



# Ecosystem innovation –

## *The growth of hyper-collaboration in a fast-moving world*

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Over the past 20 years many companies have embraced the opportunities offered by the concept of open innovation: using both internal and external ideas, resources and networks to improve innovation performance. Surveys by Arthur D. Little and others have found that at least 80% of companies believe they are already benefiting from working with external innovation partners, such as universities, suppliers, research institutes and start-ups.



So far so good. However, there are strong reasons to suggest that in today's and tomorrow's business environment, established ways of working with the usual external innovation partners are no longer adequate. For many companies today, the overriding need for agility, responsiveness to rapid changes and disruptions, and faster speed to market means that large in-house innovation teams are simply too slow. Many of the world's greatest technological challenges and opportunities, such as

urbanization and mobility, are impossible to solve without forming a vast network of private and public organizations working seamlessly together.

Additionally, there is growing evidence that breakthrough innovations are more likely when "less obvious" partners get together: even five years ago, who would have thought that Wells Fargo, a bank, would be developing new loan facilities to students together with Amazon, which was originally an e-commerce company? Or that John Deere, originally a manufacturer of agricultural machinery, would engage with Monsanto, an agrichemical company, to provide farmers with the data they need for precision farming?

While companies have embraced the opportunities offered by the concept of open innovation over the past 20 years, the overriding need for agility and responsiveness means this is no longer adequate to meet future challenges. In this article, the authors explain why companies need to focus on hyper-collaboration, adopting truly outside-in philosophies at all levels, and work with wider ranges of partners with different capabilities, if they are to succeed in building agile ecosystems that drive real innovation.

So how can companies manage not just a few, but dozens, of such partnerships, many within unfamiliar industries? And what happens when the keys to success are held not by a few well-known companies or universities, but by start-ups that you don't know and that are hidden amid thousands of others?

In this article, we argue that to address these current and future challenges, companies need to embrace “hyper-collaboration” if they are to truly be agile – not just working together with partners, but instead adopting a truly outside-in philosophy at all levels – and we highlight some practical approaches for making hyper-collaboration work.

## **What does hyper-collaboration mean?**

Hyper-collaboration is based on the fundamental belief that it is innovation ecosystems, not individual companies, which will deliver the novel solutions the world is waiting for. Hyper-collaboration means seeing ecosystems for what they are: not just candy stores full of opportunities, but fiercely competitive arenas in which companies fight for the best partners, technologies and networks to create, build and defend added value. It also implies adopting a mindset that, until proven otherwise, someone somewhere has already figured out what works best – and that it is unlikely that this person works in your company.

Originally the term “innovation ecosystem” was coined to describe networks of industrial, academic, funding and ancillary players sharing the same physical location or region, such as Silicon Valley. However, in today's globalized business world an innovation ecosystem is no longer only region- or industry-specific. On the contrary, the most effective innovation ecosystems are often those that bring together diverse and complementary capabilities from across the global stage.

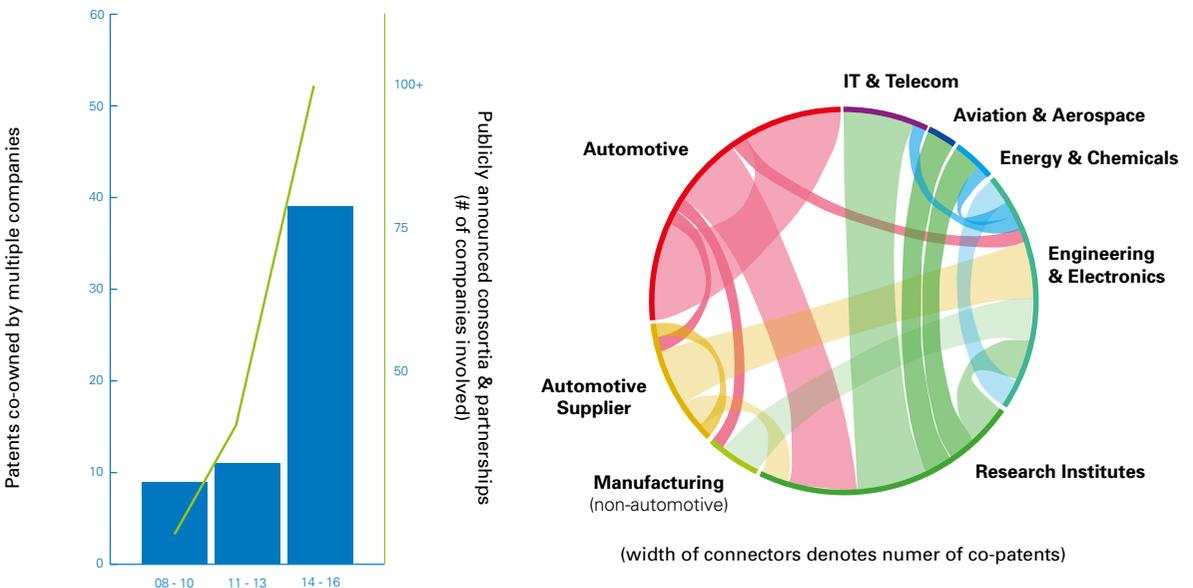
Hyper-collaboration in such ecosystems is typically characterized by a number of attributes:

- **Collaboration exists between “non-obvious” partners** as well as universities, research institutes, customers and suppliers. For example, infrastructure, power and hospitality group GVK has partnered with India’s public sector health system and technology players to ensure access to healthcare in the most far-flung regions of the country.
- **There are often dozens, potentially even hundreds, of collaborating partners**, rather than just a handful. Take precision agriculture, which deals with digitally enabled “just-right” farming practices such as fertilization, pest control and irrigation. Arthur D. Little analysis has revealed that there are well over 100 “investment-grade” start-ups developing technologies in that area alone. So if you are, say, a manufacturer of farming equipment or fertilizers, the number of options for stitching together your optimal innovation ecosystem in precision agriculture can be quite high.
- **Collaboration is often enabled by digital** and other rapidly evolving technologies (such as cloud computing in biotechnology). Digital technologies may also enable “convergence” across industries to create truly novel solutions around particularly important and robust market needs. One example is autonomous driving, which is developing at a breathtaking pace thanks to the collaborative efforts of companies from very different industries. (See Figure 1.)
- **There are multiple levels and means of collaboration**, ranging from super-strategic alliances through to joint ventures and grass-roots “intrapreneurship.” Social intrapreneurs, such as Nick Hughes within Safaricom working with Vodafone and myriad agents to deliver M-Pesa, demonstrate this scale effect in action.

- **Players and relationships evolve rapidly.** Start-ups mature, initiatives may fail and strategic interests will often diverge. For example, Microsoft began as a (start-up) supplier to IBM. Apple outsourced to Samsung Electronics in the early days of the iPhone, and then to Foxconn, which is now looking to help new mass-market product developers grow.
- **There is availability of (open source) data and a culture** of sharing information and intelligence within a fit-for-purpose IP framework.

Autonomous driving, which is set to transform mobility in a way that most would have seen as futuristic until recently, is one very visible area that shows all the attributes of hyper-collaboration. (See Figure 1). Collaboration between a multitude of sectors appears to be the key to success: for example, the number of patents co-owned by different companies has more than tripled in the last three years versus 2011–2013. Simultaneously, the number of companies participating in partnerships has seen a sharp increase, likely spurring further collaboration in the future. Lastly, the companies that filed co-owned patents are active in a variety of both obvious and non-obvious sectors, with collaboration across all sectors.

Figure 1: **Hyper-collaboration in autonomous driving.** Left: Number of patents co-owned by different companies and number of companies in partnerships with autonomous driving as the core purpose and development over time. Right: Patent co-ownership between different sectors (2016).



These ecosystems have typically grown more through natural evolution than through design, although governments can do a lot to create the vision and enabling conditions to encourage them to flourish. Dubai's smart-city initiative, "Smart Dubai," is an often-mentioned example, while in the UK, former Prime Minister David Cameron championed data.gov.uk, which made available more than 30,000 public sector data sets for free, open commercial use. Indeed, even collaborating governments can collectively stimulate innovation, such as the EU's "Eyes on Earth" satellites' provision of open data only three hours after it's collected.

## How to manage hyper-collaboration effectively

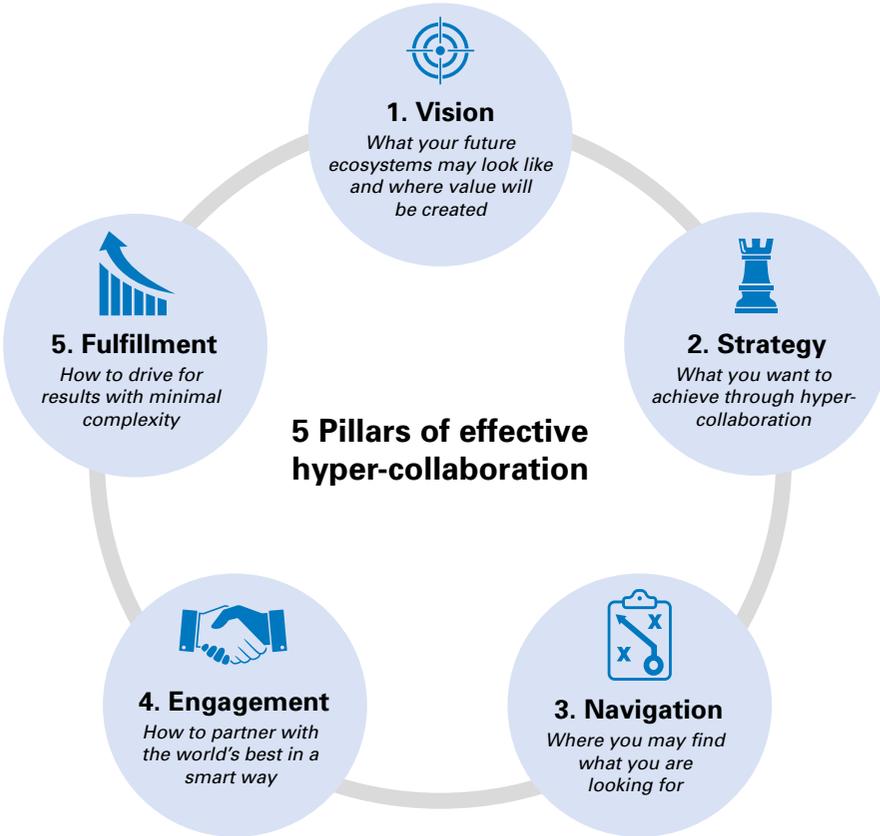
Managing hyper-collaboration poses a number of challenges for companies. Merely being part of an innovation ecosystem does not automatically mean you are (or will ever be) capturing its full potential. Awareness and trust need to be built, alliances need to be forged, and standards need to be established.

For example, in the bio-based economy traditional new-product launches require management of a group of activities across one established value chain: from raw materials, through product development and production, to end users. Sustainable chemicals company BioAmber started out as a small research project and managed to scale up quickly by partnering with industrial groups such as Mitsui and Samsung Ventures, and then eventually with large customers such as Wilmar, a large Asian agribusiness group. This approach aims to create a "virtual chain" of new feedstocks, new production processes, innovative application development approaches, NGOs and regulatory agencies.

The diversity of such potential collaboration partners, for example, in terms of size, capabilities and culture, means the same approaches will not be suitable for all. And importantly, issues around IP protection and security cannot be ignored, no matter how open a company desires to become. Yet, at the same time, over-cautiousness and -conservatism come at a heavy cost in the dynamic networks of hyper-collaboration. First-mover advantage is often crucial in the sprint for the competitive high ground. Who came second to eBay and PayPal? Who would have predicted a newcomer such as Tesla would become a leading manufacturer in electric vehicles?

From our work with clients in ecosystem innovation we have identified five pillars for effective, agile hyper-collaboration, as shown in Figure 2.

Figure 2: **Effective hyper-collaboration rests on five pillars**



Fundamentally, these share similarities with established principles of managing collaborative innovation, such as the Want-Find-Get-Manage logic, which was first coined by Gene Slowinski in his book, *Reinventing Corporate Growth*: know your objectives (“Want”), look for the best partners in a smart way (“Find”), evaluate and negotiate partnerships (“Get”) and then manage your alliances (“Manage”).

However, to address the challenges inherent in the dynamic world of hyper-collaboration there are particular priorities within each of the pillars:



## 1. Vision

There can be no “Want” before properly understanding the battle that must be won, the adversaries to be conquered and the potential allies that could be mustered. In a fast-changing landscape, this vision must be simple and engaging, and robust enough to incorporate rapid changes. Having a strong “backbone” and sense of purpose is key<sup>1</sup> in order to maintain consistency and brand value, irrespective of product and service changes.



## 2. Strategy

“Classical” open innovation is typically about building partnerships to help solve customers’ unmet needs by filling certain technology and capability gaps. Hyper-collaboration aims to create a much wider reach by assessing the maximal amount of value that could be created, and then deciding which part must absolutely be yours (in terms of business model, competencies, [intangible] assets, etc.) and how to defend this value once won. The strategy should avoid being too narrowly defined, but rather set out how opportunities will be attracted, what risks must be mitigated and what objectives need to be met.



## 3. Navigation

If spotting an organization that could fill a specific gap (such as in a particular technology) is relatively straightforward, finding your way among tens or hundreds of players in an evolving ecosystem such as smart buildings or autonomous vehicles certainly is not. Therefore, hyper-collaboration also means being able to efficiently and effectively build, maintain and exploit a dynamic, multidisciplinary view of the various innovation ecosystems in which a company may decide to play and employing the right digital tools and techniques to assist.



## 4. Engagement

When there are many possible options and combinations that may change over time, partner engagement requires an ongoing approach in which you check alignment, commitment, robustness and innovation horsepower. Setting out clear IP principles is

important, based on how best to maximize the overall value of the collaboration for all parties, rather than just protection. Tactics such as employing ombudsmen to provide an “honest broker” service to start-ups and small companies may be important to encourage them to engage with corporate giants.



## 5. Fulfillment

Even though most companies say they have running processes to deliver collaborative innovation initiatives, few are satisfied with their performances (for example, in an ADL Open Innovation survey in 2014/15, only 24% considered their efforts “mature”). Moving to the next stage of hyper-collaboration will require a transformational change to most companies’ innovation organization, governance, processes, tools and mindsets. There are signs that these changes are already starting. For example, a large aerospace company recently decided to drastically reduce its in-house R&D in order to focus on externally resourced breakthrough innovation, based on temporary teams and agile approaches – which is similar to the successful innovation model used by DARPA, the US Defense Advanced Research Projects Agency<sup>2</sup>.

We deliberately use the word “pillars” here: they are not phases in a classic strategy development process, and there is not necessarily a dominant hierarchy between them. Smart ecosystem navigation may very well lead to adjustments to a company’s vision and strategy. Many start-ups learn from successes and failures in fulfillment to rearticulate the ecosystem in which they really belong. In fact, the concept of hyper-collaboration assumes an intrinsic ability of a company to deal with the world around it in a dynamic or even opportunistic way, while remaining in control and staying on course. This requires all five pillars to be increasingly robust, understood and accepted, internally and externally. General Electric (GE) is a good example of this approach in action. (See Box 1.)

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<sup>1</sup>See “Brand Purpose – the new strategic imperative”, Prism S2 2016

<sup>2</sup>See also “How to create breakthroughs in nine months”, ADL Viewpoint

## Insight for the executive

The established ways large companies innovate with small sets of selected partners, such as universities, research institutes, suppliers and customers, are today no longer sufficient. The need for greater agility and speed, the requirement to repeatedly deliver breakthroughs, and the complexity of many of today's grand challenges, mean concerted efforts from many players with diverse capabilities and cultures are frequently necessary to come up with required solutions.

Companies looking to thrive and grow in this environment need to find new ways to master the innovation ecosystem. These should be based not just on working together with partners, but rather adopting a truly outside-in philosophy at all levels, including:

- Establishing a clear vision and sense of purpose that is robust enough to deal with rapid changes
- Developing a strategy that considers first how the ecosystem can maximize value, and then the part which should be yours
- Maintaining an effective navigation system to monitor opportunities using the best digital tools available
- Using the right techniques to engage and attract diverse partners, with clear IP frameworks that encourage win-win, and
- Transforming the company mindset towards true ecosystem thinking rather than partnering.

Hyper-collaboration will not wholly displace "traditional" innovation, and it should not be seen as a new mantra for all companies.

But it is important to note that often the world's most promising opportunities can only be targeted through this breakthrough form of collaboration, attracting the strongest companies and the best innovation partners. You need to act now to start the hyper-collaboration process, as these players will not wait for you – delaying risks missing out on future opportunities that could transform your business.

**Box 1: General Electric as an ecosystem player**

**General Electric (GE)** is widely recognized as a leading innovator and early adopter of management practices and organizational models. GE is already moving towards becoming an ecosystem player for which hyper-collaboration is an underlying driver of sustainable and profitable growth. Following the five pillars of effective hyper-collaboration was key for GE to reach tangible results:

1. **Vision:** Become a global enabler and key hub of the industrial ecosystem
2. **Strategy:** Facilitate the development and connection of applications and data management for the industrial Internet of Things
3. **Navigation:** All industrial companies in all sectors are deemed relevant, creating the need for a system that enables global reach and local expertise
4. **Engagement:** In order to become an enabler of the industrial ecosystem, GE has created Predix, a cloud-based open platform, bringing together as many partners as possible to that end
5. **Fulfillment:** GE stated that in 2016 more than 19,000 developers were building industrial software on Predix, a community it expects to reach +30,000 in 2017.

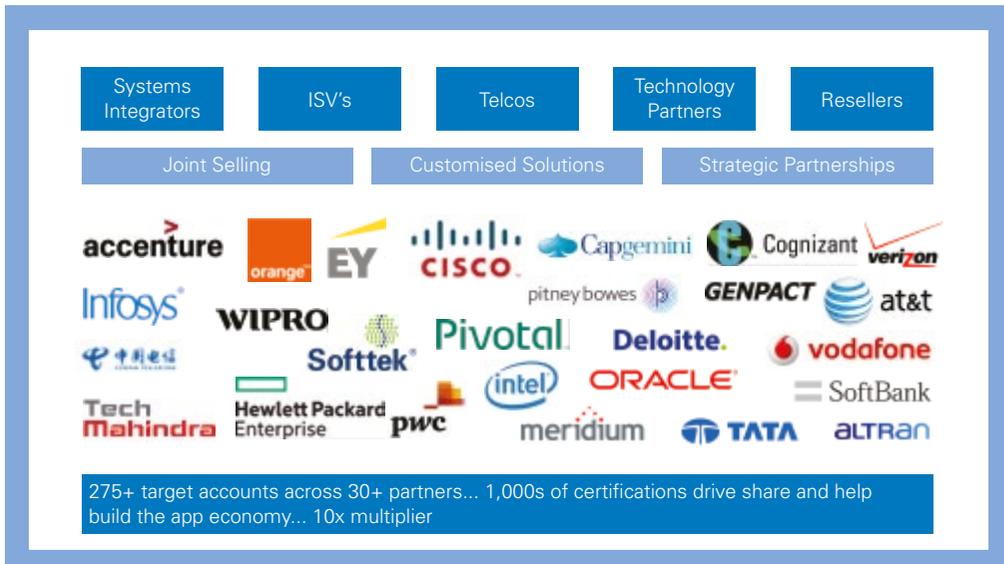


Figure 3: Ecosystems created for the Digital Alliance Program (illustrative)

**GE** is playing the ecosystem game not only across its different businesses and with its core industrial technologies, but also by partnering with companies such as Bosch – opening up access to the world’s manufacturing companies. Furthermore, in mid-2016 GE and Microsoft announced a partnership under which Predix would be available on Azure, thus linking GE’s industrial muscle with Microsoft’s presence in enterprise applications. This way, GE and its partners extend their reach and offer customers a broader range of possibilities for innovation.

GE has embarked on ecosystem development across its different business divisions:

- **GE Digital** unveiled its Digital Alliance Program, dedicated to building the digital industrial ecosystem, leveraging GE’s industrial expertise to bring together manufacturers, global systems integrators (SIs), independent software vendors (ISVs), telecommunications service providers, technology providers and resellers.
- **GE Healthcare** has developed GE Health Cloud, which will be capable of connecting more than 500,000 GE medical imaging machines and more than 1.5 million imaging machines worldwide. In March 2016, GE announced that two large systems integrators and seven leading-edge independent software vendors were in the process of moving their innovative digital solutions to the new GE Health Cloud.
- **GE Power, GE Renewable Energy and GE Energy Connections** are moving to position themselves as the enabler for energy players looking to adapt to the transformation the energy ecosystem is undergoing, from how electricity is consumed to the methods for integrating new forms of renewable energy into the grid.
- **GE Oil & Gas** is also using collaboration as a business model. GE and Statoil have launched a series of open-innovation challenges, inviting companies and individuals from around the world and beyond the oil and gas industry to share their solutions to help make energy production more sustainable.

- **GE Transportation** is leveraging its industrial domain and technology leadership in a series of close collaborations with key industry players such as DB Cargo and Amsted Rail Company. This aims to lengthen the life of transportation assets, reduce fuel consumption, decrease emissions, boost velocity and improve operations.

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