

TALENT REFRAMED

MOVING TO THE TALENT DRIVEN FIRM

by Richard P. Adler



Talent Reframed: Moving to the Talent Driven Firm

Richard P. Adler
Rapporteur



THE ASPEN INSTITUTE

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Contents

FOREWORD, *Charles M. Firestone*.....vii

**TALENT REFRAMED: MOVING TO THE
TALENT DRIVEN FIRM**, *Richard P. Adler*

Talent in a New World.....1
Paradigms and Paradoxes2
Cycles of Change4
Talents, Skills and Dispositions8
Companies, Communities and Change.....8
Platforms for Learning12
IT: Friend or Foe of Innovation?15
The Role of Education: K to Gray17
The Dynamics of Talent Development20
Policy Issues.....21

APPENDIX

Getting Better All the Time: Becoming a Talent-Driven Firm,
John Hagel, John Seely Brown and Lang Davison27
Roundtable Participants41
About the Author43
About the Communications and Society Program45

This report is written from the perspective of an informed observer at the Planning Session for the Aspen Institute Roundtable on the Talent Driven Firm. Unless attributed to a particular person, none of the comments or ideas contained in this report should be taken as embodying the views or carrying the endorsement of any specific participant at the meeting.

Foreword

Today more than ever, an organization's workforce and access to talent are critical to its success. But what does it take to attract and retain talented employees? According to John Hagel and John Seely Brown, Co-Chairs of the Deloitte Center on Edge Innovation, which sponsored and collaborated on the following project, the best way to build a talented workforce is helping employees build their skills and capabilities. Indeed, talented workers are attracted to places where they can learn faster and better.

In July, 2008, the Aspen Institute Communications and Society Program convened a planning meeting in Aspen, Colorado, to explore the implications of this premise with the aim of determining whether it could serve as a basis of a new series of Aspen Institute roundtables in talent development in the future. Participants in the meeting agreed that in view of the intense global competition and relentless, rapid change in which organizations find themselves, many of the old rules of business are becoming less relevant.

For example, the primary source of value for companies is shifting from accumulating and exploiting static "stocks of knowledge" to managing continuous "flows of knowledge." Thus, participants opined, instead of jealously guarding their intellectual property, firms can create greater value for themselves and their partners by openly sharing their knowledge in collaborative ventures that enhance everyone's learning. The world of formal education, from "K to Gray," also needs to do a better job in developing talent: it needs to shift from a pedagogical model based on classroom instruction to new models of social learning that enable students to work collaboratively with others to solve real problems.

In reality, few enterprises are currently ready and willing to operate by these new rules. Most businesses, according to our participants, are still based on well-established command and control structures and have a hard time accepting systems, like those built on web-based social networking tools, that encourage bottom-up horizontal collaboration, even internally. As a result, the most exciting innovations in building talent-driven firms may well occur in smaller entrepreneurial firms and

at the “edge” of large enterprises, rather than at their core. Policy changes in areas such as intellectual property and development of meaningful metrics that document the value of open collaboration will also be important in creating a climate that supports a new paradigm for developing talent.

These new insights, along with the realization that the oncoming economic crisis will accelerate the need for firms and organizations to explore new ways of accessing and developing talent, have led the Institute to move forward with the new Roundtable on the Talent Driven Firm. This volume, then, will set forth the premises of that Roundtable series, documenting the thoughts and insights of the organizing committee as well as the white paper by Brown and Hagel which sparked the whole project.

Acknowledgments

We would like to take this opportunity to thank Deloitte Center for Edge Innovation for being our sponsor for this meeting, John Hagel and John Seely Brown for their suggestions and assistance in designing the program and recruiting participants, and Glen Dong of Deloitte for his help with the planning and logistics of the meeting. Our thanks to Sarah Snodgrass, project manager and Tricia Kelly, assistant director of the Aspen Institute Communications and Society Program, for their help in producing the conference and this report.

We also thank Richard Adler for this concise and insightful account of the discussions; authors John Seely Brown, John Hagel and Lang Davison who crafted the working paper for the meeting, reprinted in the Appendix of this report; and our participants, listed in the Appendix, for their contributions to this complicated topic.

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January 2009

**TALENT REFRAMED: MOVING
TO THE TALENT DRIVEN FIRM**

Richard P. Adler

Talent Reframed: Moving to the Talent Driven Firm

Richard P. Adler

Talent in a New World

In a world in which competition is global and change is constant, no factor is more critical to the success of an enterprise than the quality of its employees. The goal of the Aspen Institute Roundtable on the Talent Driven Firm is to develop a better understanding of the importance of talent and, particularly, the challenge that organizations face in attracting and retaining the most talented workers.

The project starts from the premise articulated by John Hagel and John Seely Brown, Co-Chairs of the Deloitte Center on Edge Innovation, that “only by helping employees build their skills and capabilities can companies hope to attract and retain them. Talented workers join companies and stay there because they believe they’ll learn faster and better than they would at other employers.” They also argue that talented workers develop not primarily through formal training but “by trying new things, by experimenting with what they do in their jobs and how they do it, and by tackling real problems with other talented people with different backgrounds and skills—people who are just as likely to work for other companies, in other locales, as they are to be working in the same company.” In other words, workers develop by participating in and learning from “talent networks” that operate across firms as well as within them. [See the Appendix for the background paper, “Getting Better All the Time: Becoming a Talent-Driven Firm,” by Hagel, Brown and Lang Davison.]

Brown and Hagel set the stage for the project’s first planning meeting, held in Aspen in July, 2008, by describing some of the challenges facing businesses and other organizations operating in an increasingly complex and competitive global economy. Brown began by noting that there have been four or five major shifts in the world’s economic infrastructure over the last two centuries. The most recent wave of change,

which began toward the end of the 20th century, is being shaped by the forces of telecommunications and information.

This change challenges existing business models at the same time that it creates opportunities for developing new, more efficient models. Because the current wave of change is based on expanding global connections and on the exponential growth of raw processing power described by Moore's Law,¹ the overall rate of change is rapid and accelerating.

This new Aspen Institute project is intended to explore the implications of these far-reaching economic, social and technical developments and the ways in which companies are structured and how they operate because of them. The project will focus on the challenges firms face in developing talent: attracting, supporting and retaining workers with the right knowledge and the right skills to function effectively in the "workscape of the future."

Paradigms and Paradoxes

John Hagel introduced several perspectives on changes in the business environment that are leading to a new view of talent. First, in a world that is being driven by the twin forces of information and telecommunications, the primary source of value for companies is shifting from accumulating and exploiting "stocks of knowledge" to managing "flows of knowledge." Think, for example, of the difference between a newspaper or a daily TV news program that packages and delivers a summary of the day's events once every 24 hours and an online news operation that continuously reports and updates news as it happens. This more dynamic perspective emphasizes the importance of how new knowledge is created and used and the kinds of skills that workers need in order to flourish in such an environment.

The primary source of value for companies is shifting from accumulating and exploiting "stocks of knowledge" to managing "flows of knowledge."

John Hagel

Another fundamental shift that is emerging in this new world is from "push programs" to "pull platforms." In push programs, products

and services are created for and delivered to consumers who make use of them. With pull platforms, everyone is treated as a producer as well as a consumer, able to participate in the definition of and even perhaps in the creation of the products and services that are of value to them. In some cases, companies may not make a traditional product at all, but rather build and distribute a set of tools that individuals can use to create their own products: think of the difference between a traditional TV network and YouTube. An increasing number of successful businesses are emerging that are based on creating pull platforms that require a markedly different set of skills and abilities than more traditional push-based businesses.²

According to Hagel and Brown, businesses based on pull platforms have a distinct edge in developing talented workers: “pull platforms are essential to fostering learning on the job since they make it easier to access unexpected resources in unexpected ways and thereby encourage participants to try new approaches that simply would not be feasible in more rigid push programs.”

Also, in a time of rapid change, the most valuable type of knowledge is *tacit knowledge* which cannot easily be codified or abstractly aggregated. This type of knowledge, which often embodies subtle but critical insights about process or nuances of relationships, is best communicated through stories and personal connections—modalities that are typically discounted in most enterprises.

Hagel argued that most existing businesses are not well positioned to compete effectively in this dynamic new world. He cited the “Dilbert Paradox” as evidence of the disconnect between the often stated commitment among top management to nurture high quality talent and the day-to-day experience of workers with the “stultifying nature of today’s corporate workplace” where self-interest, mediocrity and conformity consistently triumph over attempts at originality or individual initiative.

In a time of rapid change, the most valuable type of knowledge is *tacit knowledge* which cannot easily be codified or abstractly aggregated.

*John Hagel and
John Seely Brown*

Hagel cited another paradox related to the competitive environment in which organizations operate, contrasting the “flat world” portrayed by Tom Friedman and the “spiky world” described by Richard Florida. In Friedman’s view, any place on earth is now capable of competing effectively with any other place. As a result of the global diffusion of technologies that support instant communication and remote collaboration, the developed world, which has enjoyed an effective monopoly on complex high value-added enterprises, now faces competition from businesses in the developing world that can provide the same capabilities but at much lower cost.

By contrast, Florida asks why, if location no longer matters, “economic growth and especially cutting edge science and innovation” continue to be concentrated in the world’s major urban areas. He argues that competition flourishes in those locations (which he calls “spikes”) that provide an environment that encourages the creation and sharing of new knowledge, while the rest of the world is made up of “valleys between the spikes” where economic development continues to lag.³ If Florida is right, Hagel noted, the questions we should be asking are how can we identify the most dynamic spikes and how can they be connected together? And what kinds of public policies are needed to create an environment that encourages openness and innovation?

Finally, if being successful depends on being part of a flourishing “spike,” it is important to focus not merely on how individual enterprises function but also on the relations between enterprises. To fully understand the success factors in the new world, we will have to reconsider the roles and responsibilities *across* as well as *within* companies.

Cycles of Change

There is little doubt the world is changing. But exactly how is it changing? And is the change that is occurring today different than in the past?

Bruce Harreld, Senior Vice President for Marketing and Strategy, IBM, cited the work of Carlota Perez who argues that social and eco-

nomic changes over the past two centuries have been driven by a series of five fundamental technological revolutions, each of which has followed a similar path over a period of 50-60 years. When a new technology first appears, it generates a good deal of interest and excitement, but society is not prepared to take full advantage of it because existing institutions and structures are based around previous innovations. Nevertheless, entrepreneurs and investors get caught up in the excitement and tend to overhype the potential of the new technology to bring about change. Inevitably, the mismatch between excessive expectations and reality leads to a crash. Only after the bubble bursts does the real work of using an innovation begin, ushering in a period of “deployment” characterized by sustained growth and value creation that typically lasts for 25 years or more.⁴

According to Perez, the trajectory of these five major technological shifts can be described by a series of “S” curves, one following the other. The first major shift was the industrial revolution that started in the latter part of the 18th century, followed by the age of steam and railways in the 19th century, then by the age of electricity and steel. The early years of the last century ushered in the age of automobiles, oil and mass production, while the most recent revolution, based on information and telecommunications, began in 1971 with the invention of the microprocessor. The dot.com crash at the end of the millennium (and perhaps the larger financial crisis that has unfolded during 2008) represents the inevitable phase of “collapse and readjustment” that is creating the conditions for the deployment stage during which the full benefits of these innovations will be realized.

The current wave of change may be more profound and more enduring because the fundamental technologies driving the current wave of change are not stabilizing.

John Hagel

Carlota Perez: *Technological Revolutions and Financial Capital: The Dynamics of Bubbles and Golden Ages*

INSTALLATION	Collapse & Readjustment	DEPLOYMENT
INDUSTRIAL REVOLUTION 1771	CANAL PANIC 1797 (BRITAIN)	<ul style="list-style-type: none"> • Diffusion of manufacturing with water power • Full network of waterways (canals, rivers, oceans) • Development of public companies
STEAM & RAILWAYS 1829	RAILWAY PANIC 1847 (BRITAIN)	<ul style="list-style-type: none"> • Economies of scale • Joint stock companies • Repeal of tariff laws/free trade
STEEL, ELECTRICITY & HEAVY ENGINEERING 1875	GLOBAL COLLAPSES OF THE 1890'S (ARGENTINA, AUSTRALIA, U.S.)	<ul style="list-style-type: none"> • Transcontinental rail, steamships and telegraph • Gold standard, global finance
AUTOMOBILES, OIL & MASS PRODUCTION 1908	GREAT CRASH OF 1929 (U.S.)	<ul style="list-style-type: none"> • Interstate/international highways and airways • Welfare state, Bretton Woods, IMF, World Bank
INFORMATION & TELECOMMUNICATIONS 1971	NASDAQ CRASH 2000 & GLOBAL COLLAPSES (ASIA, ARGENTINA, U.S.)	<ul style="list-style-type: none"> • Global digital telecommunications network • Institutional framework, facilitating globalization

Adapted from URL: <http://www.bedfordfunding.com/focus/trends.html>

The Roundtable participants debated whether the changes underway now are similar to or fundamentally different from changes in the past, and whether the current curve of change will, as in the past, flatten out at some point, to be succeeded by the next technological revolution (such as biotechnology or nanotechnology). John Hagel suggested that the current wave of change may be more profound and more enduring because the fundamental technologies driving the current wave of change are not stabilizing: as long as Moore's Law continues to operate, digitally-based technologies (processors, storage, bandwidth) will continue to undergo exponential growth that will make possible entirely new classes of applications and alter the economics of business in fundamental ways. John Seely Brown added that digital technology has also enabled the development of new computational techniques that provide powerful new tools for doing scientific research. These tools that "allow us to do new things in new ways" argue for the curve to continue to go up.

Padmasree Warrior, Chief Technology Officer of Cisco Systems, responded that even if we do not know exactly where we are on the current curve, we do know that we are in the middle of far-reaching changes. New knowledge is being created and disseminated “at lightning speed,” and disciplines that were previously separate are becoming increasingly interdisciplinary. Jon Spector, Chief Executive Officer of The Conference Board, agreed that from a practical perspective, it does not matter much whether the curve keeps on going up or eventually levels out. In either case, it is obvious that “we are in a period of cataclysmic change” that requires a broad reassessment of how business is conducted. He agreed with John Seely Brown that one encouraging feature of the current environment is that we “now have a better way to learn” based on the power of communities. These communities give individuals access to the knowledge they need to keep up with the changes occurring around them. This capability is enabled by the new technology, which makes it easy to find and collaborate with others who share common interests. Diana Rhoten, Program Director at the Social Science Research Council, also agreed that we “should not worry too much about the shape of the curve,” and how much it resembles or differs from past curves.

Communities give individuals access to the knowledge they need to keep up with the changes occurring around them.

Jon Spector

Finally, Bruce Harreld noted that if we are entering the “deployment” phase of the Information and Telecommunications Era, then there are several key issues that are coming to the fore that will have a major influence on how fully we are able to realize the benefits of the technology. One such issue is intellectual property. Harreld is concerned that current patent law overemphasizes rewarding innovation: granting private ownership rights to ideas and discoveries comes at the expense of the ability to easily and openly share knowledge—the basis for scientific progress. Harreld is also concerned that current patent law that makes it relatively easy to protect broad “business processes” as well as more fundamental inventions could create an overly restrictive business environment that stifles growth. (The issue of intellectual property and patents is discussed in more detail in the final section of this report).

Talents, Skills and Dispositions

When questioned what, exactly, is meant by “talent,” John Clippinger, Senior Fellow at Harvard’s Berkman Center for Internet and Society, proposed that we should differentiate between talent and skill. Clippinger suggested talent describes innate capabilities: some individuals are “right brained” while others are “left brained;” some people are strongly analytical while others are more socially adept. By contrast, skills are particular abilities or proficiencies that can be acquired. In fact, Clippinger suggested, a talent pool is almost independent of a skill set. Or, as *Fortune* magazine Senior Editor David Kirkpatrick put it, “skills are realized talents.” He also noted many people have talents they are not aware of, and if these talents are not brought out by the proper training, they may never be realized.

John Seely Brown added a third concept—that of “disposition”—which describes a person’s overall willingness and ability to learn new skills, or their openness to embracing change. Good training can enhance an individual’s disposition even while it is imparting new skills, while poor training can suppress it. Diana Rhoten suggested that talent can be seen as a combination of skills and disposition that complement each other. Steve Kerr, Senior Advisor at Goldman Sachs, warned against focusing too much on “innate” abilities. He noted that 50 years ago, a lot of research was done to identify the traits of successful leaders with the goal of developing tests that would predict who would make a good leader. When this effort largely failed to produce useful results, the emphasis shifted to understanding the behavior of effective leaders, then designing environments and rewards conducive to supporting these behaviors—an approach that has proven more productive.

Companies, Communities and Change

What is the relationship between a company and talent development? How can companies support the development of talent? How should companies change in order to do a better job of attracting and supporting talented workers?

In the current era, the very definition of a firm and its functions is in question. The traditional rationale for a firm—first articulated by R.H. Coase in 1937⁵—is a mechanism for minimizing transaction costs. This

rationale is being challenged by the ability to use technology to make it increasingly easy for individuals or small groups to collectively perform many of the functions of a business enterprise in a virtual setting. The open source movement is just one example of how successful products can be created through the voluntary collaboration of individuals without the need for a formal business enterprise.

Kirk Gregg, Executive Vice President and Chief Administrative Officer of Corning Inc., proposed that a useful way to look at a firm is as “a talent management system.” From this perspective, the key rationale for a firm is its ability to provide the training and experiences employees need to keep “getting better, faster.” Padmasree Warrior agreed with this definition and added that a key element of talent management is a firm’s reward system. This system certainly includes financial rewards, but also needs to include non-monetary forms of recognition for successes. Gregg pointed out that effective talent management will not be sustainable in a firm without a deep commitment from the firm’s leadership. While many chief executives say that talent is important, not all of them actually support a corporate culture that rewards outstanding performance. Bruce Harreld added that a considerable amount of benchmarking takes place in terms of talent development within companies, but much of it is “uninspiring” and is focused on what has worked in the past rather than what is needed for the future. In fact, there was general agreement among the participants that while a few companies excel at talent development, most companies do a mediocre job or ignore it entirely. A fundamental shift in the understanding of what drives corporate success is required to assure that talent development is given the support it deserves.

A useful way to look at a firm is as “a talent management system.”

Kirk Gregg

Others suggested that the classical Coasian rationale for the firm has not entirely disappeared, and that it is unrealistic to expect that traditional firms will simply “go away.” If we look closely at what firms do, however, it is possible that some of their functions can be moved to a new, more open model. For example, firms have outsourced much of their advertising and legal activities for many years. Additional functions may follow as it becomes easier to connect and collaborate exter-

nally. As technology continues to open up new possibilities, firms will need to examine which functions truly represent “core activities” and which do not. Bruce Harreld cited the example of a company that hired McKinsey to do an analysis of its workforce of 120,000 employees. The consultants came to the conclusion that only 20,000 people in the firm were actually involved in carrying out core activities. Increasingly, he observed, firms will focus more intently on core activities and will view non-core activities as “anchors that slow them down,” and move them out of the firm.

Steve Kerr added a note of caution by pointing out that it is wrong to assume that “organizations will change just because they have to.” Although Warren Bennis predicted “The End of Bureaucracy” more than 30 years ago,⁶ it never happened. People who are in charge of large organizations enjoy their roles, and power structures have a tendency to persist, even when the rationale for their existence disappears. It is quite astounding, he added, how widely-ignored best practices are. To convey the attitude of many corporate leaders toward their employees, Kerr described a cartoon in which a CEO congratulates his staff on a success by telling them, “We couldn’t have done it without you...or people much like you.”

Jon Spector agreed that “there is a big disconnect between the kinds of open practices being discussed in this meeting and what most companies actually do.” In fact, the gap between best practices and the reality of most companies is greater in the area of talent development than in many other aspects of business. It is undoubtedly true that the competitive environment is changing in fundamental ways that will eventually have a major impact on how companies operate, but the question is when. Even if the traditional firm survives, we will certainly see ever-growing pockets of open innovation across firms.

John Clippinger, who has worked with leaders in the Department of Defense, pointed out that there is widespread recognition within the Pentagon that the military’s traditional system of command and control no longer works well, yet it continues to survive. One reason for the survival of hierarchical structures is that coming up with alternatives that effectively decentralize power and decisionmaking is not easy: “Do you really want a sergeant in the field making the decision to call in a nuclear strike, even if he has the most relevant data?” Still, at some point, change will happen: “It is good to be the king...but there is still the guillotine.”

Kirk Gregg explained that what inspired Corning to change was a series of crises that forced the company to reinvent itself. For example, in the late 1990s, Corning was riding high as a result of a flourishing business selling fiber optic cable to telecommunications firms that seemed to have an unlimited potential for growth. But after the dot.com bubble burst and the fiber optic business imploded, the company lost 98 percent of its value. The company's leadership model and its core values did not change, but the crisis created a sense of urgency in developing new lines of business. The company shifted from a largely domestic focus to a global focus (revenues went from being 90 percent domestic to 75 percent international), and over a ten year period, it increased resources devoted to developing new lines of business from one to two platforms at a given time to two to four large platforms. And to make up for its lack of knowledge about places like Silicon Valley and China, the company established offices in both places.

David Kirkpatrick pointed out that there seems to be a bias in the discussion toward large enterprises. But it is often the case that small start-up companies are able to make better use of talent than established firms. Rather than trying to figure out how to "reengineer large, military-style organizations" to be more open, it may be more productive to focus on creating an environment that supports more entrepreneurs. Mary Furlong, Chief Executive Officer of Mary Furlong & Associates, concurred, noting that a good way to identify successful strategies for developing talent would be to look at the best practices of entrepreneurs in building their businesses. Because their resources are limited, start-ups are often forced to do more with what they have—including their human resources.

Even if the firm as we have known it is not in imminent danger of disappearing, there does seem to be a growing appreciation for the power of community to support innovation in ways that can rival or even surpass that of traditional organizations. The most powerful motivators for participation in communities of practice are not financial reward but rather the chance to learn new skills and the opportunity to build a positive reputation. Diana Rhoten noted that young people want to be part of something, but that something is not necessarily a company. What is most appealing to them is to be "part of a team that is solving problems."

A related trend is toward “open” development. Traditionally, companies have invested in developing proprietary knowledge and then jealously guarded that knowledge as a valuable asset. But the ideal of openness, which emphasizes the benefits of collaboration and sharing of knowledge and has been long been a basic tenet of scientific inquiry, has

A key challenge for companies in the 21st century is to “become more porous.”

John Seely Brown

been gaining traction in recent years in other realms of endeavor. The concept of open innovation first came to prominence in the realm of software development through the open source movement, and has now diffused into other areas such as education, consumer products, telecommunications and drug development.⁷

According to John Seely Brown, a key challenge for companies in the 21st century is to “become more porous”—to be open to ideas from the outside and to seek out and make use of resources wherever they may be located, internally or externally. But in the United States, the idea of win-lose is deeply ingrained and the concept of working collaboratively with other companies in order to increase returns for everyone is still suspect. In the case of automakers, for example, “it is basically illegal for Detroit companies to learn from their suppliers,” while just the opposite is true for a Japanese carmaker like Toyota.

Platforms for Learning

Most discussions about “attracting and retaining talent” have been based on an essentially static view of talent as a commodity. Even talking about “talent development” in terms of training is based on a linear, incremental view of change. In fact, Hagel and Brown argued, the new paradigm incorporates the possibility of continuous exponential change and improvement.

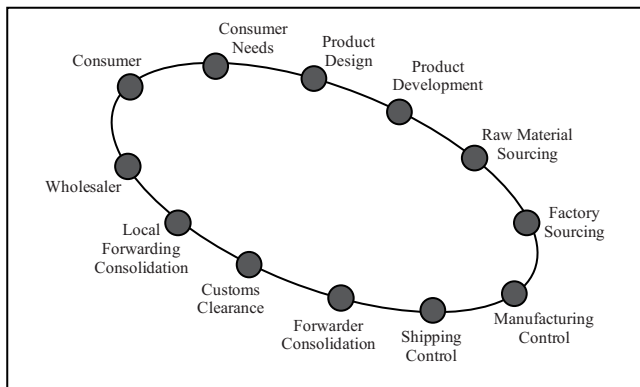
Consider the evolution of the motorcycle assembly industry in China. The industry got its start when Japanese motorcycle companies came to China and organized networks of specialized parts suppliers. The Japanese companies worked with their Chinese counterparts to increase their efficiency which drove down manufacturing costs for a motorcycle

from \$800 to \$700. Then, some of the Chinese companies banded together to create their own “loosely coupled” network in which goals for quality and price were set jointly but participants were allowed considerable freedom to determine how to reach these goals. The innovations developed by this “bottom up” network reduced costs for a finished motorcycle from \$700 to around \$200. Many of the companies shifted their participation from the Japanese network to the Chinese network because they saw the latter as offering a superior “platform for learning.”

Another notable example of the benefits of a loosely coupled learning network is provided by Li & Fung, a Hong Kong-based operator of customized supply chains for apparel designers. The firm contracts with designers around the world to produce and deliver finished garments manufactured by members of its network of specialized suppliers. John Hagel pointed out that the success of Li & Fung can be understood on three different levels:

1. Li & Fung has assembled a global network of some 10,000 partners. The bigger this network gets, the more value the company can deliver to its customers. While this is a real value, it is based on a static view of talent.

Li & Fung’s “Complete Supply Chain”



Source: Adapted from www.lifung.com/eng/business/service_chain.php

2. Li & Fung does more than just provide its partners with business. It does real-time benchmarking for them based on 12 different metrics. It also provides coaching that helps designers and manufacturers do their jobs better. In this sense, the firm is actively involved with knowledge transfer to improve everyone's performance.
3. In addition to providing these benefits, the firm brings its partners together and encourages them to creatively problem-solve customers' problems. It will also put one sub-network in competition with another, further pushing them to come up with new approaches and innovative solutions (a process that Hagel and Brown describe as "productive friction.") In this sense, Li & Fung is creating an environment that supports and rewards the creation of new knowledge.

What Li & Fung has done is not just create a network with many nodes but a network built on positive feedback loops that helps all of the participants to keep learning and improving. Li & Fung's loosely

A necessary ingredient in creating a network that supports close collaboration among separate companies is a high level of trust.

coupled network can also be seen as a flexible "pull platform" that drives innovation by encouraging participants to try new approaches that may involve "accessing unexpected resources in unexpected ways" in order to improve their performance.

A necessary ingredient in creating a network that supports close collaboration among separate companies is a high level of trust among the members: trust that suppliers will meet customer requirements without detailed specifications or close supervision, and trust that knowledge that is openly shared will ultimately benefit all network members. Trust is particularly important for the sharing of tacit knowledge, which is exactly the type of knowledge that is of most value in a rapidly changing environment.

High levels of trust are not typical of most customer-supplier relationships. Japanese companies like Toyota solve the problem of trust by restricting themselves to working with a relatively small group of suppliers with whom they develop long-term relationships. While this can be an effective strategy, it is not a solution that scales easily. Which leads to the question: how does one create scalable trust relationships?

One approach to building trust that encourages innovation and collaboration, according to John Seely Brown, is the creation of networks that are relational not merely transactional. Participation in such networks does not require “noble souls,” but it does necessitate a change in participants’ time horizons from a focus on gaining short term advantage to one that is motivated by “long-term greed.”

One approach to building trust... is the creation of networks that are relational not merely transactional.

John Seely Brown

IT: Friend or Foe of Innovation?

At several points in the discussion, information technology (IT) was referred to as a force that is promoting greater openness and fostering increased collaboration within and across companies. In reality, however, much existing IT mirrors and reinforces the existing structures of enterprises that work against openness and collaboration. Daniel E. Atkins, W.K. Kellogg Professor of Community Information, Professor of EECS and Information, and Associate Vice-President for Research Cyberinfrastructure at the University of Michigan, explained that many current enterprise systems are designed to handle information, not to support participation. Such systems tend to be “prescriptive” rather than permissive and “agile.” John Seely Brown added that IT systems typically do a poor job of handling exceptions to the rules on which they are built, despite the fact that, in the real world, “everything is an exception.” To overcome this limitation, there is an effort underway to overlay social networking technology—often brought in from the outside—on top of existing IT structures in order to do a better job of mobilizing the versatility of human beings in dealing with the exceptions that constitute so much of actual business processes.

Fortune's David Kirkpatrick noted that many highly touted collaboration technologies—of which Lotus Notes is a notable example—have withered and died when they encountered the realities of corporate culture. He cited the example of Boeing which made a substantial investment in building sophisticated group meeting rooms that used the latest technologies to support better collaboration and problem solving. Even though evaluations documented clear benefits of using the technology, the rooms were deliberately killed by the company's management.

The most critical success factor for a technology within an enterprise may be the degree to which it is aligned with the prevailing culture.

The reason this happened, he suggested, is that even though “social software” is powerful—or precisely because it is powerful—it is often viewed as a threat to middle management. Hierarchical organizations have a hard time accepting practices that encourage horizontal or bottom-up collaboration.

The most critical success factor for a technology within an enterprise may not be its innate characteristics but rather the degree to which it is aligned with the prevailing culture of the enterprise. Jon

Spector described how McKinsey was able to achieve high levels of collaboration among its staff members even though the IT system that they used for this purpose was “very primitive” (it was a text-only system that DID NOT EVEN INCLUDE LOWER CASE LETTERS). The system was designed to expand cooperation by providing access to information on all of the projects that every McKinsey employee had worked on. Open information sharing was reinforced by company policy which dictated that any employee who refused to help another staff member when asked to do so would be fired. Li & Fung provides another example of a company that has built a successful collaborative network without sophisticated technology. Until recently, the company has relied on telephone and faxes to communicate with its partners. Although the company has evaluated many newer technologies, it found that most were too “hardwired” and inflexible to meet its needs.

Steve Kerr added that corporate cultures are idiosyncratic and are often hard to export. Simply knowing how something is done is not the same as being able to do it. When Kerr headed GE's renowned leadership

education center in Crotonville, New York, he hosted many outside visitors who said that they were interested in replicating GE's model in their companies. In fact, few if any other firms were able to implement the model successfully because their companies lacked GE's culture that placed high value on learning and on systematic leadership development. On the other hand, some practices are—or should be—relatively easy for any company to adopt: all firms can benefit from being as transparent as possible and insisting that everyone tell the truth.

Innovation often begins at the “edge” of an enterprise, then migrates inward.

In fact, fundamental innovation rarely happens in the core of an enterprise where much is at stake and resistance to change is the strongest. Instead, innovation often begins at the “edge” of an enterprise, then migrates inward. In a recent study of the introduction of new IT infrastructure based on a Service-Oriented Architecture (SOA), John Hagel discovered that General Motors first adopted SOA in its operation in Brazil while Citibank did the same in Poland. Innovation such as this is often more successful in emerging markets where the inertia from legacy systems is not as strong.

The Role of Education: K to Gray

If the development of talent is critical, what role should the educational system be playing? To date, it would appear that the formal education system, like business itself, has not paid much attention to the challenge of talent development.

Padmasree Warrior observed that universities are generally focused on providing students with specific skills rather than developing their innate talents. Daniel Atkins described the traditional university as a “batch processing” model that may be good at producing large numbers of trained professionals, but is less good at inculcating a disposition toward innovation among students. Many of the same factors that hamper commercial enterprises from becoming more innovative also apply to universities. For example, universities are not particularly innovative institutions; they are not well suited to quickly pulling together whatever resources are needed to respond to a new problem or challenge.

The traditional model of higher education is based on accumulating “stocks of knowledge,” typically defined by individual disciplines, rather than enhancing knowledge flows among disciplines and among different institutions.

There are great variations among universities. Many of the top research universities are finding ways to work with companies to solve real problems and to involve their students in creative problem solving. Diana Rhoten cited a new report from the Information Technology and Innovation Foundation that found that in the past, most innovations came from organizations working independently, but now an increasing number are coming from industry-university partnerships.⁸ The challenge for universities is to expand opportunities for students to learn through collaborative problem solving.

The country’s K-12 educational system has less real innovation than universities in the area of talent development. Marshall Smith, Director for Education at the William and Flora Hewlett Foundation, pointed out that public schools must serve a variety of different purposes. Public schools are embedded in a set of rigid rules, and because they are publicly funded, the fear of failure is high, which works against the introduction of major innovations. Changes that do get made tend to be incremental, and do not alter fundamental structures or dramatically improve outcomes.

K-12 educators generally do not think about networks that operate across schools, although a few have emerged (a particularly strong one focused on writing, others on curriculum development).⁹ Charter schools represent an area of growing innovation, and computers are gradually having an impact on improving the quality of education. Educators are coming to appreciate the power of computer-based instruction that can provide a high degree of personalization and can be continuously updated. From 2001 to 2006, the number of computer-based classes in K-12 increased from 33,000 to nearly one million. Smith is hopeful that we may be at a cusp in the use of technology in education.

John Seely Brown noted that both Atkins and Smith have been leading important efforts to change education. Atkins has been involved in a movement to provide students with remote access to powerful scientific computation, data resources, and observation instruments, such as

the Foulkes Telescope in Hawaii, that allows them to undertake serious research in collaboration with working scientists. Smith has been promoting the concept of open education resources that has expanded access to courseware and other educational resources to educators and students across the globe. Led by MIT's initiative in providing access to its entire catalog of courses, hundreds of colleges and universities have now joined the open courseware movement.

Brown also noted that a great deal of learning goes on outside of the formal educational system. The open source software movement provides an example of a radically decentralized model for educating a large number of geographically distributed individuals through "networked communities of practice" (see Learning in Open Source Communities of Practice, below). In this sort of environment, the credentials that count are not the courses you have taken or the degrees you have earned, but what you have created and how well you are able to work with others. Just as the most powerful innovations in business are initially introduced at the "edge" of the enterprise, then migrate toward the center, the same may be true in education, where many of the most significant innovations can be found outside of formal educational institutions.

Learning in Open Source Communities of Practice

A model that exemplifies the power of social learning is provided by the distributed virtual communities of practice in which people work together voluntarily to develop and maintain open source software. The open source movement has produced software such as the Linux operating system and the Apache web server, which offer surprisingly robust alternatives to commercial products. These resources are typically made available at no cost to potential users, who are also invited to change or improve the resources as long as they agree to freely share their contributions with others.

Open source communities have developed a well-established path by which newcomers can "learn the ropes" and become trust-

ed members of the community through a process of legitimate peripheral participation. New members typically begin participating in an open source community by working on relatively simple, non-critical development projects such as building or improving software drivers (e.g., print drivers). As they demonstrate their ability to make useful contributions and to work in the distinctive style and sensibilities/taste of that community, they are invited to take on more central projects. Those who become the most proficient may be asked to join the inner circle of people working on the critical kernel code of the system.

Today, there are about one million people engaged in developing and refining open source products, and nearly all are improving their skills by participating in and contributing to these networked communities of practice.

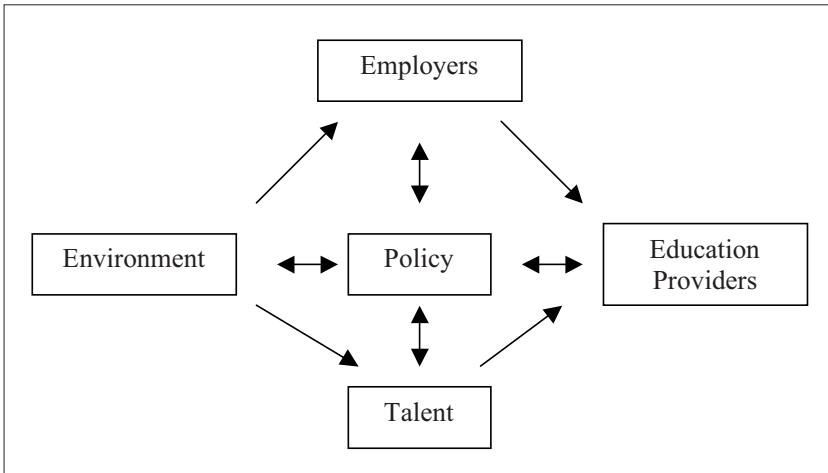
- From "Minds on Fire: Open Education, the Long Tail, and Learning 2.0," John Seely Brown and Richard P. Adler, *Educause Review*, January/February 2008. Online at: <http://connect.educause.edu/Library/EDUCAUSE+Review/MindsonFireOpenEducation/45823?time=1220567864>.

The Dynamics of Talent Development

To help understand the relationship among the forces that impinge on talent development, Jon Spector proposed a simple diagram that graphically represents the relationship of these key factors (see next page). The diagram shows that change in any one area has an impact on all of the other areas, either directly or indirectly: First, the broad environment that includes economic, social and technological shifts, has a substantial impact on individuals and on companies that will employ them. Changes in the environment eventually lead to changes in the ways in which companies operate and the kinds of employees that companies need to be successful.

The changing environment also shapes the expectations of individuals about themselves and about the world in which they live. At the same time, educational institutions are experiencing the impact of changes in the business world and among their students in terms of their expectations about what kinds of learning experiences will best prepare them for the future world of work. Finally, public policy helps

to set the rules by which all institutions operate and is influenced by the changes that these institutions are undergoing.



Policy Issues

Participants in the final session of the Aspen planning meeting raised policy issues impacting talent development—a potential topic for future roundtable inquiry. Bruce Harreld made a strong case for the importance of intellectual property (IP) issues. In particular, he is concerned that the proliferation of patents threatens to choke off innovation. After recently meeting with IBM’s patent attorneys, he concluded that current patent law is based squarely on the concepts of diminishing returns and “zero sum games.” From this perspective, according to Harreld, “when information that I control is shared with others, the value of that information to me is diminished. This view is the opposite of the premise of increasing returns that is the basis for the new view of talent development—that is, when I share information with others, its value to all of us increases.” In a subsequent conversation, Harreld challenged the company’s attorneys to rethink their strategy toward patents, which led to two distinctly different responses: first, in a defensive move, IBM increased the number of patents that it files from about 25,000 to 40,000 per year. At the same time, the company reviewed its existing portfolio of patents and “open sourced” all of the patents where it determined that the competitive and/or financial risks

were acceptable. IBM also made a commitment not to assert patents in the areas of open source software, education and healthcare. Finally, the company is supporting reform of the patent system in both the U.S. and abroad to provide a better balance between protection of intellectual property and open collaboration.¹⁰

“...when I share information with others, its value to all of us increases.”

Bruce Harreld

Padmasree Warrior of Cisco Systems responded that the current patent system is consistent with the traditional concept of “stocks of knowledge” that need to be protected. If we are shifting to put more emphasis on “flows of knowledge,” then we need to consider how we can encourage knowledge to flow freely legally as well as structurally. Ironically, it has been the lack of IP protection in China that has driven innovation, since companies there had to keep innovating to stay ahead of their competitors.

Charlie Firestone noted that in the copyright world, it is possible to differentiate between ownership of content and access to that content. The copyright regime includes the concept of compulsory licensing, as is done with cable’s use of television programming or certain uses of music. Apparently, no such scheme currently exists in patent law, but could this approach provide a middle ground between the two extremes?

A related issue is the need for metrics that measure long-term gains from greater cooperation. Steve Kerr argued that the signaling power of metrics is extremely important. In order to develop appropriate metrics, it is necessary to operationalize the concept of talent development. It may not be possible, initially at least, to develop highly rigorous metrics, but it is better to measure what is truly important than what can be rigorously measured.

To be effective, metrics also need to be tied to rewards: a good measurement should “say thank you for past accomplishments and catalyze the future.” Diana Rhoten noted that reward systems need not be complicated to be effective. eBay’s feedback system has been credited with a large part of its success, while Wikipedia contributors can earn “barnstars” as rewards for particularly valuable contributions.¹¹

Research is underway now to determine how these new “sociotechnical” systems operate.

Devising useful metrics for service-based businesses may be more difficult than for manufacturing based businesses. Yet 70 percent of the U.S. economy is now based on services. We need better ways to measure the effectiveness of services. At the same time, new paradigms for manufacturing are emerging—such as synthetic biology—that may be very different from old paradigms. New metrics may be needed here as well.

Another potentially important issue is the role of leadership in bringing about change. It is often argued that “change must begin at the top” of an organization, but, as John Seely Brown noted, the problem is that the top does not always know what an organization is really doing. The dynamics of distributed networks are quite different from those in hierarchical organizations, and the criteria for talent development may also be quite different in these varied environments.

The conference concluded with the introduction of two overriding concepts, John Seely Brown and John Hagel’s workscape and learningscape of the future. The Roundtable will pursue defining these new “scapes” in future sessions.

Notes

1. Moore’s Law, first formulated in 1965 by Intel co-founder Gordon Moore, states that the number of transistors on an integrated circuit and hence the raw processing power of microprocessors doubles about every two years. This “law” has held true for more than 40 years and appears likely to continue to hold for the foreseeable future. (Gordon E. Moore, “Cramming more components onto integrated circuits,” *Electronics*, Vol 38, No 8, April 19, 1965. Online at: http://download.intel.com/museum/Moores_Law/Articles-Press_Releases/Gordon_Moore_1965_Article.pdf).
2. For more about the shift from push to pull, see David Bollier, *When Push Comes To Pull: The New Economy and Culture of Networking Technology*, Aspen Institute Roundtable on Information Technology, Aspen Institute, 2006. Online at: www.aspeninstitute.org/atf/cf/%7BDEB6F227-659B-4EC8-8F84-8DF23CA704F5%7D/2005_InfoTechText.pdf.
3. Adam Hanft, “Creative-Class Struggle,” Interview with Richard Florida, *FastCompany.com*, October 2005. Online at: www.fastcompany.com/articles/2005/11/fastcities_florida.html.
4. Carlota Perez, *Technological Revolutions and Financial Capital: The Dynamics of Bubbles and Golden Ages* (Edward Elgar, 2002).
5. R. H. Coase, “The Nature of the Firm,” *Economica* 4 (16): 386–405, November, 1937. Online at: www3.interscience.wiley.com/cgi-bin/fulltext/119896448/PDF.

6. Warren Bennis, *Beyond Bureaucracy: Essays on the Development and Evolution of Human Organization* (Jossey Bass, 1966).
7. For examples of open innovation see: in education, the Open Courseware Consortium (www.ocwconsortium.org); in consumer products, Procter & Gambles “Connect + Develop” open innovation initiative (https://secure3.verticali.net/pg-connection-portal/ctx/noauth/0_0_1_4_83_4_3.do); in telecommunications, BT’s Next Generation Network innovation process (www.telecommagazine.com/article.asp?HH_ID=AR_3029); and in drug development, Novartis’ sharing of research data on the genetic basis of type 2 diabetes (Don Tapscott and Anthony D. Williams, “The New Science of Sharing,” *Business Week*, March 2, 2007. www.businessweek.com/print/innovate/content/mar2007/id20070302_219704.htm).
8. *Where Do Innovations Come From? Transformations in the U.S. National Innovation System, 1970-2006*, The Information Technology & Innovation Foundation, July 2008. Online at: www.itif.org/files/Where_do_innovations_come_from.pdf.
9. According to Marshall Smith, the National Writing Project (www.nwp.org) is a national professional development network for teachers of writing. Started in Berkeley in 1974, the network now includes more than 200 sites around the country and is supported by the U.S. Department of Education, foundations, corporations, universities, and public schools. The Success for All Foundation (www.successforall.net) operates a network designed to improve education for at-risk students at the K-8th grade levels, particularly in English and language skills. There are several collaborative networks of charter schools (e.g., the KIPP network of 66 charter schools in 19 states and the Aspire Network in California). There is also a network of afterschool programs sponsored by the Mott Foundation (www.statewideafterschoolnetworks.net).
10. See IBM’s policy statement on patents and intellectual property at www.ibm.com/ibm/governmentalprograms/ippatent.html. According to this statement, IBM believes that “a new era of ‘collaborative innovation’ is unfolding. Collaborative innovation will be central to improving and maintaining economic competitiveness across a broad set of industries.”
11. According to Wikipedia, “It is the custom to reward Wikipedia contributors for hard work and due diligence by awarding them a barnstar...Wiki barnstars were introduced in December 2003. Since then, the concept has been ingrained in the Wikipedia culture.” Any user can give out barnstars by placing a star image on the contributor’s “talk page” and stating the reason it is being given. (See <http://en.wikipedia.org/wiki/Wikipedia:Barnstars>).

APPENDIX

Getting Better All the Time: Becoming a Talent-Driven Firm

John Hagel, John Seely Brown, and Lang Davison

This working paper was written on the occasion of the planning session of the Aspen Institute Roundtable on the Talent Driven Firm and was distributed in advance to Roundtable participants.

These days hardly a news cycle goes by without one CEO or another talking about talent: How important talent is to success, how worrisome it is that talent is becoming scarce, and how determined CEOs are to win the race for talent.

At the same time rarely a day seems to pass without a newly clipped Dilbert comic strip getting pasted to someone's cubicle wall. Dilbert is popular not just for the laughs, but because it so effectively captures the stultifying nature of today's corporate workplaces.

The contrast is striking. On the one hand we have public declarations of love for talent from the top of the organization. On the other hand skeptical, even cynical messages of unhappiness float up from employees. Ironic, yes—and indicative of a deep problem in how many companies approach and regard their talented workers.

This is not just a U.S. issue—it spans the entire globe. Success in global competition increasingly hinges on the ability of companies and governments to seriously commit to talent development in ways that extend well beyond conventional education and training programs.

Many companies (and countries) focus on the worthy goal of attracting and retaining talent. “Attract and retain” is the mantra governing most of today's boardroom talent discussions: how do we find and hire the most talented people? What should our recruiting strategy be and how can we more effectively manage the recruiting pipeline? Once talented employees are in the door, how do we offer the best benefit packages? If our talented employees are at risk for leaving, what do we do to keep them?

Unfortunately, in their passion to attract and retain talent, companies often lose sight of what appeals to and keeps hold of talent in the first place. Compensation and benefit packages are surely important. But the opportunity to develop professionally consistently outranks money in surveys of employee satisfaction. Only by helping employees build their skills and capabilities can companies hope to attract and retain them. Talented workers join companies and stay there because they believe they'll learn faster and better than they would at other employers.

But how, exactly, does talent get better faster? Not simply by participating in the formal training programs. These may be useful in certain circumstances (such as ethics or compliance training), but they are increasingly marginal to the talent race. Talented workers develop instead by trying new things, by experimenting with what they do in their jobs and how they do it,¹ and by tackling real problems with other talented people with different backgrounds and skills—people who are just as likely to work for other companies, in other locales, as they are to be working in the same company. Talented employees develop best by participating in talent networks, the largely invisible matrix structures, made up of knowledge flows, that run within firms and, with increasing frequency, between and across them.²

Unfortunately, with a few exceptions that we'll discuss later in this article, today's big companies aren't set up to encourage or even allow talented workers to tinker with their work practices, nor to collaborate with other workers across the boundaries of the enterprise. Operations manuals explicitly discourage deviation from standardized practices and processes. Organizational silos and matrixed organizational designs hinder or even prevent workers from easily finding and collaborating with each other within the enterprise, let alone across enterprises. Corporate strategies fixate on meeting quarterly financial targets

1. See, for instance, "Smart People or Smart Contexts? Cognition, Ability, and Talent Development in an Age of Situated Approaches to Knowing and Learning," by Sasha A. Barab and Jonathan A. Plucker, *Educational Psychologist*, Volume 37, Issue 3 September 2002, pages 165 – 182; "Mapping the landscape of organizational learning," by Georges Romme and Ron Dillen, *European Management Journal Volume 15, Issue 1*, February 1997, pages 68-78; and "Organizational Learning and Communities of Practice: Towards a Unified View of Working, Learning, and Innovation," by John Seely Brown and Paul Duguid, *Organization Science*, 1991 2(1): 40-57.

2. See "Mysteries of the Region," by John Seely Brown and Paul Duguid, in *The Silicon Valley Edge*, Chong-Moon Lee, et al, editors, Stanford University Press, 2000.

through aggressive cost cutting, and too often fail to create the growth needed to offer advancement and development opportunities for talented workers. And so forth. Big companies listen with a tin ear to the development needs of their most talented workers.

These workers can be found at every level of the firm. They're not just the highly trained and deeply skilled knowledge workers one typically thinks of as "talent," such as quant equity traders or software engineers. They are also the wide range of workers—including truck drivers in a logistics operation, front line workers talking with customers, and workers on a manufacturing assembly line—that interact with and monetize intangible assets. Intangible assets include the institutional skills, intellectual property, brands, networks, and reputation that increasingly determine a company's profit per employee and thus its total profits and market capitalization.³

Because talent works at every level of the corporation, the changes necessary to develop talent extend into nearly every aspect of the firm's activities: Companies must truly become talent-driven firms. Operations, organization, and strategy must all be re-conceived through the talent lens—and new information technologies and managerial "dispositions" (the fundamental ways executives regard the business world, and even human nature) now become essential. Executives will even find themselves asking the most fundamental question of all: what business are we really in?

Don't just push

Let's start with operations. The business operations of large Western companies have been built during the past century around the concept of "pushing" resources into the areas of greatest anticipated need. Whether it's the shelves of a retail store, the activities of a manufacturing plant, or the processes comprising human resource management, push approaches try to forecast demand and then design operations to ensure they deploy the right resources to the right place at the right time.

Push programs have enabled scalable, cost-effective operations. But they've come at a steep price: the rigid standardization and specification of activities and tasks they require. The highly specified operations

3. For more about how monetizing intangible assets drives corporate wealth creation, see "Mobilizing Minds," by Lowell Bryan and Claudia Joyce, McGraw-Hill, 2007.

manuals created by traditional push programs are in many ways antithetical to talent development, which requires workers to improvise and experiment with their working practices in order to learn and grow.

But what if, rather than trying to forecast demand and standardize operations so as to avoid surprises, companies were to create more flexible “pull” platforms to help participants access resources whenever and wherever they are needed? What if, rather than treating exceptions (such as quality exceptions on a manufacturing assembly line) as a nuisance to be eliminated, companies welcomed them as an opportunity for participants to tinker and experiment?

Pull platforms are essential to fostering learning on the job since they make it easier to access unexpected resources in unexpected ways and thereby encourage participants to try new approaches that simply would not be feasible in more rigid push programs. Yet Toyota’s pull platform—and that of companies like it—are in reality a very limited form of pull platform, one that works well only if there are a small number of companies participating in the process. To fully realize the potential for talent development in broad, cross-enterprise talent networks, the talent-driven firm will need to deploy even more ambitious pull platforms that scale easily to very large numbers of companies. If the number of companies participating in a pull platform is limited, there will be inevitable compromises in terms of the deep specialization of resources available on the platform, thereby limiting options available to experiment with novel approaches to addressing unexpected business needs.

Global process networks—in which large numbers of highly specialized participants work together across multiple steps of a core operating process, such as a supply chain—demonstrate the potential of these more scalable pull platforms. In demanding industries as diverse as apparel, consumer electronics, and motorcycles, orchestrators are emerging and creating pull platforms for hundreds and even thousands of specialized participants.

In the case of Li & Fung, an orchestrator of a global process network in the rapidly shifting apparel industry, its pull platform now embraces more than 10,000 companies operating in more than 40 countries around the world. Creating these scalable networks requires a very different set of operational management techniques, including the use of

loosely coupled modules of activities and the development of long-term, trust-based relationships among participants.

These networks allow management to expand the scope of the core operating processes of the firm—supply chain, product innovation and commercialization, and customer relationship management—well beyond the boundaries of the enterprise. Only when companies have embraced a truly end-to-end view of all the activities required to deliver value to the end customer can their employees participate in and benefit from cross-enterprise talent networks.

Innovate at the institutional level

Most companies will likely struggle putting pull platforms into play unless at the same time they rethink how they interact and collaborate with other companies. Large Western firms have thrived by building scalable operations within their own enterprise and rationalizing their broader partner networks down to a very few key partners. What happens when they try to increase the number of partners, as they must, for example, in global process networks, in order to better connect to talent wherever it resides? Most will encounter a sharply increased cost of complexity. The complexity arises until companies master a new form of innovation, one that re-conceives roles and relationships across large numbers of institutional entities so as to make them less transactional and more relational, less “hard-wired” and more “loosely-coupled,” and, generally speaking, more supportive of richer cross-enterprise interactions and collaborations among their workers.

In these network arrangements, companies forge connections and carry out interactions less expensively and more rapidly and flexibly than they can through conventional institutional practices. Once they do, their talent can begin to more effectively connect with other talent to achieve new performance levels.

In the past, executives have tended to be wary of cross-enterprise collaboration out of concern for loss of intellectual property, hold-up (the ability to extract unfair payments out of others because of a unique position or set of assets), and distribution of rewards. However these concerns are largely shaped by a zero-sum view of the world—if one

party gains, the other parties must inevitably lose. Focusing on talent development helps to shift to a positive sum view of the world—as talent improves, more value gets created in aggregate and all participants have an opportunity to gain more than they had before.

Consider, for example, how a new generation of motorcycle assemblers emerging in Chongqing, China, demonstrate the power of a positive sum approach. Assemblers such as Dachangjiang cultivate rapid improvement in motorcycle design and performance through innovative working arrangements with their design partners. Rather than providing designers with detailed product blueprints, assemblers supply them with rough sketches and performance outputs along a variety of tightly specified dimensions. When interdependencies surface across components and subsystems, as inevitably they will in even the most modular design, the assemblers expect the participants from all relevant design partners to figure out how to resolve them. Thus ensues a lot of testing and refining to reach the assembler's aggressive performance targets. As a result, learning increases across the network of participants, as shown by the decline in the assembler's average motorcycle price from \$700 to \$200 from 1997 to 2002, without any corresponding decline in reliability or quality.

Global process networks are not the only organizational arrangements that harness a positive sum view of the world to scalably collaborate across institutional boundaries. Their close cousin global *practice* networks are even looser forms of collaboration involving participants from similar skill areas engaging around common performance issues. Global practice networks are emerging in such diverse areas as open source software and extreme sports.

Consider, for example, how extreme surfers have used global practice networks to push the limits of their sport. In the 1950s, six foot waves were considered challenging, yet today big wave surfers routinely and successfully ride 60 to 70 foot waves. Big wave surfers tend to congregate at specific beaches and breaks to learn their craft, and frequently connect at competitions and, increasingly, through the Internet. They gain from carefully watching each other and observing new techniques and practices under different wave conditions. Regular competitions pit these surfers against each other and demonstrate which approaches have the greatest potential to drive performance. While often operating as individual participants, their activities and interactions are more

often than not orchestrated by commercial entities like surfboard shapers and contest organizers who work hard at defining new performance challenges and motivating participants in their network to engage in pushing performance to the next level. Even where money is at stake, the collaborative spirit generally moves to the forefront, as illustrated in the most recent Maverick's competition in Half Moon Bay, California. As the six finalists paddled out to catch the final set of waves in the competition, they agreed among themselves that they would share the prize equally, regardless who was declared the winner.

Both kinds of networks—global process networks and global practice networks—create opportunities for talent to come together and generate “productive friction”: the friction that shapes learning as people with different backgrounds and skill sets engage with each other on real problems. While many executives pursue the supposed nirvana of a frictionless economy, we believe that aggressive talent development inevitably and necessarily generates friction. It forces people out of their comfort zone and often involves confronting others with very different views as to what the right approach to a given situation, challenge, or opportunity might be.

The key is to organize thoughtfully the right environments to generate friction and to ensure that it is productive rather than counter-productive. In part, this requires bringing together appropriate participants with diverse experience sets, investing the time required for them to develop shared respect, defining aggressive performance requirements, and providing them with tools that can help them negotiate the approaches that are most promising for achieving these performance requirements. Most importantly, it requires carefully specifying action points that will force the participants to produce a solution meeting the performance requirements within a certain period of time.⁴ This is challenging enough when it occurs within a single firm but gets all the more challenging—and rewarding—when companies generate productive friction by connecting talent across multiple institutional boundaries. As we have indicated here, participating in global process and practice networks is the best way to learn the institutional innovations needed to make these connections. Doing so ensures that talented workers benefit

4. For more about productive friction, see “Productive Friction: How Difficult Business Partnerships Can Accelerate Innovation,” by John Hagel III and John Seely Brown, *Harvard Business Review*, February 2005.

from the broad range of experiences and approaches diverse participants within such networks bring to a given problem or situation.

Of course, companies must also innovate how they handle talent within the firm. Companies must, for instance, recognize that today's career is no longer a straight shot up the corporate ladder but instead what Cathy Benko and Anne Weisberg characterize as a "combination of climbs, lateral moves, and planned descents" along the "corporate lattice"—thereby extending the concept of mass customization into a new approach for how work gets done and careers are built.⁵ Many companies have recognized the value of accessing diversity of people to get creative and unexpected approaches to business issues. The lattice concept takes this one step further by enhancing the diversity of experiences for each individual as well. Diversity of people and diversity of experiences combine to create a much richer pool of talent.

Strategy as if talent mattered

Putting talent development center stage also forces a reassessment of business strategy, particularly growth strategies. Companies that aren't growing rapidly often fail to provide a rich set of opportunities for their employees to develop. This occurs because slower-growing companies confront fewer new performance requirements and generally offer slower advancement opportunities than faster-growing ones. Slow growth companies are thus at a disadvantage in developing the talent of their employees. Over time, they will likely find it harder to attract and retain world-class talent.

Consider Google's ability to attract top quality talent from slower growing technology companies. And notice how even Google has more recently been losing its own talent to still-faster growing companies like Facebook. Yet growth gets difficult to achieve as companies grow bigger. That's why leveraged growth strategies—which help big companies achieve higher levels of growth with more limited resource commitments—are essential to developing talent faster.⁶

5. See *Mass Career Customization*, by Cathleen Benko and Anne Weisberg, Harvard Business School Press, 2007.

6. See "Leveraged Growth: Expanding Sales Without Sacrificing Profits," by John Hagel III, *Harvard Business Review*, October 2002.

At another level, the broad-based shift in many markets from product-based to service-based businesses also informs how well and how fast companies develop talent. Services typically offer the opportunity for richer and quicker market feedback loops and more rapid iterations on the design of customer offers than products do. As a result, companies with a higher percentage of services relative to product businesses will have a talent advantage.

A simple contrast drives this home. In the software business, most application software is still sold and delivered as a package installed on the customer's premises. Because installation presents logistical challenges and cost, packaged software upgrades occur in six to eighteen month cycles. Compare this to the new generations of application software delivered to customers as services over networks. These services are updated in much shorter cycles, often measuring hours rather than weeks or months. Because of long upgrade cycles, packaged application software developers tend to be much more conservative about what features or new designs to include in each release—the risk of getting it wrong is too high. With software delivered as a service, by contrast, developers can introduce a new feature or design, watch how it is used, gather feedback and implement modifications and refinements much more quickly. Experimentation and tinkering are more encouraged and software developers get better faster because they can test and refine their approaches more rapidly.

At an even more basic level, an aggressive focus on talent development forces management to address the most fundamental strategic question of all: what business are we really in? Despite decades of unbundling the diversified conglomerates that were the rage in the 1960s and 1970s, most companies today are still an unnatural bundle of three very different kinds of businesses—infrastructure management, product innovation and commercialization, and customer relationship businesses. Each of these businesses has very different skill sets, economics, and even cultures, yet they often remain tightly bundled together within a single firm.⁷

Keeping these businesses tightly bundled makes it more difficult to develop talent rapidly given the inevitable organizational and operational compromises companies make to accommodate the divergent,

7. See "Unbundling the Corporation," by John Hagel III and Marc Singer, August 2000.

even conflicting, needs of these three businesses. More focused companies have an advantage in talent development. Consider the many pure-plays created by outsourcing. As they've invested in the professional development of their employees, companies specializing in assembly line manufacturing, logistics, and even routine customer call center operations have generated eye-opening performance improvements. One big factor: the workers in these companies were often viewed as second-class citizens when they were employed by more diversified companies, but they are now core contributors of value in more specialized companies.

Take for example focused call center operators such as eTelecare in the Philippines, which have been able to out-perform the internal call centers of many of their clients within a very short period of time. Interviews show that employees at eTelecare derive a high degree of motivation from being at the core of the business rather than the periphery of a much more diversified business. Because performance of their call center operations is so central to eTelecare's overall performance, eTelecare invests highly in the development of its workers. The company has a 1:8 ratio of front-line supervisory management to call center operators versus the average 1:20 in the call-centers of diversified U.S. companies. Its investment in staff development allowed eTelecare to exceed the performance of one of its client's world-class telemarketing facility within one week and, within four weeks, to generate three times as much revenue per hour. Staff also benefits as they move up the skill ladder, from relatively modest initial skills in the call center to more sophisticated customer support capabilities and, in some cases, all the way to handling complex mutual-fund advisory calls. Some staff made the jump from entry level to NASD Series 7 broker certification in a mere 18 months.

New technologies and dispositions

The foregoing recommendations aim to strip away the surface barriers confronting executives as they make development the centerpiece of their talent strategy. Pull platforms take aim at the deadening standardization and rigid specification of push programs. Global process and practice networks extend companies' ability to develop talent beyond the four walls of the enterprise. And leveraged growth and unbundling strategies create the conditions for talent to thrive. Once these obstacles are out of

the way, however, two more fundamental barriers appear: today's information technology infrastructure and management dispositions.

Until very recently, our IT architectures and infrastructure significantly limited companies' ability to make flexible choices regarding how they operate, organize, experiment, and establish the strategic direction of the business. The hard-wired technologies that compose client-server IT architectures make it next to impossible to implement pull programs across large numbers of enterprises or to pursue leveraged growth strategies.

Fortunately a new generation of loosely-coupled, modular technologies—the building blocks for service-oriented architectures, cloud computing, and Web 2.0 platforms—now provide a much more robust foundation for the fundamental changes to our working practices. A variety of tech-savvy companies like Google, Amazon, and Cisco are already deploying these new technologies to support their own talent development initiatives, often spanning well beyond the boundaries of their companies.

Cisco, for example, has invested heavily in an e-learning platform that blows up the notion of centralized training facilities and creates a pull platform for employees from over 40,000 business partners, all of whom can access analytic tools and information regarding Cisco products on an as-needed basis. SAP, meanwhile, has created robust online forums for independent developers that use SAP products to come together and problem-solve ways to get more value from these products. In the process, not only do Cisco and SAP help their own employees get better faster, they help the employees of their business partners and customers get better faster, too.

Difficult as embracing a new generation of information technology might be for companies heavily committed to legacy IT systems and architectures, technology may prove the easy part. Executives must also transform the dispositions they hold regarding the sources of business success. Executives are often unaware of these unstated and unexamined assumptions. It may not overly simplify things to characterize today's prevailing management disposition as follows: "We live in a largely static, zero-sum world where change is episodic and unpredictable. Change is threatening because it inevitably creates winners and losers. The best way to capture value in this world is to tightly con-

trol intellectual property and all the resources required to generate value from that intellectual property. Collaboration, to the extent it is necessary, works best with a few carefully selected partners with similar mindsets.”

Contrast this with an alternative management disposition: “We live in a dynamic world where the patterns of change are discernable and understandable, even if specific events are less predictable. Continuing innovations create the potential for much greater resource abundance and positive-sum outcomes where all participants can gain from collaborating with each other. Collaboration is essential to tapping into this potential and the most powerful forms of collaboration are highly scalable, mobilizing large numbers of participants with diverse and very deep specializations.”

It should be clear that the first management disposition—let’s call it the control disposition—offers limited room for talent development. If the world is largely static and control is the name of the game, talent certainly counts but has little need for continual refreshing. In this worldview talent development on the job undermines the higher goal of control.

The second management disposition—let’s call it the collaboration disposition—provides a much stronger foundation for the talent-driven firm. If the world is continually changing in discernable patterns and continuing innovation is the source of significant new value, talent development becomes a much higher priority. Executives with this disposition will recognize that existing talent rapidly obsolesces and that success depends upon continually renewing the talent of their employees. Executives with this disposition are also more inclined to recognize the importance of accessing talent wherever it resides.

Executives realize the race for talent is one they cannot afford to lose. Yet all-too-few of them grasp the far-reaching changes needed to become a truly talent-driven firm—changes not just to strategy, organization, operations, and technology, but to the more basic dispositions underlying today’s managerial actions, practices, and interventions. By embracing these new dispositions, companies can become magnets for talent in a world where talent is increasingly scarce.

Epilogue - The Broader Policy Environment

Firms can do a lot to reframe and refocus talent development efforts. At the end of the day, however, the broader policy environment will either amplify or hold back the efforts of individual firms. At a fundamental level, public policy needs to be broadly reframed with a talent development lens.

Educational policy, for instance, needs to move beyond formal educational programs confined to narrow stages of our lives, and even beyond the notion of retraining programs later in life. We must foster environments that create the opportunities, incentives, and capabilities to discover and act on people's passions throughout life.

We also need to harness the forces that have enabled Silicon Valley and Manhattan to become global talent spikes, attracting talent from around the world. Rather than confining this success to highly trained engineers and financial "quants" in a few cities, we should provide opportunities for everyone, whether a machine tool worker in Cincinnati or a farmer in Nebraska, to get better faster and thrive in our global economy.

With the benefit of a talent development lens, unexpected and exciting policy solutions could be developed for hotly debated public policy issues like immigration, telecommunications, intellectual property, and trade. Consider telecommunications: An ambitious broadband and open-spectrum policy might build learning-on-demand into a system in which anyone can find the information they need, when they need it, and turn that information into action.

Few people realize that about half of the entrepreneurial talent fueling the success of Silicon Valley came from outside the United States. On immigration, the question might become how we can more broadly emulate the Silicon Valley model, where talented immigrants from around the world have helped domestic engineers to learn faster as they engage with others who see the world quite differently from them.

Even more promisingly, a focus on talent development can transcend national interests. After all, if we are serious about developing the talent of our own people, we must find rich and creative ways to access and connect with talent wherever it resides around the world. No matter

how talented Americans are, they will develop their talent even more rapidly if they have the opportunity to interact with other equally talented people outside this country. There is no place for building walls and sheltering talent from the challenges of others.

A talent development perspective might also lead to a reassessment of public diplomacy, as well. We might build deeper relationships with the countries that are most successful in developing the talent of their people, so that the talent of our respective countries can get better faster as they work with each other. At the same time, we might provide a more compelling role model for governments, and perhaps more important, the populations of countries that are lagging behind in talent development.

Accelerating talent development provides a robust platform for reconceiving both domestic and foreign policies. Indeed, our actions will lack credibility and power if they are not applied consistently and continuously in both domains.

Talent development requires sustained effort and a respect for the texture of complex issues and diverse perspectives. But the rewards are worth the effort. We may ultimately be able to move from the zero-sum mindsets that dominate our current political discourse to a positive-sum outlook in which overall rewards increase at an accelerating rate and everyone can share more fully in an expanding pie.

Talent Development Reframed

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Richard Adler is a Research Associate at the Institute for the Future, Palo Alto, where he is co-leading a research project on Baby Boomers: The Next 20 Years. He is also president of People & Technology, a consulting firm located in Silicon Valley. Richard has written a number of Aspen Institute reports including *Media and Democracy* (forthcoming); *m-Powering India: Mobile Communications for Inclusive Growth* (2008); *Minds on Fire: Enhancing India's Knowledge Workforce* (2007); and *Next Generation Media: The Global Shift* (2007). He is also the author of *Healthcare Unplugged: The Evolving Role of Wireless Technology* (California HealthCare Foundation, 2007) and is co-editor of a book on *Texting 4 Health* (Stanford Captology Media, in press). Richard is Fellow of the World Demographic Association and serves on a number of local and national boards. He holds a BA from Harvard, an MA from the University of California at Berkeley, and an MBA from the McLaren School of Business at the University of San Francisco.

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The Communications and Society Program is an active venue for global leaders and experts from a variety of disciplines and backgrounds to exchange and gain new knowledge and insights on the societal impact of advances in digital technology and network communications. The Program also creates a multi-disciplinary space in the communications policy-making world where veteran and emerging decision-makers can explore new concepts, find personal growth and insight, and develop new networks for the betterment of the policy-making process and society.

The Program's projects fall into one or more of three categories: communications and media policy, digital technologies and democratic values, and network technology and social change. Ongoing activities of the Communications and Society Program include annual roundtables on journalism and society (e.g., journalism and national security), communications policy in a converged world (e.g., the future of video regulation), the impact of advances in information technology (e.g., "when push comes to pull"), advances in the mailing medium, and diversity and the media. The Program also convenes the Aspen Institute Forum on Communications and Society, in which chief executive-level leaders of business, government and the non-profit sector examine issues relating to the changing media and technology environment.

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The Program's Executive Director is Charles M. Firestone, who has served in that capacity since 1989, and has also served as Executive Vice

President of the Aspen Institute for three years. He is a communications attorney and law professor, formerly director of the UCLA Communications Law Program, first president of the Los Angeles Board of Telecommunications Commissioners, and an appellate attorney for the U.S. Federal Communications Commission.