow employees to access it – either all the time or on a case-by-case basis. Despite this, almost one in four (24 percent) businesses say that access or use of data by employees is deemed too risky.

Fujitsu itself overcame its own hesitation, as well as its roots in a highly traditional business culture, to embrace the tenets of Rendanheyi. Though implementation is still underway, initial progress has been highly encouraging. Indeed, the company has already declared that 'decentralization is key for keeping pace with change, and makes for a happier, more engaged workforce overall'.

But for every company like Fujitsu, there are dozens that don't even attempt to make similar adaptations, even when revenues are down and their backs are against the wall. We would do well to understand their reasons for hesitation, and how this reluctance can be overcome.

## Old habits die hard

‘Bureaucracy was ruling, and no one took real responsibility. As soon as I realized we were facing this issue, I knew we needed to make a big change.’

– Zhang Ruimin, CEO, Haier.

When we look closely at Rendanheyi, we find that its greatest strengths are also a big part of the reason why many businesses find it hard to embrace. Consider:

- *It represents a significant change.* Friction accompanies every effort to depart from the status quo. A lot of expertise is lost when throwing away old processes and unlearning old lessons. Moreover, the reason that most larger transformation projects fail is precisely because the complexity of the change makes the learning curve too steep.
- *It flips the organizational pyramid upside-down.* People at top levels worked hard to earn their positions, likely concluding that they have little to gain and much to lose from radical reorganization.
- *It goes against tradition.* People in leadership positions often went to business school and learned more Frederick Taylor-type approaches to business organization structures. This organizational design approach with its deeply seated “control” biases, backed by years of education and experience, can be difficult to unlearn and reframe.
- *It leaves the fortunes of the company in the hands of those who potentially haven’t developed a new entrepreneurial competency yet.* Workers untrained in decentralized management systems and self-organization would be experiencing new leadership roles and a much higher degree of performance accountability. This scenario raises alarm bells for executives whose employees are



possibly disengaged and have not bought in to the vision of the business.

- *It prescribes hands-off leadership.* People commonly over-estimate their own abilities and expertise. Managers are particularly vulnerable to this phenomenon, as their self-confidence feeds into the pursuit of power and status. These qualities may have helped them up the corporate ladder, where their present position all but ensures that their high self-esteem will be reinforced. In such a context, deferring to (and learning from) subordinates may feel like a demotion, requiring a level of humility that violates their instincts. This new leadership role is more like ‘eyes on, hands off’.
- *It abandons twentieth-century wisdom.* Linear growth structures served business well in past generations. Over time, however, any race between the linear and the non-linear ecosystems will see the advantage flip decisively to the latter. To learn from history is to learn from a time before the flip, when linear predictive growth and the so-called scientific management appeared to be the best option.

The upshot is that many leaders who struggle to remain effective tend to assume that their failure is a result of insufficient dedication to the leadership principles and skills they have been taught. Their response is to hold on ever more tightly to these very same outdated methods.

If we are to move in the direction of adopting Rendanheyi principles, we will need to address these concerns directly. We will also need to explain why both internal operating ecosystems and external business ecosystem strategies – key attributes of future-fit organizations – are best served through decentralized initiatives that are highly focused on creating sustained user value and continuous innovation.

## **All status is provisional**

‘The market is the superior of everyone.’

—Zhang Ruimin.

Taking the wider view lets us answer, in turn, each of the main objections that business leaders may have regarding Rendanheyi. We begin with the reasonable observation that change causes friction within a business. The solution, however, cannot be to avoid change – but rather to institute a system which makes that change more fluid.

If the COVID-19 pandemic has any lesson to teach to the business world, it is that real permanence is illusory. What looks like solid ground at any given moment is in fact a bubbling sea of potential disruptions from social-cultural shifts, technological advances, business partnership opportunities, competitor strategies, market cycles, and other highly dynamic external conditions.

As outlined in the Strategy Execution Framework™ from my Harvard Business book *Executing Your Strategy*, ‘contingency theory’ is based on the understanding that context is everything when designing an execution strategy. Given these rapidly changing contexts, companies can either stay the course and lose their relevance or push forward by adopting and adapting to these highly variable conditions with new organizational innovations such as Rendanheyi. In other words, everything, especially organizational systems, are idiosyncratic when it comes executing. And, bureaucratic structures that do not enable decision speed, flexibility, and customer-centricity, let alone mass customization strategies at scale, are going to be in a serious competitive decline within the next 5 to 10 years.

Other concerns may be resolved in similar ways. I have discussed elsewhere the role of learning agility to unlocking business success over time. Rendanheyi pushes this concept to its farthest edge – promising continuous innovation-type transformation through emergent learning and radical organizational agility at the edges of the organization. Yet rather than overturning the entire company structure in an instant, Haier’s example shows why that balanced, transformational steps give employees the opportunity to adjust to each change as it is introduced. Each period of adaptation can succeed if those employees understand the bigger picture of what these changes are meant to ultimately achieve, following the core philosophy that underpins resilient living biologic ecosystems.

Indeed, the concept of balance is at the heart of the entire transformation project. Rendanheyi shifts

the locus of decision-making away from detached boardrooms and toward front-line workers. This move is brought into balance through a new incentive system where initiative is rewarded based on delivering value and performance accountability is transparent.

Rendanheyi likewise shifts the role of management away from giving direct instructions, but it does so while favoring mentorship and policy guidance instead. Employees – now made up of autonomous agile teams – learn what to do by listening directly to the market and the needs of customers, then identifying and pursuing novel opportunities without any bureaucratic filters or outdated and dysfunctional biases.

At each step of transformation, the initial objections to Rendanheyi fade away even further. Continuous experimental change lowers the learning curve, avoiding the disorientation that dooms other transformational initiatives. Executives retain their value – but as guides and ecosystems designers rather than autocrats. They can also take credit in business circles for running an innovative company, rather than taking the blame when their company falls to competitors.

Tradition may be a casualty of this new business model, but only on the most narrow of interpretations. True leadership has always been, at its core, about helping people realize their potential. When employees are given the right incentives (and genuine ownership of their work), they show far better engagement, initiative, and teamwork. Furthermore, the direct path from performance to success can eliminate the distractions of office politics. Within a Rendanheyi framework, leaders can at last lead rather than manage – a far more satisfying, and successful, arrangement.

Most compelling of all, however, is the relationship between decentralization and operational ecosystems. It is here that the Rendanheyi model plays a dual role which remains unsurpassed in the world of business performance. As Gary Hamel and Michele Zanini explain in *Humanocracy*: ‘With revenues of more than \$38 billion annually, Haier’s been on a tear. Over the past decade, gross profits in Haier’s core appliance business grew by 22 percent per year, while revenues advanced by 20 percent annually. The company also created more than \$2 billion in market value from new ventures. Those feats are unmatched by any of Haier’s domestic or global competitors.’

## The power of the small

‘Haier believes that it will remain relevant in the future ... not because it will be better at predicting likely outcomes, but because it will have placed more bets on possible outcomes than anyone else.’

--Bill Fischer.

A traditional car company sets out to manufacture vehicles that serve an existing market. A more agile company, like Tesla, re-imagines what a vehicle can be – and sends frequent software updates to improve the quality of the cars it has already sold. This type of consumer-centered operating strategy would represent a major step forward for most businesses, but Rendanheyi provides a way to go even further with thousands of small microenterprise teams defining very niched user-based scenarios and integrating ecosystems resources (internally and externally) for more wholistic customer solutions.

By switching its focus from products to business ecosystems, a Rendanheyi-oriented company in this space can work within a vastly expanded scope. Its cars may, for example, know when you’re getting close to home – and ask whether you’d like to turn on your air-conditioner now so that your living space is nice and cool by the time you walk in the door.

User-oriented features like these require commercial partnerships, as the car company may not actually manufacture the home air-conditioner with which it connects. Although such cross-sector partnerships can exist between any two companies, the principles of Rendanheyi are highly adapted in favor of the type of interconnectivity that leads to blossoming ecosystems for the experience economy.

The point becomes clear as soon as we acknowledge that networks require nodes. Most businesses function as single entities whose activities are mediated by some level of bureaucracy and functional silos. Rendanheyi represents a far more nimble alternative, generating collective swarms of autonomous microenterprises which are essentially free to act as they please. These microenterprises are numerous, and

entirely unhindered by institutional borders; they form partnerships freely with other businesses both inside and outside their umbrella organization.

A network with more nodes allows for more potential re-combinatorial partnerships, which in turn translates to greater diversity of thought and higher quality ideation. Furthermore, this numerical advantage lets an organization effectively blanket the market for partners. And if your teams ever have trouble finding a suitable partner for one of their purposes, they can create a demand for that partner – which their peers can fill. A crucial benefit of such arrangements is that each partnership allows its participants to leverage each other's resources, thereby delivering integrated products and services at a lower cost than either could offer alone.

Crucially, the nature of these partnerships favors lifelong value-creating scenarios rather than standalone one-time transactional products. In designing the Rendanheyi concept, Zhang Ruimin emphasized the need to establish a zero distance relationship between microenterprises and the users they serve. As users are primarily concerned with their own general happiness and needs, rather than with product functionalities, their suggestions and feedback can point directly to original service combinations and new business ideas for a more holistic user experience. These ideas can be pursued instantly, by forming new connections with microenterprise teams that can help make them a reality.

In such ways, microenterprises can easily move beyond mechanistic, single-purpose processes and mandates. They instead become adaptive organizations that operate organically within their own entrepreneurial ecosystems, to better serve the evolving ecosystems of the consumer and even B2B markets.

Haier itself provides numerous examples of this philosophy in action. Its hOn smartphone app, which lets people manage their home appliances remotely, recently joined forces with Vivino, an online wine marketplace. Their partnership lets users store wine at the right temperature, and also scan their bottles with a smartphone camera, so that the app can recommend specific dishes to enjoy with each brand of wine. The result is a seamless home experience that neither company could have produced on its own.

Just as these types of synergies can directly help users, they also greatly facilitate operations behind the scenes. Years ago, I proposed that ‘platform-based independent contracting may allow expertise to be shared, as specialists in high-demand occupations can offer temporary services to many employers.’ By facilitating this type of skill sharing, Rendanheyi frees up talent to go where it is needed. Or, as Haier might put it: ‘The whole world is our HR Department.’

## Knowing when to step back

‘The question at the core of bureaucracy is this: How do we get human beings to better serve the organization? The question at the heart of *humanocracy* is, what sort of organization will elicit and merit the best that human beings can give?’

--Gary Hamel.

We cross an important threshold when we recognize that quantum organizations are ecosystems in themselves. Because autonomous microenterprise team salaries are paid by users, and team incentives are aligned to produce entrepreneurship at scale, their ultimate success cannot depend on following a top-down business strategy. Quantum organizations realize that all things exist in the present moment with all relationships that are entangled with each other at zero distance to the customer.

In Taoism, the quantum concept of *wu wei* reminds us that effortless action’ can lead to the best of all outcomes. By continually recognizing and embracing the natural ‘flow’ of events, it becomes possible to benefit from emerging currents of new knowledge and information that arise in the moment, in context, at zero distance, rather than spending energy trying to rationalize that which is already long past and were created from annual strategic planning offsites with a select few at the top.

Applied to business, we see that leaders may guide productively, and set boundaries on permissible activity – but each time they issue orders, or otherwise interfere with their personnel, they reinforce a

tendency which is entirely antithetical to the core of Rendanheyi: They teach people to doubt their own instincts and instead wait for the boss's instruction or permission. It is better, by far, to respect the 'flow' that exists at the point of contact between customers and front-line teams.

As Partha Ghosh puts it, the role of leadership 'is not to combine and control. It is to incubate new Enterprising Centers, create the environment which can create more ECs, and offer coaching and mentoring, so that these companies could succeed and neutralize biases which often seep in from the past'.

The Rendanheyi alternative converts traditional bureaucracy into human-centered organizations that listen directly to customers and follow market incentives. Because each professional partnership is voluntary and organic, the resulting networks represent the opportunity to pursue mutual and cooperative win-win dynamics and most importantly, sustained innovation.

The appeal of such arrangements should not be underestimated within the wider global talent pool. As Zhang Ruimin has pointed out, 'We want to attract entrepreneurs to be our employees. This is key. Through Rendanheyi, I provide you with an opportunity to be an entrepreneur, not an opportunity to work.' It is only natural that people who are creative and driven will gravitate towards work environments where these traits are rewarded.

A notable example of this phenomenon comes from the Hyperloop project, organized by SpaceX. Rather than hire engineers to develop advanced vehicles, they invite the public to do it for them. Groups of volunteers, excited to participate, build prototypes to compete against each other each year – at no cost to SpaceX. Most companies would be unable to outsource their labor for free, but SpaceX succeeds here because talented people appreciate a sandbox for interesting and unique work, within boundaries but without oversight.

Rendanheyi leverages these and other advantages, turning lumbering bureaucracies into projectized organizations that motivate – and elevate – their personnel. In the same way that technology has come to connect the world, ecosystems now bring products and services together, zero distance systems link companies with their customers, and long-term user relationships replace one-time transactions.

This is the new world of commerce, where old pyramids are overturned and the user is the real boss. Each change takes some getting used to, and no company's transformation should be (or could be) instantaneous. Crossing the chasm requires deep, sometimes uncomfortable, adaptation at both a cultural and organizational level. But when the need for change is understood, the role adjustments are explained, and the new incentive structures are shown to benefit everyone involved, solutions like Rendanheyi become not merely logical but inevitable. At that moment, the move from linear organizations to dynamic living ecosystems can truly begin – guided by users, powered by independent teams, and accelerating toward a future of maximized innate human potential. As Zhang Ruimin puts it: 'There is no such thing as a successful company; there are only companies that move with the times.'

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**Ideas@scale**

James F. Moore in conversation

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**James Moore is one of the true pioneers in the field of business ecosystems. His 1993 Harvard Business Review article, 'Predators and Prey: A New Ecology of Competition', and his best-selling book, *The Death of Competition: Leadership and Strategy in the Age of Business Ecosystems*, created a new agenda for business and beyond. He has continued to be a pioneer, forging a unique and compelling path through conventional wisdom.**

**Business Ecosystem Alliance director Stuart Crainer talked with James Moore from his home during the pandemic in Costa Rica.**

*Stuart Crainer:*

*Welcome Jim. You must be beginning to feel that the movement you ignited around business ecosystems is finding more momentum by the day.*

James: Thank you very much, Stuart. I've dreamed of this moment for many years, as I've watched the community of ecosystem researchers expand around the world. Though I've been both, today I tend to be more of a researcher than a consultant. Every day, I see new articles published in peer-reviewed journals which are sent to me and it's fantastic — particularly the global breadth.

*Stuart: Can you explain the growing interest? Why now?*

James: I think part of what has happened, and I didn't really anticipate this 30 years ago, is that the ecosystem concept is actually a very open concept, and a bit crude. It's rather simple. People have dreams and purposes, and then they gather together to make these futures happen. The radical thing from a business strategy standpoint was that it wasn't a thing focused typically on firms, it was focused on people and their dreams coming together, and firms played a role. There are leading firms, of course. But, ultimately it's about people thinking about doing something together and then doing it.

So, over the years we've gone from business ecosystems, which was simply a way to say it wasn't a biological ecosystem, to start-up ecosystems and innovation ecosystems, and now workforce

ecosystems and regional ecosystems, and advanced manufacturing, and so forth and so on. It has become a very general concept, and that's just wonderful. It's also a concept that focuses on time, evolution and development, which makes it happily helpful if you are trying to make something happen. It's a theory really not just of something being there and having a certain static presence, but actually being a dynamic that you can enter into and relate to and move, and it leads then to a lot of practical ideas.

*Stuart: You have made intriguing comparisons with Kurt Lewin's work in the 1950s. Can you explain this?*

James: I've come to see ecosystems as action research at scale. Kurt Lewin was one of the early founders of organizational theory and system theory in organizations, and his major observation about action research was that when we're dealing with complex systems, the only real way to do research is to try to do something purposive with that system. Try to interrupt it, extend it or shape it. That is how you enter into a relationship with the system and it is from that relationship you begin to understand how it pushes back, how it moves forward, how it changes. And through the expected and unexpected outcomes of action research is how you learn.

The action research perspective has also led us to a deeper and deeper understanding of systems theory and systems dynamics. One of the fascinating things I have noticed working with the Chinese company Haier and its CEO Zhang Ruimin is they have a very deep understanding of systems theory and systems analysis, right at the frontier. And they actually use that daily to make moves in an action research sense to further creative human development in their ecosystem.

*Stuart: Is it right to say that your perspective now is much more willing to embrace the human side of systems?*

James: A life coach told me a few years ago to ask, 'What is invisible to you now that if it became visible would change everything?' It's one of those things you're intended to puzzle over. Eventually what I realized was that the ongoing sense of being and relationships in my world were largely

not things I was directly experiencing. It became staggeringly obvious to me that there are much deeper levels of interaction among people. It was very helpful to me to be more and more aware of that.

So that's my personal story, and then this year during the pandemic, I've had a similar kind of a shift, and the shift has been from seeing ecosystems principally as complex production systems to now seeing them as very complex human systems.

*Stuart: This is certainly a shift from your initial work in the 1990s. Can we go back to that to get a sense of the evolution of your ideas?*

James: In the 1990s I became very involved with AT&T, Intel and Hewlett-Packard. I was particularly enamored by how Intel was creating its business ecosystem, or an ecosystem it was creating and managing with Microsoft. What I found fascinating was how it had taken a layered and very blown apart personal computer industry, that IBM had pulled together into a dominant design, and Intel was able to simultaneously encourage other companies to take parts of that IBM dominant design, and make those the focus of their specialized work, while at the same time Intel increasingly took command of the architecture. And it was not simply the chip architecture for Intel, but it was the Intel architecture writ large, which included the contributions of everybody else. This allowed a number of companies to enter into these specialties and advance much more quickly than they could as part of one hierarchical IBM organization.

At the same time, it allowed people to substitute for each other, to make new combinations, to come up with lots of creative action, and yet all be structured by Intel. And as Intel pursued the trajectory of Moore's Law, making faster and faster chips, it developed a thing called the Intel treadmill, and people were either on or off the Intel treadmill, and it meant they were co-evolving with Intel. This was a kind of co-evolving forced march rather than something which could be understood via biology.

Intel was very successful as a business and I was enamored with it. I did feel the problems with it on the human side. Being inside Intel was actually pretty tough. It was an emotionally difficult place. The people focused heavily on what they called 'actions required', ARs, often to the exclusion of personal feelings, and things like that.

So, it was a tough place, and I also found that other companies involved with Intel felt that the ecosystem was a tough place, and trust was actually very low. Even so, it was very interesting to me, and other people adopted that way of looking at things, and it all seemed reasonable. But what had really happened is that Intel had created a kind of a hierarchy across a broader set of specialties.

Around 2011 I was approached by ARM Holdings. For those of you who don't know the computer and communications industry, ARM is kind of the modern Intel. It is the architecture that is under essentially all smartphones. It's the basis of the new Apple M1 chip. It's really become the dominant architecture in the world for microprocessors, other than in the server world, where Intel is still the king. ARM asked if I would be interested in studying their ecosystem. They introduced me not just to their own people but across the various companies that were involved. And in many regards, it was parallel to Intel. It had a technical architecture, and people were coordinated by that technical architecture in their specialist activities.

But I was struck by something immediately: it just felt different. If you went to ARM's offices in Silicon Valley they had a sense of calm. There were no obvious guards at the front door. There was a person who greeted you when you went in and handed you a bottle of water. It was just a serene place. By contrast, just down the road in Santa Clara, Intel headquarters was heavily guarded like a bank. It had an entirely different feeling.

ARM felt open and different. They had created an ecosystem that was very open, starting with the system on a chip. The Intel chip was a monolithic one, and when people would innovate in new ways like in graphics or in communication, Intel would, to the extent possible, integrate it into their

chip. In contrast, ARM built a system on a chip that allowed other people to put their content on the chip. They had this adage, 'You always want to leave space on the chip for everybody else,' and in their ecosystem they left room for people. They invited people in. Their licensing requirements were very easy. Essentially very little cash up front and then you paid a percentage, often several years down the line, when you finally made a product and sold it. So, they were taking much of the risk of setting you up in using their chip and then they received between three and six percent of revenues, eventually.

For many years, this business model didn't work very well, except that the ecosystem kept scaling and scaling, diversifying and diversifying, and eventually multiple billions of chips were sitting out there and going into devices that were collecting revenues and ARM became, with a few people, a very powerful and profitable company.

Now, back to me. I wrote about it as a human ecosystem, and I called my book *Shared Purpose*, but I was still mainly interested in what I just described, the technical architecture, the production architecture. I did recognize the cooperative mentality, and I recognized that, for example, they had blended into their ecosystem the open-source software movement. What was fascinating about that was that, at the time, the open-source software movement was actually highly anti-property rights and anti-commercial use of open-source code. It was thought that if you took open-source code and made money off of it, you were a free rider on the voluntary contributions of the members of the community. ARM had somehow struck a balance. They could talk about business opportunities along with open-source sharing. They created an ecosystem where people did a tremendous amount of sharing, and also did a tremendous amount of business, and they shared business ideas with each other.

One of the keys was that in general, people, as they came in, when they competed with each other or when they were in the same specialty, to the extent they could, they would find other niches to go into. So, people were intentionally avoiding head-to-head competition. They were positioning

themselves in relation to different problem sets in the world, different solutions and different customers, such that they were learning a lot from each other. And that turned out to be enormously valuable for everyone in the ecosystem, in terms of being able to reinvest, in terms of having a stable business, and so forth. The purpose of the ecosystem was to grow more and more of those stable businesses.

*Stuart: Was it at this point you met Wally Rhines?*

James: Yes, Wally is a Silicon Valley legend -- one of the early people at Texas Instruments, a founder of Mentor Graphics (one of the three leading chip CAD companies), and now he's leading a start-up with a new form of chip. Wally told me how in the early 1990s, Texas Instruments felt it had been locked out of the chip business by Intel. The Texas Instruments people sat down and tried to figure out what they could do. They looked at the PC ecosystem and concluded that the most important thing there was the community. 'The community of people, its informal connections and in some sense its collective cognition and mind and feelings, was actually driving the ecosystem,' said Wally. 'The community members were paying for things, but they also were the ones who did or didn't buy into these visions of where that industry should go.'

In my previous work I emphasized the impact of Andy Grove selling visions to the Intel ecosystem members that would be compute-intensive so that the ecosystem could continue to grow in a more compute-intensive way. But Wally's point was that Andy couldn't sell that vision unless this vast community was looking for that in some sense and drew it out of Intel. So, I was really struck by the idea that the community holds great power in ecosystems, and by the design of the ARM ecosystem, the desire to form a community.

Even so, I remained enamored by the production rather than the human function. I still hadn't grasped this notion that it could be the human function that drove society and drove progress. It has to be, I now believe, the human function that drives progress.



*Stuart: And this realization has been encouraged by the work you have been doing with Haier?*

James: I was contacted by Haier during the pandemic. They had read my work and, of course, I knew of them. I've partnered with a wonderful friend of mine, Professor Rong Ke, at Tsinghua in China, and his wonderful students, to learn more about what is happening in terms of ecosystems at Haier. My conclusion is that, essentially, they're doing action research on human potential.

I have had conversations with Haier CEO Zhang Ruimin. I have kept knocking my head up against the radicalness of Mr. Zhang and his view of the primacy of human potential, and we've talked a lot about RenDanHeYi – the Haier philosophy which loosely translates to maker and user co-value creation. Talking to Mr. Zhang he makes it clear that entrepreneurship is too controlling a concept to describe what they are doing. He describes it instead as creating an atmosphere to support human creativity. It is the human creativity that drives Haier, and everything else is built around that.

Haier, as I think many people know, has been split into many micro enterprises, and some of them are tiny, some of them are a little bigger., Talking to the executives at Haier-owned GE Appliances in Kentucky, they say they argue constantly about whether they have 14 or 17 micro-enterprises, but it's somewhere around that. I find it strikingly similar to how Amazon Web Services has grown to be the biggest cloud service in the world by breaking everything up into what Jeff Bezos calls two-pizza teams with each team having open interfaces and APIs to the work of other teams. This gives them an enormously flexible co-evolving kind of system.

Haier is doing that same thing in manufacturing appliances, but what's striking is that I cannot find any of the residual examples that I look for in terms of forcing a hierarchy, a model or a vision on people. Instead, they have these leading goals which are kinds of visions and dreams of where we might go, and then this very deep philosophy. So, what I finally concluded is that Mr. Zhang and his team are in constant dialogue with thinkers, a constant conversation, trying to deepen their understanding of the human being. And then they're doing scaled action research, trying to figure out what kind of system you need to create to manifest human potential and human creativity. Its biggest product is the expansion of human potential.

*Stuart: So, your eyes have been opened to the human side of ecosystems.*

James: I have made the shift. We've understudied the human side of business ecosystems and rather than look at it as a deficiency I see it as an opportunity. There are powerful dynamics at play. To understand them we will need to expand our lenses and invite in new fellow researchers. For example, there's interesting research on communities of shared minds. There's an influential group in the UK that looks at what they call big minds, and they've been very much a part of the British government's programs for developing various kinds of industries and other national capabilities. The OECD has adopted a new ecological and complex systems approach to national economies, showing that to do economic development, you must center on human development.

We have the fantastic work of Elizabeth Altman and her colleagues at the University of Massachusetts Lowell, *MIT Sloan Management Review* and Deloitte on what they call workforce ecosystems. They're looking at how companies are hiring so many people from beyond their own boundaries that now companies have an incentive to invest in the general human development around them, and then in turn be able to feed off of that. She also has an amazing case with the United Nations Development Program. It has 60 different innovation centers around the world where people are building ecosystems.

I'm also seeing really interesting academic work from the communications field. There's a field of organization communications and they talk about how organizations are constituted from communication. There are very interesting papers about the connection between what people do, and how people look at the world, and how they create value.

So, in a sense I've embarked on a new research career trying to understand the human ecosystem.

*Stuart: What intrigues me, Jim, in the 1980s and 1990s, when you were going into organizations and talking about ecosystems, what kind of reaction were you getting? I can see that somebody like Andy Grove, who was a really bright guy, might get it, but a lot of other people must have*

*shrugged their shoulders and shown you the door, surely?*

James Moore: In the early '80s, there were a lot of interesting things going on that were broadly in this paradigm, like the quality movement and all that. So, as long as I talked about things as, say, quality process improvement, or concurrent engineering, or things like that, that was fine. Also, ironically, most of our work back then was actually about people and organizations, and human resource strategies—the human side of ecosystems.

A friend of mine gave a copy of my *Harvard Business Review* article to Bob Allen, who was the CEO at AT&T. Bob liked it and gave it to the board, but he put a note on the thing before he gave to the board -- he called me Jimmy because I was still pretty young: 'You know, I think Jimmy's paper is really pretty good, but I want to say, I just don't really buy this ecosystem thing.' And that was kind of it, it wasn't macho enough. I liked that it wasn't macho enough, although I was a very competitive guy, but it looked silly to a lot of people.

*Stuart: It strikes me that ecosystems are universal and timeless. It's just the question of how far we understand them, and how far we utilize them.*

James: Yeah. Ken Wilber, who's a sort of mystic intellectual, was asked whether the Buddhist enlightenment would be better now than it was back in the day. He answered, 'Of course it would be better, because we know so much more, and so he'd be enlightened on top of everything else.'

So, I think it is fascinating is that there's all this going on in complexity theory and in mathematics that bears on these subjects, and then also, we're in an explosive time in human potential.

*Stuart: So, who gets ecosystems, when you talk to people in different organizations, industries and cultures?*

James Moore: So, this may be my biased observation, and people just saying nice things to me, but I think it's become ubiquitous now. There's a way in which the concept is so broad that it's really kind of

just a point of view. And I'm not saying that people haven't, including me, tried to systematize it and learn more, but at root, the basic insight is, I'm not alone, and my success doesn't depend on just the things I control, or just the things that a traditional firm was really built to control, and if I want to make change, it depends on other people. And then the next loop is if I want to make change, it would be helpful to go get to know the people who are making that change and see if we can come up with something together. So, at some level, it's not a very tough concept.

*Stuart: Yet, I have visited Haier in China on a number of occasions, and I'm always struck by the sheer complexity and level of vagueness and ambiguity. I accept that something might be lost in translation, but I think they're comfortable with it, and they use it as a kind of dynamic force. But 20th century corporations in the West were built around simplicity and clarity.*

James: Well, I agree with you. Haier is embracing complexity. Actually, as you say that, I think, 'Yeah, maybe people haven't gotten it at all. They talk about it a lot, but there's an awful lot of control going on,' and there's an awful lot of still seeing the firm's function as control, whether it's agency theory or whether it's the bundle of contracts idea. The ecosystem concept encompasses many different ecosystem philosophies and cultures, including pretty tough controlling approaches. Maybe we need an even deeper term for what Haier is doing and for this kind of human potential revolution.

*Stuart: An interesting angle on this is intellectual property protection. How does a company committed to ecosystems remain open while still protecting its IP?*

James: I don't think there's a simple answer, but clearly intellectual property is important and people will not invest in and generate intellectual property if they can't get a return on it. But there's a big difference between, say, "I generate intellectual property, I charge you to license it, but in general I freely license it to you," versus "I develop the intellectual property and I either license it at very punitive levels so it's unaffordable to most people, or I keep it exclusively to myself and bundle it

with a production system, and command very high prices.” This is the Intel approach, and it gets them much higher margins for their chips. That’s not necessarily a bad thing, but it gives you so much power that you can squeeze your ecosystem too far.

In the ARM ecosystem they do a lot of collective patent sharing, So, they will build organizations, one of them is called Linaro, where companies come together and they build open-source software and agree to cross-license it to others in the ecosystem. So, that’s another way to do it. It gives IP owners less bargaining power, but it may make for a more vibrant ecosystem. I think it’s a big issue.

*Stuart: What does all this mean for the job of the CEO? You talked about an orchestrator, but CEOs get promoted on their ability to communicate certainty and simplicity, to some extent. Ecosystems are a bit beyond their traditional remit, so where does it leave CEOs?*

James: Well, first of all, the role of the CEO is really difficult in today’s world. There’s so little they can control, they’re under such a spotlight. I think it’s a very, very difficult role, and CEOs like Andy Grove and Mr. Zhang have a big advantage because they have been in a company a long time and their position is not at risk. I don’t know how you can do the deep ecosystem experimentation and development on a shorter term, or with the risk of being thrown out.

In the case of Mr. Zhang and Andy Grove, and Bill Gates when he was at Microsoft, and a lot of others that aren’t as famous, they have the time to be more of a philosopher and an action researcher. They have the time to experiment, and they have the connection to the organization and people will trust them and put their hearts into a change. So, CEOs like that are such treasures in their ecosystems, because they can do experiments that other people have real trouble doing.

*Stuart: You referred to the Intel treadmill, and you would say the same about Haier, for all the talk about ecosystems and the ambiguity there is still the intense pressure to perform. It’s an interesting combination of the big picture and the nitty-gritty of actually performing.*

James: For me the difference is whether people are performing under fear or like Olympic athletes or

something similar. I think places like Haier and Intel are places for people to be high performers, so they are really like Olympic training programs. Those firms are going to inevitably have a lot of pressure and a lot of action. I think the difference is, do people feel trapped there or do they feel like they can compete at the highest level? I think they're not, in a sense, humanistic organizations in the traditional way we sometimes think about them. They're not soft.

*Stuart: Another thing you alluded to was about the optimal size of organizations. If you go to Dunbar's number of about 150 being the optimum amount in any group, we're still battling between the big-is-good philosophy of the past and venerating small entrepreneurial start-ups. But they tend to be subsumed into corporations when they're actually bought. There's still that battle, isn't there?*

James: The nature of the production function, to go back to that side, has changed, and we're now in a very modular world. And even start-ups focused on their minimum viable product are building a module that they hope people will grab hold of and stick into a lot of other things. Modularity and combinatorial innovation is the world we're in, and small teams can be perfect for making those little modules and advancing them.

I have had this question for Haier, about, how do they do the big Elon Musk-like programs that Musk appears to accomplish with aggressive top-down leadership? Mr. Zhang and I had a conversation about it the other day. He said, 'I appreciate what Elon Musk does a great deal, but that's not what I'm interested in.' Mr. Zhang is interested in creating ecosystems that help small and medium-sized business to thrive which, by the way, is a much bigger total opportunity than Elon Musk's. But I do think that it's important to study what Elon Musk does, how for example he stakes out going to Mars, he identifies big system areas that are essential, like how do I reuse the rocket, and if I have to reuse the rocket, then how do I land it safely when it comes back down, and how do I make software to control the landing? So, he's coming at things from a big chunks view which I really admire, but that's in tension with, it seems, this notion of small teams and how they agglomerate and build up.

*Stuart: Do you think we're heading in the right direction in the way we understand and create organizations?*

James: There is an awful lot that's happening in our world that's heading in a good direction. I'm fundamentally optimistic. That said, I'm also scared. I was talking to a friend of mine in Israel the other day and he said, 'I feel like the world is balanced on a precipice, and there's all this amazing good stuff happening, but there's also amazing bad stuff happening. I feel I could wake up 20 years from now and we'd have blown it all up or it'll be just a wonderful place.' I do feel some of that.

**Creating diverse and  
inclusive business  
ecosystems: a cooperative  
advantage perspective**

Leon Prieto and Simone Phipps

**12**



A lot has been written about business ecosystems since James F. Moore provided a definition of the concept in his seminal *Harvard Business Review* article *Predators and Prey: A New Ecology of Competition*. Moore argued that business ecosystems are an economic community supported by a foundation of interacting organizations and individuals—the organisms of the business world.

Even though this concept was defined in the 1990s, this phenomenon was around long before and was even evident during the days of segregation in Durham, North Carolina's Black Wall Street. Unlike Tulsa, Oklahoma's Black Wall Street destroyed by an angry white mob in 1921, Durham's Black Wall Street was more successful and long-lasting due to the cooperative advantage gained by the African American and white business communities. There was a level of cooperation that existed between the Black and white business ecosystems that was mutually beneficial. Some leading African American entrepreneurs – Charles Clinton Spaulding (Thinkers50 Hall of Fame recipient), John Merrick, Dr. Aaron McDuffie Moore, and other African American business leaders -- launched ventures with assistance and financial investment from white businesspeople who they had a good working relationship with. Washington Duke (benefactor and namesake of Duke University), the patriarch of white Durham's largest business, American Tobacco, was a regular visitor to Durham's Black Wall Street and invested in African American businesses and institutions there, and both Black and white ecosystems interacted with each other in a robust way that resulted in economic and community development. There are lessons to be learned from that historic example that can be useful in contemporary times as it relates to creating diverse and inclusive business ecosystems, and we believe that there are tremendous benefits to be gained if today's business ecosystems strive to gain a cooperative advantage.

## Gaining a cooperative advantage

Unbridled capitalism is being challenged due to various inequities in wealth, employment, education, and other factors that the pandemic has exposed. COVID-19 has ravaged the well-being of communities and has brought much needed attention to the structural and systemic injustices experienced by people from racialized groups. We believe that this can be alleviated if there is a robust and authentic effort to

create diverse and inclusive business ecosystems. These can play a role in building the sustainable cities and communities that we desperately need to facilitate economic and social development in communities. Increased development and sustainability can be enabled by a cooperative advantage approach, which describes the benefits that an organization possesses and accrues due to its people-centered approach. This encompasses engendering a spirit of care, meaningful dialogue, and consensus among employees, customers, and community. This approach can be utilized within the context of creating diverse and inclusive business ecosystems; ones that have the potential to create decent jobs, engender social innovation, revitalize marginalized communities, and facilitate sustainable development and community wellbeing.

We propose that business ecosystems should strive not only to be profitable but also inclusive, diverse, and sustainable; ones that ensure the well-being of all its stakeholders and members of its extended professional family. Humans are generally social and communal beings, and we argue that the successful relationships that existed between Black and white business ecosystems in Durham, North Carolina during the days of segregation, won the support of the local government, large firms, small businesses, customers, and community because of the cooperative advantage that they all strived for, in order to benefit all stakeholders. Today, all business ecosystems can benefit from learning how to obtain a cooperative advantage; an approach rooted in *ubuntu*, a word whose meaning translates to ‘I am because we are’.

## Diversity Matters

Creating diverse and inclusive business ecosystems can be practiced in various contexts. For example, in the United States, Minority Business Enterprises (MBEs) are classified as businesses that are owned and controlled by individuals identified as minorities. Currently, there is urgent need to support MBEs. For example, many Black-owned businesses had precarious finances before the COVID-19 pandemic struck, and an estimated 41 percent of them closed down between February and April 2020 (the Economic State of Black America, 2021). Through organizations such as the National Minority Supply Development Council Network (NMSDC), MBEs are connected to corporate members including America’s top publicly

owned, privately-owned and foreign-owned companies, as well as universities, hospitals, and other buying institutions (NMSDC, 2011). Greater efforts are needed currently to facilitate a cooperative advantage between the interacting business entities which include corporations, government entities, small businesses, consumers, and minority business enterprises. Work by Antonella La Rocca and Ivan Snehota suggests that increased interaction between entities in business ecosystems has the potential to create multiplier effects that result in mutually beneficial relationships. More collaboration means that we can reimagine more Black Wall Streets in contemporary times; ones that are embedded within a wider business ecosystem. For example, some African American executives who oversee capital, including top executives at M&F Bank, one of Durham's Black Wall Street's most prominent firm, have seen its assets rise to nearly \$310 million in 2021, a 16.4 percent increase from 2020, and recently received more than \$18 million in equity capital from four of America's largest white banks. As a result of these significant increases in capital, attributed to the current social justice movement, M&F is now attempting to strategically deploy significant capital into the local African American business ecosystem to stimulate further stability, growth and sustainability.

A 2021 report by McKinsey found that improving access to capital, mentorship, networks, and professional opportunities could help more Black enterprises launch and grow—and achieving parity would create 615,000 new Black-led workplaces. We must remember that MBEs' activities impact not only the owner of the business but go further to create job opportunities for the community. The pandemic has exacerbated the financial situation of MBEs at a time we desperately need these businesses to grow, flourish, and hire more employees, and in turn, provide a greater benefit to society during the 'new normal'. To foster the promotion and growth of diverse business ecosystems, the relationships between corporations, government agencies, small businesses, consumers, communities, and MBEs require further cultivation because these relationships are critical for all stakeholders.

### **Three foundational elements to create diverse and inclusive business ecosystems**

To gain a cooperative advantage, business leaders must first be authentic in their cooperative approach to creating diverse and inclusive business ecosystems. We encourage business leaders to utilize the three

core tenets of ubuntu: spirit of care and community, dialogue, and consensus building as an approach to facilitate development and sustainability of diverse business ecosystems.

- **Spirit of care and community:**

Spirit of care and community is a core element of gaining a cooperative advantage, and practiced in a business context, it addresses the kinds of values that embrace people's well-being, such as meaningful work, a sense of community, and caring. As it relates to creating diverse and inclusive business ecosystems, a spirit of care and community includes supporting MBEs, especially those that were struggling prior to and during the Covid-19 pandemic. This includes the consideration of the needs and preferences of all MBEs and the clients they serve, as well as the nurturing of a sense of community within the business ecosystem that is built on inclusion, trust, and teamwork. Support from corporations, government agencies, small businesses, consumers, and the community are needed to ensure the survival of MBEs within those business ecosystems. This can be in the form of initiatives and/or incentives from government agencies to increase participation from MBEs. It can also take the form of joint ventures between large corporations and MBEs that can result in greater innovation, access to new markets and distribution networks for all parties involved.

- **Dialogue:**

Open communication is essential for cooperation. People need to feel that they have a voice within the business ecosystem, and that their voices are heard — otherwise, it will be difficult to get their support. Discussion promotes participation. If there is no discourse, the signal sent is that stakeholders' input is not valued, so cooperation may be slow and reluctant. During the 1970s, Maynard Jackson, who served as mayor of Atlanta at the time, was interested in turning Atlanta's airport into an international hub, and he mandated that 25 percent of all contracts would be set aside for MBEs. This upset many in the business community, who felt that they were not consulted before that decision was made, and it led to a standoff. It took intense dialogue to arrive at a consensus where all parties decided on 20 to 25 percent of contracts

to be awarded to MBEs. Despite the good intentions of Mayor Jackson to help increase participation of MBEs and make them part of Atlanta's business ecosystem he faced tremendous pushback. Dialogue was needed in the early stages to achieve buy-in sooner. The same is true today.

- **Consensus-building:**

A diverse and inclusive business ecosystem requires dialogue, which is the foundation for consensus building, in which stakeholders reach an agreement to address a common concern. When there is dialogue, entities within diverse business ecosystems can learn from one another, understand different viewpoints, and find a way to reach an agreement that is mutually beneficial. Agreement helps to unify people and promote the cooperation that is needed to foster greater innovation, dynamic capabilities, market share and social good. Consensus building has the potential to incorporate many interests, to break logjams, and to find solutions. Stakeholders within diverse business ecosystems must listen to each other. For multinational corporations that are used to driving decisions within sectors that they control this may be frustrating. However, when the community, government agencies, MBEs and other stakeholders converge it may result in transformational business opportunities and social benefits. It is essential that stakeholders within business ecosystems feel confident that their voices will be heard — otherwise, they may feel ignored and may be more likely to ignore others' voices, too, which hinders consensus.

In conclusion, there is a need to foster the creation of diverse and inclusive business ecosystems to facilitate economic and community development. Corporations, government entities, small businesses, consumers, and minority business enterprises have the potential to obtain a cooperative advantage, and there are important lessons to be learned from the relationship between Black and white business ecosystems in Durham, North Carolina's Black Wall Street during that turbulent time in United States history. In contemporary times, stakeholders can benefit from thinking about others and not just themselves. Through care, dialogue, and consensus building, diverse business ecosystems can interact and flourish. Cooperative advantage means more than just increasing efficiency or maximizing profits; it is about building, maintaining, and harnessing meaningful relationships with people, including those within different

business ecosystems, to achieve an even greater, diverse and inclusive business ecosystem for the benefit of all stakeholders.

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# How business ecosystems can drive sustainability

Gabriele Rosani and Elisa Farri

# 13



The call for a more sustainable economy has become even more urgent during the COVID-19 pandemic. Looking forward, this trend will strengthen as governments and institutions announce ambitious investment plans, such as the *NextGenerationEU*, in which sustainability constitutes a central pillar of the recovery initiative. In addition, *investors and shareholders* have become more serious about sustainability in recent years, carefully evaluating the impact of ESG (Environmental, Social and Governance) issues on their investment portfolios.

In this context, companies will be increasingly held accountable for embedding sustainability into the heart of their strategy. Several firms have already taken their first steps in this direction. For example, it is not uncommon to find annual reports explicitly linking strategy to the UN Sustainable Development Goals and tracking ESG metrics. Although *sustainable reporting* and other actions show companies' commitment and ambition in addressing sustainability, real progress requires not just better measurement and reporting practices but also fundamental changes in the industry ecosystems and business models.

This is easier said than done. Sustainability is a systemic concept: in most cases, one company alone cannot change the industry's value model. Companies must join forces, but how? Compared to traditional strategic approaches based on head-to-head competition, the novel concept of business ecosystems better serves the goal of driving new systemic collaborations to create sustainable value for different parties and actors.

At ECSI, we have extensively researched and directly witnessed first examples of such a shift of perspective in making traditional industries more sustainable. Farming is a case in point. With a growing population, the agricultural food system is expected to provide enough access to healthy and affordable food over the next decades. At the same time, there is an urgent need to mitigate its impact on our planet in terms of fewer carbon emissions, soil and water conservation, and reduced food waste. This is a daunting challenge for a single company. It demands a strong coalition of dedicated partners to help farmers achieve more sustainable and better yields while scaling down the environmental footprint.

With this ambition in mind, the agriculture division of the chemical company BASF started a

transformational journey towards a more sustainable farming. Over time, BASF created and orchestrated an ecosystem of partners and complementors that support farmers worldwide in making decisions along the entire crop cycle to ensure efficient use of resources and reduced waste.

Shifting from the traditional product view (i.e. “farmers want insecticides to protect their crops”) towards a more systemic view (i.e. “farmers want to get better yields with less footprint”), BASF has successfully built a win-win coalition with more than 25 partners to provide holistic solutions. Starting from the company’s traditional chemical products (e.g. insecticides, herbicides, fungicides), BASF has gradually integrated complementing products and services to monitor soil and crop conditions, assist with disease and pest recognition, and tailor recommending precision treatments with herbicides or fungicides based on in-field conditions.

Farmers can customize their solution by choosing from a basket of crop protection products and agronomic services offered by the ecosystem, which include among others: agronomic data (including weather forecasts, agronomic advice, soil data detection, mapping tools), machine connectivity (provided by leading players such as Agrirouter, John Deere, Nevonex), and equipment tools (like the smart sprayer -- developed together with Bosch -- that with the help of camera sensors differentiates between crops and weeds while crossing the field).

Partnering models entail different agreements: for example, BASF entered commercial agreements with local digital providers (like ULink AgriTech in India), product co-development (like Bosch for the smart aprayer or EZ Lab for IoT and blockchain), distribution partners (like Nutrient and Agrostar).

With the potential to enable 625 million farmers to recognize what is happening in their fields, optimize accordingly and at the same time, act in a more sustainable way, the BASF ecosystem serves more than 1.2 million users in over 120 countries. Compared to 2018, the user base has more than quadrupled. At the core of the ecosystem’s success is the ability to continuously nurture and improve a basket of services offered to the farmers via the xarvio™ digital app, as more partners join the coalition. Currently xarvio™ offers three main categories: Scouting, Field Manager and Healthy Fields, each one with several

subcategories. As more and more farmers use the app and submit images of their crops, weeds and pests, the AI-powered app's accuracy improves continuously, thus enhancing the scope of identification.

What is the economic model for a similar ecosystem? Compared to the profit formulas of a traditional business model, ecosystems have a higher degree of complexity as multiple parties are involved – including strategic partners with whom to share value. BASF offers customers (farmers) premium subscriptions to the solution sold at a “*dollar per farm*” unit. The value exchange with partners varies based on the signed agreements. As the network effects strengthen, the ecosystem grows as a self-reinforcing system, thus attracting both new farmers and new partners to join.

BASF's agriculture ecosystem illustrates how sustainability can be integrated systematically in a business model that glues together a selected group of committed partners around a shared mission and value -- “better and more sustainable yields along the farmer cycle”. By using data and receiving advice for making decisions, farmers can better manage frequency and dosing (when to spray, how often and where exactly) for a more precise resource utilization with less pollution and higher yield. The benefit is both *environmental* (more sustainable use of resources), *economical* (efficiency of production factors for farmers and their families that can earn more thanks to better marketability of healthier crops) as well as *social* (higher yield per hectare to feed the growing world population).

The main elements of BASF's ecosystem are summarized in the Business Ecosystem Canvas, an ECSI framework (Figure 1).

- **Target customers:** Modern farmers segment
- **Core offering:** Crop protection solutions (e.g., herbicides, fungicides, insecticides)
- **Digital platform supporting the core offering:** Xarvio farm management platform

<p><b>Shared functionality</b></p> <p>Achieve better yield on existing arable land preserving resources</p>	<p><b>Complementors</b></p> <p><u>Products:</u></p> <ul style="list-style-type: none"> <li>• Herbicides</li> <li>• Fungicides</li> <li>• Insecticides</li> <li>• ...</li> </ul> <p><u>Services:</u></p> <ul style="list-style-type: none"> <li>• Agronomic intelligence (e.g., weed and disease identification)</li> <li>• Field monitoring</li> <li>• Guaranteed leaf health</li> </ul>	<p><b>Role:</b> Orchestrator</p>	<p><b>Partnering Model</b></p> <p>R&amp;D partnership (e.g., with Bosch for Smart Sprayer)</p> <p>Distribution partnerships (e.g., Agristar)</p> <p>University partnerships (e.g., Bonn University)</p>
		<p><b>Ecosystem Architecture</b></p> <ul style="list-style-type: none"> <li>• <b>BASF</b> delivers its own and partners' solutions to a wide user base, managing the connections with 25+ partners</li> <li>• <b>User base:</b> 1.2 million farmers in over 120 countries. Multiple choice of service packages and crop protection products.</li> <li>• <b>Partners</b> complement the value with their technology, capabilities, services or local access (that BASF alone wouldn't provide)</li> </ul>	<p><b>Customer Relationship Models</b></p> <p>Multiplication of customer interactions through the monitoring of agronomic protocol execution and digital interactions on the farmer's portal</p>

**Value-sharing Model**

- **BASF:** increased and stabilized revenues through subscriptions and customer's insights for product innovation
- **Farmers:** improved crop yield and efficient use of resources for enhanced sustainability of land
- **Key commercial partners:** access to large customer's base and data for complementary services

BASF is not an isolated example. Other incumbents are building ecosystems to drive sustainability. A leading company in the water and waste sectors, Suez has launched Organix<sup>®</sup>, a waste management ecosystem helping organic waste producers find new channels for converting waste into energy (e.g., biogas companies). Traditionally the waste-to-energy supply chain has suffered from two main problems. On one hand, organic waste producers face difficulties in finding the right recovery channel. On the other hand, operators of methanation units sometimes experience inconsistent quality, unreliable sources and traceability issues with their organic material supply.

Organix<sup>®</sup> is a good example of how a business ecosystem approach can overcome such traditional inefficiencies by changing the rules of the game in traditional value chains and creating value for all the parties involved. To start, Suez has put together a coalition of partners including organic waste producers

(like food industry manufacturers and cooperatives), methanation unit operators who transform it into energy, a network of logistics and transportation partners, and local governments and municipalities with a stake into a more sustainable waste collection and management. Not only a direct contributor to the ecosystem, Suez acts also as a guarantor of the material quality, the application of the regulations and the traceability of flows along the entire chain. Over time, Organix<sup>®</sup> has created a virtuous cycle that makes it easier for producers of organic waste to find waste-to-energy operators, and for the operators to access directly the offers.

Launched in 2018 in three French regions (Brittany, Normandy and Pays de la Loire), Organix<sup>®</sup> now covers the entire French territory and will gradually be enhanced with new functionalities and complementing services.

BASF and Suez offer two important lessons for companies willing to make a significant contribution to reshape their industry to achieve sustainability and systemic change.

1. **Shift from your company's product view to more holistic thinking.** To achieve sustainability, 'system' is the key word. Traditional product thinking shows that a narrow focus is not enough to achieve sustainability goals related to broad structural changes. Moreover, it aims to create value for company's shareholders, often at the expense of other stakeholders. BASF's sustainable agriculture ecosystem demonstrates how the single improvement of herbicides by one company alone could fail if it was done without considering the entire system (products, services, tools and digital infrastructure). Similarly, Suez's Organix<sup>®</sup> provides a comprehensive business case for sustainability, as it builds a waste-to-energy ecosystem that creates value for all stakeholders, including shareholders, supply chains, civil society, and the planet.
2. **Evolve from ad hoc commercial partnerships to ecosystem business models.** As companies are on an accelerated course to show their contribution to sustainability goals both to their shareholders and local communities, they need to apply more systemic approaches to fuse sustainability with their business strategies. The Business Ecosystem Canvas is a powerful tool

to help companies ask the right questions and design an ecosystem strategy that truly embeds sustainability into the business.

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Sustainability will soon simply be how business is done. Many industries will require fundamental transformation to meet long term sustainability goals. One company alone can make limited impact. A sustainable economy needs a village: companies should join forces, architect, and orchestrate business ecosystems where many parties cooperate to create more value for customers and simultaneously reduce systemic waste and promote efficient use and recovery of resources. Better business for a better planet.

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**A framework for  
regeneration: from  
community to country-as-a-  
platform**

Christian Sarkar & Philip Kotler

**14**

In *The Concept of the Corporation* (1946), Peter Drucker warned us that the corporation is ‘in trouble because it is seen increasingly by more and more people as deeply at odds with basic needs and basic values of society and community’. Times change, but we still face the same predicament.

The digital revolution didn’t turn out as advertised. It brought us tech billionaires but didn’t increase the standard of living for the majority of people. Instead, income inequality grows and the digital divide persists. In the US, for example, a Pew survey reveals roughly a quarter of adults with household incomes below \$30,000 a year (24 percent) say they don’t own a smartphone. About four-in-ten adults with lower incomes do not have home broadband services (43 percent) or a desktop or laptop computer (41 percent). And a majority of Americans with lower incomes are not tablet owners. By comparison, each of these technologies is nearly ubiquitous among adults in households earning \$100,000 or more a year.

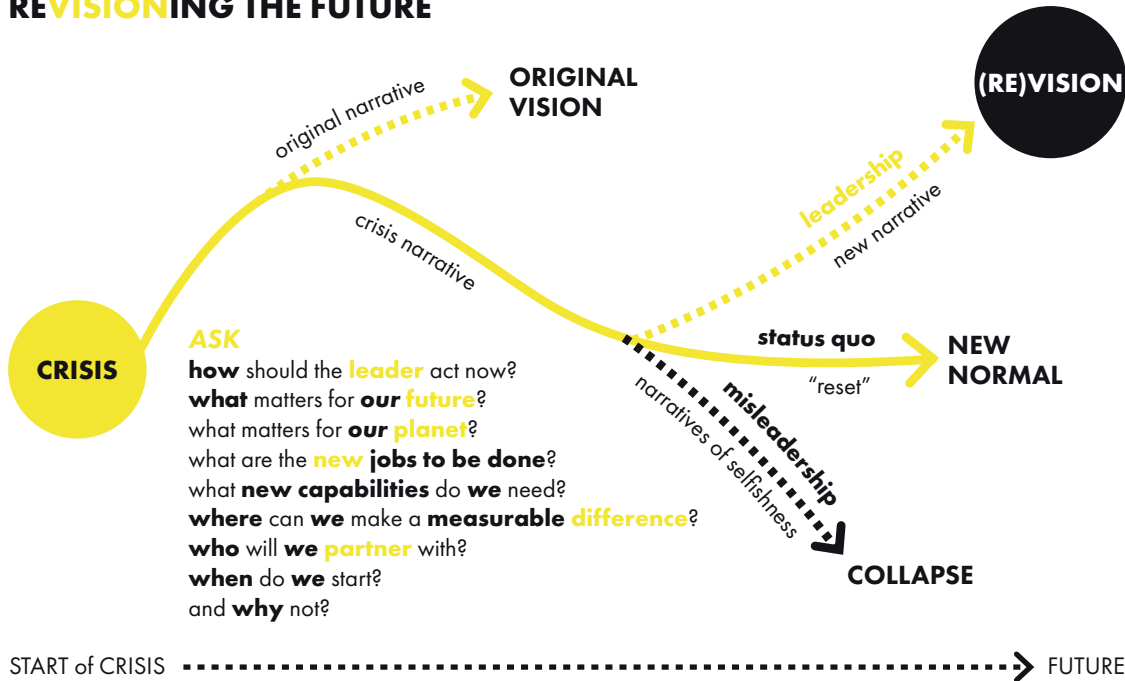
During COVID, inequality has risen to new heights, but even before the pandemic the world was in crisis. As humanity faces a growing number of existential challenges, we find that governments and institutions are not doing the job – they are failing us precisely at the moment we need them most. We’re facing an ecosystem of wicked problems.

## Revisoning the future

So, what can be done? What does ‘building back better’ actually mean? We cannot go back to a ‘new’ normal or the old one, because nothing about our current predicament is normal. We must re-vision: rethink what we want society to be. Do we want to continue destroying the planet or do we rally to save what’s left? And are our institutions capable of doing this?



## REVISIONING THE FUTURE



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The economic indicators we use are not just obsolete, but part of the problem, says UN Secretary-General Antonio Guterres:

Look at what's happening with storms, with hurricanes, the rising sea level, glaciers melting, the ice-cap in the Arctic risking to disappear; with biodiversity being lost: one million species are at risk of disappearing. We see that the world we knew will change dramatically and will destroy life. And in the end it's our life that will be destroyed. There is one thing that is a paradox: when you destroy a forest you are creating GDP – according to the statistics. When you overfish you are increasing

your GDP – according to the statistics – when you destroy the planet ... you are showing an increase of GDP so even that needs to be changed. We need to have a new way to measure our economy to measure our activity to make sure that we take into account the dramatic cost that we all face by the destruction of nature.

This statement from the leader of the most important global institution of our time begs us to think of a new approach. What theories and concepts can we bring together to do this? Our list includes the following:

- A Declaration of Interdependence
- The Principles of Design Justice
- Zero Distance to the Community
- Regenerative Marketing
- Hybrid Development Models

Taken together, these five principles are the foundations of a new approach for the future based on the *well-being of its communities* – we call it ‘Country as a Platform’.

## The Declaration of Interdependence

What is needed now more than ever is a ‘declaration of interdependence’, according to Henry Mintzberg, who rightly worries that our world has reached the limits of growth driven by the pursuit of individual rights at the expense of shared responsibilities. He has proposed the following resolutions:

- Balance begins when each of us decides how we shall become part of the solution. By doing nothing, we remain part of the problem.
- We advance to action in our communities, networked to consolidate a global movement for peaceful reformation.

- We commit to the ideals of social conscience, fair trade, and good government, to replace the dogma of imbalance—that greed is good, markets are sufficient, and governments are suspect. We explore our human resourcefulness by resisting our exploitation as human resources.
- We build worthy institutions in all three sectors of society—departments in government, enterprises in business, associations in communities—from the ground up, with widespread engagement that carries individual leadership into collective communityship.
- At the tables of public policy, we strive to replace the compromises of self-interest with the coalescing of common interest.
- We challenge the rampant corruption that is legal as vigorously as we expect our governments to prosecute the overt corruption that is criminal.
- Sustainable global balance requires substantial global government. We call on all democratic nations to rally for lasting peace, by containing any power that aims to dominate while holding economic globalization in its place, namely the marketplace.

Mintzberg tells us emphatically: ‘These resolutions require concerted action, not by centrally orchestrated planning so much as through a groundswell of initiatives by concerned citizens the world over, to restrain our worst tendencies while encouraging our best. For the future of our planet and our progeny, this is the time to get our collective act together.’

## The principles of design justice

How do you design systems so that the outcomes of these systems are just? The Design Justice Network gives us a few pointers. Let’s begin by understanding what is meant by the term ‘designing for justice’:

Design justice rethinks design processes, centers people who are normally marginalized by design, and uses collaborative, creative practices to address the deepest challenges our communities face.

The principles of design justice are based on a new lens of value: design must consider the impact on the community and those impacted (including the planet). Our design thinking schools cannot easily embrace this view, because they are still centered on profit. Here are 10 guiding principles of design justice:

1. We use design to sustain, heal, and empower our communities, as well as to seek liberation from exploitative and oppressive systems.
2. We center the voices of those who are directly impacted by the outcomes of the design process.
3. We prioritize design's impact on the community (*and planet*) over the intentions of the designer.
4. We view change as emergent from an accountable, accessible, and collaborative process, rather than as a point at the end of a process.
5. We see the role of the designer as a facilitator rather than an expert.
6. We believe that everyone is an expert based on their own lived experience, and that we all have unique and brilliant contributions to bring to a design process.
7. We share design knowledge and tools with our communities.
8. We work towards sustainable, community-led and -controlled outcomes.
9. We work towards non-exploitative solutions that reconnect us to the earth and to each other.
10. Before seeking new design solutions, we look for what is already working at the community level. We honor and uplift traditional, indigenous, and local knowledge and practices.

These principles are a starting point for any *project of the future*, and must be given far more visibility and consideration, not just in the world of design, but also the wider systems of our society – economic, social, political, environmental, etc.

## Zero Distance to the community

Post-COVID, what can be done to create value for society and communities? In business we view value-creation as a partnership – at best – between value created for the company and value created for customers. But, if we turn to our principles of design justice, we must also consider the following question: *what value are we creating for the community and the planet?*

In essence, we seek zero distance to the community. This is an idea that comes to us from Haier's Zhang Ruimin who has created a company radically organized around the customer, best captured by his phrase: 'create zero distance with the customer'.

How do we do this?

Those of us who have been building digital communities know that we are simply trying to re-interpret and re-create the rules of real, living, communities. The activist and author Wendell Berry had something say about this many years ago which applies to the ecosystem builders of today. Here are some of his key points:

Supposing that the members of a local community wanted their community to cohere, to flourish, and to last, they would:

1. Ask of any proposed change or innovation: What will this do to our community? How will this affect our common wealth?
2. Include local nature — the land, the water, the air, the native creatures — within the membership of the community.
3. Ask how local needs might be supplied from local sources, including the mutual help of neighbors.
4. Supply local needs first (and only then think of exporting their products, first to nearby cities, and then to others).
5. Understand the ultimate unsoundness of the industrial doctrine of 'labor saving' if that implies poor

- work, unemployment, or any kind of pollution or contamination.
6. Develop properly scaled value-adding industries for local products in order not to become merely a colony of the national or the global economy.
  7. Develop small-scale industries and businesses to support the local farm or forest economy.
  8. Strive to produce as much of their own energy as possible.
  9. Strive to increase earnings (in whatever form) within the community and decrease expenditures outside the community.
  10. Circulate money within the local economy for as long as possible before paying it out.
  11. Invest in the community to maintain its properties, keep it clean (without dirtying some other place), care for its old people, and teach its children.
  12. Arrange for the old and the young to take care of one another, eliminating institutionalized childcare and homes for the aged. The young must learn from the old, not necessarily and not always in school; the community knows and remembers itself by the association of old and young.
  13. Account for costs that are now conventionally hidden or 'externalized.' Whenever possible they must be debited against monetary income.
  14. Look into the possible uses of local currency, community-funded loan programs, systems of barter, and the like.
  15. Be aware of the economic value of neighborliness — as help, insurance, and so on. They must realize that in our time the costs of living are greatly increased by the loss of neighborhood, leaving people to face their calamities alone.
  16. Be acquainted with, and complexly connected with, community-minded people in nearby towns and cities.

17. Cultivate urban consumers loyal to local products to build a sustainable rural economy, which will always be more cooperative than competitive.

## Regenerative marketing

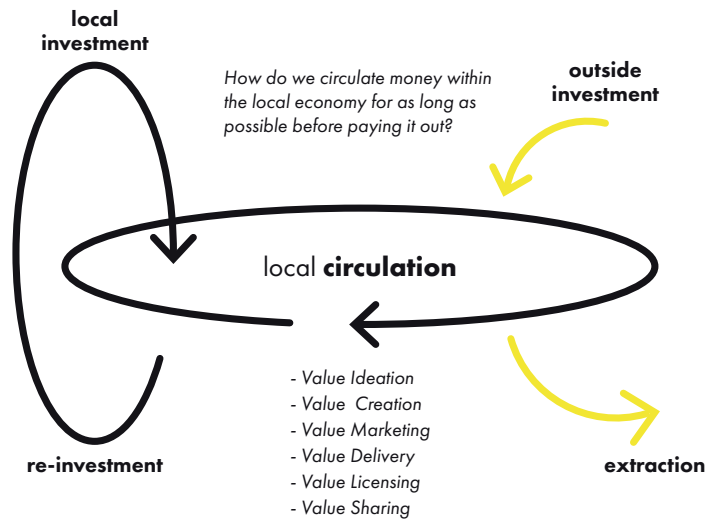
Now, in 2021, we are exploring these community-centric concepts as part of our research at The Regenerative Marketing Institute – an institution we co-founded with Enrico Foglia, the head of Kotler Impact, Europe. Regenerative marketing is defined as *marketing practices which nurture communities and build local prosperity over the long term*. The outcomes of regenerative marketing include value creation for customers, employees, and local communities.

Regenerative marketing practices must – by definition – build community wealth. Preliminary research findings from Italy suggest the following positive characteristics of businesses committed to regenerative marketing:

- **The Founding Mission:** the business has kept its founding spirit alive, often rejuvenated by the current leadership
- **Leading with Trust:** the company is built on trust-based architectures and business models
- **Commitment to Community:** the enterprise has deep local roots and is designed to improve community wellbeing
- **Imagination-driven Innovation:** the business builds unique, differentiated products
- **Time-Equity:** the institution invests in building customer and community intimacy and puts in the time to create deep connections
- **Cultural Traditions:** the company balances traditions and “family” values with competitive pressures
- **Collaboration Platforms:** the company builds a community-centric platform for creating community value

- **Multi-generational Loyalty:** employees and their families have a life-long relationship with the business, often over multiple generations
- **Customer Focus:** customer relationships are built on *deep trust*, not exploitation
- **Local Funding:** Financial support from local based banks and financial institutions tightly connected with the local community so that access to the credit is easier thanks to long term personal relationships.
- **Local Circular Economy:** supplier, partners, consultants are chosen among local community creating a common vision where the success of the company is shared with community stakeholders
- **Local Sustainability:** great attention to local environmental practices where most of the time the founders and his/her family reside

REGENERATIVE  
**COMMUNITY ECONOMICS**





Why does regenerative marketing work? In our 2021 interview with Enrico Foglia he explained: 'Regenerative marketing is about deep trust. It begins (and ends) with the relationships with the local community. In fact, the business may even be community-owned. This creates a new domain for value creation ignored by traditional business school thinking: community value creation.'

Community value creation is not without controversy. In *The Careless Society: Community and Its Counterparts*, John McKnight warns: 'More and more conditions of human beings are being converted into problems in order to provide jobs for people who are forced to derive their income by purporting to deliver a service.'

We 'fix' problems by making them worse. The diagnostic approach used by consulting firms is part of the problem. By creating a needs-driven list of deficiencies and problems, we turn citizens into consumers of social and service systems. They lose their sense of agency and become passive consumers of social services.

Elsewhere, McKnight explains:

It is important to recognize that the language we use to define the purpose of an association or meeting often puts people in a box that limits their productivity. The 'problem' box usually focuses on a negative aspect of community and a resolution provided by institutions. The asset-based approach is a box that usually focuses on creativity produced by citizens. One of the reasons we may have so little productive citizen creativity at the local level is that people buy into the belief that the purpose of getting together is to deal with a problem. There is another purpose that is probably more important and that is engagement that mobilizes citizen creativity and contributions. Perhaps we need a name for this. It is not problem solving. It is mobilization of creative vision.

McKnight insists that the essence of community regeneration is when people who are defined as problems achieve the capability to address the problem. We begin by identifying the assets -- the strengths and capabilities -- already present in the community. It is the living relationships and connections between

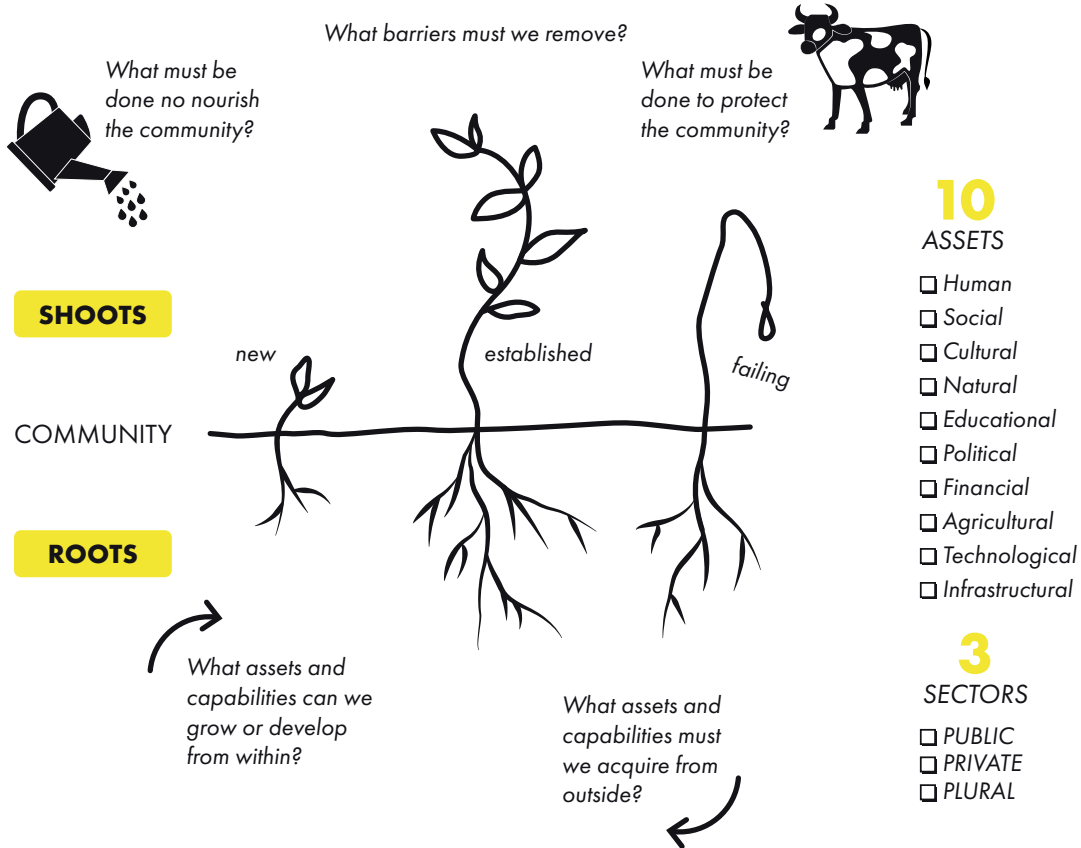
these assets which build and empower the citizens, associations, and enterprises which make up the community.

Thus, we have expanded on McKnight's asset-based approach to identify 10 community-based assets:

- Human
- Social
- Cultural
- Natural
- Educational
- Political
- Financial
- Agricultural
- Technological
- Infrastructural

REGENERATIVE  
**COMMUNITY DEVELOPMENT**

What do we bring to our community and to the world?



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The primary stakeholder is the community – the individuals and associations of the local village or neighborhood.

## Hybrid development models

In his e-pamphlet — *Rebalancing Society* — Henry Mintzberg points out that a balanced society can be thought of as ‘sitting on a stool with three sturdy legs: a public sector of respected governments, to provide many of our protections (such as policing and regulating); a private sector of responsible businesses, to supply many of our goods and services; and a plural sector of robust communities, wherein we find many of our social affiliations’.

Unfortunately, many private-sector business leaders function under the myth that they alone create value, and the public and plural sectors simply get in the way. And, in the United States, for example, the private sector dominates society to such an extent that it is unlikely to be dislodged by political mandates.

Changing this power dynamic isn’t possible top-down. We’ve all heard about public-private partnerships, but why don’t we hear more about public-private-plural models?

In the developing world, one of the primary reasons for the failure of development projects is that they cannot be sustained. Traditional approaches don’t always work; as soon as the development institutions (NGOs, agencies) leave, things fall apart. Soon the project is either abandoned or simply turned off. This happens all the time with water and energy projects.

One way to work around this and make it stick is to involve women in the project. This has been the secret behind the success of organizations like Grameen and the Solar Electric Light Fund. When women lead and control their own destinies, stuff happens. This is a lesson learned in the field, but overall the development-through-empowering-women movement has struggled for years.

Let’s examine at how a hybrid or collaborative business model might be used to empower community residents and deliver needed services as a regenerative community project. Here are what the hybrid phases might look like:

**Design:** the community works with local community assets – civil authorities, NGOs and businesses – to envision a solution that works for the community.

**Finance:** the community pools its resources to fund the initiative with the help of matching government private investments.

**Build & Operate:** the community works with the private sector to build and operate the project. The government may subsidize or donate resources as well.

**Maintain:** may include jobs for the community and training services from a local NGO or association

**Upgrade:** all players come to the table to develop the next level of improvements.

## REGENERATIVE COMMUNITY PROJECTS

DESIGN → FINANCE → BUILD & OPERATE → MAINTAIN → UPGRADE

*How do we balance roles, priorities and activities?*



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Is it too much to ask governments, NGOs, development institutions, and businesses to work together with the impacted communities to build integrated solutions?

The key ingredient is trust and solidarity. For example, Partner In Health (PIH), one of the world's most famous NGOs, believes it is essential to partner with the community. They hire and train local staff. They work with governments to reinforce national health services so more people receive services. They collaborate with other health workers such as traditional birth attendants and government health workers because together they can have a stronger impact. PIH has established a community-based model of care that is now viewed as a leading health-care delivery model in the developed world.

Businesses must learn to do the same. Inclusive growth can only be driven by inclusive business practices. And of course, they must be sustainable.

## **From community to country-as-a-platform**

Too often we operate under the mistaken assumption that private or state digital platforms are the only solutions available for digital community enablement.

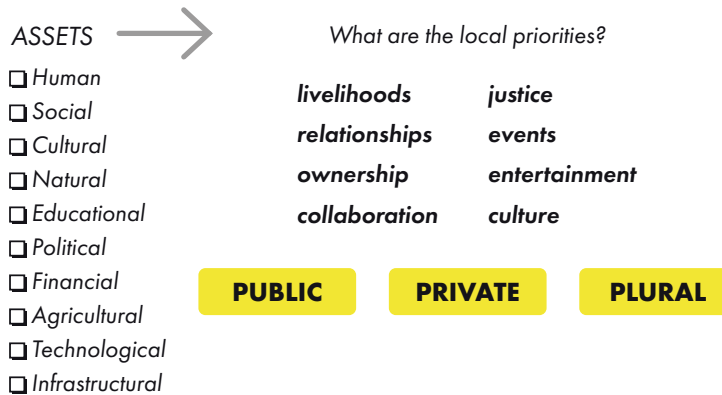
As top-down, country-based platforms continue to grow, Sangeet Paul Choudary points out that control over the trade in goods and services shifts from countries to digital platforms. He explains the ramifications:

Public and private actors in China are working in close cooperation—in a country-level platform strategy—to create digital infrastructure that aligns with the BRI, to promote standards that drive the adoption of such infrastructure, and to strengthen China's points of control in the digital economy. This strategy extends across four key themes: trade, payments, smart cities, and social credit. If successful, this strategy could fundamentally shift trade and financial flows toward a China-centric economic order and could even reshape political systems in participating countries.

The weakness of this platform strategy is that it is grounded on the same fallacy that McKnight warned us about, it is a top-down, needs-based transaction system which fails to build local trust.

And that is an opportunity for community-based platforms. Local ownership or municipal ownership of community platforms allows for greater flexibility and local empowerment. The opportunity is a bottom-up platform which is built by communities, for communities.

## REGENERATIVE COMMUNITY PLATFORM



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The growing importance of the groups like the Platform Cooperativism Consortium are creating a space for community collaboration. Platform cooperatives are businesses that use a website, mobile app, or protocol to sell goods or services. They rely on democratic decision-making and shared ownership of the platform by workers and users. Their tool library is a place for co-ops to find and share digital tools with each other.

They are justifiably upset with 'platform capitalism' because they view the Internet slipping out of ordinary users' control. Their point-of-view:

The power held by principal platform owners like Uber, Amazon, and Facebook has allowed them to reorganize life and work to their benefit and that of their shareholders. 'Free' services often come at the cost of our valuable personal information, with little recourse for users who value their privacy.

The paid work that people execute on digital platforms like Uber or Freelancer allows owners to challenge hard-won gains by 20th-century labor struggles: workers are reclassified as 'independent contractors' and thus denied rights such as minimum wage protections, unemployment benefits, and collective bargaining. Platform executives argue that they are merely technology (not labor) companies; that they are intermediaries who have no responsibility for the workers who use their sites. The plush pockets of venture capitalists behind 'sharing economy' apps allow them to lobby governments around the world to make room for their 'innovative' practices, despite well-substantiated adverse long-term effects on workers, users, the environment and communities. At the same time, in the gaps and hollows of the digital economy, a new model follows a significantly different ethical and financial logic.

Bottom line? The Internet *can* be owned and governed differently.

Given all of this is it any wonder that we are beginning to see a new wave of startups and businesses striving to do good, to create a platform around purpose? For example:

- Up & Go offers professional home services like house cleaning, (and soon childcare and dog walking) by those who are looking for assistance with laborers from local worker-owned cooperatives. Unlike extractive home-services platforms which take up to 30 percent of workers' income, Up & Go charges only the 5 percent it needs to maintain the platform.
- Fairbnb.coop is a vacation rental platform which gives back 50 percent of its revenues to support local community projects of your choice such as social housing for residents, community gardens and more.



- MiData is a Swiss 'health data cooperative', creating a data-exchange which will securely host member-users' medical records. MiData aims to out-compete private, for-profit data brokers and ultimately return the control and monetization of personal data to those who generate it.
- Gratipay provides a free subscription-based patronage infrastructure for developers of open-source ventures, by enabling credit-card transactions at-cost, subtracting only the processing fees from users' subscriptions
- MyCelia's goal is to empower a fair, sustainable and vibrant music industry ecosystem involving all online music interaction services. They seek to unlock the huge potential for creators and their music related metadata so an entirely new commercial marketplace may flourish, while ensuring all involved are paid and acknowledged fully, and to see that commercial, ethical and technical standards are set to exponentially increase innovation for the music services of the future.

All of these businesses are developing ecosystems and platforms built around connecting customers with the job to be done, for less, or for free. They are seeking to build a more equitable, common platform for value exchanges. What happens when this bottom-up approach goes nationwide?

The result is what Istakapaza CEO Alok Sinha calls 'Country as a Platform' – a community-based approach that is being developed in India to include all sectors: public, private, and plural.

## COUNTRY AS A PLATFORM

### PRIVATE SECTOR

#### INDUSTRY PLATFORMS

Agriculture  
Mining  
Forestry  
Fishing  
Quarrying  
Packaging & Processing of Raw Material  
Manufacturing  
Processing  
Construction  
Energy  
Retail & Wholesale  
Transportation & Distribution  
Restaurants  
Media  
Tourism  
Insurance, Banking & Healthcare  
Legal  
Culture  
Scientific research  
Education  
Information Technology

### PUBLIC SECTOR

#### CITIZEN SERVICES

Education  
Energy  
Health  
Transportation  
Social Security  
Direct Services

#### FUNCTIONS

Defense  
Law Enforcement  
Intelligence  
International Affairs  
Corrections

### PLURAL SECTOR

#### PHILANTHROPIC SERVICE

Environment & Conservation  
Donor/Recipient Traceability  
Foundation ecosystem

#### CO-OPS + COLLABORATIVE CAPITALISM

Smart contracts  
Business formation on the fly  
Value sharing

#### LOCAL COMMUNITIES

Entrepreneurial and startups  
Capacity building and training  
Local NGOs  
Regional access  
Global access

#### SUPPORT SERVICES

Supply Chain Management  
HR Management  
Financial Management  
Digital Enablement

#### TRANSPARENCY

Immutable Records  
Citizen Protection  
Blockchain: Smart Contracts  
Encryption

#### HYBRID BUSINESS MODELS

Collaborative revenue  
Local Growth  
Public value creation  
Societal value creation

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‘Our goal is start by building deep vertically-integrated platforms that empower not just the big industry players but small startups and local entrepreneurs in a seamless experience,’ explains Sinha. ‘The strategy is one of inclusivity and local empowerment in Tier 1, 2 and 3 cities across India. We say that no one owns

the ecosystem, we are all participants.’

This is a step in the direction of citizen-owned public platforms. What if there was a non-profit version of Facebook? What if your local post-office was a public platform for banking, for e-commerce, for community digital enablement?

We are on the cusp of a new paradigm: a regenerative economy.

**Philip Kotler** is known as the ‘father of modern marketing’. For over 50 years he has taught at the Kellogg School of Management at Northwestern University. His book *Marketing Management* is the most widely used textbook in marketing around the world. He received his M.A. degree in economics (1953) from the University of Chicago and his Ph.D. degree in economics (1956) from the Massachusetts Institute of Technology. He is author of over 150 articles and 80 books, including *Principles of Marketing*, *Marketing for Hospitality and Tourism*, *Strategic Marketing for Nonprofit Organizations*, *Social Marketing*, *Marketing Places*, *The Marketing of Nations*, *Confronting Capitalism*, *Democracy in Decline*, and *Advancing the Common Good*.

**Christian Sarkar** is an author, entrepreneur, artist, and consultant. He is founder of Double Loop Marketing, a marketing consultancy. He is also co-founder (with Philip Kotler) and editor of *The Marketing Journal* and founder of Ecosystematic, an ecosystem strategy consultancy. Christian is involved in numerous non-profit and public-education projects, including The Wicked7 Project, FIXCapitalism.com and the \$300 House Project. In 2021 Christian was named to the Thinkers50 Radar of global management thinkers primarily for his work on brand activism.

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**A three step model for  
building ecosystems:  
lessons from the world's  
best bank, DBS**

Robin Speculand

**15**

In today's hyperconnected world organizations cannot work in isolation and need to strive to continuously enhance their customer's experience by building platform partnerships with other organizations. The leaders at Singapore-based DBS Bank came to this realization in 2017, three years into their digital transformation.

In 2014 DBS set the audacious goal of being recognized as the best bank in the world by 2020. The organization's leaders recognized that its slogan 'money lubricates life' is a powerful statement, but one which could quickly become prosaic—too ordinary. People tend to take banking for granted or even see it as a negative in their lives. So, DBS's leaders strived to identify what 'banking with a sense of purpose' would be like. The question they addressed was not 'what did the bank want to do?' but 'how do we make dealing with DBS easy, fun, convenient, and meaningful?' Then people would be able to see the kind of good the bank did for businesses and individuals as well as the value it added to society.

The team migrated toward making banking the opposite of painful—that was, to Making Banking Joyful. Due to the emergence of numerous technologies, the means for Making Banking Joyful was rapidly evolving. DBS leaders recognized that, by leveraging new technologies, they could make banking 'invisible' to their customers. That would, in turn, create opportunities for customers to have enjoyable interactions when dealing with the bank and, ultimately, to experience a sense of happiness and peace of mind throughout their banking journey.

A key component of the 'Making Banking Joyful' strategy was starting to build ecosystems with partners. Before DBS's digital transformation, their business model was based on a network of branches, data centers, and customer reach through multiple products and services. But it had become increasingly important in this hypercompetitive world for organizations to scale up by leveraging the capabilities of partners. DBS now focuses its business model on building ecosystems because banking can no longer stand alone in a connected world. Today's technology advancements allow gathering and analyzing detailed customer data while providing new kinds of connectivity to enhance its customers' journeys.

In DBS's research paper 'Pivot or Perish: Ecosystem, the emerging business model' an ecosystem is

defined as: 'Bringing together entities in disparate industries to create new offerings or capture value that individual organizations 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.'

## The birth of ecosystems at DBS

In 2012, bank leaders were already questioning how to connect different systems to improve customers' experience. Outside the bank, people were talking about APIs (Application Programming Interfaces), but many bankers did not know what they were or could not see their potential. As DBS moved first to microservices and then to ecosystems, APIs grew rapidly in importance.

APIs that enable building ecosystems *externally* are about connectivity; *internally* they are about both control and connectivity. A team needs to have control of 'who can do what internally' because the person given the responsibility for operating the API and scaling up the business must be held accountable. Internally, an extra layer of control is required. At DBS, employees aren't allowed to make changes on their own. (This differs from the norm in DevOps, in which one person does have control.)

APIs have become a significant driver of business growth, creating new value for businesses chiefly for two reasons: they offer customers a more embedded experience and reveal more data for analysis.

By 2017, DBS's leadership team had reached two conclusions. First, it recognized the need to shift its thinking. That meant to be a digital player, leadership had to be open to partnering with other organizations and could not play by itself. Second, it deeply appreciated how customers *didn't* start their journey from the bank. This awareness aligned with its work focused on a customer's 'job to be done'.

These two conclusions also recognized that millions of impressions, clicks, and engagements were being made *outside* the bank. If the bank couldn't connect to these potential partners, then it was missing massive amounts of data and customer knowledge as well as future opportunities. In response, in 2017 the bank launched the world's largest banking API platform, going live with more than 150 APIs. Today, it has more than 1,000 APIs and over 400 partners.



## POC Framework

To guide the development of ecosystems with partners and understand the new approach, DBS adopted a three-stage framework called POC:

- **P** means **Participate** with other platforms where DBS comes through as a participant on an external party's platform or ecosystem. For example, the bank strategically invested in Carousel (a site for buying and selling goods) as part of its DBS PayLah! platform.
- **O** means **Orchestrate** where the bank is the platform and brings on board partners and multiple players. For example, a customer can now buy or sell a car on the bank's website, work out a worry-free home purchase plan, select an electricity provider, or book flights and hotels. By using DBS PayLah!, the bank also orchestrates payments to third parties for such items as movie tickets and insurance.
- **C** means **Create** in a complete white space. This is where no real player is out there; instead, the bank initiates the platform. An example of a created app is Smart Buddy (explained below), which has morphed into an educational ecosystem.

## Entry into successful marketplaces

DBS sought to make banking more seamless and joyful for customers when purchasing property. Today, it also sells cars and holidays. Just a few years ago, imagine what consumers would have thought about buying a car from their bank!

- **Property Marketplace**

Singapore has a vibrant property market. Launching a new Property Marketplace platform allowed the bank to be more innovative in offering adjacent services beyond mortgages, including insurance and

renovation loans. Today, customers can browse online to find multiple property agents and sites. With its mortgage calculator, Property Marketplace helps them make early-stage calculations on mortgages so they can weigh their options. They can also acquire Approval in Principle and facilitate other aspects of their mortgage journeys.

- **Car Marketplace**

The government of Singapore places a high tax on cars (called Certificate of Entitlement or COE). Therefore, approximately 90 percent of car purchases require a loan, which serves to limit the number of cars on the roads. To discourage people from buying cars, the country has an excellent, safe, and reliable public transport system. In Singapore, for example, if a train breaks down at any time, its operator is penalized by the government!

Still, Singaporeans want to own cars. Their need to get loans led to car sellers being paid a high commission when they recommended a bank. The bank, in turn, depended on car sellers for their recommendations. When purchasing a car, thinking about the loan or insurance is not typically a top-of-mind consideration. The DBS Consumer team recognized this as an excellent opportunity to examine the customer journey as well as show empathy to their customers and apply design thinking.

In 2017, an agile squad reimagined the customer journey and launched the Car Marketplace, a platform that centralized customer search efforts for a car with all the different steps easy to access on one website. The launch of Car Marketplace required Singapore's central bank's approval since it fell outside of a bank's traditional and approved parameters.

As a consumer, Car Marketplace allows you to search for and buy your dream car or sell one you don't want. When buying, the site lets you calculate your budget, view dealers, or buy directly from a seller. When selling a car, the site allows you to price your car and sell it fast. It guides you through the transaction in three steps. The site recommends insurance and offers purchase of roadside assistance and accessories. It also features recommended articles to read before buying and selling goods.

Immediately after the Car Marketplace launch, the bank's customers realized a significant reduction in the cost of acquiring car loans and insurance as well as an efficient back-end process. Today, DBS's Car Marketplace is the largest direct seller-to-buyer car market in Singapore.

- **Travel Marketplace**

Travel Marketplace is the bank's first payments-enabled marketplace. It was also Singapore's first one-stop integrated travel marketplace in partnership with Singapore Airlines, Expedia Partner Solutions, and Chubb Insurance. The Travel Marketplace offers travelers competitive flight fares, hotel rates, and free travel insurance coverage for more than 25,000 holiday destinations worldwide.

- **Electricity Marketplace**

Through the bank's Digibank app, heads of households can search for utility price plans best suited to their electricity consumption. This app is aimed at making life simpler for customers while enjoying savings on their bills.

## **Platform is the new product**

The Digital Wave drove the move from product to platform across the bank. The move focused on scope and scale—from developing the best products to developing the best networks. DBS's move from product to platform came with these three challenges:

1. **Acquiring customers through partners.** Going further upstream in the customer journey created more opportunities to capture new customers through partners. When a consumer wants to buy a car, for example, the loan can come from DBS. This is even more critical in the markets where DBS has little physical presence (such as in India and Indonesia) and fully depends on digitalization to connect with its customers. By working together, both parties reduce their cost of customer acquisition.

2. **Gathering non-traditional data from partners to make credit decisions.** The bank gathers data on its customers. The non-traditional data it has on customers provides more accuracy, granularity, and actionable data for making decisions. For customers new to banking or credit, it is imperative to have other sources of data (this can come from travel patterns, telco data, or other external sources) to be able to make decisions on lending. To access this sort of data, DBS has to partner with related firms that then become part of its ecosystem.
3. **Enhancing product offerings through partners.** Collaborating with partners unlocks greater revenue opportunities from customers that the bank did not access before. For example, previously, DBS would only look at the house-buying customer journey in terms of the mortgage application process. Today, its Property Marketplace provides listings from partners. It also smooths out the customer journey by integrating the mortgage calculation and affordability assessment into the experience.

## Building ecosystem partnerships

Building successful ecosystem partnerships requires an investment in time, mutual commitment, and openness to collaboration. It also takes resilience and belief to build traction and reach inflection points. To this day, as DBS improves the customer journey, it can be challenging for the bank and its partners to identify an equitable value exchange. The ecosystem partnerships that work best happen when both parties benefit from working together more or less equally. Each partner must also share a mutual commitment to offering customers a better experience as well as being open about data collaboration.

As the bank advances its efforts in connecting adjacencies, its aim of Making Banking Joyful becomes embedded in its customers' lives. A pain point that the bank has been able to address for both consumer and corporate customers is onboarding. For corporate customers, this process used to take an average of 45 days in the industry. But now, by making the procedure seamless and paperless by adopting digital signatures and with open APIs, the bank has reduced it to under six days. Traditionally, this process

involved submitting numerous physical documents and multiple iterations between the bank and the customer onboarding. The use of AI and machine learning eliminates duplication and manual processing.

Another ecosystem-related idea which helped DBS build momentum was POSB Smart Buddy. At the start of the implementation of the digital transformation, DBS CEO, Piyush Gupta, was driving every part of the bank to challenge the status quo and think differently. As part of its responses to the CEO's challenge, the Consumer bank addressed the customer pain point of parents scrambling in the morning to give their children lunch money. The solution not only made the morning rush more manageable but eventually resulted in Singapore children eating less sugar!

Adopting agile methodology, the team developed a wearable watch for schoolchildren that let parents pass children their lunch money digitally. It's called the Smart Buddy. To create this app, the agile squad experimented over an intense 18-month period using pilots at three schools.

Digitalization is not always about inventing a product but about creating a platform. In this case, giving schoolchildren a wearable watch for digital credit was useless if vendors could not accept their payments. So, the team went to individual food and beverage vendors at participating schools and encouraged them to adopt cashless transactions. During the pilot in 2016, though, the team realized numerous food and beverage vendors had their own apps. Finding, downloading, and using different apps was not attractive to them. To resolve the problem of being inundated with apps, the team pivoted to Facebook Messenger, which most of their customers used. Facebook Messenger now lists all the different vendors participating at the children's schools.

In August 2017, POSB Smart Buddy was launched as a contactless payment ecosystem to cultivate sensible saving and spending habits among students in an interactive, engaging way. It not only resolved the issue of parents scrambling to give the children lunch money; it also tracked what food items their children were buying at school.

Smart Buddy analytics revealed the kids' eating habits, paving the way for parents to educate their children on eating healthily and spending money wisely. The Singapore government became interested

in Smart Buddy, as it was looking to improve eating habits among children. The data also translated into defining trends and discovering insights.

Since Smart Buddy's launch, more than 29,000 schoolchildren have been using the free wearable watch, and 62 schools have joined the initiative. Within DBS, the success of Smart Buddy became an early catalyst for the Consumer team to rethink its whole offering, shifting from selling products to creating platforms. Smart Buddy is not a digital wallet product; it is a platform that interconnects customers (schoolchildren) with vendors. In Singapore, those vendors also include libraries and bookstores. Not only does Smart Buddy allow parents to track their children's eating and buying habits, but it also gives the Singapore Health Promotion Board (HPB) data that can help reduce sugar intake for school children. HPB provides nutrition tips that encourage healthy living. Another DBS ecosystem is born.

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# **The startup ecosystem and its impact on the business transformation of large firms**

Annika Steiber

# 16

The importance of startups as a source of innovation for large companies has reached a new high-point in the context of digital transformation. New digital technologies are transforming every industry to such an extent that if you can't master the idea of digital inside your business you open the door to commoditization. This poses a serious challenge for many large, previously successful companies, which in times of discontinuous change may have difficulty innovating and even surviving.

The resources, processes and cultures meant to strengthen existing lines of business tend to stifle exploration of the new. As they seek ways to stay relevant in an age of digital transformation, mature companies discover that internal initiatives are not enough. According to David Teece, the value of the enterprise is to a high degree determined by management's ability to buy, build and/or re-configure assets and resources to continually improve performance in a changing competitive landscape. These capabilities are labeled dynamic capabilities by Teece. He puts the ecosystem as the center piece of an analytical framework within which corporations can assess new opportunities.

The logic is that the expanding and evolving knowledge base in most industries changes the locus of innovation from individual corporations to *networks of learning*. As a result, in recent decades there has been growth in partnering and different forms of external collaboration among organizations. Most recently, the digital transformation of industries has increased the emphasis on external collaboration with tech startups. For startups this strategic avenue is also of interest as it can be a means for them to overcome problems with scaling their business. However, external collaboration with tech startups requires new and different organizational practices to access the external startup community and its entrepreneurial ecosystems.

## From R&D to ecosystems

The Internet, cheap information processing and artificial intelligence, as well as cloud technology and Internet of Things (IoT), have not only shortened product life cycles in many industries but created a need among companies to assess complementing or totally new assets in order to stay relevant.



In a rapidly changing environment with an increasing pace of technological development, the dilemma for large firms is that their innovation success is not so clearly related to their market share, or size of their R&D lab, but rather to their ecosystem with external innovators and their capabilities to access these missing complementary or even substituting assets.

As large firms increasingly rely on external technology and innovation, they need to develop capabilities to manage resources that they do not fully control across *boundaries*. In the quest for speed and innovation, many industries have produced a variety of ways of engaging with startups. But, because of the very different behavioral characteristics of large and small firms, such a relationship can be problematic. There are many reasons for this, one being a lack of 'startup-friendly procedures' such as shortening payments times, simplification of vendor registration and qualification process. However, a small number of large firms have successfully combined their market strength with the nimbleness and creativity of external small firms.

## Models for startup collaboration

Due to the increasingly important role startups play in corporate innovation, it is of importance to identify and understand different ways companies collaborate with startups, and thereby access new, complementary resources and assets. Based on a decade's empirical studies of more than 100 large international firms and their startup collaboration models, conducted by the author, her research colleague Sverker Ålunge and, more recently, Vincenzo Corvello, a framework was developed, including multiple models for corporate-startup collaboration. These different models were then clustered into four main categories, originally developed by Tobias Weiblen and Henry Chesbrough. The categories and identified collaboration models are:

- **Outside-in and equity-based:** Corporate acquisition and corporate venturing
- **Inside-out and equity-based:** Corporate incubator and corporate accelerator
- **Outside-in and non-equity-based:** Co-creation and co-location

- **Inside-out and non-equity-based:** Platforms and startup programs

Here, Outside-In means that a large firm leverages externally developed resources and assets, while 'Inside-Out' means that the corporation leverages internally developed resources and assets. Equity-based refers to a corporation taking equity in a startup, while non-equity-based refers to a commercial agreement/partnership with the startup.

### **Category 1: Outside-in and equity-based**

A *corporate venture unit* is investing in external startups of strategic interest, which, like corporate spinouts, may be acquired at some point. *Acquisition* in general is a common way of obtaining assets developed elsewhere—including technology, talent, competencies, and/or patent portfolios.

### **Category 2: Inside-out and equity-based**

Large firms have realized the need for rapid learning, and therefore use probe-and-learn processes with success, primarily in computing and Internet companies. This has influenced the design of *corporate incubations*, where internal ideas may lead to spinout companies, which put internal assets to use and can also potentially be re-acquired later, and *corporate accelerators* such as Disney Accelerator and Fastworks in General Electric's energy storage business. In contrast to a corporate incubator, an inside-out corporate *accelerator* can be viewed as an intensive, brief program in which cohorts of internal idea providers are trained to take their ideas further. These accelerators are focused on very early-stage innovation, and in many cases on contributing to a shift toward an entrepreneurship and innovation culture in respective corporation.

Corporate incubators and accelerators could also be positioned in the category 'outside-in and equity-based', if the startups present in the incubator, or in the acceleration program, are generated externally and invited/selected to be a participant in the incubator or accelerator, by the large firm (such as in the case of Disney Accelerator).

### Category 3: Outside-in and non-equity-based

Recently there has been a growing interest in *co-creation around business problems* through open innovation (OI) units at large firms. This function usually does not, in itself, involve investments in startups. Rather it involves interaction with external startups to mediate access to ideas, innovations, and competencies. The function (or parts of it) can be performed by a dedicated Open Innovation unit or by various internal units such as technology offices, IP offices, and industry solution labs. However, this function can also be performed by an external incubator or accelerator with which the large firm is connected with – such as taking part of pitch event and offer the winning startup the opportunity to take part of a proof-of-concept project together with the large firm. Another form of co-creation is crowdsourcing ideas from broad populations of developers, makers, and/or users. This is increasingly practiced, both within organizations and in larger communities, and there are two basic approaches: a clearly defined problem can be presented for solution, or general challenge areas for innovation can be presented to invite broader idea generation. Another form of co-creation involves hackathons at large firms, or even physical locations, where idea providers/startups can generate, prototype, or further develop their ideas within a very short time.

Some large firms have created labs or workspaces for small firms in their vicinity (the corporate version of the Maker Movement). The idea in many of these cases is to *co-locate*, so the small firms can benefit from access to the larger firms' competencies and resources, while the larger firms develop relationships that could provide useful innovation inputs.

### Category 4: Inside-out and non-equity-based

By *platforms* it is meant a large firm's proprietary platform – such as Android or iOS -- and the primary purpose of setting up a *Startup Accelerator* is for the large firm to support entrepreneurs with access to the large firm's products, services, or other assets. An example here is Google for Startups.

In summary, these four categories and different models are examples on how large firms utilize startups

to access new or complementary assets and resources, important for corporate innovation in general, and specifically for their business transformation.

## **A framework for digital transformation**

The main challenge in the context of the business transformation of larger firms, is not incremental innovations, but to fully exploit the new technologies' transformative potential.

N. Venkatraman's 1994 research suggests there are five different phases in a corporation's business transformation based on new digital technologies:

### **Localized Exploitation (evolutionary level)**

Localized exploitation is according to the author the very first level in a business transformation, enabled by information technology. In this phase the company enables IT by deploying it in isolated systems such as e.g. inventory control system. The decision and implementation are decentralized to the appropriate function, operational manager. The result is isolated learning of benefits and limitations from such initiatives.

### **Internal Integration (evolutionary level)**

The second level is reflecting a more systematic attempt to leverage IT throughout an entire business process. According to the author, this level integrates technical interconnectivity and business process interdependence. Both types of changes are needed on this level.

### **Business Process Redesign (revolutionary level)**

On the third level, IT is used as a lever for designing the new organization and business processes. This level is based on the rationale that the benefits from IT are not fully realized if superimposed on the current business processes.

### **Business Network Redesign (revolutionary level)**

The three levels above focus on IT-enabled business transformation within one single organization. On

the fourth level of transformation, IT enables interconnections and integrations with external partners such as suppliers, customers, and other intermediaries.

### **Business Scope Redefinition (revolutionary level)**

The final level is reached if the firm utilizes IT to influence their business scope and the general logic of their business relationships. According to the author, this last level is dependent of a redesign of the firm's business networks (level 4), that is that the company moves from transaction processing to knowledge networks. Technology in this phase redefines the rules of the game.

### **At work**

Stena Metall AB, a multinational company with a long history in recycling, has been studied by the author and Sverker Ålunge. Separating scrap materials more efficiently in order to recycle is a challenge globally, and the industry is increasingly relying on new digital technologies including VR/AR, image analysis, and AI.

Therefore, Stena Metall has organized a corporate Digital Transformation Team with responsibility for its digitalization strategy, which includes funding proof-of-concept projects. Further, each company in the Stena Metall group has digitalization teams that can access the corporate fund to test new ideas that go beyond incremental innovation in customer projects. Most of the digitalization development is conducted in cooperation with suppliers, both large and small firms, and in close cooperation with customers. In total there are more than 100 smaller projects on customer portals, sales systems, robotized invoicing, e-commerce, and transport planning.

In 2016, Stena Metall created its New Ventures Unit to further expand the existing range of services by investing in startups, spinning out internal ideas, and creating startups together with other companies. The main focus of the unit's activities is on what is coming ahead. However, the unit also supports Stena Metall's R&D organization by constantly following what might happen more long-term, as well as supporting

existing operations by scanning what may happen on a short-term basis. New Ventures started as a unit to develop internal and external ideas either in-house or with external incubators and accelerators but has broadened its mission to include corporate venturing with possibilities for acquisitions. This means that the unit has responsibility for both *outside-in* and *inside-out* models including equity investments.

According to the head of New Ventures, its focus is on internal and external ideas that do not fit into the existing companies within Stena Metall but would benefit from being connected to the group. This includes “temporary risk-projects” for existing Stena Metall companies, with separate budgets and license to fail to gain speed. Teams are put together for each project. New companies can be started if needed, and they can involve co-working and co-owning with external firms. New Ventures invests in startups supporting Stena Metall’s future business. The benefits for the startups are access to technical and marketing know-how, client connections, capital, and opportunities to test their idea live. Recently, Stena Metall established its Stena Nordic Recycling Center in Halmstad, Sweden, where startup companies are invited to locate for periods of one to six months. Proximity to a large industrial recycling facility, with access to experienced staff, materials, operations, and data, gives the startups excellent opportunities to test ideas and prototypes. The goal of this Recycling Lab is ultimately to develop functional solutions for customers, which sometimes may also be done together with larger partners such as ABB, Electrolux, Ericsson, and Siemens.

The New Ventures unit plays an important part in Stena Metall’s business transformation. An example of this is the development and investment in Halosep—an innovative method for recycling and reuse of waste streams from incineration plants. This was developed within Stena Recycling, requiring a new setup for further scaling and investment in Biolpakt, a company involved in water analysis using IT development, machine learning, and the testing of the efficiency of analyses. Another example is BatteryLoop Technologies, a startup founded by Stena Recycling, which offers power electronics and energy storage solutions for renewable energy systems.

The New Ventures approach is to develop collaboration with startups in a flexible way—probing and testing, using an array of models and instruments, in order to gradually evolve the relationship through

a learning process. The role of top leadership is central for the unit, which has strong support both from operational leaders and from the owners. This is expressed through a strong intention to do something new, which leads to fast decision-making on the funding of new initiatives in combination with investment endurance.

Startup collaboration supported Stena Metall's business transformation and also improved the company's dynamic capabilities to understand market and technology trends, as well as being able to mobilize resources, and to re-configure current assets, to leverage new opportunities. The company is now evolving its approach with new, complementing ones, that have a different focus and therefore potential end result. A single approach can shift in focus over time and therefore produce different outcomes in a firm's transformation – such as when a corporate incubator for internal ideas also starts to invite external startups to apply an 'outside-in approach'.

Finally, independent of degree of business transformation, Stena Metall has through its collaboration with startups developed its own emerging digital ecosystems, which provides new knowledge of both emerging technologies and business models, affecting its industry.

A number of managerial implications can be drawn from these conclusions. First, large-firm collaboration with startups is an interesting strategic avenue for developing increased dynamic capabilities. But, the setup of the new approach does affect those capabilities, as well as the type of entrepreneurial opportunity (incremental or disruptive innovative), and the end result in a firm's business transformation. As a result, the company needs to think over the purpose and end goal with each startup collaboration initiative and might develop a portfolio of different initiatives.

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# Measuring corporate engagement with the startup ecosystem

Dan Toma

# 17

**H**ow do you, as a corporate leader, react when your marketplace starts drifting away from you? Do you do nothing, hoping that customers will return once they have sampled the alternatives and realized the value of your offering? Do you instantly embark on a company-wide reset, potentially sacrificing continuity of service or product in the chase for differentiation? Or do you perhaps reach out into the ecosystem, looking to partner with another organization in order to reconnect with your customers and still stay relevant?

This rise in collaborative relationships is one reason why in 2017 the International Organisation for Standardization (ISO) released a standard for Collaborative Business Relationship Management Systems, ISO 44001. Building on the earlier 2006 PAS 11000 Collaborative Business Relationships model, the ISO standard has been designed to apply to all business systems and collaborations from governmental organizations to micro businesses and from one-to-one direct relationships to multi-business relationships.

In parallel to these developments around standardization, my work focuses on understanding and answering the question of how you can measure the collaborations between your corporation and startups.

Typical corporate/startup collaborations may take one of the following forms:

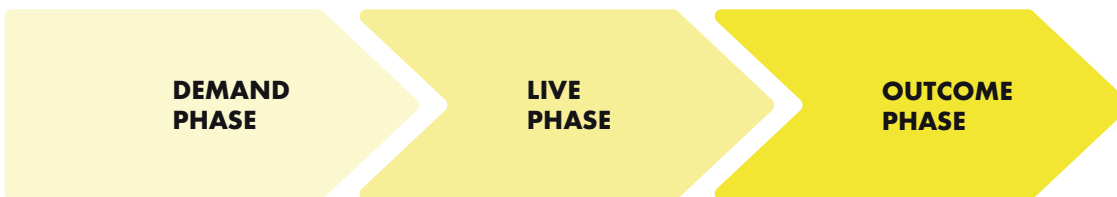
- Paid and free pilots.
- Joint ventures such as new product development, market research or technology research.
- Acquisitions.
- Venturing (buying a stake in a startup).

Collaboration between two companies will never be easy, regardless of how much they need each other. The success of a collaboration depends on one hand on mutual understanding (each side appreciating the risks and the differences the other faces in embarking on collaboration) and on the other hand on thorough preparation before signing on the proverbial dotted line. And the work doesn't stop there. Having a robust measurement system in place enables organizations to better define, manage and

progress collaborative projects.

In order to better manage and measure your startup collaboration projects, it is important firstly to understand what needs to be measured at program level before applying those parameters to individual collaboration types. From experience, we encourage you to have a funnel view when analyzing your startup collaboration program(s). There are many ways to segment a funnel but let's, for now, consider the following generic stages:

- Demand
- Live
- Outcome.



In the **Demand** phase of the funnel, a company can analyze the extent to which the startups in the ecosystem are actively looking to collaborate with the company and vice-versa.

The **Live** phase of the funnel measures ongoing collaborations. This gives organizations on both sides a snapshot of ongoing progress as well as an indication of future outcomes.

The **Outcome** phase of the funnel consists of tracking the impact completed collaborations had on the company.

Now let's look in more detail at the demand, live and outcome phases for each of the collaboration types mentioned above and highlight some indicators that can be tracked for each respective phase.

## **Paid and free pilots**

**Demand Phase.** For this type of collaboration and this phase of the collaboration funnel, it is advisable for the company to track the following performance indicators:

- Number of requests received for either of these two types of collaborations per unit of time.
- Number of requests sent for either of these two types of collaborations per unit of time.
- Average cost of attracting one demo; this might include the travel budget of the startup collaboration team or certain event sponsorships.

**Live Phase.** For this type of collaboration and this phase of the collaboration funnel, it is advisable for the company to track the following performance indicators:

- Percentage of initiated demos from total proposed (for added clarity this should be ideally computed separately for each type of demo).
- Invested capital per unit of time (for paid demos).
- Average invested capital per unit of time (for paid demos).
- Invested resources in a unit of time for either of these two types of collaborations (e.g. time investments).
- Average invested resources per unit of time for either of these two types of collaborations.
- Progress in accordance with a pre-agreed roadmap.
- Progress towards pre-defined goals.

**Outcome Phase.** For this type of collaboration and this phase of the collaboration funnel, it is advisable for the company to track the following result indicators:

- Percentage of completed pilots from the total initiated.
- Average cost of completing one demo, including both the Demand phase cost and the Live phase cost per unit of time.
- Collaboration specific outcome which will most likely vary from demo to demo but they should be mutually agreed upon at the beginning of each demo. (e.g. if the collaboration was geared towards lowering the onboarding of new clients on a certain corporate developed solution through the deployment of a startup owned technology, then the result indicator that needs to be tracked is onboarding time reduction; other examples might include cost savings, or new revenue).
- Average time to outcome.

## Joint ventures

**Demand Phase.** For this type of collaboration and this phase of the collaboration funnel, it is advisable for the company to track the following performance indicators:

- Number of requests received for joint ventures per unit of time.
- Number of requests sent for joint ventures per unit of time.
- Average cost of attracting one joint venture proposal per unit of time (this might include the travel budget of the startup collaboration team or certain event sponsorships).

**Live Phase.** For this type of collaboration and this phase of the collaboration funnel, it is advisable for the company to track the following performance indicators:

- Number of projects initiated per unit of time.
- Percentage of projects initiated from total received and sent per unit of time.
- If applicable (e.g. product development), progress of specific indicators
- Invested capital per unit of time.
- Average invested capital per unit of time.
- Invested resources per unit of time (e.g. time investments).
- Average invested resources per unit of time.
- Progress in accordance with a pre-agreed roadmap of the joint venture.
- Progress towards pre-defined goals.

**Outcome Phase.** For this type of collaboration and this phase of the collaboration funnel, it is advisable for the company to track the following result indicator:

- Average cost of completing one joint venture, including both the Demand phase cost and the Live phase cost, per unit of time.
- Collaboration specific outcomes which will most likely vary from joint venture to joint venture but they should be mutually agreed upon at the beginning of each demo (e.g. new revenue from products co-developed, dollars spent per insight obtained in the case of technology research etc.).
- Average time to outcome.

## Acquisitions

**Demand Phase.** For this type of collaboration and this phase of the collaboration funnel, it is advisable for the company to track the following performance indicators:

- Number of requests sent for acquisitions per unit of time.
- Average cost of scouting one possible acquisition candidate per unit of time (this might include costs associated with due diligence etc.).

**Live Phase.** For this type of collaboration and this phase of the collaboration funnel, it is advisable for the company to track the following performance indicators:

- Number of initiated acquisitions per unit of time.
- Percentage of initiated acquisitions from the total sent per unit of time.
- Total invested capital per unit of time.
- Progress in accordance with a pre-agreed roadmap of the joint venture.
- Progress towards pre-defined goals.

**Outcome Phase.** For this type of collaboration and this phase of the collaboration funnel, it is advisable for the company to track the following result indicator:

- Average cost of acquiring a startup, including both the Demand phase cost and the Live phase, cost per unit of time.
- New revenue generated per unit of time as a result of acquisition made.
- New revenue to cost ratio (total cost of acquisition incl. the internal costs such as salaries of the responsible people) per unit of time.
- Assets appreciation per unit of time.
- Assets appreciation to cost ratio (total cost of acquisition incl. the internal costs such as salaries of the responsible people) per unit of time.

- Collaboration specific outcomes which will most likely vary from acquisition to acquisition but they should be agreed upon when the acquisition is made. (e.g. market capitalization etc.).

## Venturing

**Demand Phase.** For this type of collaboration and this phase of the collaboration funnel, it is advisable for the company to track the following performance indicators:

- Number of requests received for venturing per unit of time.
- Number of requests sent for venturing per unit of time.
- Average cost of attracting one possible venture candidate per unit of time (this might include the travel budget of the startup collaboration team to certain hubs such as Berlin or San Francisco or certain event sponsorships).

**Live Phase.** For this type of collaboration and this phase of the collaboration funnel, it is advisable for the company to track the following performance indicators:

- Number of initiated investments per unit of time.
- Percentage of initiated investments from the total requests received and sent per unit of time.
- Total invested capital per unit of time.
- Average ticket size (investment) per unit of time.
- Average stake taken in ventures per unit of time.
- Progress in accordance with a pre-agreed roadmap of the joint venture.
- Progress towards pre-defined goals.



**Outcome Phase.** For this type of collaboration and this phase of the collaboration funnel, it is advisable for the company to track the following result indicator:

- Average cost of taking a stake in a startup including both the Demand phase cost and the Live phase cost per unit of time.
- New revenue generated per unit of time as a result of investment made.
- New revenue to cost ratio (total cost of venturing incl. the internal costs such as salaries of the responsible people) per unit of time.
- Assets appreciation per unit of time.
- Assets appreciation to cost ratio (total cost of venturing incl. the internal costs such as salaries of the responsible people) per unit of time.
- Collaboration specific outcomes which will most likely vary from venture to venture but they should be mutually agreed upon at the beginning of each collaboration (e.g. market capitalization etc.).

Measuring the engagement your company has with the startup ecosystem will add much needed clarity and transparency to the collaboration effort, showing you exactly which type of collaboration is the most effective, where you need to double down and where it is wiser to remove investment from. This in turn will help build a positive attitude across your business towards collaboration initiatives.

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This article is an extract from *Innovation Accounting* (co-authored with Esther Gons, published by BIS, 2021) which provides tools, frameworks, templates, and visualizations that can be easily understood and applied to measure innovation. More information can be found at [www.innovationaccountingbook.com](http://www.innovationaccountingbook.com).

**Innovation ecosystems  
thrive by deals and perish  
by theatre**

Ank van Wylick, Camal Handor and  
Steffie Op de Laak

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**E**very respectable organization is attending, building, or orchestrating some kind of innovation ecosystem, in order to solve complex business challenges. Accelerating the rate of discovering innovative solutions is paramount. But we increasingly hear from innovators within frontrunning organizations that there is too much ecosystem theatre and not enough action or impact.

On one hand, we see that the need for acceleration in innovation has never been greater, considering the gigantic challenges represented in the UN's Sustainable Development Goals. On the other hand, there are many solutions being provided by a range of companies, including start-ups and scale-ups, which are failing to find the right partner to help them grow.

That is why we at 42Collective are concerned that the benefits of innovation ecosystems will be at risk if theatre prevails. It is more important to focus on creating deals, as deals provide the energy and momentum needed to keep innovation ecosystems thriving, so they can achieve the desired acceleration of innovation.

## **Deals lead to accelerated rate of innovation**

Let us clarify what we mean by a 'deal'. A deal is not a merger or acquisition per se. By a deal we mean the formalization of cooperation, which can be a sourcing arrangement, co-development agreement or any form of collaboration and partnership. In all of these, both parties benefit: the solution providers as well as the organization seeking a solution.

To better understand the importance of deals, let us consider what happens if there are no deals in an ecosystem. Think of an ecosystem which tries to bring together many stakeholders around a specific topic like biodiversity or future mobility which tries to find answer to pressing challenges. Usually, at the start of setting up an ecosystem everyone is energized. Events are well attended thanks to C-level sponsorship, and all the movers and shakers associated with the topic of the ecosystem want to be part of this movement. There is no shortage of media attention, and new insights gained are shared through reports and videos. Strong ambitions take shape, perhaps some pledges are made and action points agreed. After a while, participants expect these ecosystems to provide breakthroughs. Yet the typical response for the

lack of tangible results seems to be to organize another event and perhaps another report. By this point, the participants' enthusiasm will have started to cool, resulting in fewer and more low-rank employees in attendance, followed by less and less communication before the ecosystem website finally becomes inactive. The same can be said of the many solution providers to ecosystems who attend venues with the desire to find a partner with whom they can tango. Only the most persistent, or desperate, Don Juan will continue to contribute, as the lights fade out.

Similar fatigue has been observed in corporate-orchestrated ecosystems, which lure solutions to innovation ecosystems events, such as challenges and hackathons, using the bait of a monetary award, media exposure and potential VC funding. While all of these are valuable for start-ups, these events are unlikely to attract potentially needle-moving solutions. Why not? Well, many start- and scale-ups have to weigh the chances of success against the effort and risk involved. Based on 42C's own experience, only a small fraction, usually 2-3 percent, win a prize, casting adrift hundreds of promising solutions. The low success rate, combined with the effort required and the Intellectual Property being exposed, discourages many interesting solution providers.

But most importantly, the biggest barrier facing scaleups, according to a 2020 survey by the UK's Scaleup Institute, is the lack of market access. Winning prize money may be helpful, but the amounts are marginal in the solution-provider's overall financial needs. They need partners who can provide them with market access, which is typically sealed with a deal.

Therefore, not striking deals in innovation ecosystems potentially leads to a weakening movement and increases scepticism around them among decisionmakers, while leaving many valuable solution-providers empty-handed.

Alternatively, we need more deals for the simple reason that innovation is mainly accelerated via trial and error. The trial process is stimulated by striking deals with parties with innovative solutions. Research has shown that companies with open innovation ecosystems, combined with an excellent deal-making capability, grow faster. Internal innovation is important, but today's most successful companies have also

undergone transformations through external innovation. There are many strong examples besides, the usual BAT, Haier and FAANG suspects, like Volkswagen, Enel X and Philips.

## How ecosystems lead to deals

The primary requirement for ecosystems to deliver deals is to create a pipeline. One can compare this pipeline with the Amazon River, the lifeblood of the associated forest. This might sound obvious, yet this is often not the case in many existing innovation ecosystems. But before we explain the pipeline further, we need to describe what we mean by an innovation ecosystem.

Based on a thorough literature review of 21 definitions of innovation ecosystems, the following definition has been proposed by Grandstad and Holgerson: 'An innovation ecosystem is the evolving set of actors, activities, and artifacts, and the institutions and relations, including complementary and substitute relations, that are important for the innovative performance of an actor or a population of actors.'

Let us focus on one element of this definition, namely 'activities'. If one agrees that deals are crucial, it is interesting that so many ecosystems have few processes which are geared towards striking deals, compared to an M&A or a sourcing process, which involves stage gates, due diligence and team assessments. Too often we observe ecosystems which bring problem owners and solution providers together without providing a proper partnership process.

Another important factor that enables the creation of deals in ecosystems is the availability of funding. Here, the role of investors, especially venture capitalists, comes into play. Siota and Prats' research has shown that venture deals, as they call them, are among the most effective actions that corporate innovators can take. They deliver business value faster and require less effort and resources from corporate. The available VC funds have grown tremendously over the last several years, partly signalling the attractiveness of the investment, and partly due to other factors like low interest rates, quantitative easing and more. The main risk is that abundance of funding, combined with a limited number of solution providers to invest in, might push up the deal-value of the remaining cohort. Hence, it is in the interest of VCs as well to extend the

pool of young companies that have a scalable solution. Perhaps, we will see the attitude of VCs change from being super-selective (they are renowned for being nay-sayers to scale-ups) to embracing more deals with scale-ups. One example is Astanor, a VC that targets scale-ups in the field of regenerative agriculture, to cultivate new agri-businesses with the aim of making a positive impact on climate change while upholding return for investors.

‘Innovative performance’ is the main outcome according to the above definition and that is exactly why all parties described attend an innovation ecosystem and why they should create a pipeline of deal opportunities. A successful example from our 42C experience is the AkzoNobel ‘Paint the Future’ innovation ecosystem, which started pragmatically by first building a pipeline via the means of open and collaborative innovation runs. The run, which lasted for six months, was designed with the aim of creating deals. Providing full transparency to solution-providers, clear rules around how and when to discuss Intellectual Property, and having content experts collaborating with solution-providers and fit-for-purpose ecosystem partners, such as academia and government bodies, created the right mix. Many solution-providers struck deals during these runs and AkzoNobel was able to quadruple their rate of innovation using a fraction of the resources. More interestingly, this ecosystem is becoming stronger every year as the Paint the Future brand acts as a magnet for all actors in the paint and coatings industry and beyond.

## **How to win with ecosystems**

Then how can you create a successful deal-making innovation ecosystem with a proper pipeline? Based on our experience, we have observed four successful types, which all have their benefits: internal, external, value chain and societal innovation ecosystems.

The main characteristic of internal ecosystems is the fact that they search for solutions within a known, yet unexplored area, like large companies with many brands, affiliates and which operate on a multi-regional scale. If the innovation processes within such an ecosystem are properly setup, they can reap an enormous number of ideas, solutions and best practices. If such ecosystems are equipped with processes

that can swiftly disseminate these best practices in a short time span, one can imagine the potential they harness. While the dissemination of best practices is not known as a deal-process (we rather refer to them as ‘implementations’), it does hold similar deal-making characteristics. This type of deal-making ecosystem can be the first step for companies to explore the power of open innovation in a safe environment and to prepare the organization for the next stage of innovation ecosystems.

External ecosystems have typically one orchestrating entity, usually a large company seeking to collaborate with multiple parties to create new solutions. AkzoNobel’s Paint the Future is a good example of an external ecosystem, where the set up results in AkzoNobel attracting solutions from all over the world. The definition of innovation ecosystem that we considered earlier, was missing an important element which contributed to the success of Paint the Future, style. There are the more competition-based ecosystems, where a number of solutions-providers contest each other and there can only be one winner. This type of ecosystem is entertaining to watch but it leaves many solution-providers empty handed. Not to mention that the average scientist’s skills lie in creating complex strings of code or making discoveries in Erlenmeyer flasks, not in delivering the best sales pitch a la Leonardo di Caprio in *The Wolf of Wall Street*. Paint the Future is based on a collaborative style. Solution-providers attending appreciate the peer-to-peer enrichments, the focus on content and the ability to network with other solution-providers, creating potentially new combinations.

The value chain ecosystem is a next-level ecosystem. This ecosystem has a lot of potential, as many value chains as they currently exist will be disrupted. Examples of value chains on the brink of disruption include the agriculture/food chain, with its challenge to feed 10 billion people by 2050 while reducing the carbon footprint to zero; and the mobility value chain, which has already begun to be disrupted by electric cars, bikes, scooters, car-sharing-platforms and many more solutions yet to come. A good example of a value chain innovation ecosystem is the Johan Crujff ArenA. At the start of the Covid pandemic, the concern was how to continue providing fans and customers with the experiences associated with great football matches, rock concerts and other events in a Covid-safe environment. When value chain members heard of this initiative, they wanted to join the ecosystem. ArenA is the home stadium of the football club



Ajax, who along with KNVB, the Royal Dutch Football Association and Manchester City, were among the value chain members who joined this movement. Other stakeholders, like UEFA, supported the ecosystem named 'Re-Imagine Football', again with the aim of collaborating and striking as many deals as possible with solution-providers. This type of ecosystem is very attractive for solution-providers as the likelihood of striking deals is much greater due to the many large companies participating.

Last, but not least, there is the societal ecosystem. This type responds to challenges that are not exclusive to a specific value chain, but which are at supranational level, such as climate adaptive systems for cities, transition to fossil-free energy alternatives, how to thrive in a Covid-dominated world and other societal challenges. As well as creating policies and agreements, there is a need to feed the system with innovative solutions which can uphold these policies and agreements. These solutions, you have already guessed, come from fresh-thinking solution-providers.

### Key takeaways:

- Innovation ecosystems are an ideal lever to accelerate rate of innovation and create breakthroughs, which are required to tackle gigantic Sustainable Development Goals challenges
- Signs that ecosystems' full potential is not being realised due to lack of deals and theatre
- Consequently leaving many promising solutions, represented by start- and scale ups, cast adrift, and disappointing decisionmakers and VCs.
- Ergo, when setting up an innovation ecosystem, construct it with deals in mind, as deals create impact!

Considering the challenges ahead, described in the UN's Sustainable Development Goals, there is a need to accelerate the rate of innovation. Ecosystems are an ideal means for companies to do just that.

However, the lack of deals and the emphasis on theatre may discourage important stakeholders, like decisionmakers, scale-ups and venture capitalists, from participating.

Creating successful deals requires properly set up ecosystems, depending on the maturity of the actors orchestrating it. We have looked at four winning ecosystems: internal, external, value chain and societal. What is clear is that developing the right ecosystem, with deals, creates impact!

**Ank van Wylick** is a co-founder of 42Collective ([42collective.com](http://42collective.com)) and is on a mission to build the next wave of open innovation ecosystems for large global companies in order to make as much societal impact as possible. Prior to 42Collective, Ank build the innovation strategy practice at KPMG as a lead partner. Prior to KPMG Ank drove innovative strategies in the financial sector as a PA Consulting partner.

**Camal Handor** is a co-founder of 42Collective and is an on mission to help companies formulate strategies with impact and accelerate transformation by applying open and collaborative ecosystems. He is a former KPMG partner, experienced in defining innovative strategies, designing future ready organizations and helping clients to transform to the point where innovative strategies becomes Monday morning routines.

**Steffie Op de Laak** is a co-founder of 42Collective and is on a mission to have a little less conversation and a lot more collaborative actions for companies aspiring to create impact. She has extensive marketing and innovation experience from a career in financial services working for ING and Rabobank. As an entrepreneur she founded fintech GroupPAY and manages a startup in corporate conduct. She previously worked on innovation for brands including Startupbootcamp, ING, KPMG and Oracle.

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## About the Business Ecosystem Alliance

The founding belief of the Business Ecosystem Alliance is that ecosystems are an important and growing phenomena in the life of organizations of all types, in all locations and in all sectors of activity.

Ecosystems represent potentially the best organizational model for the future of organizations.

The Business Ecosystem Alliance aims to bring together researchers, practitioners and others who are interested in better understanding how ecosystems work and how they can have a positive impact on organizations, society and the world.

In doing so, the Business Ecosystem Alliance aims to create a mutually supporting ecosystem of knowledge, research and best practice.

Read more at [business-ecosystem-alliance.org](http://business-ecosystem-alliance.org)

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## The Power of Ecosystems

**Making sense of the new reality for organizations.**

Ecosystems are the new reality for organizations of all shapes and sizes no matter where they are in the world. They make sense of a complex, tech-led world and enable individuals and organizations to maximise their resources to make an impact. The Business Ecosystem Alliance brings together organisations and individuals to capture best practice and the latest thinking on ecosystems.

*The Power of Ecosystems*, curated by Stuart Crainer, brings together a unique and compelling collection of fresh thinking on ecosystems from experts throughout the world.

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