Collaboration:
The Next Revolution in Productivity and Innovation

Foreword

Technology-enhanced collaboration offers the next wave of opportunity for innovation and transformation in the enterprise. By enabling collaboration, companies can achieve enormous performance benefits – a more agile business, improved cost efficiencies, faster revenue growth, smarter use of human capital, and a reduction of the carbon footprint.

Following decades of productivity improvements, primarily from automating and optimizing transaction processes, new collaboration strategies and techniques promise to put the interactions of people back at the center of work.

The technology tools are here. Employees have already embraced them. Now best practices are emerging to serve as guideposts for organizations at any stage of the transformational journey to better collaboration.

This white paper shares Cisco's perspective on the collaboration revolution underway. Demonstrating the power of collaboration at work, we engaged more than 50 thought leaders across Cisco's functional groups. Collectively, we looked at innovation within our customers, partners, and our own operations. A special thank you goes to our Reviewing Committee, which includes Adrian Amelse, Joe Burton, Alan Cohen, Earl Culver, Tony Frazier, Rick Hutley, Hans Hwang, Sheila Jordon, David Knight, Rob Redford, Donna Rhode, Pat Romzek, Bill Ruh, Parvesh Sethi, Manjula Talreja, Greg Thomas, Chris Thompson, and Kara Wilson. I would also like to recognize the exceptional frontline work of our Sales Pilot Leaders: Rich Hayes, Christian Horner, Matt Maddox, Vlada Marjanovic, Abhay Prasad, Roy Schuster, Woody Sessoms, Dave Sullivan, Steve Westfall, Jack Tenkman, Nick Watson, and Dan Wiggins.

Our hope is that this paper inspires new ways of thinking about collaboration in your own business.

Rob Lloyd
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Table of Contents

Executive Summary

Technology-Enhanced Collaboration will Unleash the Next Revolution in Productivity and Innovation

Over the past four decades, the typical modern large corporation has methodically put into place a computing and telecommunications infrastructure that made it possible to automate most of the systematic processes of business. As a result, the productivity of workers throughout the organization – from the product design labs to the factory floor and from the field sales office to the executive suite – improved dramatically. But business has reached a point of diminishing return from further automations of transactional processes however, and the time is ripe to look for new sources of productivity.

Improved collaboration is a largely untapped source of competitive advantage. With the ubiquitous proliferation of the business network, it is possible to rethink how an enterprise actually does much of its work. People are connected better than ever, and they have easier access to more granular information. In a global marketplace, collaboration technologies allow people to overcome the constraints of time and geography and work much more intimately and conveniently with fellow team members and partners. Also, these technologies give companies powerful new channels to support and interact with customers.

Improved collaboration has the ability to accelerate productivity, i.e. the metabolism of a business. While cost savings are often the catalyst, companies that succeed in improving collaboration achieve higher customer satisfaction rates, faster cycle time, improved product quality, greater corporate agility, and an enhanced ability to manage globally-dispersed teams. Plus, given today's rapidly-shifting fuel costs and increasing environmental concerns, the importance of improving the ability to collaborate virtually cannot be overstated.

What is Technology-Enhanced Collaboration?

Technology-enhanced collaboration is the means through which companies will achieve the next generation of productivity improvements and innovation in both the workplace and the marketplace, thereby gaining competitive advantage.

Collaboration is the process by which individuals work together in an organized fashion to share ideas and solve problems. Collaboration has always been a part of the business process, but not on the scale that digital technologies and new management approaches now allow. It is now easy to imagine how enhanced intra-company collaboration can improve performance and efficiencies within a company's functional groups, as well as across functional boundaries. The increasing ubiquity of network access and connected devices (e.g., through mobile networks), even in developing markets, has created unprecedented opportunities to improve collaboration. It is now easy to imagine that better collaboration could improve performance and efficiencies within functional groups of a single company, as well as across functional boundaries. New modes of collaboration can be structured such that they integrate into almost any business process or scenario. Once these new methods are in place, team members quickly embrace and improve them, releasing new advantages in practice.

But the greatest economic benefit for new kinds of collaboration is in a corporation's *inter*-company dealings with partners and customers. We are beginning to see new business models emerge, as collaborative innovators discover the value of using already available technology to work together with "outsiders" in a more intimate fashion.

Collaboration pioneers are using Web 2.0 tools and applications such as social networking, blogging, video sharing, unified communications systems, telepresence video conferencing, enterprise video-broadcasting, and on-demand video systems to overcome the barriers of time and distance. Business users have found cheaper, more effective alternatives to traditional face-to-face meetings, which often require time-consuming travel arrangements for an organization's most highly paid people. Moreover, the new collaboration tools make it easier to find the answer you're looking for, to locate the right expert or partner to solve a knotty problem, or to accelerate decision making without leaving your desk, even if you work for a global enterprise. The collaborative business has a more intimate relationship with its customers and partners, and keeps its workers more productive, effective, and engaged. And it leaves a smaller carbon footprint.

A growing number of industries have already benefited from technology-enhanced collaboration: consumer-product makers have invited customers to help design new products, professional services have made telecommuting easier for their employees, and pharmaceutical companies have shaved months off drug-development schedules. Cisco itself has saved an estimated $118 million in travel expenses since October 2006, even as its headcount grew, because employees interact virtually more often, using TelePresence, high-definition (HD) teleconferences, and WebEx web-conferences.

How does a Company take Full Advantage of the Potential of Technology-Enhanced Collaboration?

Most large companies have much of their technological and network infrastructure already in place. That's a fundamental beginning. But developing effective collaboration is a multi-stage journey, especially when a company wants to collaborate more directly and intimately with partners and customers.

Every company has its own culture, and its people have their own ways of working with one another and outsiders, so using technology-enhanced collaboration to rethink how business is done has to be compatible with the traditional ways of each organization. That said, some best practices and standard approaches are beginning to emerge for the many stages and aspects of corporate collaboration. The good news is that each step of the journey delivers progressively greater benefits.

The first requirement for effective collaboration is a network infrastructure that is reliable and highly secure, especially if a company intends to encourage direct collaboration and digital interaction with outsiders and other corporate entities. The global reach of many companies today also presents another layer of security, logistical, and technical challenges to collaboration. The network also needs to be able to move quickly to support today's widening array of connected devices – smart phones, PDAs, and other intelligent mobile or personal devices – as they become available, and it should be optimized to accommodate new types and sources of digital media as they enter the mainstream of collaborative work.

A company's IT systems and policies must be flexible because collaboration tools are constantly evolving, in part because the technology is so new. It's also because, as people use the tools more widely, they find new and better, yet often untested ways to use them. Knowledge workers – many of whom already use Web 2.0 services and social networking sites in their personal lives – are quick to embrace and experiment with these new tools and ask for enhancements and refinements. IT should encourage such experimentation but must also establish unambiguous governance and consistent policies to ensure that these tools, which put so much capability in the hands of workers, are used responsibly, and to restrict access to information appropriately. This requires a vision,

strategy, and architecture for collaboration at both business and technical levels. IT managers and company management have to be in line as never before.

Thus collaboration represents the culmination of what IT can offer to the enterprise. Rather than simply automating the transactional functions of a company, or even improving productivity of discrete tasks and jobs, technology-enhanced collaboration gives corporations the means to transform markets, workers' roles, and even, in the end, the work itself.

***Now* is the time for every company to start learning how to collaborate well.**

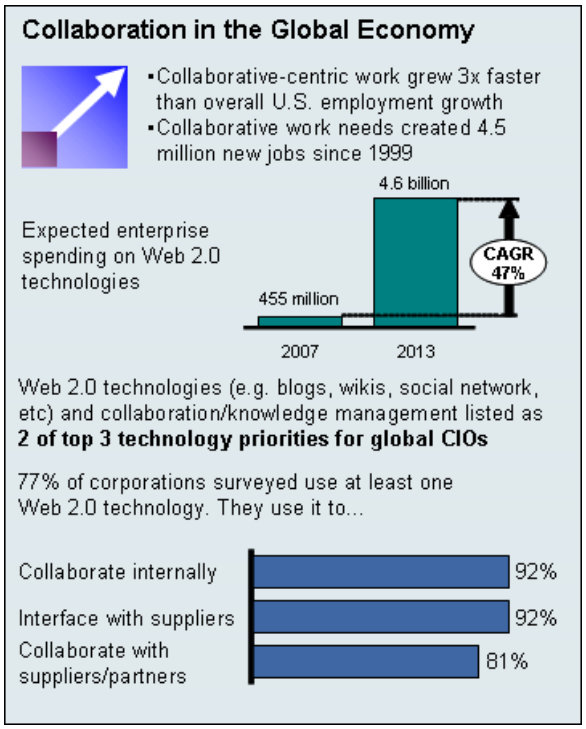
Smart companies are rushing to embrace collaboration as a way to accelerate decisions, gain productivity, cut costs, and strengthen competitive advantage. In the realities of the global market, distance and time separate people, and those barriers slow communication and impede decision-making. Meanwhile, customers demand agile organizations and rapid response. To overcome the institutional barriers to collaboration that they encounter, users at companies that aren't yet equipped to collaborate will do so anyway with publicly-sourced tools such as Facebook, LinkedIn, and wikis, putting a corporation's ability to maintain compliance, assure security, and protect intellectual property at risk.

Companies that move quickly to adopt technologically-enhanced collaborative cultures can gain the first-mover's edge over their competitors by being closer to the ground to sense market inflections sooner than their competitors, turning the knowledge that comes from more intimate relationships with customers and partners into a business advantage ahead of their competitors. And network effects can amplify the competitive advantage that early adopters of collaboration can gain. Companies that don't embrace collaboration can only react to the opportunities that their competitors create. Companies must learn to collaborate in order to succeed in the next revolution in productivity and innovation.

Chapter 1

Collaboration Matters

Collaboration[1] is a critical differentiator in today's global business environment. Through collaboration, companies can harness the efforts of many talented individuals from different corners of their organizations, or even from outside, to solve business problems collectively and create customer value. Emerging information technologies that facilitate collaboration will allow employees to interact personally with ever-increasing numbers of customers, colleagues and partners – unleashing the true power of the human network. Meanwhile, globalization will require companies to employ collaboration to coordinate far-flung operations, recruit and manage talent, and address markets and business relationships across multiple geographies. The trend toward outsourcing will also extend the need for these borderless enterprises to collaborate beyond the company's walls and embrace new business models.



Collaboration, in which individuals work together to share ideas and expertise to solve problems, already represents a significant share of economic activity today.[2] Estimates suggest that 41 percent of U.S. work and 28 percent of global work rely predominantly on collaboration. That translates into 855 million jobs and 80 million new jobs by 2010.[3] Moreover, knowledge workers[4] who engage in collaboration are typically an organization's most expensive and scarce talent resources.

Over the past decade, we have seen a remarkable proliferation of the digital tools that enable collaboration. Broadband and cell phones are nearly universal in the developed world and have become more accessible to the billions of people in emerging countries.[5] The costs of deploying and using these enabling technologies have dropped significantly, making them more affordable not just for companies, but for individuals as well. As enabling technologies become ubiquitous, opportunities for innovative collaboration that were unimaginable just a few years ago, become possible.

These advances have led many companies to invest in a host of enabling technologies ranging from instant messaging (IM), e-mail, teleconferencing, document-sharing, team workspaces, software for coordinating workgroups, a profusion of mobile devices, interactive video, and telepresence. Management practices for knowledge workers are also shifting to flexible models of work,[6] decentralized decision making, and outsourcing of work activities.

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1 Defined as person-to-person exchanges and interactions (physical or virtual) between two or more people to enhance complex problem-solving and to enable the sharing of tacit knowledge, experience, and context to work together toward a common goal.

2 This builds on ground-breaking research from two Nobel Laureates: Ronald Coase (including his influential paper "The Nature of the Firm", published in 1937) and Douglass North (including his research in the 1970s measuring transaction work in the United States).

3 Bradford Johnson, James Manyika and Lareina A. Yee, "The next revolution in interactions", *The McKinsey Quarterly*, 2005 Number 4.

4 Coined by Peter Drucker in 1959, the term *knowledge worker* refers to employees in research, IT, education or professional services. Today, it widely refers to professionals who create or use knowledge as their primary occupation. The topic of managing knowledge workers is discussed in *Mobilizing Minds: Creating Wealth from Talent in the 21st Century Organization*. Lowell Bryan, Claudia Joyce. 2007.

5 For example, in Africa, the cell phone penetration rate grew from nearly 0 percent in 1994 to 21 percent today and is growing at a much higher rate than in developed countries. In addition, while mobile phones are becoming pervasive, the penetration rate of land lines has remained constant at 2 to 3 percent, illustrating that emerging countries are "leap-frogging" older technologies. Source: International Communication Union.

6 Flexible models of work include flex hours, job sharing and remote-location workers.

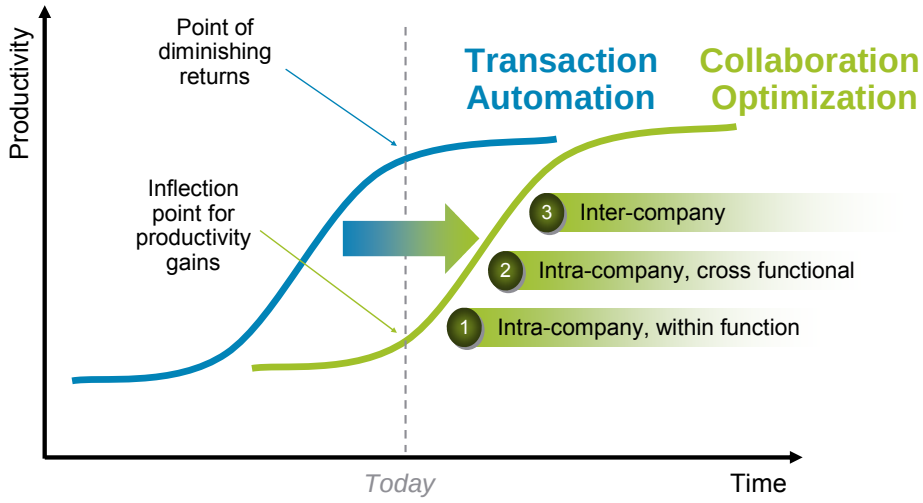
Historically, businesses have focused their management innovations, business process re-engineering, and information technology investments on increasing the efficiency of production work (that is, manufacturing) and transactional work (payroll processing, order taking, or call-center services, for example). These advances came through the automation and scaling of routine tasks and the substitution of capital for labor, which facilitated faster execution. These investments led to the solid productivity growth of the past decade – driving 3.1 percent of the gains in labor productivity and accounting for nearly 60 percent of total productivity growth.[7]

But the easy gains from process automation are behind us. The next phase of improving corporate performance, productivity, and competitive advantage will come through dramatic improvements in collaboration. Moreover, the basis of competition is in transition from optimizing repetitive processes to gaining customer intimacy through exploiting the potential for innovation in the human-to-human exchange of ideas. This new growth frontier will unleash human potential not by automating rote tasks but by putting people back at the center of work.

Levels of Collaboration

Collaboration in the business world falls into three categories (see figure). The greatest business value potential lies in leveraging technology and new management techniques to connect people across functional "silos" and across enterprise boundaries.

Collaboration: Next Wave of Business Productivity



Intra-company collaboration within a function is the most typical and traditional form of collaboration, because it stays within functional boundaries of a single company. Most companies have made investments to improve collaboration within functions, and most large corporations today have basic communications and workgroup document-sharing technologies in place. Intra-functional collaboration can be compared to a "walled garden" approach: it is relatively safe, and the participants generally know each other and have clear expectations from the interaction. While advances in technology will continue to enhance the potential benefits of intra-functional collaboration, the full promise of collaboration is much greater as new levels are achieved.

[7] Production – which converts physical objects into finished goods – is still important, but employs fewer people every year (CAGR of 2.3 percent from 1998 to 2004). The volume of transactions activity – where companies exchange goods, services, or information in routine, often automated ways – has stayed relatively flat (CAGR of 0.6 percent, 1998 to 2004). Bradford Johnson, James Manyika and Lareina A. Yee, "The next revolution in interactions." *The McKinsey Quarterly,* 2005, Number 4.

Business Leaders on Collaboration

"We want P&G to be known as the company that collaborates - inside and out- better than any company in the world."

AG Lafley, CEO, Procter & Gamble

"All of the best innovations come from collision of thought. It is this collision of thought that creates creative genius. Collaboration is a means to an end; it's not the end."

Ken James, VP of Consumer Healthcare R&D, GlaxoSmithKline

Intra-company cross-functional collaboration enables people to work directly with colleagues from other organizational towers, functional silos, and geographies. While IT automation projects have improved transactional collaboration (e.g., enabling sales and finance to approve a sale via a CRM system), in many cases, the transaction and collaboration processes are disconnected. Practical operational incompatibilities exacerbate the challenge because different silos often have different collaboration priorities, workflow practices, and technology. Most senior executives we interviewed said that improving collaboration among sales, marketing, and product development groups to share information, build better products, and jointly innovate would lead to increased revenue and gains in market share. In the era of globally-dispersed workforces, it is technology-enabled, inter-functional collaboration that will bridge the distance between a production facility in India and a management hub in Germany.

Inter-company collaboration holds the greatest and most exciting potential. As the borderless enterprise becomes the rule, new business models are emerging in which customers and supply chain and distribution partners collaborate to create new business value. Thus collaboration across company borders becomes a crucial element of competitive advantage. Outsourcing and distributed supply chains have been common for years. But in more radical examples, we increasingly see companies involving their customers directly in their operations by fulfilling roles such as co-creating products, participating in marketing, and providing services. The LEGO Group, for instance, famously invited customers to suggest ideas online for new toys, and it then produced the designs that were most marketable.[8] Procter & Gamble has a "consumer closeness program" designed to get employees literally closer to customers (sometimes even having employees stay with them in order to understand their household habits). The aim is to spark innovation on products that will have a direct impact on customers.[9] All of these activities require companies to develop new kinds of collaboration while also resolving issues of security, intellectual property protection, brand, and culture.

New Approaches to Solving Business Problems

While the importance of collaboration may seem obvious, relatively little has been done to define the key enterprise activities that can benefit most from collaboration. Our analysis suggests that there are five highly collaborative business workflows: product co-creation; supplier co-production; customer solution co-development; services co-delivery; and cross-organization cooperation.

Successful collaboration across those work areas involves three primary enabling processes:[10]

"Find" – locating the right people and information: At its heart, collaboration begins with finding the right partners, experts, and information. Too often, potential collaborators are hindered by the inability to locate the relevant people and sources of information.

"Engage" – coordinating and executing: Someone must determine when collaborators will meet, what medium they will use, and how they will share their ideas and information over time. Coordination is also crucial to the actual work of the collaboration, which is the activity workflow, whether it be developing a product design or generating diagnostic information to solve a problem.

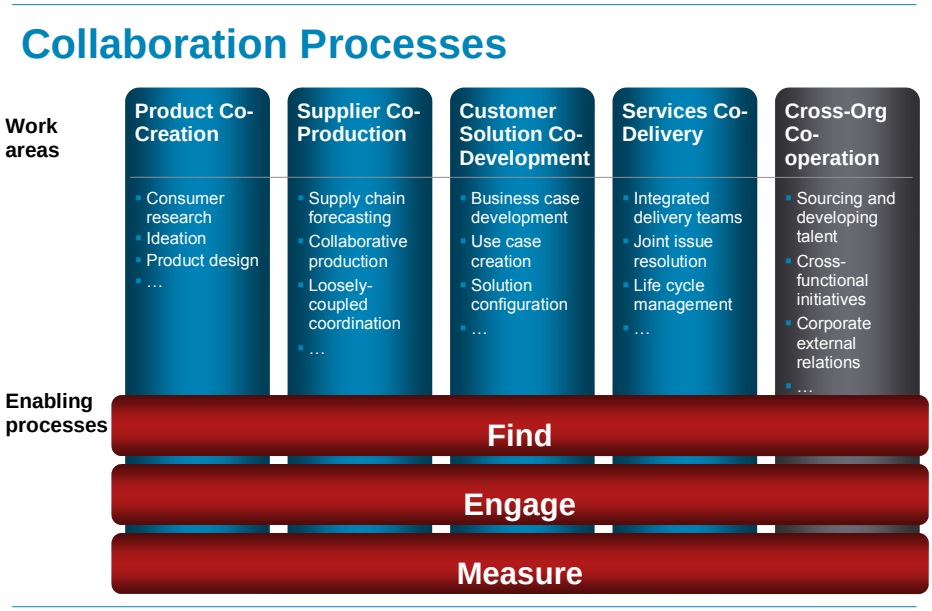
"Measure" – managing performance and building trust: Collaborators need to be able to assess whether they are meeting commitments and delivering desired outcomes. This is particularly important since, in addition to producing concrete results (e.g., designs, solutions), the

[8] "Geeks in Toyland," *Wired Magazine*, Issue 14.02, February 2006.

[9] *The Game-Changer: How You Can Drive Revenue And Profit Growth With Innovation*, A.G. Lafley, Ram Charan. 2008.

[10] Concepts in this section are partly based on research by Patrick Butler, Ted Hall, Alistair Hanna, Lenny Mendonca, Byron Auguste, James Manyika, and Anupam Sahay. *"A revolution in interaction," The McKinsey Quarterly,* 1997, Number 1.

outcome of a collaboration can often be intangible (e.g., ideas, insights). In addition, effective interpersonal communication over time is critical to building trust, which research has shown to be a key factor for successful collaboration.[11]



Although collaboration is still in its early days as an organizational discipline, industry pioneers that exemplify best practices are already emerging. Procter & Gamble (P&G) has built a network of partners and technology platforms such as Innocentive to develop new products. Zara has used technology-enhanced collaboration to streamline its supply chain management and work with textile suppliers to bring fashions from runway to rack far more quickly than its competitors.[12] Tyson introduced a unified communication system between truckers and stores to speed delivery of its fresh chicken to customers. Sony uses online user communities to create buzz around new products.[13] And McKesson enables radiologists and physicians to work together remotely to diagnose patient conditions quickly and accurately.[14]

Each of these examples demonstrates how collaboration can accelerate innovation and speed business processes while significantly strengthening competitive advantage.

[11] According to a survey where respondents said they had complete trust in a key individual with whom they had recently collaborated, 92 percent reported success in meeting goals of their collaborative venture, compared to 45 percent among those who report little trust. Economist Intelligence Unit, "The role of trust in business collaboration," 2008.
[12] Andrew McAfee and Erik Brynjolfsson, "Investing in the IT that makes a competitive difference," *Harvard Business Review*, July-August 2008.
[13] Sony creates online community for Playstation 3, Sony Web site.
[14] McKesson company Web site.

Collaboration Pioneers

EXAMPLES

Chapter 2

Business Benefits of Collaboration

In the past two decades, we have seen significant technology-enabled workforce productivity enhancements. For example, distributed computing power is now in the hands of workers, IP networks enable disparate systems to be connected to support free movement of information, and IP telephony's lower cost has contributed to affordable communications to support globalization.

Technology-enabled collaboration will be the big game changer in the coming decade. Early indicators suggest enormous possibilities when industries adopt new ways of managing and empowering collaboration both internally and in conjunction with partners and customers.

Consequently, the time is ripe to define a new collaboration paradigm. Trends in the business enterprise world point to increasing pressures for executives to empower users to act and collaborate at all levels of the organization, to lead with agility, and to operate open organizations on a global scale. (see sidebar.)

Improved collaboration has the ability to accelerate the metabolism of a business, reducing transactional costs and increasing revenue, which leads to measurable differences in overall corporate performance. To gauge the level of impact, we analyzed the leading companies and industries in the United States, correlating the amount of personal and virtual interaction (or collaboration) within them to the overall performance of an enterprise. The result was simple: Companies that collaborate well can achieve levels of performance that are twice as high as organizations that do not.[15]

Three Transformative Enterprise Trends

Empowered users – may be a customer, patient, citizen, or employee, each expecting a personalized experience. Employees, especially "Gen Y" are expecting the same Web 2.0 and consumer tools for self publication to be readily available in the workplace.

Virtualized real-time information and expertise enables companies to securely unlock *all* their organization's wisdom – whether it is in presentations, videos, searchable databases, or their employees' best practices and team spaces.

The borderless enterprise is how customers, partners, suppliers and employees interact globally anytime, anywhere any device. The physical location of talent and markets will become irrelevant; companies will also combine processes across functions and regions to unlock the potential of new business models and increase business agility.

Moreover, there are intrinsic "network effects" associated with collaboration, that is, the benefits grow as more individuals participate. The information-sharing Web site Wikipedia is a vivid example of the network effects that collaboration fuels. Initially, the number of Wikipedia entries grew sluggishly, reaching only 500,000 entries after four years. But when it reached the strategic inflection point, the amount of content increased exponentially, doubling each year to reach 2,000,000 entries by 2007.[16] As the number of editors and the quality of information on the site grew, more users found value in visiting the site. Some of these new users, in turn, became editors, thus continuing the process. The net result is a site that has derived tremendous value from nothing

[15] Based on research on the correlation of variation in company-level performance (in terms of EBITDA per employee) to the intensity of collaboration (as measured by the percentage of employees involved in collaborative work). The results show that among companies with high-intensity collaboration, top performers can achieve results twice that of average performers. Scott Beardsley, Bradford Johnson, James Manyika. "Competitive advantage from better interactions," *The McKinsey Quarterly* 2006.

[16] Source: Wikipedia.

more than effective, voluntary collaboration. Companies can unleash these same benefits within their organizations by creating their own networks of collaboration. To maximize network effects, companies need to extend collaboration practices and tools to as many workspaces as possible.

But what tangible business benefits do wider collaborative participation actually produce and how can collaboration ultimately create such a surge in performance? While potential cost savings from reducing travel and the like initially attracts many companies that make investments in enabling technologies, recent case studies suggest that cost reduction is only one aspect of six potential business benefits from collaboration:

Collaboration Business Benefits

1. Productivity
2. Customer and talent engagement
3. Continuous innovation
4. Global presence
5. Agility and risk mitigation
6. Environmental citizenship

Productivity. Collaborating better can contribute to reduced cycle times and increased speed of delivery, which in turn reduces costs while increasing revenue. Consider the pharmaceutical and life sciences industries: Drug development efforts can require 10 years and more than $1 billion simply to bring a new compound to market. Shaving months from this process not only reduces labor costs, but also increases revenue during the period in which the product enjoys patent protection. Another example of how technology-assisted collaboration can shorten business development cycles occurred at Aztecsoft, a provider of software development and testing services. After the company deployed new collaboration connectivity solutions, sales efficiency immediately improved as average bid-cycle time decreased from 56 days to 15 days.[17]

The potential benefits of more sophisticated collaboration are especially inviting when one considers the true cost of business travel, in terms of both dollars and time spent. At Cisco, using collaborative technologies for meetings in place of traditional business trips resulted in a striking 37 percent reduction in per person air travel expenses for the North American sales organization.[18] Moreover, the individuals who travel often tend to be some of the most valuable and highly paid members of the team, and time spent in transit is usually productive time lost. Regaining that valuable lost time is potentially the most profound benefit of modern collaboration.

Customer and talent engagement. New forms of collaboration – particularly those that create more personal experiences and improve resolution of issues – enable greater customer intimacy, which in turn increases revenue. Customers also benefit from more adept sales people, better-informed customer service representatives, and products that meet customer needs better. For example, in many retail and banking environments, the number and complexity of products has outstripped the ability of sales staff to keep pace – and that leads to lost or lower margin sales. H&R Block has experimented with creating a virtual office which gives small and medium-sized companies access to the company's subject experts, wherever they may be.[19] This results in new types of customer interaction and new revenue streams. On an individual level, a more collaborative workspace enhances employee engagement and can help attract and retain talent. Continental Airlines uses web-conferencing to keep in constant communication with remote employees. The company hosts interactions such as team meetings and one-on-one coaching sessions to maintain an intimate connection with the corporate culture.[20]

Continuous innovation. Collaboration, almost by definition, accelerates innovation – when people solve problems together, they generate new ideas and applications. Collaboration that extends beyond company boundaries can draw upon even more perspectives and competencies that are brought to bear on problems. Procter & Gamble leads the way in demonstrating the benefits of continuous innovation – both inside the company and outside its own walls. It expects more than 50

[17] Case study research.
[18] Reduction in per person air travel expenses between October 2006 and July 2008. (Source: US&C Sales Operations.)
[19] Case study research.
[20] WebEx Communications, "Continental Airlines goes green by optimizing remote workforce with WebEx." WebEx Web site.

percent of its new ideas to come from external parties.[21] Likewise, Goldcorp, a gold mining company, taps outside talent for continuous innovation. As part of a contest to spark new gold finds, it shared previously proprietary geological data about one of its mines and received more than 1,400 entries that helped improve the yield at its existing mine.[22] Netflix, the online mail-order DVD rental company, uses a complex algorithm to recommend DVDs to its customers, and in 2006 it offered a $1 million prize to any individual who could improve the predictive accuracy of the algorithm by 10 percent.[23]

Global presence. The scale of U.S. and European companies has grown dramatically over the past decade as they expand global operations and customer hubs. Business leaders routinely visit new customers in the Middle East, procurement partners in Asia, or employee training facilities in Ireland. These face-to-face interactions are critical for building trust, for working together to solve problems, and for brainstorming new ideas. However, geographic distances and time-zone differences make this challenging. Virtualizing these critical global collaboration processes within and across enterprises can significantly improve the quality of decisions made, increase the number of ideas generated, and help people feel more connected. Tyson needed to find a way to communicate instantly with its 140,000 team members, not just their 15,000 knowledge workers who were issued with PCs. Today it employs a media system that creates and distributes multimedia content over its network to set-top displays in break rooms of some of its processing plants.[24] In another case, McKesson created a network platform that helps enable radiologists examining images to quickly contact referring doctors in urgent cases, even if the two parties are on opposite sides of the globe.[25] Cisco itself uses collaboration technologies to provide round-the-clock support of customers via its experts located in its Globalization Center in Bangalore, India.

Agility and risk mitigation. Dealing with turbulent situations or rapidly changing end-customer demands requires agility and speed in the business system. Collaboration makes finding people and convening meetings to make quick decisions easier. The result is an acceleration in business processes, such as time-to-market, or the velocity of sales funnel, or the speed of innovation. In the financial services industry, bringing the right decision makers together to react to breaking news is critical since the ability to execute transactions one second faster than the competition can mean significant profits. In the pharmaceutical industry, regulations govern the timetable during which companies must announce adverse events (unforeseen negative reactions to drugs). Effective collaboration can avert significant fines and can even mean the difference between life and death. In fashion, the Spanish clothing giant Zara demonstrates the competitive advantage of agility by providing flexible and fast supply chains that are able to capture and adapt runway designs to reach and deliver them to store racks in a matter of weeks. This capability is powered by databases that contain information on excess fabric and manufacturing capacity, as well as real-time tools to help designers and manufacturers work together better.[26]

Environmental citizenship. A company can improve its stewardship of environmental resources by collaborating via TelePresence, traditional video conferences, web-based online meetings, or other forms of virtual interaction, to reduce carbon emissions and waste from physical transportation. Cisco avoided more than 27 million cubic meters of carbon emissions – the

[21] Economist Intelligence Unit, “Collaboration: Transforming the way business works.” April 2007.
[22] Reportonbusiness.com, CBCnews.
[23] Netflix company Web site.
[24] Cisco on Cisco Case. (See U.S. & Canada whitepaper.)
[25] McKesson company Web site.
[26] Andrew McAfee and Erik Brynjolfsson, “Investing in the IT That Makes a Competitive Difference,” *Harvard Business Review*, July-August 2008.

equivalent of taking more than 11,000 cars off the road[27] – since October 2006 by reducing and shifting to more virtualized meetings and unified communications. Continental Airlines eliminated more than 10 million miles of car travel by allowing 1,095 sales agents to work from home, saving 500,000 gallons of fuel and 9 million pounds of emissions per year.[28] As volatile energy costs continue to rise, being environmentally efficient also makes good business sense.

Finally, one of the most compelling arguments for collaboration is that it puts people back at the center of work. Although the direct benefits can sometimes be difficult to quantify initially, connecting people with collaborative technologies that allow them to use their unique skills as "human middleware" can have a tremendous effect on productivity, engagement, and innovation. Moving people back to the center of work also increases their *relevance* – the ability to be at the right place at the right time – in enormous global enterprises. Accomplishing this task will require a rethinking and a transformation of the way business is done, supported by management initiatives that are open to change, and that are aided by the use of technology tools that continually improve and become more powerful.

[27] See the chapter of this paper entitled "Case Study: Cisco on Cisco." A more detailed paper on the Cisco U.S. and Canada Sales Planning and Operations collaboration case is available and is entitled "The Next Frontier in Collaboration: Improving Customer Intimacy and Enhancing Operational Efficiencies."

[28] WebEx Communications, *"Continental Airlines goes green by optimizing remote workforce with WebEx,"* WebEx Web site.

Chapter 3

Transforming Business for Collaboration

Reaping the benefits of better collaboration is a multi-stage journey. The good news is that companies have already made many of the necessary investments in technology infrastructure and applications. That technology base, along with the enthusiasm of employees to use it, together serve as a launch pad for realizing new productivity gains from better collaboration.

The Collaboration Journey

	Build foundation to unlock *participation*	Scale to unlock *business impact*	Sustain and perpetually innovate to unlock *growth and strategic advantage*
Technology Investments	▪ Underlying network infrastructure ▪ Email, IM ▪ Leverage existing investments ▪ Experimentation with new technologies	▪ Video-based interactions ▪ Collaborative workspaces ▪ Document exchange / storage ▪ Web 2.0 technologies ▪ Unified communications	▪ Introduction of new technology innovations over time
Change Management **- Organization structure** **- Process** **- Policy** **- Culture**	▪ Policy changes to stimulate usage ▪ Leadership role modeling ▪ Encouragement of grassroots efforts ▪ Accountability and incentives	▪ Coordinated communication and training ▪ Enabling process changes ▪ Collaborative governance models ▪ Cultural shift to collaboration mindset	▪ Systematic sharing of best practices ▪ Continual identification of new opportunities
Users	▪ Early adopters ▪ Growing adoption rate	▪ Expanding to key business users ▪ "Tipping point" reached	▪ Users driving perpetual innovation

The journey to improved collaboration passes through three stages: building a foundation to encourage participation; scaling up the infrastructure to deliver genuine business results; and managing the collaboration process with an eye for continuous innovation.

Many large companies have already embarked on the first phase of the collaboration journey, driven by employees who demand the technology to help them do their work no matter where they are. It is up to companies to take advantage of this willingness to use new technologies to broaden participation in collaborative efforts beyond the typical early adopters. In many cases, usage drops off after an initial spike of interest in a new capability, necessitating a concerted effort to ensure grassroots usage takes hold and spreads throughout the company.

Next, companies must shift their focus from participation to performance as they scale up efforts to achieve genuine business results. At this point, companies should link collaborative participation to solving key business problems, such as co-creating solutions or products, and resolving issues. In some cases, organizations may move to this stage with one technology that has been well adopted (IM, for example) while still focusing on increasing participation on others (say, virtual team rooms). This scenario is fairly common and is the reason these first two stages often overlap. Because this

is often the “tipping point” between positive and negative returns, companies should consider trying new IT consumption models – such as managed services, hosted infrastructures, or software as a service – to achieve scale and reliability.

Sustaining collaboration to drive growth and competitive advantage hinges on companies’ ability to embrace continuous innovation and experimentation. In this third stage, they should be open to ideas from across their own organizations, including employees, business managers, and researchers, and also from external constituents such as customers or suppliers. Companies must be able to recognize and adapt the best ideas they can find, no matter the origin.

Technology plays a critical role in the collaboration journey, serving as both a driving force behind the need to increase collaboration, and as a key enabler to allow individuals to collaborate more effectively (see Chapter 4, *An Architecture for Collaboration*). At each stage of the journey, it is critical to have a business-led approach to technology to help ensure that results are achieved.

The possibilities for collaboration have exploded in recent years as new interactive technologies have proliferated. For many companies, however, the journey begins with a systemic examination of existing investments and with a building out of necessary infrastructure to support the network of interactions that collaboration requires. A robust network infrastructure, coupled with a comprehensive set of tools for basic communication (e-mail, mobile communications, etc.) are prerequisites for companies that want to collaborate more effectively.

The management of change is crucial to unlocking the value of collaboration. Deploying technology alone cannot guarantee results from collaboration. Business leaders must focus on policy, process, and governance changes required to achieve the next level of collaboration. There are six key levers of change management to consider: well-defined, widely-communicated initiatives with clear governance; strong leadership role modeling; encouragement of early adopters and grassroots efforts; coordinated training at all levels; policy changes to encourage usage; and measurement, accountability, and incentives.

Clear initiatives and governance help ensure that programs stay focused and on track. Defined owners and regular communication around concrete initiatives help reinforce the importance of collaboration and help ensure that results directly address critical business needs. Organizational structures must balance the need for clear ownership with the need to foster the collaborative contributions of many. The success of collaboration initiatives often depends on how widely and clearly publicized the efforts are to potential users across the organization.

Leadership role modeling is a critical factor to breaking through pre-existing mindsets. Individuals at every level of the organization will look to management to see that their behavior models the desired collaborative actions. As a company endeavors to increase its level of collaboration, executives must constantly ask themselves if their own actions are models for how the rest of the organization should operate.

Encouraging early adopters and cultivating grassroots support are also essential. They stimulate participation and the most valuable collaboration sometimes springs from unanticipated, unplanned activities. Given the critical role of technology in enabling new forms of collaboration, it is often the younger technophiles in the company who are at the forefront of innovative interactions. Leaders should encourage early adopters to experiment with collaboration and they should scale any ideas once they gain traction.

Coordinated training plays an important role in fully realizing the value of technology investments made to improve collaboration. Merely deploying technology without a systematic plan for

educating users at every level of the organization leads inevitably to slow adoption and poor returns on investment. Given the interactive nature of collaboration, it is critical to think through adoption patterns and tailor training efforts accordingly (for example, training executive assistants on collaborative meeting technologies, given their critical role in scheduling meetings).

Policy changes to drive usage can encourage adoption and hasten the impact of collaboration investments. For example, tools such as videoconferencing and online collaborative platforms can obviate the need to travel for face-to-face meetings. By mandating the use of these tools and setting clear guidelines for travel, leaders can drive improvement in productivity as well as cost savings. Further, the firm should consider modifying existing policies, such as rules on interactions between organizations or functions, which may be at odds with fostering collaborative activity.

Key Areas of Change Management

- Well-defined, widely-communicated initiatives with clear governance
- Strong leadership role modeling
- Encouragement of early adopters and grassroots efforts
- Coordinated training at all levels
- Policy changes to encourage usage
- Measurement, accountability, and incentives

Finally, strong measures, accountability, and incentives motivate performance and establish clear consequences for both failure and success. Management will have to develop thoughtful metrics to track the impact realized against the identified business benefits of collaboration, and insure that their systems of accountability and incentives reinforce the importance of realizing measurable impact. More broadly, companies must consider whether their corporate culture and values truly inspire and reward collaborative behavior rather than merely glorify individuals.

The collaborative journey is a multi-year process. Initial management attention is necessary to catalyze the first steps and begin to capture business value from enhanced collaboration. However, sustained focus is essential to ultimately reaping continuous benefits as the inherent network effects of collaboration take hold, and scale and further innovation add to the value realized. The combination of a foundation of collaborative technology and effective change management is critical to unlocking participation and ensuring that usage creates real, measurable business impact.

Case Study: Cisco on Cisco

Success dashboard

Productivity

↑ 22%	Specialist productivity
↓ 37%	Air travel expense
$118 million-236 million	Savings from travel avoidance
$55 million	Savings from productivity gains

Customer and talent engagement

↑ 45%	Expert interactions with customers and partners
84%	Field citing positive impact of technologies
78%	Employees reporting increased productivity and improved lifestyle
4.7	Partner satisfaction (out of 5)

Environmental citizenship

↓ 27,136,509 m^3 in carbon emission

The North American Sales Transformation

Signficant growth aspirations, and appetite to apply creative solutions to improving the customer experience and sales operations, led to a series of new ideas on how to collaborate differently and transform the way Cisco's sales groups work.

By improving collaboration, both internally and in its dealings with customers and partners, Cisco was able to redirect the skills and talents of its employees to more productive purposes. When teams shifted their focus away from low-value activities such as traveling and searching for information, they were able to increase quality time spent with customers and partners. Technology was a critical part of the answer, of course, but equally important were conscious changes in process, policy, and attitudes that made rapid adoption of new ways of working together possible.

The results were dramatic. Specialist productivity increased by 22 percent,[29] per person air travel expenses fell by 37 percent, interactions with internal experts increased by 39 percent, and carbon emissions were reduced by more than 27 million cubic meters due to avoided travel (see figure).

Cisco achieved these results by taking a systematic approach to change the way people work. It also made sure to put in place key drivers such as clear initiatives with strong governance, top-down role modeling, policy changes, encouragement of grassroots efforts, and rigorous measurement and accountability for results.

The journey toward collaboration excellence required a three-phased approach. In the first phase, Cisco focused on gaining more value from its existing IT investments to unlock field participation and pioneering new ways to do business. For example, adoption of TelePresence and web-conferencing technologies went up after executive assistants were trained on the use of these new technologies to increase their comfort in scheduling meetings of this kind. In addition, Cisco explicitly identified and targeted communities of early adopters and included them in pilot programs.

[29] Results from Cisco SOAR Canada pilot, SOAR Channels Virtual Expert.

With momentum established, Cisco moved into the second phase of scaling to drive business results. Two hundred TelePresence units were deployed worldwide, more than half in the United States and Canada, to increase the pervasiveness and access. This enabled further increases in productivity and cost savings. Winning ideas such as replacing the two-day, 150-person quarterly in-person sales meeting with a half-day virtual meeting enabled savings of $200K per quarter. Innovative ideas that increased the number of interactions with partners and customers through virtualized experts were piloted in Canada, resulting in a 45 percent increase in the number of expert interactions with external parties. Rather than arrange traditional in-person sessions which were time- and resource-intensive, customers were invited to participate in interactive, high-quality Web-enabled training sessions. Cisco could thus reach twenty to thirty customers per event at minimal cost and maximum efficiency. Another example of effective virtual collaboration is the Cisco Partner Space, a virtual trade show where partners can build "booths" and interact with Cisco, other partners, and even customers. The Communications Center of Excellence (CCoE) is another example of an IT platform that was created to promote collaboration.

In the final stage, Cisco continues to expand innovation in collaboration, integrate tools and technologies into cohesive solutions, and incorporate collaboration processes, methodologies, and mind-sets into the standard operating norms of the United States and Canada sales organization. As one sales leader commented: "I can't imagine going back – with the way we work today I get more done in the day, talk to more customers, and work fewer hours overall."

Cisco's Collaboration Governance Model

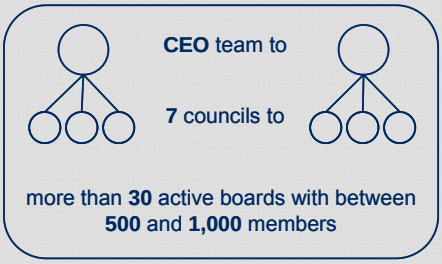
Councils and boards are essential elements of the Cisco collaboration model

Councils are formed around $10 billion opportunities and boards around $1 billion opportunities

> **Take social networking, apply the right business processes and networked Web 2.0 technologies to it, and form councils, boards, and task forces to give us the ability to move with a tremendous amount of speed and agility**
>
> **John Chambers, Cisco CEO**

22 priorities - strategic focus areas for Cisco

> **The boards' and councils' structure provide the governance and process that are boosting Cisco's ability to execute**
>
> **Ron Ricci, VP of Corporate Positioning**



Chapter 4

An Architecture for Collaboration

Technology plays a crucial role in accelerating the fundamental processes of collaboration. Technology – by that we mean information and networking technologies – accomplishes this by increasing the relevancy, accessibility, and personalization of information in the shared communication and workspaces that are required for collaboration. Further, in many organizations, the deployment of these innovative technologies has reached critical mass, which will allow some companies to profoundly change the frequency, scope, and nature of how people can interact. The net effect is that we are now beginning to see how technology-enabled collaborative solutions actually put **people** back at the center of work.

The business and technology trends that make this revolution possible include:

- **Continuous, ubiquitous, high-bandwidth connectivity**: Organizations have deployed broadband, intelligent networks, putting in place the underlying infrastructure for collaboration.
- **Web 2.0 in the enterprise**: In a profound reversal from the ways of the past in which most technologies were first developed within the enterprise and then adopted by consumers, Web 2.0 technologies (e.g., social networks, video sharing, blogging, IP voice, etc.) are often first adopted and exploited by consumers. Only now are these technologies beginning to migrate into the enterprise, driven in large part by employees who also are consumers and who demand the same rich user experience at work that they have in their personal lives: “I want the Facebook for the enterprise,…” or “Why can’t we integrate our hiring practices with LinkedIn?…” and similar petitions.
- **Rich interactive media:** Enterprises have recognized the power and efficiency of using their robust networks to deliver rich media, especially video, to every desk in an organization. Recently, companies have begun using video and other rich media, not only as a broadcast medium, but increasingly as a medium for interpersonal interactions – in a word, TelePresence – that engage users and build trust.
- **Ubiquitous mobile connectivity**: Empowering the increasingly mobile workforce is not an option, but an imperative that enterprises cannot fail to deliver. Enterprises have begun to open up access to information, communication channels, and collaboration systems on devices of all sizes, anywhere, and at any time. Collaboration applications can no longer be limited to the desktop PC. Rather, they must support a range of network-enabled devices including smartphones and PDAs as well as other intelligent mobile and personal devices. Most organizations have already deployed broadband and intelligent networks, so the basic infrastructure is already there. It should be a top priority to integrate new kinds of devices as soon as they prove to be reliable and highly secure.

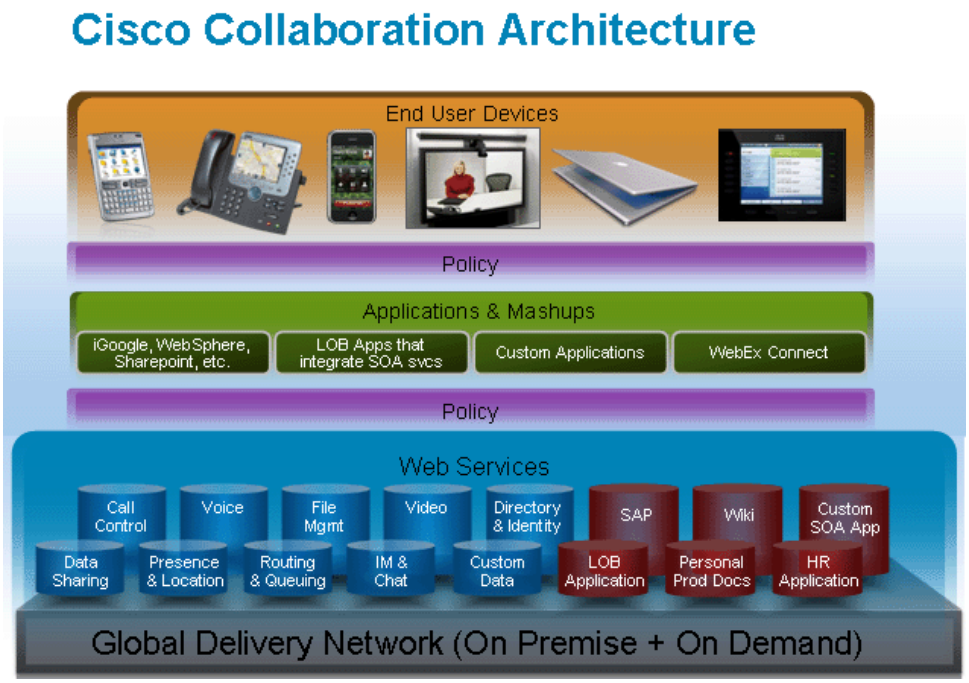
- **Security, policy, and interoperability**: For some time now, companies have recognized the immense potential for creating value by promoting collaboration across company boundaries. But working with people and systems from organizations other than your own drives home the importance of ensuring data and communications security, managing consistent policies for interaction, and setting clear rules and procedures when your systems must interoperate with systems that are not your own.
- **Data center efficiency, reliability, and scalability**: Technologies deployed in the data center – such as service-oriented architectures, virtualization, software-as-a-service, and cloud (Internet-based) computing, are usually not visible to the end user. But if they break down or aren't responsive, the end user is the first to know it. Therefore, it is important that enterprises take care to choose providers of collaborative systems and services that are truly industrial strength and can be relied upon to handle the most mission-critical of interactions. Well-designed, proven systems can help create the efficient, flexible computing infrastructure that can respond to the ever-increasing demand for around-the-clock, around-the-globe collaboration.

Delivering Collaboration Solutions

An architecture for collaboration must be robust and flexible enough to accommodate the ever-growing and ever-changing demands for collaboration. It must be able to integrate the constant stream of innovations, and be efficient enough to support business cases in increasingly competitive environments. Fortunately, an architecture for collaboration can both take advantage of the assets in which organizations have already invested and allow for the inclusion of technological innovations to meet these demands. Components of a collaboration architecture include:

- The high-speed, intelligent network is the infrastructure backbone that supports and connects the IT systems and applications among different users, both on- and off-premise, and has capacity enough to absorb on-demand traffic.
- A portfolio of collaboration-enabling services forms the basis for creating collaborative solutions. These enabling services act as a kind of middleware that provide the foundation upon which organizations can design their own custom collaboration capabilities, procedures, and policies. Technology suppliers and integrators can create customized mash-ups or composite applications based on a portfolio of defined collaboration needs.
- The architecture also includes a data layer, made up of databases of increasingly rich media, which must be wrapped with a layer of security and policy to help ensure appropriate authentication, access, and authoring rights.
- The heart of the architecture is formed by the collaboration-enabled applications that allow users to interact within company functions, across company functions, and across company boundaries. They range from traditional personal productivity tools and line-of-business applications that have been collaboration-enabled to custom or collaborative workspace applications that are designed specifically to support collaboration. These are applications such as Cisco TelePresence HD virtual meeting facilities and WebEx online conferencing, unified communications systems, video broadcasting, and on-demand servers, etc. But a collaboration support industry is also emerging to help companies fine-tune or customize their collaborative systems, much as systems integrators help customers design the right blend of technologies from multiple vendors.

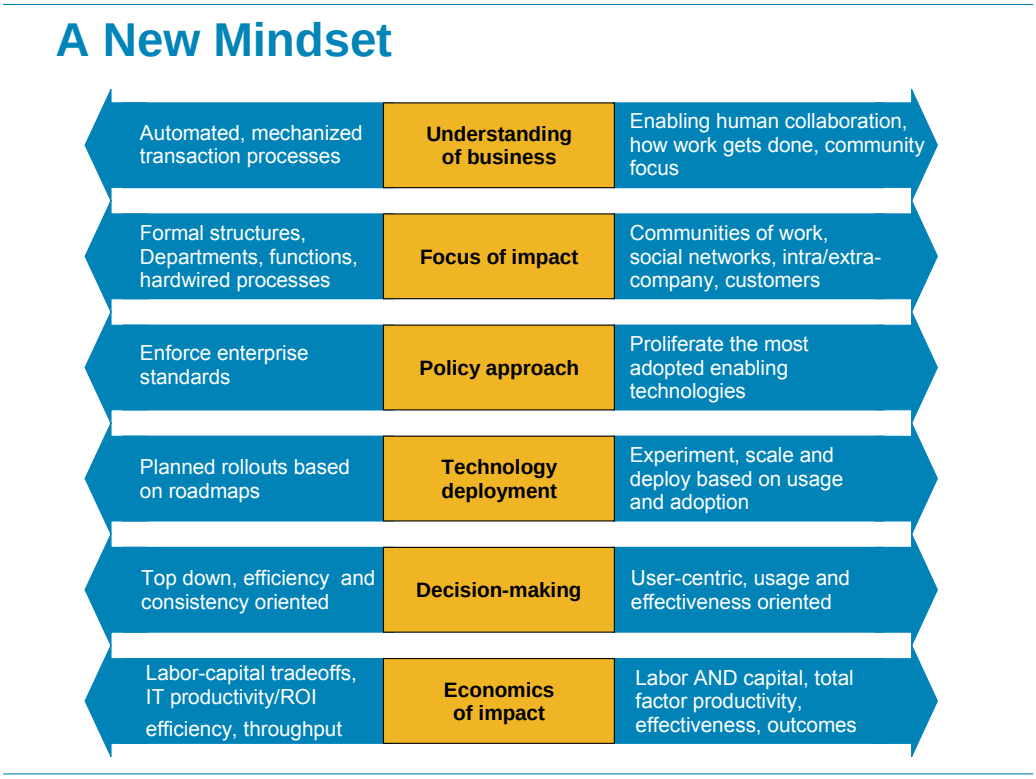
- Of course, all of these applications must be supported by a layer of security and be subject to clearly-defined company policies to ensure interoperability and maintenance of control over shared information.
- Finally, end-user interfaces physically connect individuals for collaboration. The variety of end-user interfaces range from traditional PCs and newer mobile devices to ubiquitous collaboration workspaces.



Chapter 5

Role of Leadership in Fostering Collaboration

In the new era of collaboration, the role of the business leader has changed. Stepping into that role will require a shift in mind-set (see figure). Previously, when business leaders aimed to improve the efficiency of production and transactions, they had to understand and work on documented processes, formalized organizational structures, and specified workflows. To foster collaboration in the new environment, effective business leaders will have to understand patterns of interaction and informal communities of practice.



Instead of enforcing enterprise standards and planning technology rollouts, business leaders will have to experiment and monitor rapidly scaling successes as they come to light. Decision making will shift from being top-down to enabling the front line. And the measures of impact will move from being focused primarily on efficiency to incorporating effectiveness and to being focused on revenue as much as on cost.

With this new mind-set, business leaders will have to balance the need to drive collaboration top-down through targeted initiatives with the need to foster grassroots experimentation. To catalyze their company's collaboration journey, executives must be sure to provide the technology foundation required to enable innovative collaboration, and then must build on that platform through both focused initiatives and the creation of forums that can recognize and capture collaborative benefits wherever they take hold. As leaders contemplate where to get started, they should look at all areas within their organization, and across their organizational boundaries, in order to systematically identify those activities with the greatest opportunity for collaborative value. From there, through the combined efforts of flexible and creative change management and innovative technology, it is possible to unlock tremendous and unprecedented business value.

We are entering an exciting new era of collaboration. The time to act is now as business trends such as globalization and outsourcing have fundamentally changed the way we work. Successful companies will be those that crack the code of collaboration across functional and company boundaries, driving substantial business benefits and demonstrating the ability to lead in fostering collaboration.

Questions to ask to identify activities with the highest collaboration value

- Which activities involve **multiple organizations,** particularly outside entities?
- Where are individuals interacting across dispersed physical and geographic locations?
- Are there **subject-matter-experts** whose knowledge is valuable, yet they are **difficult to find** and **stretched too thin**?
- What processes within your business rely on complex problem solving, tacit knowledge, and personal experience?
- What are the **core activities** of your business that must be as efficient and effective as possible?

Postscript

Cisco Making Better Collaboration a Reality

Collaboration is not merely a vision – Cisco and a host of its customers are already making it a reality today.

- **Cisco is a technology partner for companies embarking on the collaboration journey, providing the people with the ability to seamlessly communicate, connect, and collaborate.** Cisco believes that "collaboration-centric" work will deliver the next level of productivity for "people-centric" organizations. To enable its customers to successfully navigate and generate value from this transition, Cisco is the leader in providing these new kinds of solutions and is working closely with partners to deliver all the elements discussed previously that are needed to build a comprehensive architecture for the new era of collaboration-centric organizations. To that end, Cisco has already acquired key assets in software as a service (SaaS) policy and security that will be the building blocks of the emerging collaboration-centric organization.
- **Cisco has firsthand experience in navigating the transition from communication-enabled, transaction-oriented business processes to collaboration-centric platforms,** in terms of both its product strategy for the future and its own efforts to use these new tools to improve its employees' productivity. This is not a case of the cobbler's children going without shoes. Indeed, a key strength that Cisco brings to the customer is that it constantly tests its products within Cisco itself. As with the rest of its products and services, Cisco's collaboration-centric products come to the market battle-tested and ready for immediate productive use. Moreover, many elements at the core of the platform are industry standards that Cisco itself established such as Cisco voice/video communications and hosted Web-conferencing. They are the proven technological building blocks that form the foundation for the next-generation platform.
- **The Cisco network services strategy builds the foundation of solutions, connecting on-premise and on-demand solutions and managing communications through the Cisco Intelligent Network.** It is not a trivial task to optimize collaborative solutions that leverage both the assets in the cloud and on the premises. It requires deep understanding and experience in helping shape the core element that touches every aspect of the new corporate infrastructure – namely the network. Cisco has unrivalled understanding of network services and how to weigh the tradeoffs between on-premise and in-the-cloud solutions.
- **The Cisco offering brings together Web 2.0, Unified Communications, and Business Video in integrated collaborative solutions**. Video is the next audio, a fact that Cisco has long understood. Cisco has invested in video technologies that range from desktop to immersion systems. Cisco solutions share a common architecture and are built with a focus on how customers can derive business value from their investment. The architecture is modular, so that customers can add the relevant technology components as specific needs arise.
- **Cisco applications and services are enhanced though open APIs to third-party applications.** Cisco has developed a set of interfaces and programming tools that allow for developers as well as customers' IT departments to both customize Cisco applications and tie them in to other key applications.

- **Cisco applications are designed with an eye to superior user experience.** A positive user experience is the prime driver of customer satisfaction and rapid adoption of technology and it is an area of focus for Cisco. Ultimately, people will not use these tools to collaborate if they are not easy to use.

The Collaborative Technology Imperative

Companies need to act within the next 12 to 18 months to capitalize on the opportunity of technology-enabled collaboration. Already, some companies have adopted these technologies to create competitive advantage as their employees and partners connect, communicate, collaborate, and learn. And as we have demonstrated elsewhere in this paper, the benefits are almost instantaneous. That's because the groundwork has been laid and the workforce is perhaps better prepared than ever before to embrace a new workplace innovation of this magnitude.

- In many enterprises, the underlying technology – a broadband-enabled intelligent network, voice messaging, e-mail, and critical enterprise applications – is already in place.
- Empowered users are already bringing solutions into the workplace, based on their experiences as consumers with these technologies (like social networking).
- Innovative companies are already beginning to act, reaping tremendous benefits and creating competitive advantage in the process. They are connecting the right people, resources, and content at the right time. They are communicating more effectively and more efficiently. They are collaborating internally and externally. And they are learning from all sources.

It is time to leverage user enthusiasm, existing technology infrastructure, and innovative technology solutions to capture value for your organization. If you listen to your people, they are probably already clamoring for a collaboration-centric company that puts **people** back in the center of work.

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