Performance ecosystems

A decision framework to take performance to the next level

Contents

Overview

COMPANIES operate within ecosystems to deliver value to their markets—no company is an island. Yet, for many, these ecosystems have evolved without much attention or planning. Few companies have systematically assessed the different options available in terms of types of ecosystems. This paper seeks to help you, as an executive, take a more thoughtful and planned approach to this increasingly important issue. In the process, you may find untapped opportunities to drive the performance of your existing ecosystems to new levels and perhaps even form some new ecosystems along the way.

Don't be stopped by this over-used, often confusing term—*ecosystem*. Most of the confusion really comes from the fact that the many different forms that an ecosystem can take have not been formally defined. In addition, executives lack a robust decision framework to help them make choices among these forms, and understand the implications of these choices.

In this paper, learn how to recognize the four major categories an ecosystem can fall into as well as the two broad types of ecosystems: static and dynamic. Static ecosystems focus on aggregating and coordinating a fixed set of resources that can add value to the ecosystem organizer. Dynamic ecosystems explicitly seek to create environments where the participants can learn more rapidly by working together, so that the resources in the ecosystem are constantly growing in value. Most companies have created static ecosystems. While they generate more value for the customer than the company could offer on its own, these ecosystems ignore the potential to create even more value over time. Dynamic ecosystems that enable a high degree of participant interaction can also accelerate talent development both inside and outside the businesses that adopt it—and have the potential to become exponentially more valuable as more participants join them.

You will also learn whether to create, enhance, or join an ecosystem. Whatever your choice, you can improve your organization's benefits from participation by honing in on six key management practices. We provide some real-life examples of what other firms have accomplished using this approach.

Then comes what's perhaps the most exciting business growth opportunity of all. We discuss how the subset of ecosystems that are dynamic have the ability to scale their value creation when they enable participants to directly interact. As these ecosystems demonstrate the potential to add more value, they attract more participants and generate more rapid learning and performance improvement.

These dynamic ecosystems provide a platform to help inspire some of your most talented, passionate participants to become involved in driving their own personal performance to new levels.

Ecosystems have greater potential for growth than ever before. Rapid innovation in social software, cloud computing, and other technologies can lower the costs of managing the complexity that comes with larger numbers of more diverse participants. These same technologies also increase the competitive pressure to grow and evolve your existing ecosystems because you will increasingly face competitors harnessing these technologies to deploy larger and more diverse ecosystems of their own.

Companies that manage dynamic ecosystems can enjoy the greatest benefits of all—and the participants in these ecosystems will prosper as well. This paper also helps executives to anticipate and mitigate the potential risks that can arise from larger and more diverse ecosystems.

We'd welcome your insights as you proceed along that path and we'd be delighted to keep you informed about our further research, methods, and stories on growing and managing business performance ecosystems—and other ways to pull innovation from the edge.

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Introduction— Ecosystems defined

IN the quest for growth, cost reduction, or innovation, today's business leaders often realize that it is increasingly difficult to "go it alone." The growing need to connect to talent, wherever it resides, has significantly changed the path to success, moving it outside the four walls of the company and into a broader array of performance ecosystems.

The word "ecosystem" is one of the most overused terms in the business lexicon today, resulting in confusion and inconsistency in usage. To address the confusion, this paper takes this broad topic and narrows it down into specific choices available to business executives. To start with, we use the following definition:

"A performance ecosystem consists of multiple (three or more) independent organizations and/or individuals interacting with one another to pursue shared goals."

HOW DID A GROUP OF OBSCURE MOTORCYCLE ASSEMBLERS IN CHINA CHALLENGE THE BEST CORPORATE GIANTS OF JAPAN?

THE ANSWER LIES IN THEIR ABILITY TO TAP INTO A HIGH-PERFORMING ECOSYSTEM.

Three important assumptions help to further differentiate this definition:

1. The goal of an ecosystem is to improve some form of performance

2. Ecosystems can consist of both organizations and individuals

3. Ecosystems do not need to be limited to one specific purpose (e.g., innovation)

This paper offers a clearly defined taxonomy that provides options and guidance to executives around the available opportunities and how they can use ecosystems to support their business objectives.

Breaking out of today's limited ecosystems

WHILE the discussion of ecosystems may be a recent phenomenon, ecosystems are nothing new at all. Every business is involved in many different ecosystems, alongside its suppliers and customers. Organizations today operate in only a few limited ecosystem types, primarily with the focus of aggregating and coordinating existing resources. However, these "static" ecosystems do not drive the greatest value. The greatest value comes from tapping into ecosystems where all participants in the ecosystem get better faster by working together across enterprises—what we refer to as accelerated participant performance improvement. While traditional forms of aggregating and coordinating ecosystems should not be ignored, dynamic ecosystems that drive accelerated performance improvement are becoming more and more central to value creation, presenting new opportunities for executives.

These dynamic ecosystems do not need to be built "from scratch" in order to achieve performance goals. Evolving from an existing static ecosystem to a dynamic ecosystem may present a significant untapped opportunity to achieve accelerated participant performance improvement. Many companies will likely need to extensively transform their existing business ecosystems to maximize value; however, they may be able to make the necessary changes by pursuing a pragmatic migration path.

While there are inherent risks and tradeoffs in pursuing an ecosystem strategy, executives tend to emphasize the wrong forms of risk. Many executives shy away from fully participating in ecosystems due to fears of losing control of intellectual property or being tainted by one bad apple in the group. These risks are real, but they can be mitigated by carefully choosing the appropriate ecosystem to pursue, understanding the management implications of these choices, and then slowly and systematically evolving the ecosystem. Furthermore, these risks can be outweighed by the benefits obtained from dynamic ecosystems. Perhaps the greater risk is not being able to participate in the rapid performance improvement that can best be achieved within dynamic ecosystems. In a world of mounting performance pressure, companies that do not fully tap into the potential of dynamic ecosystems are likely to be increasingly sidelined in global markets.

Ecosystems taxonomy—Helping to make sense of the choices

BASED on research covering more than 50 case studies, ecosystems can be grouped under four broad categories: Centralized, Sequenced, Facilitated, and Self-Organized. These categories emerge from observable characteristics of the ecosystem such as basic structure, presence or absence of a central organizer, and the connections between participants.

A few caveats are warranted. First, ecosystems are often evolving; thus, the categorization of any ecosystem is based on a snapshot at a certain point in time. Second, ecosystems are often "nested" within other ecosystems; categorization starts with the highest possible level, after which nested levels can be identified as well. Lastly, the types are not differentiated by business objective; a single ecosystem type might be applicable for many different business situations.

Centralized ecosystems

Centralized ecosystems have a clear organizer, who may not control the way participants work individually, but drives the interactions required to achieve the ecosystem's objectives. Participants generally do not interact with each other, only with the organizer.
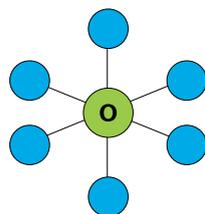
Example: Innocentive
O - Orchestrator

An example is the core ecosystem developed by InnoCentive, which a growing number of companies use to supplement internal R&D efforts.[1] With InnoCentive, companies post difficult problems, which can then be solved by a field of innovators, experts, and creative thinkers. InnoCentive is evolving to foster more team interaction, but it was originally set up in such a way that all the participants were independent and engaged in short-term transactions facilitated by InnoCentive, as cited by Karim R. Lakhani in his business case on InnoCentive for the *Harvard Business Review*.

There are three distinct types of centralized ecosystems:

- **Collection ecosystems** gather or distribute information in a typical hub-and-spoke manner. An iconic example is Procter & Gamble's "Connect and Develop" program, which supplements internal R&D efforts by extensively scanning for external ideas.[2] Once these ideas come in, P&G utilizes internal resources to develop them, without any additional external input.

- **Contest ecosystems** invite companies or individuals to solve a problem. As mentioned previously, InnoCentive is an example of a contest ecosystem. Another example would be the Goldcorp Challenge, where mining company Goldcorp released massive geological data to outsiders and invited participants to enter a contest identifying the best excavation sites at an Ontario mine.

- **Matchmaker ecosystems**, like the name suggests, connect participants to fulfill a purpose. An example is TutorVista, an on-line service that connects students located anywhere in the world with tutors in India for virtual tutoring sessions.[3] Once a student and tutor are matched, the two communicate directly, but always via the TutorVista website.

Sequenced ecosystems

Sequenced ecosystems are most commonly represented today by a traditional supply chain. These include a series of activities that must be coordinated in a sequential fashion by a central organizer. We have further classified this category into three distinct types:

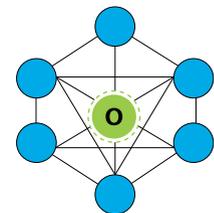**Example:** portalplayer
O - Orchestrator
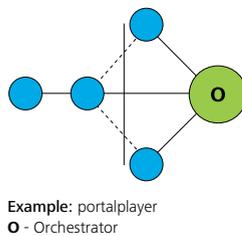
- **Chain ecosystems** have a central organizer who coordinates activities on an ongoing basis, typically specifying with a high level of detail the activities that must be performed in a tightly integrated fashion. Participants may interact with additional upstream or downstream participants. Any supply or distribution chain, such as General Motors, is a good example of a chain ecosystem.

- **Project ecosystems** are structured to execute complex transactions within a specific time period with a defined end-result. Basic construction projects are an example of this type of ecosystem.

- **Process Network ecosystems** support extended end-to-end business processes involving many participants in a modular, loosely coupled management approach. Rather than specifying individual activities in great detail, the central orchestrator of these ecosystems focuses on defining modules

of activities to be performed by individual participants and ensures that the interfaces across these modules conform to mutually agreed standards so that one participant can be brought in or swapped out quickly, depending upon changing needs or circumstances. Chinese company Li & Fung, which operates a global network of more than 10,000 business partners in the apparel industry, provides an interesting example of this type of ecosystem.[4] Li & Fung configures customized supply networks for apparel designers, identifying the appropriate participants from its vast network, assigning them specific modules of activity, and then coordinating to make sure that performance standards are met at each hand-off from sourcing of raw materials to ultimate delivery of the finished goods to specific retail distribution centers.

Facilitated ecosystems

Facilitated ecosystems have mesh-like connections, with complex patterns of interactions evolving among participants. While behavior is primarily participant-driven, an orchestrator gently shapes the interactions through governance and interaction protocols. American Express Open Forum for small business owners is an example of a facilitated ecosystem.[5] This is an online forum for AMEX cardholders where small business owners can interact, ask questions, offer advice to each other, and tout their wares or services. There are four main types of facilitated ecosystems:

Example: AMEX OPEN

- **Resource Network ecosystems** are formed when an organizer wishes to facilitate access to many diverse resources for a large number of people, such as American Express Open Forum.

- **Web ecosystems** emerge when organizers want to scale distributed innovation around a core platform and participants are attracted to adopt the platform and develop products or services on top of it, driven by incentives of market success. Microsoft DOS is the classic web ecosystem example. Microsoft developed the operating system platform and promoted it to attract a vast ecosystem of participants. Anyone who wanted to could license the operating system, and in most cases Microsoft had no direct contact with individual members of the ecosystem. Yet, the entire ecosystem benefited from the distributed innovation that flourished on this platform as it became a de facto standard.[6]

- **Open Development ecosystems** are formed when participants join together with the goal of jointly developing and evolving a product, inviting open participation from anyone who wants to join. While everyone is invited to contribute, governance protocols determine whose contributions will actually be integrated into each new release of the product. Open source software development initiatives are classic examples of this type of ecosystem. The Apache Foundation and all its contributors provide one example of an open development ecosystem.[7]

- **Community ecosystems** are formed when an organizer wishes to develop and scale trust-based relationships among a large number of participants. These ecosystems are defined by sustained and frequent interactions that accumulate over time and weave together all the participants to the point that they begin to identify themselves with the community. These ecosystems range from loosely defined Communities of Interest like discussion forums for music lovers or sports fans to more action-oriented Communities of Practice like the tightly knit guilds within World of Warcraft.[8]

Self-organized ecosystems

Self-organized ecosystems are purely participant-driven, with numerous routes of interconnectivity between participants who all come together in pursuit of a common objec-
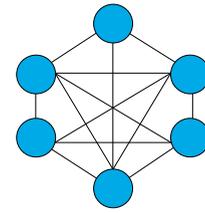
Example: Big-wave surfing

tive. Extreme sports like big wave surfing on a global scale provide examples of self-organized ecosystems, embracing large numbers of participants with no central organizing body.

- **Grassroots ecosystems** are short-lived ecosystems with no defined standards, forums, barriers to entry, or rules for participation. They come together for a specific purpose, and then dissipate. An example is users of Stressed Skin Panels in the construction industry.[9] These panels are used to construct building walls but require adaptation for a variety of uses. As individual contractors experimented and found the best techniques for altering the panels, these contractors shared ideas in informal ways, by word-of-mouth and via industry publications or bulletin boards. Eventually, many of these innovations were adopted by the panel manufacturers. Ultimately, the ecosystem dissolved as the product became more mature and well-defined in all of its variants, and since there was no longer a need for the ecosystem, it disbanded.

- **Pack ecosystems** include loosely organized participants who join an ecosystem with a specific "big picture" objective in mind for ongoing, sustained activity. With big wave surfing, the ecosystem developed as surfers came together on a global scale to share new surfboard designs and surfing techniques to improve performance and address more and more challenging waves.[4]

Dynamic ecosystems

Most ecosystems today focus on aggregating and coordinating *something*, be it suppliers, customers, or ideas. The introduction of newer technologies and the rapid evolution of the Internet have helped to create a wider range of ecosystem options, presenting a significant opportunity for accelerating participant performance improvement—whereby all participants get better faster by working together on a larger and larger scale. As shown in Figure 1, only specific ecosystem types have the

potential to accelerate participant performance improvement: process network, web, open development, community, and pack. These ecosystem types are highly scalable and enable a high degree of interaction among participants. In addition, they have the potential to foster deeper trust-based relationships, and/or create the incentives necessary to attract a wide and diverse group of participants. Companies now have increasing opportunities to evolve from more traditional static ecosystems toward higher-performance dynamic ecosystems.

Figure 1: Ecosystem taxonomy

Centralized	Sequenced	Facilitated	Self-organized
Collection P&G connect + develop	**Chain** GM	**Resource Network** AMEX OPEN Forum	**Grassroots**
Contest Goldcorp	**Project** i.e. Construction Project	**Web** MSDOS	**Pack**
Matchmaker TutorVista	**Process network** Li & Fung	**Open Development** Apache	
		Community World of Warcraft	
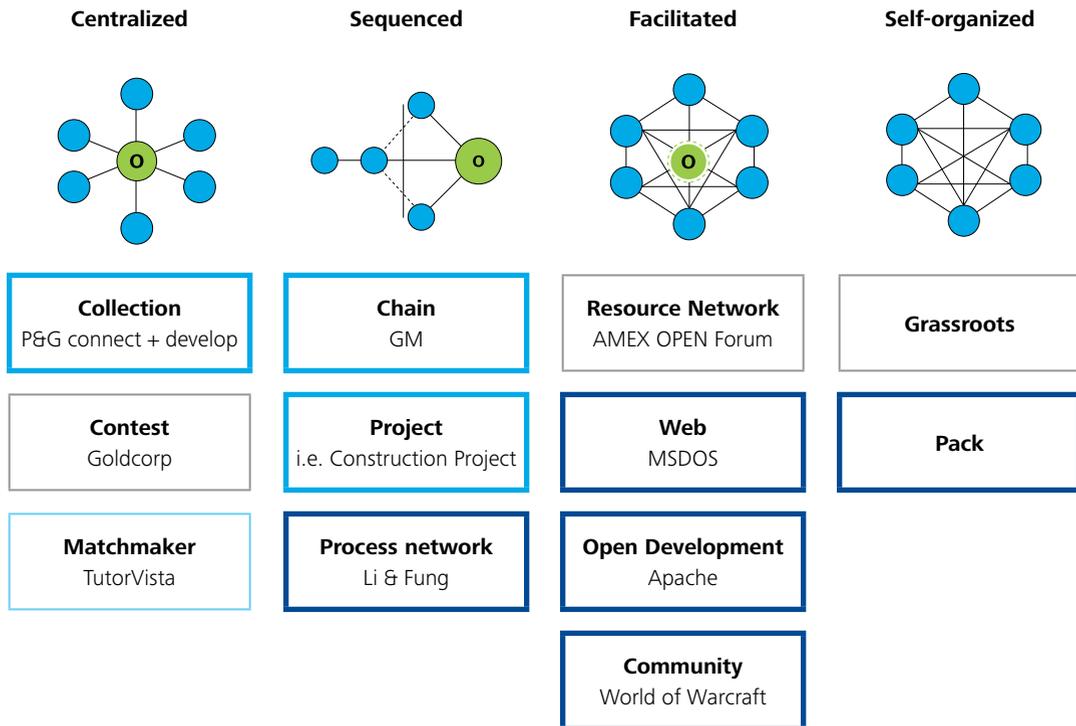
The majority of business ecosystems today

Dynamic ecosystems that can achieve accelerated performance improvement

Thanks for the taxonomy— but where do I go from here?

USING key management practices and evolving to higher-performing ecosystem types can create greater value for organizations, but what approach can an organization use to select the right ecosystem? Figure 2 demonstrates three key steps to address the question:

#1. Assessing your current capabilities and existing ecosystems

The starting point should be an assessment of the current state of the organization, where key questions include:

• What are the existing capabilities, culture, and risk appetite of the organization?

• What ecosystems is the organization involved in today?

• Are these the appropriate ecosystems to meet performance objectives?

In our experience, the first question, *where do I go from here?*, is often the hardest for executives to answer—primarily because "ecosystems" are seen as a silver bullet, but the basic building blocks to participate in those ecosystems are absent from within the organization. For example, it may be advantageous for technology firms to operate within an o*pen development ecosystem* but the way that their talent competes within organizational silos and is motivated to perform may make them constantly default back to a *project ecosystem*.

Figure 2: A practical approach to selecting ecosystems hinges on defined business objectives

Current state assessment	Performance gaps		Existing ecosystems
		Key ecosystems relevant to performance gaps	
	Objectives		Risks and capabilities
		Select resulting ecosystem types	
Options assessment	1. Enhance existing ecosystem		2. Adopt a new ecosystem
	Optimize existing ecosystem (as an organizer)	Evolve to a new ecosystem type (as an organizer)	Create a new ecosystem (as an organizer) · Join a new ecosystem (as an organizer)
Implement and monitor	Management practices to improve performance		

#2. Assessing your ecosystem options going forward

In assessing an organization's options, two key questions include:

- Which ecosystem type(s) should be selected?
- Should the organization create, enhance, or join an ecosystem?

Once the ideal ecosystem type has been identified, how do you get there from here? In general, you can choose to either enhance your existing ecosystem, or participate in a new one.

In enhancing an existing ecosystem, there are two options:

- **Optimize:** Maintain the integrity of the ecosystem type; however, improve the management practices within. For example, Toyota has continued to operate a chain ecosystem with its suppliers, but has created tremendous value through the trust it has developed with its suppliers.

- **Evolve:** Change from one ecosystem type to another (e.g., chain to process network), or "nest" new ecosystems within an existing one. Nesting is when an ecosystem becomes fully contained within another higher-level ecosystem, often resulting in layers of ecosystems. For example, within the broader

matchmaker ecosystem of eBay (with its matching of buyers and sellers), eBay has created various online merchant networks, where its merchants can connect with each other in a community-like fashion to share learning and best practices.[11]

Selection of ecosystem type ties directly to the organization's objective. Figure 3 serves as a tool to guide the selection process. At the highest level, our ecosystem types fall into two buckets—those that are focused on aggregation and coordination, and those that are focused on accelerating performance improvement of all the participants involved, or helping everyone to get better faster. Beyond this broader categorization, specific questions help to answer which ecosystem type is most suited for the organization's objective.

In choosing to participate in an entirely new ecosystem, there are two options:

- **Create:** Organize an ecosystem from scratch. P&G did this with its Connect and Develop program and connected with a whole new set of industry participants.[2]

- **Join:** Participate in someone else's existing ecosystem to extract value from it. For example, a company can participate as a "seeker" in InnoCentive's network, to obtain the best solution among numerous solvers.[1]

Figure 3: An organization's objectives guide the ▯selection of the resulting ecosystem subtypes

Aggregate and/or coordinate (suppliers, customers, ideas, raw materials, resources, etc.)		Accelerate participant performance improvement	
Do you have a specific issue to solve in a definite time period, for which you are willing to offer a financial incentive?	Contest: Goldcorp	Do you need to sequence activities or participants rapidly and flexibly on an ongoing basis?	Process Network: Li & Fung
Do you want to facilitate a large number of transactions connecting participants or providers and users?	Matchmaker: TutorVista	Do you need to scale distributed innovation around a core platform?	Web: MS DOS
Do you want to enable access to many diverse resources to a large group of users?	Resource Network: AMEX OPEN	Are you willing to relinquish IP and integrate participant contributions for rapid product improvement?	Open Development: Apache
		Do you need trust-based relationships to develop among a large number of participants?	Community: World of Warlocks

☐ Ecosystems that can achieve accelerated participant performance improvement

Value can be created from any of these four options; however, the biggest "bang-for-your-buck" generally comes from evolution, especially from a static ecosystem to a dynamic ecosystem. This option usually creates greater value than "optimizing" or "joining", while not requiring a company to start from scratch and make significant investments as would be required in the "create" option. With companies already heavily invested in their existing static ecosystems, evolution to higher-performing dynamic ecosystem types can expand the opportunity for value creation.

#3. Using key management practices to continually improve your ecosystems

Most companies today are generally not maximizing their ecosystem performance through existing management practices.

Executives have the opportunity to increase ecosystem performance by understanding the key management practices relevant to effectively designing and managing ecosystems. In other words, there is generally an opportunity to increase value simply by refining management practices within an existing ecosystem type.

These management practices are:

1. **Loose Coupling:** Enabling participants to be easily reconfigured to meet changing demands, resulting in greater flexibility and scalability

2. **Access Management:** Expanding the number of participants that can join, given the appropriate scope and objective of the ecosystem

3. **Behavior Management:** Enhancing the potential for effective interactions through behavioral norms, enforced rules, and participant performance feedback loops

4. **Incentives:** Using the right combination of extrinsic- and intrinsic-based incentives (including reputation and intellectual challenge) to foster cumulative learning and capability building

5. **Action Points:** Embedding integration or decision milestones in which differences

Figure 4: Evolving an ecosystem can create tremendous ⬚value without having to "start from scratch"

1. Enhance existing ecosystem	2. Adopt a new ecosystem
Optimize Improve management practices, but maintain integrity	**Create** Organize a new ecosystem from scratch

Toyota

O - Orchestrator

P&G connect + develop

O - Orchestrator

Evolve Transition ecosystem type or introduce nesting	**Join** Participate in another organization's ecosystem

Ebay

O - Orchestrator

Innocentive

O - Orchestrator

need to be resolved and agreement reached on the best approach for achieving a shared outcome—incorporating multiple action points creates opportunities for productive friction—it sharpens and forces choices

6. **Interaction Archive:** Recording rich content regarding participant interactions as a by-product of their actions, enabling a longer-term view toward the ecosystem's opportunities

As illustrated in Figure 5, from our reading and interviews we found that most companies tend to cluster on the left side of each range, and are not taking full advantage of the value that can be achieved through each management practice. For example, ecosystems are often tightly coupled with respect to their supply chains, meaning that they are tightly integrated and have a low ability to adapt to meet changing demands. Increased value could

be achieved by adopting greater loose coupling and modularity, allowing participants to quickly reconfigure when required.

Vignette #1: Performance improvement at Toyota

Toyota provides an example of a chain ecosystem in its supply chain operations, (see Figure 6). It has been able to increase performance by "moving the needle" on some of the key management practices. Especially in the areas of behavior management, incentives, and action points, Toyota's management of its supplier network has led to higher performance of the ecosystem as a whole.

Incentives: Toyota manages its business to benefit suppliers, and also allows suppliers to determine what percentage of their cost savings goes to Toyota.[10] This drives longer-term incentives for both Toyota and their suppliers, helps strengthen relationships, and helps

Figure 5: An opportunity exists to increase performance in existing ecosystems by understanding key management practices

Management practice	Opportunity to increase performance
Loose coupling	Low ability to quickly reconfigure (i.e., tightly integrated, lack of standards at the interface) — High ability to quickly reconfigure (i.e., highly separated, consistent product/communication standards)
Access management	Centralized control; Stringent criteria/process — Decentralized control; Minimal criteria/Easy process
Behavior management	Centralized control; Primarily driven by stringent rules — Decentralized control; Primarily driven by participant-influenced rules and/or norms
Incentives	Primarily short-term, extrinsic (i.e., monetary, reputation) rewards — Primarily long-term, intrinsic (i.e., learning) rewards
Action point(s)	Centralized decision-making; Absence of action points — Decentralized, collective decision-making; Frequent action points
Interaction archive	Narrow content of transactions archived — Rich content of interactions archived

Organizations are in ecosystems today.

Key management practices can increase performance of these existing ecosystems.

Legend

Majority of today's organizations

Potential range of ecosystems that aggregate and coordinate resources

Figure 6: Case study - Performance improvement at Toyota

Management practice	Opportunity to increase performance	While Toyota and its supplier network have benefitted from certain management practices, opportunity remains for further performance improvement.
Loose coupling	**Opportunity:** Toyota tightly integrates its operations with its suppliers, similar to most U.S. automotive companies	
Access management	**Opportunity:** Toyota limits the number of suppliers that it deals with, maintaining high barriers to entry, similar to most U.S. automotive companies	
Behavior management	Not known—assume similar to most U.S. automotive companies	
Incentives	**Achievement:** Toyota manages its business to benefit suppliers, and suppliers share cost reductions in pursuit of a longer-term relationship	
Action point(s)	**Achievement:** Toyota creates opportunities for suppliers to connect and share in each other's learnings and plans	
Interaction archive	Not known—assume similar to most U.S. automotive companies	

Legend

Typical U.S. automotive company — Toyota

Potential range of ecosystems that aggregate and coordinate resources

ensure that the quest for short-term gains does not undermine the potential for long-term benefits.

Action Points: Toyota defines aggressive performance objectives and creates explicit milestones to focus the efforts of its partners on finding creative ways to meet these objectives.[10] These action points drive active learning within the supply chain.

Vignette #2: Management practices matter – A contrast of ecosystems

In practice, the design of ecosystems can dramatically vary based on the choices made across the key management practices. Figure 7 demonstrates how management practices differ between the cases of P&G Connect and Develop[2] (a collection ecosystem) and Lego Mindstorms[12] (a community), both focused on improving product development.

Figure 7: Management practices can vary considerably

Collection ecosystem	Management practice	Community ecosystem
P&G connect + develop		Lego Mindstorms
All interactions are between P&G and the participants, defined by contract	Loose coupling	Loose interaction between participants
P&G decides with whom to do business	Access management	Anyone can join the network
P&G makes the rules	Behavior management	Participants have say in the rules
Monetary	Incentives	Non-monetary and long-term. Based on social exchanges (gifts)
Action points are created with each contract with a participant	Action point(s)	Participants voluntarily create action points when they collaborate and share ideas
Participants are not allowed to see each other's work	Interaction archive	Web site keeps history of interaction

Accelerating participant performance improvement

EXAMPLES such as Li & Fung (see sidebar) bring to the forefront a very different model of ecosystems, enabling a second level of performance improvement in which significantly greater value can be created.

Beyond strictly aggregating and coordinating existing resources, what distinguishes these ecosystems is that they are highly scalable and can accommodate an extremely high degree of participant interaction. As a result, these ecosystems can accelerate participant learning and/or performance improvement over time, enabling all participants to get better faster as more participants join the ecosystem.

Key characteristics of accelerated participant performance improvement

Ecosystems benefit from network effects. These network effects are generally limited if there is minimal interaction among participants, as in highly centralized (hub-and-spoke) structures. Because of the minimal interaction of the participants, each additional participant just increases the value of the ecosystem by "one"—that participant. As interaction increases among participants, stronger network effects can be achieved even though participant capabilities remain stable or unchanged over time. As an analogy, think of

a network of fax machines. One fax machine by itself is useless—it actually has negative value. It costs money to buy but cannot be used for anything. As more fax machines are added to a network, the value of each fax machine increases. The value of the network increases exponentially as more and more fax machines are added, yet the functionality of each fax machine remains static.

Now let's say each fax machine improves and builds its capabilities over time and that its rate of improvement accelerates with the addition of each new fax machine—this is what we mean by accelerated participant performance improvement. In this case, we get a second

Li & Fung, a Chinese company in the apparel industry, oversees facilitation and coordination of a global network of more than 10,000 business partners, selecting the most appropriate participants in configuring customized supply networks for its customers.[4]

Rather than suing a user who reverse-engineered and published the software behind the Lego Mindstorms product, Lego "opened up" its system to the public and harnessed its customer base in designing future product improvements.[12]

Dusty and his friends became some of the most accomplished big wave surfers, through learning and critiquing one another as a tight-knit team, and interacting with surfers across the world to master their techniques.[4]

order of increasing returns, amplifying the basic network effects that occur with a simple increase of the number of participants. This second order of increasing returns comes from the opportunity in some ecosystems to develop complex meshes of interactions with all the other participants in ways that help accelerate the learning and performance improvement of each participant. In ecosystems that foster long-term, trust-based relationships among participants, there is more incentive to work together to learn from each other. The increasing diversity of participants tackling specific performance improvement initiatives can generate more creative solutions, further amplifying the learning opportunity.

Companies have an opportunity to evolve their existing static ecosystems to these newer, higher-performing dynamic ecosystems. Figure 8 lists the unique characteristics that distinguish static ecosystems that simply aggregate and coordinate existing resources from dynamic ecosystems that accelerate participant performance improvement.

Rapidly scaling dynamic ecosystems that accelerate participant performance improvement pose a unique paradox: "How can you have a highly scalable ecosystem and still maintain deep, trust-based relationships among participants?"

These dynamic ecosystems typically resolve the paradox by providing rich environments for both individual-based interactions and team-based interactions. While individual teams cannot scale beyond a certain size without eroding the trust-based relationships that sustain team performance, the ecosystem overall can scale by accommodating more and more teams. These teams are not just self-contained entities—members of the teams usually interact in a broader network that fosters learning and performance improvement across teams. By bringing together diverse participants within individual teams, fostering trust-based relationships, and focusing these teams on challenging performance improvement initiatives, these ecosystems can encourage productive friction at the individual team level, which in turn can lead to major new advances in performance. Much of this learning can then get further disseminated as team members engage with members of other teams in broader discussion forums and problem-solving venues.

Figure 8: Evolution presents a significant opportunity to achieve accelerated participant performance improvement

Aggregate and/or coordinate existing resources	Accelerate participant performance improvement
1. Focus on efficiency	Focus on participant performance improvement
2. Static resources	Dynamic resources
3. Short-term focus	Long-term focus
4. May be scalable	Scalable
5. Transactional	Relational
6. Focus on organizer performance	Focus on ecosystem performance

Trust building in ecosystems

Trust within teams is not something that just builds by chance in ecosystems; instead, key practices encourage trust-building. The starting point is an individual's trust in the ecosystem (or organizer), which in turn provides an environment for deeper trust- building within teams.

Trust in the ecosystem can be nurtured from the time an individual begins to participate in the ecosystem; therefore, first impressions (including the organizer's brand) can be critical to trust development. At this level, the rules of the ecosystem also influence the ability to build trust. Most successful ecosystems have minimally restrictive rules, providing an opportunity for participants to evolve their own norms and rules and to develop a sense of "ownership" of the ecosystem. Where rules are required, fairness, transparency, and buy-in of participants help to build trust.

Trust among participants becomes more significant over time, as a participant's involvement in the ecosystem leads to greater interaction with others. Here, creating opportunities for broader participant interaction is crucial. Mechanisms to build reputation among participants can help participants to find each other and to develop trust more rapidly based on demonstrated performance in the past. For example, many online communities have reputation systems that allow participants to rate the quality and quantity of other participant contributions.

Trust within teams helps to foster even deeper levels of trust within smaller groups of participants over time. Providing the functionality for participants to form their own "teams," "groups," or "rooms" and engage in sustained interactions to address performance challenges will help enable concentrated team-based interactions. This can be further enhanced by tools to record objectives, milestones, and group interactions; share documents; and conduct other necessary tasks for group creation and interaction.

Sharing of economic benefits

Because of the learning and performance improvement resulting from these trust-based relationships, these dynamic ecosystems tend to have an advantage when it comes to sharing economic benefits, or profits, among participants.

In static ecosystems that aggregate and coordinate existing resources, the rewards that can be distributed to participants by the organizer tend to be more limited. As a result, disputes can arise over how to more "fairly" distribute these limited rewards. A "win/lose" mindset can often develop—if one participant gains more rewards, it means the rewards for the rest become even more limited. This perception can erode trust and increase competition at the expense of collaboration. For example, in a contest ecosystem, there is a limited pool of "prize" money awarded to the winner, and the losers get nothing. The greater the number of problem solvers, the less likely the opportunity to win. In a chain ecosystem, participants at each level in the chain are tempted to try to squeeze participants in other levels in order to keep more of the rewards for themselves.

In dynamic ecosystems that accelerate participant performance improvement, the focus shifts from "splitting the pie," to "expanding the pie." In this case, learning, performance improvement, and reputation building in the short-term offer the promise of expanding rewards for all in the longer term. While there will still be disputes over the allocation of the rewards, these tend to be significantly dampened by the growing awareness of the potential to participate in a rapidly expanding reward pool. For example, in open development ecosystems like open source software, participants are often motivated by the growing sense that they are deepening their skills and that their reputation as contributors of creative code will help to make them more marketable, leading to substantial monetary rewards at a personal level.

Figure 9: Key practices create system-level trust as an ecosystem scales, which in turn enables participant-level trust
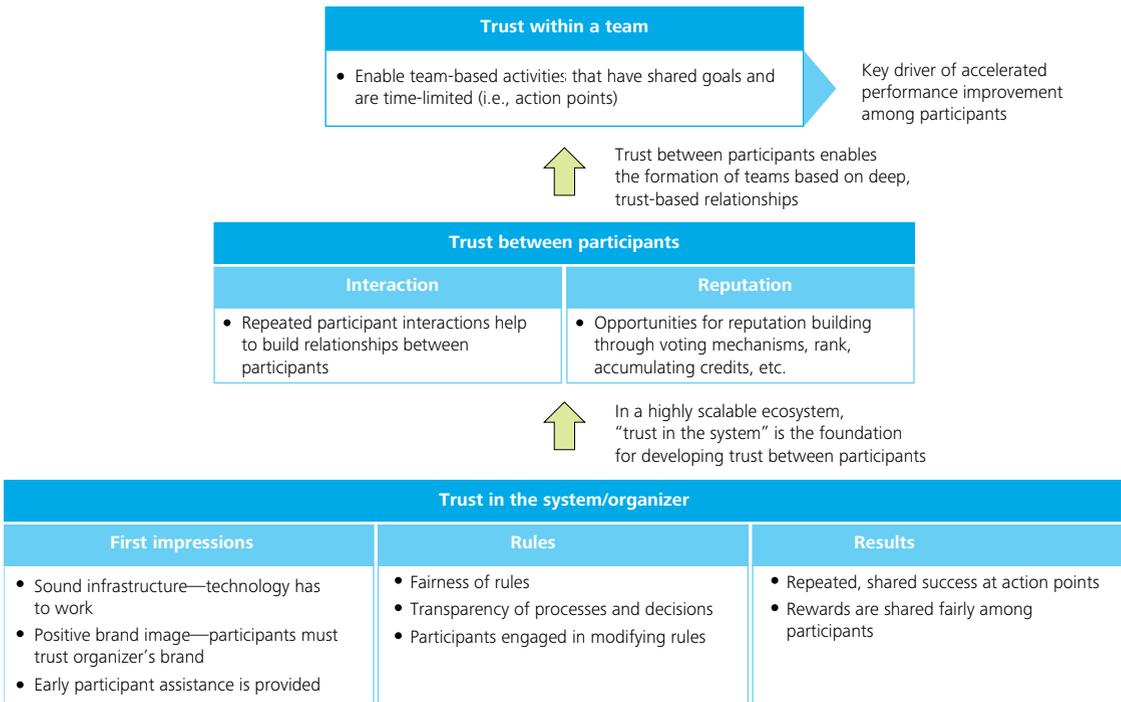
Trust within a team

- Enable team-based activities that have shared goals and are time-limited (i.e., action points)

Key driver of accelerated performance improvement among participants

Trust between participants enables the formation of teams based on deep, trust-based relationships

Trust between participants

Interaction	Reputation
• Repeated participant interactions help to build relationships between participants	• Opportunities for reputation building through voting mechanisms, rank, accumulating credits, etc.

In a highly scalable ecosystem, "trust in the system" is the foundation for developing trust between participants

Trust in the system/organizer

First impressions	Rules	Results
• Sound infrastructure—technology has to work • Positive brand image—participants must trust organizer's brand • Early participant assistance is provided	• Fairness of rules • Transparency of processes and decisions • Participants engaged in modifying rules	• Repeated, shared success at action points • Rewards are shared fairly among participants

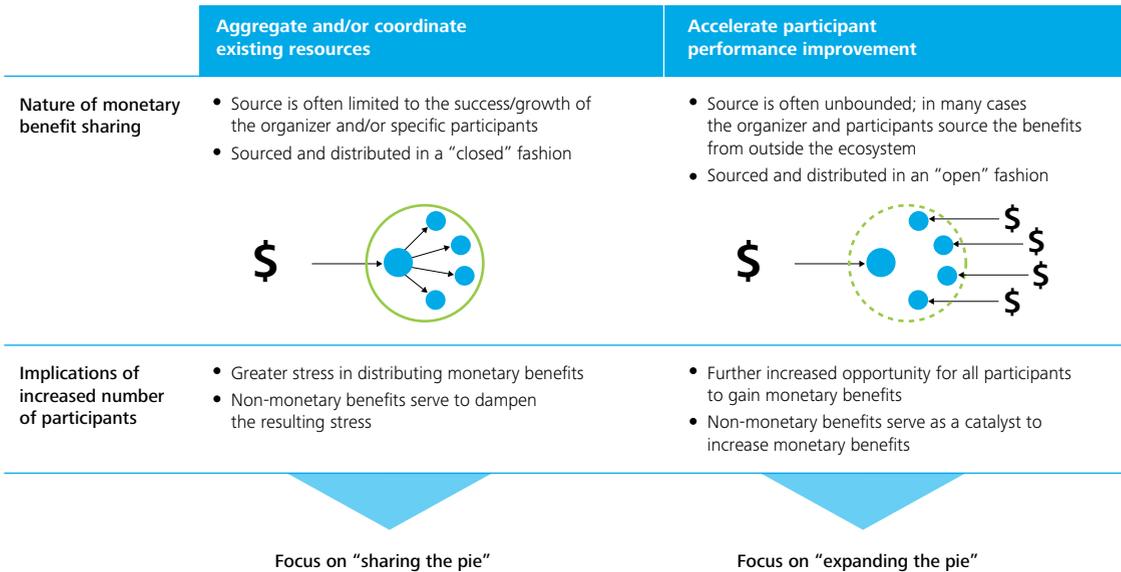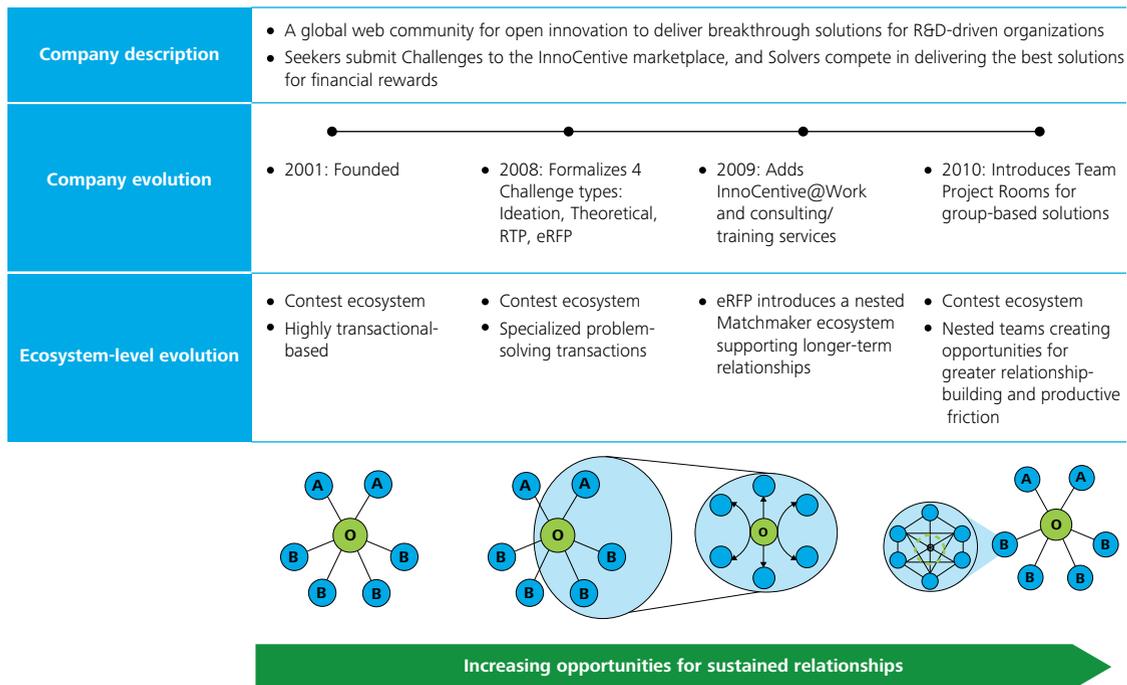**Figure 10: Higher-performing ecosystems avoid the stresses associated with "sharing the pie" of economic benefits**

	Aggregate and/or coordinate existing resources	Accelerate participant performance improvement
Nature of monetary benefit sharing	• Source is often limited to the success/growth of the organizer and/or specific participants • Sourced and distributed in a "closed" fashion	• Source is often unbounded; in many cases the organizer and participants source the benefits from outside the ecosystem • Sourced and distributed in an "open" fashion
Implications of increased number of participants	• Greater stress in distributing monetary benefits • Non-monetary benefits serve to dampen the resulting stress	• Further increased opportunity for all participants to gain monetary benefits • Non-monetary benefits serve as a catalyst to increase monetary benefits
	Focus on "sharing the pie"	Focus on "expanding the pie"

Figure 11: Case study - Evolution of InnoCentive

Company description	• A global web community for open innovation to deliver breakthrough solutions for R&D-driven organizations • Seekers submit Challenges to the InnoCentive marketplace, and Solvers compete in delivering the best solutions for financial rewards			
Company evolution	• 2001: Founded	• 2008: Formalizes 4 Challenge types: Ideation, Theoretical, RTP, eRFP	• 2009: Adds InnoCentive@Work and consulting/ training services	• 2010: Introduces Team Project Rooms for group-based solutions
Ecosystem-level evolution	• Contest ecosystem • Highly transactional-based	• Contest ecosystem • Specialized problem-solving transactions	• eRFP introduces a nested Matchmaker ecosystem supporting longer-term relationships	• Contest ecosystem • Nested teams creating opportunities for greater relationship-building and productive friction

Increasing opportunities for sustained relationships

Vignette #3: Evolution at InnoCentive

Over the last 10 years, InnoCentive has taken some major steps in advancing its services and offerings, including formalizing four distinct types of challenges in 2008, adding a consulting services arm in 2009, and most recently, introducing Team Project Rooms, where solvers can privately collaborate on their combined solution.[13]

These changes have had key implications for the evolution of InnoCentive's underlying ecosystem (see Figure 11):

- 2001: Contest ecosystem with a number of independent, transactional challenges taking place over time.

- 2008: Established specialized types of transactions—eRFP in particular allows companies to request for a partner or supplier to provide materials or expertise, thereby introducing a nested matchmaker ecosystem with a subset of participants. This

platform matches participants not only for a single transaction, but for ongoing business purposes(supporting longer-term relationship building within the network).

- 2010: Introduced Team Project Rooms to increase quality and quantity of solutions. This helped to encourage something that was already happening informally offline—groups of participants were coming together to jointly solve some of the problems posted. Now, InnoCentive more actively encourages teams to form and provides them with environments to engage in sustained and collaborative problem-solving.

While InnoCentive is still a contest ecosystem (hub-and-spoke structure) at the highest level, this case study demonstrates how an organization can begin accelerating participant performance improvement by evolving its static ecosystem through the nesting of dynamic ecosystem types.

Ecosystem risks and mitigation

WHILE there are inherent risks and tradeoffs in adopting newer forms of ecosystems, executives tend to under-emphasize the considerable risks of remaining committed to lower-performing static ecosystems. In a world of intensifying competition and more rapid innovations, organizations in static ecosystems risk being left behind. Static ecosystems that simply aggregate and coordinate resources without focusing explicitly and aggressively on accelerated participant performance improvement typically only tap into a small portion of the potential value that can come from more dynamic ecosystems.

Risks from accelerated participant performance improvement

Disclosed IP: Sharing intellectual property (IP) has its risks, but these risks should be balanced against potential rewards. By releasing IP to a broader range of participants, companies can often stimulate more creative problem-solving and distributed innovation that exceeds the capability of individual companies. IBM provides an example of a company that has contributed significant amounts of IP to open development ecosystems, allowing it

Figure 12: Risks from existing ecosystems and accelerated participant performance improvement

Risks from existing ecosystems	
Risk	**Mitigation**
1. Competitors innovate faster	Adopt higher performance ecosystem to accelerate own innovation
2. Inability to adapt to threats	Adopt higher performance ecosystem to counter competition

Evolving to a higher-performing ecosystem is an imperative

Risks from accelerated participant performance improvement	
Risk	**Mitigation**
1. Disclosed IP	Gradually release IP and evaluate results2
2. Inability to adapt to threats	Hire "gateway" managers who understand both cultures
3. Viral unfavorable opinions	Communicate honestly, candidly and positively
4. Over-engineering	Incrementally improve design and governance

to focus on areas where it has a more distinct competitive advantage while motivating rapid enhancement of the contributed IP by third parties. Modular architectures can increase flexibility in deciding to contribute certain modules of IP to broader ecosystems while retaining other modules of IP inside the company. A staged approach to releasing IP can also help to manage risk. By beginning with less critical IP, a company can learn how to stimulate broader ecosystem development and accelerate enhancement of the IP before it decides to release more valuable IP.

Culture clash: A second risk is a culture clash between the employees of an organization who have the task of orchestrating broader ecosystems and the rest of the employees in the organization. Note that the culture of static ecosystems that aggregate and coordinate resources is not too different from most business cultures today. However, much different management styles are required to move to to higher-performing dynamic ecosystems. The potential for a culture clash can be mitigated by recruiting and developing "gateway" managers who have the ability to bridge across markedly different business cultures. Staged growth of ecosystems can also help managers to learn as they go, adapting to evolving ecosystem cultures as they observe what works and what does not.

Viral unfavorable opinions: In an increasingly competitive and unforgiving market, negative opinions are inevitable and a genuine risk, whether in an ecosystem the company organizes or in social media like third-party blogs and broader social networks. Encountering those negative opinions from customers or third parties in a company-organized ecosystem may be discomfiting; however, early visibility into the issues can help to mobilize resources to respond in a prompt and positive way. This is far better than having unfavorable opinions expressed in online forums that marketing scans may not detect, especially in early stages of discontent

Over-engineering: A fourth risk is more procedural. Being too prescriptive and comprehensive (i.e., over-engineering) in the early stages of building an ecosystem may block participants from interacting in ways that are more productive. Far better to begin simply with modest functionality and as few rules as possible and evolve the ecosystem by observing where and how participants engage. Seeding modest new initiatives, feeding the ones that engage participants the most, and weeding the ones that turn people off can be a far better approach than trying to anticipate every possible contingency at the outset.

Conclusion

In order to succeed in today's fast-changing business world, harnessing the power of ecosystems is crtical. Businesses are already in ecosystems today—whether by design or not. Through a more systematic development of a set of ecosystem management practices and by evolving to higher-performing dynamic ecosystems, executives can accelerate participant performance improvement and generate greater value for the individual company and the ecosystem as a whole.

Bibliography

1. InnoCentive. [Online] http://www2.innocentive.com/.

2. "Connect and Develop: Inside Procter & Gamble's new model for innovation." Huston, L., & Sakkab, N. March 2006, *Harvard Business Review*.

3. TutorVista.com. [Online] http://www.tutorvista.com/.

4. J. Hagel III, J. S. Brown, and L. Davison. *The Power of Pull: How Small Moves, Smartly Made, Can Set Big Things in Motion*. Basic Books, 2010.

5. American Express OPEN Forum. [Online] http://www.openforum.com/.

6. J. Hagel III. "Spider versus spider." *The McKinsey Quarterly*. 1996.

7. The Apache Software Foundation. [Online] http://www.apache.org/.

8. D. Thomas and J Nemani. "The collaboration curve: Exponential performance improvement in World of Warcraft." Deloitte Center for the Edge, 2009.

9. E.V. Hippel. *Democratizing Innovation*. Cambridge : MIT Press, 2006.

10. J.H. Dyer. *Collaboration advantage: winning through their extended enterprise supplier networks*. New York: Oxford University Press, 2000.

11. J. Hagel III, J. S. Brown. *The Only Sustainable Edge: Why Business Strategy Depends On Productive Friction And Dynamic Specialization*. Harvard Business Press, 2005.

12. Lego Mindstorms. [Online] http://mindstorms.lego.com/.

13. Dwayne Spradlin, President and CEO, InnoCentive. May 2010.

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The Center focuses on the boundary, or edge, of the global business environment where strategic opportunity is the highest.

The Deloitte Center for the Edge conducts original research and develops substantive points of view for new corporate growth. The Silicon Valley-based Center helps senior executives make sense of and profit from emerging opportunities on the edge of business and technology. Center leaders believe that what is created on the edge of the competitive landscape—in terms of technology, geography, demographics, markets—inevitably strikes at the very heart of a business. The Center's mission is to identify and explore emerging opportunities related to big shifts that aren't yet on the senior management agenda, but ought to be. While Center leaders are focused on long-term trends and opportunities, they are equally focused on implications for near-term action, the day-to-day environment of executives.

Below the surface of current events, buried amid the latest headlines and competitive moves, executives are beginning to see the outlines of a new business landscape. Performance pressures are mounting. The old ways of doing things are generating diminishing returns. Companies are having harder time making money—and increasingly, their very survival is challenged. Executives must learn ways not only to do their jobs differently, but also to do them better. That, in part, requires understanding the broader changes to the operating environment:

What's really driving intensifying competitive pressures?

What long-term opportunities are available?

What needs to be done today to change course?

Decoding the deep structure of this economic shift will allow executives to thrive in the face of intensifying competition and growing economic pressure. The good news is that the actions needed to address near-term economic conditions are also the best long-term measures to take advantage of the opportunities these challenges create. For more information about the Center's unique perspective on these challenges, visit www.deloitte.com/centerforedge.

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