

# Collaborative Performance: Addressing the ROI of Collaboration

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## ABSTRACT

*Collaboration is gaining attention as a key driver of overall business performance, innovation capabilities and productivity. However, there is a discrepancy between the perceived importance of collaboration and the extent to which companies approach collaboration in a structured manner. Few companies methodically evaluate how well they perform in the area of collaboration, and few have implemented management and leadership principles to systematically improve collaborative performance. This article explains how businesses can benefit from systematic, structured investment in tools and methods supporting collaboration, and concludes with a few governing principles and a list of specific action points for businesses that are interested in improving their collaborative performance and obtaining a higher Return on Investment (ROI) on their collaboration initiatives.*

*Keywords: Collaborative Performance, Management and Leadership, Return on Investment (ROI)*

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## INTRODUCTION

As an important dimension of work, collaboration seems to be getting more attention both from researchers and industrial practitioners. However, collaboration is a dimension of work that has not yet been fully understood, neither in terms of components, patterns, routines, interactions, or business implications of new collaborative strategies

and approaches. Collaboration often involves complex interactions between the technology and tools that are used to collaborate, and the organizational culture and processes that support and encourage collaboration (Gofus, Conway, Kostner, & Cotton, 2006).

Measuring and managing knowledge worker productivity poses numerous challenges, as the type of knowledge work that characterizes many different types of jobs today involves complex interactions with others, and many

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intangibles that are difficult to relate to other key metrics of corporate performance such as e.g. profitability, top and bottom line growth, and innovation performance. In addition, the number of commercially available collaborative tools with various degrees of overlap in functionality can be confusing to even proficient users of such tools.

Despite the problems with evaluating and managing collaboration, a growing body of research emphasizes the importance of collaboration as a key driver of business performance. One study shows that workplace innovations account for 89% of multifactor productivity gains (Black & Lynch, 2001), while an industrial survey of 946 decision makers in key positions as line managers or in the IT department (Gofus et al., 2006) concludes that collaboration positively impacts an organization's business performance, as collaboration constitutes twice the impact of a company's strategic orientation and more than five times the impact of market and technological turbulence influences. The data collected in this industrial study indicates that 36% of a company's overall performance was due to its Collaboration Index, a finding that suggests that collaboration is of strategic importance, and represents a domain that should be monitored, facilitated and managed to make sure businesses reap the potential benefits. Other recent studies have highlighted business benefits of collaboration that adds to the proposition that collaboration has wide implications for

businesses. In a 2006 study of C-level executives, IBM (2006) found that collaboration and partnering is considered very important for innovation by over 75% of the 765 executives participating in the survey, yet only slightly more than 50% responded that they collaborate to the extent that is required to reap the potential benefits. These data show that although collaboration is emerging as an important issue, there still seems to be a gap between the perceived importance of collaboration, and the actual attention paid to collaboration. The previously common view that strict protection of IPR (Intellectual Property Rights) is the only sustainable way of keeping a competitive advantage is also challenged by alternative, open approaches to sharing knowledge, as in closed versus open innovation concepts (see, e.g., Chesborough, 2003). Foroohar (2005) argues that:

*The new work paradigm—sharing, rather than protecting, trade secrets—is quickly becoming the way forward ... The era of the information silo is over. As the world has gotten smaller—and its problems (from global warming to virus hunting) have gotten more complex—it's increasingly apparent that we'll need coordinated teams to get things done.*

This shift towards more collaboration is based on the assumption that few if any companies have all the necessary knowledge, capabilities and resources in-house to successfully innovate today —on the contrary, successful innovation

typically occur at intersections between different knowledge domains rather than in isolation. Innovation is emerging as a network phenomenon, where different disciplines, competencies and organizations meet, merge and adapt while ideas are challenged, developed, tested and reengineered—as a collaborative effort.

## **METHODOLOGY**

Our research is based on a literature review in the areas of collaborative performance assessment, knowledge worker productivity and competitive advantage based on collaborative knowledge work. To obtain a sufficient coverage of a comprehensive range of relevant dimensions, references include both scientific journals and industrial periodicals and whitepapers that cover topics not commonly or sufficiently addressed in reviewed journals.

We have used consultations and extensive qualitative (semi-formal) interviews with practitioners from different industrial backgrounds as an additional source of input regarding prioritization of organizational issues and challenges related to managing collaborative performance improvement initiatives. These consultations and interviews were part of detailed case studies focusing on collaboration and knowledge work analysis within large, complex and inter-organizational projects of companies operating in the media, transport, engineering & construction, and oil & gas industries.

## **COLLABORATION; INTERACTIONS, TACIT INTERACTIONS AND KNOWLEDGE WORK**

In the 1950s and 1960s, the ‘Organization Man’, characterized by the middle ranks of managers in large organizations, emerged (Whyte, 1956). These people essentially just did what was being decided at the organization’s head office. Being entrepreneurial or autonomous was not an advantage in such a context. In return for their obedience, these people got lifetime employment. Whereas the ‘Organization Man’ not only worked for but even ‘belonged’ to the organization, current knowledge workers (a large and growing percentage of employees working for [big] corporations) have a more loose relation with their employers, and they interact frequently and intensively with other knowledge workers in their network. Virtual teams are becoming commonplace and are rapidly emerging as a preferred approach for staffing global teams, and for making sure you have the necessary competencies on your team, and enhancing the quality of decisions (Martins, Gilson, & Maynard, 2004). These interactions are enabled by technologies that reduce the importance of organizational boundaries, including audio and video conferencing tools, instant messaging, shared workspaces, social networking platforms, Blackberries, handheld devices and laptops.

Whilst important, having access to a powerful platform of technologies sup-

porting e-collaboration is not sufficient. The technologies must be supported by wider organizational practices to deliver their full potential. According to a study on knowledge work in the 21<sup>st</sup> century organization (Bryan & Joyce, 2005) “today’s big companies do very little to enhance the productivity of their professionals. In fact, their vertically oriented organizational structures, with ad hoc and matrix overlays, nearly always make professional work more complex and inefficient.” The way collaborative work is organized and facilitated affects the nature of interactions, and these interactions’ ability to support fundamental business processes. The next sections provide an overview of interactions, their pervasiveness and how they support other business processes.

An *interaction* can be described as a mutual or reciprocal action or influence (Merriam-Webster, Inc.). The increasing specialization of work and complexity of products and services requires coordination, and the importance of interactions is growing. In a broad survey on interactions, McKinsey has defined interactions as “the searching, coordinating, and monitoring required to exchange goods and services” (Butler, et al., 1997; Johnson, Manyika, & Yee, 2005). As products and services are typically becoming more complex, the *interaction overhead* becomes substantial, and effectively managing this overhead becomes critically important. A Comprehensive study on interactions (Butler, et al.) concludes that in 1994,

interactions represented 51% of labor activity in the United States – or more than a third of GDP. At an individual level, interactions peak at nearly 80% for interpersonal knowledge workers, subject matter experts, executives, managers, and supervisors, typically a company’s highest paid workers. Considering the large portion of activities that are collaborative for these knowledge workers, even a modest productivity increase is likely to have a substantial impact on business performance.

Many sectors have experienced significant growth in labor productivity over the last 30 years (see e.g. Kock & Antunes, 2007). However, when looking more closely at different types of jobs, certain differences emerge that have interesting consequences. A McKinsey study has classified today’s jobs as *transformational*, *transactional* or *tacit* (Johnson et al., 2005). In this context, transformational means jobs mainly concerned with extracting raw materials or converting them into finished goods while the two latter categories involve interactions of various kinds. Transactional jobs involve mainly routine interactions (often script- or rule-based), while tacit jobs involve complex interactions with few or no routines that typically require people to deal with uncertainty, requiring contextualized decision making. These complex interactions are defined as *tacit interactions*, and the collaborative issues covered in this article refer specifically to this type of interactions. According to the classification criteria, knowledge workers

with tacit jobs typically often draw on deep experience, and must exercise high levels of judgment.

Studies indicate that productivity gains for knowledge workers involved in tacit interactions (Johnson et al., 2005), *tacit knowledge workers*, are typically hard to duplicate, and such gains therefore represents an opportunity for organizations to build a sustainable competitive advantage. In subsequent sections in this article, tacit knowledge workers are sometimes referred to as eProfessionals (E-professional - Wikipedia, the free encyclopedia, 2008).

The combined effect of globalization, specialization and new technologies are making interactions far more pervasive in developed economies, and the complex interactions found in tacit jobs is growing rapidly. 70% of all US jobs created since 1998 can be classified primarily as tacit, and the pattern is similar in other developed countries. Hence, eProfessionals or knowledge workers involved in tacit interactions represents the quickest growing segment of workers - and these jobs will constitute the core of tomorrow's competitiveness for developed countries (Johnson et al., 2005). This growth represents a management challenge, as tacit interactions are difficult to manage, partially because the knowledge that is being exchanged is often contextualized, and possessed by each individual. Furthermore, there seems to be a substantial underinvestment in IT tools and methods supporting tacit knowledge work.

Brynjolfsson & Hitt (1998) has concluded that only co-investment in tools and methods yield positive performance outcomes. In their study of computers' effect on productivity, they argue that productivity growth by definition does not come from working harder; working harder may increase output, but it also increases labor input. Similarly, using more capital or other production factors does not necessarily increase productivity. The authors hence conclude that any productivity growth comes from working smarter, by adopting new technologies and new techniques for production. Techniques for production in knowledge work in most cases involve tacit interactions, and how these interactions are supported depends on a range of factors in addition to the technology itself. The combination of these factors can be represented by the broader term work practice or work system. Firms that couple IT investments with new, decentralized work practices are about 5% more productive than firms that do neither (Brynjolfsson & Hitt). However, firms can actually be worse off if they invest in computers without a co-investment in new work systems. Hence, IT investments should be accompanied by new work practices (new methods, new attitudes, new organizational structures, et cetera) to unlock the full range of potential benefits contributing to productivity growth. Brynjolfsson and Hitt also found that implementing new IT tools alone does not automatically increase productivity, but that new IT tools can

be an essential component in a broader system of organizational changes that does. Furthermore, as the pervasiveness of interactions and IT tools increases dramatically, it is increasingly important to consider organizational changes as an integral part of this transition process.

In a study of business performance (business performance is here defined as EBITDA per employee; EBITDA equals earnings before interest, taxes, depreciation and amortization) the variation<sup>1</sup> in company-level performance is greater in companies with a high intensity of tacit interactions than in others (Beardsley, Johnson, & Manyika, 2006). This large performance variation for businesses with the highest intensity of tacit interactions indicates that improving the productivity of the workers that are involved in the most complex, advanced knowledge work – tacit interactions – may constitute a robust platform for building a sustainable competitive advantage. This opportunity is not observed and acted on by many organizations, and increased IT investment levels alone are not necessarily beneficial for productivity and business performance. However, there is often a relation between the two, and tacit-dominated sectors in the top quartile of labor productivity have typically equipped their employees with five times more IT stock than the bottom quartile, and they are also increasing their IT stock per employee 40% more rapidly, on an annual basis (Beardsley et al.).

Studies indicate that the average IT stock is lower for tacit jobs than for many other job types. Some may find this surprising and counterintuitive. For the typical transactional functions of any job, there are often several good support systems available. But for the complex, tacit interactions that are becoming such a pervasive phenomenon, the IT support offered in terms of IT stock per employee is lagging far behind. And not only is the base IT stock typically at a substantially lower level for tacit jobs than for transactional jobs (Johnson et al., 2005); both for the top and bottom quartile, but the compound annual growth rate is also significantly lower (top quartile only). This difference in willingness to invest strategically in tacit interactions from an IT perspective indicates that support systems for complex, tacit interactions are relatively immature compared to transactional support systems.

An MIT study on collaborative advantage (Hansen & Nohria, 2004) concludes that:

*Firms come into being in order to enable human beings to achieve collaboratively what they could not achieve alone. If one accepts this as the true purpose of any organization, then the main focus of executives' attention should be on how to foster collaboration within their companies.*

The ability to collaborate closely and successfully by sharing knowledge and jointly developing new products and



services is emerging as a key source of competitiveness. Corporations that are able to establish, stimulate and support collaboration in flexible, dynamic patterns that are well aligned with business opportunities can leverage their combined set of dispersed resources available in their network of subsidiaries, global divisions, suppliers, customers and partners around the globe.

Collaboration is identified as a potential source of competitive advantage because collaboration typically does not flourish without intervention; on the contrary, it often requires simultaneous co-orchestration of several factors and dimensions. Several key barriers obstruct collaboration within complex organizations and other networked organizational forms, including technological barriers as well as non-technological factors such as not-invented here syndrome and other sources of lack of trust and understanding (Hansen & Nohria, 2004). Furthermore, in order to overcome those barriers and create competitive advantage, companies will have to develop and deploy a distinct, unique set of work practices combining technologies, competencies, organizational and leadership models, and organizing capabilities that enable tacit knowledge workers to reach out, collaborate and interact with peers and external collaboration partners. Such combinations are highly contextualized and cannot be easily copied by competitors.

## **COLLABORATIVE EFFECTIVENESS AND EFFICIENCY**

In tacit knowledge work, collaborative performance depends on collaborative effectiveness and collaborative efficiency. Many organizations launch improvement initiatives with the aim of improving collaborative efficiency, focusing on reducing necessary travel time and associated costs, and increasing time on task by providing better integration between collaborative and individual work (Kristensen, 2003). A factor often influencing the choice of issues considered is the emphasis of vendors of commercially available collaborative solutions, emphasizing collaboration efficiency and promising a solid return on investment (ROI). However, measuring collaborative ROI is not a simple task. Comparing budgets for business travel and costs associated with hardware and software for collaboration is relatively straightforward, but monitoring cause and effect relationships for complex collaborative situations in geographically distributed teams involves a long list of additional factors. For instance, trust and shared understanding often develops quicker in collocated settings. In a study on proximity and distance in work groups (Kiesler & Cummings, 2002), it is argued that getting together often has intrinsic value, for example enhanced trust through traditions such as the handshake and other bodywork. These mechanisms enhance the collaboration

effectiveness rather than collaborative efficiency.

Efficiency and effectiveness are fundamentally different, although related. While efficiency considers the resource usage necessary to obtain an output from a given input, effectiveness considers the alignment between output and goal, or simply the goal fulfillment O'Donnell and Duffy (2001a; 2001b) view design as a knowledge process and design performance a compound metric where both design effectiveness and design efficiency are considered ( $E^2$  performance model). This is analogous to collaborative performance; defined as a compound metric of collaborative effectiveness and collaborative efficiency respectively. Figure 1 and Equations 1 & 2 describe the collaborative performance compound defined by collaborative efficiency and effectiveness used here (see Kristensen, 2003; O'Donnell & Duffy, 2001a; 2001b). As today's knowledge processes often depend on collaboration, this model has useful implications in the process of exploring the facets of collaborative performance.

$$\text{Efficiency: } \eta(A_k) = K^+ : R_U \text{ and } K^+ = O - I \quad (1)$$

$$\text{Effectiveness: } \prod(A_k) = r_C (O, G) \quad (2)$$

In Equation 1,  $\eta(A_k)$  describes Efficiency ( $\eta$ ) of a Collaborative Activity ( $A_k$ ),  $I$  describes Input (Knowledge),  $O$  describes Output (Knowledge),  $K^+$  describes Knowledge Gain, and  $R_U$  De-

scribes Resource (Knowledge) Used. In Equation 2,  $\prod(A_k)$  describes Effectiveness ( $\prod$ ) of Collaborative Activity ( $A_k$ ),  $r_C$  describes the Relationship (Comparative),  $O$  describes Output (Knowledge), and  $G$  describes Goal (Knowledge).

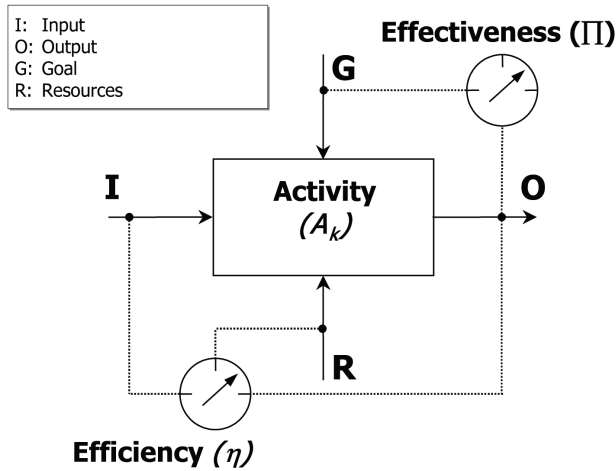
## EXPLORING THE ROI OF COLLABORATION

Knowledge in complex fields is often created as a direct result of interactions between knowledge workers. However, this process is neither well understood nor possible to manage with existing tools and approaches. A more systematic approach to knowledge work and the emergence of dedicated tacit knowledge interaction support systems may enable improved collaborative performance and hence more productive collaborative knowledge work.

Tacit knowledge workers or eProfessionals are typically highly networked individuals operating under dynamic, unpredictable conditions. Their interactions with others can take many forms, but conditions outside their control often impose restrictions on the potential ways eProfessionals can interact with others. The number of potential restrictions imposed on eProfessionals operating in complex networks is, for practical purposes, limitless. Examples include people and network availability issues, platform incompatibility, security constraints, potential collaborators' lack of skills, budget constraints, Quality of Service, as well as other factors.



Figure 1. Collaborative E<sup>2</sup> model (adapted from O'Donnell and Duffy, 2001a; 2001b)



All these restrictions negatively influence the professionals' collaborative performance, either by reducing collaborative effectiveness, by limiting collaborative efficiency, or any combination of the two. Furthermore, for most users, the costs and benefits associated with different collaborative tools and methods are not transparent. To better understand relations between collaboration inputs and outputs, there is a need for collaborative diagnostic tools that are able to provide decision support by indicating areas that require attention, and by suggesting possible solutions in terms of collaborative strategies, tools and approaches, and hence improve the return on investment (ROI) of collaboration.

Collaboration and knowledge sharing are primary drivers for creativity and innovation for today's networked businesses. As work is becoming more

collaborative, both productivity and the ability to innovate depend on advances in the way knowledge workers collaborate. The problem is that evaluating when, how and with whom to collaborate to achieve business objectives in the most effective and efficient manner is very difficult, due to the inherent complexity of today's highly dynamic interaction patterns.

The choice of collaborative methods and tools is usually based on intuition and previous experience through habitual practice. As a result, decision makers have few effective and systematic ways of evaluating the costs and benefits different collaborative strategies and scenarios imply for their organizations. Hence, there is a need for modeling tools that can assist the decision making process regarding what collaborative strategies and approaches to pursue at any given time. For examples of simple

diagnostic tools and frameworks that have been developed to provide simple decision support on the organizational ROI (return on investment) of different collaborative strategies; see e.g. Kristensen & Røyrvik (2005); Kristensen & Kijl (2008). Using these models, it is possible to evaluate collaborative approaches based on facts and structured comparison of costs and benefits, instead of habitual practice and blurry, subjective perceptions. This increases the transparency of costs and benefits, asymmetries and trade-offs.

## **FINDINGS: ORGANIZATIONAL IMPLICATIONS OF ROI ASSESSMENT**

The need for interactions increases with growing complexity and ambiguity, due to professional specialization and the required coordination of numerous disciplines. This shift from individual work to connected, collaborative work requires a redefinition of what constitutes tangible work, and this has implications for support functions delivering products and services that are supposed to facilitate work by making it more effective and efficient. This includes Information Technology (IT), Facilities Management (FM) and Human Resources (HR), as well as a number of other disciplines.

Productivity improvement is all about reaching business objectives faster. Research indicates that this perspective favors effectiveness measures over efficiency measures (see e.g. Beardsley

et al., 2006). Hence, instead of trying to maximize time on task in a traditional sense by minimizing interactions, companies should seek to maximize the quality of these interactions. Quality interactions are self-regulatory in the sense that they are the most effective way of reducing the non-productive collaborative work that is often necessary to clean up after poor interactions. As an example, organizing these interactions around business trips or other planned face-to-face meetings often prolongs the time from a problem is identified to its solution, creates scheduling problems, and potentially creates domino effects for an extended network due to unavailability and rescheduling problems.

Organizations interested in exploiting the full range of potential benefits arising from improved collaboration, should facilitate collaboration in a systematic, coordinated way that involves all relevant roles and functions in the organization. The earlier mentioned shift from organization man to networked person implies broad changes in the number of available strategies and development trajectories related to collaboration, as well as how these strategies may be implemented to improve interpersonal productivity.

Observations in a number of (mainly) large organizations indicate that the current way of organizing, managing and facilitating collaborative work (or, perhaps more accurately, lack thereof) imply the following challenges for organizations:

1. **Splitting of roles:** Facilitating technology-mediated collaboration is inherently complex and involves many different functions and roles, and these different stakeholders may or may not have conflicting views on how collaboration should be addressed and how policies concerning collaboration should be defined. This complicates effective decision making and limits flexibility, in particular in terms of supporting ad hoc collaboration scenarios.
2. **Limited alignment of roles and business needs and priorities:** Many IT departments and external organizations providing collaboration services have limited knowledge about the variety of business needs that could or should be addressed through technology-mediated collaboration. In some of the cases where this knowledge is available, it is not possessed by the people in the roles needed to initiate the necessary changes.
3. **Few or no mechanisms of transferring best practices:** Smart use of IT is often limited to isolated pockets of enthusiast users. This is often partly due to the contextualized knowledge acquired in these groups' specific business circumstances, and partly due to inefficient or non-existent transfer mechanisms for best practices. It may also in part be attributed to lack of awareness, as organizations may have the desired infrastructure, associated collaborative functionalities and methods available, with no apparent link between these collaborative resources and satisfaction levels. This may be a result of limited or no awareness of the available tools and methods. Observations suggest that even a small investment in awareness building may yield significant productivity improvements. Finally, lack of training may represent a challenge for adoption. Similar to limited awareness as described above, lack of training may also severely limit the potential benefits of new collaboration infrastructures, associated collaborative functionalities and methods. Observations suggest that a modest investment in training may yield significant productivity improvements.
4. **Low level of reflection in the area of real time collaboration:** Many organizations has launched formal productivity improvement initiatives in the area of asynchronous collaboration, including definition of formal procedures and best practices, as well as incorporating these tools as standard tools to be used when doing certain types of work. In contrast to this, synchronous or real time collaboration is largely unmanaged and users have to identify and negotiate their own approaches, often with limited success.
5. **Collaboration is viewed as singular instances rather than something that should be supported across different situations:** As knowledge workers live busy lives

with numerous interruptions and a constantly need to shift mental focus, developing collaboration systems primarily for single-situation work modes may not satisfy the need for development in the area of transition support mechanisms. Ideally, systems should be able to adapt and respond to the user's need as he or she moves from a certain collaboration process to the next.

- 6. Lack of methods for proper business case development:** For most organizations, the benefits of improved collaboration are vaguely defined, and more often than not only in non-monetary terms. This makes it difficult to justify investments in new collaborative infrastructures and new collaborative methods that could have a positive effect on interpersonal productivity and, ultimately, overall business performance.

These observed challenges indicate that many organizations are not fully aware of the importance of collaboration and how it relates to and drives overall business performance. A possible reason for this is the apparent lack of methods for achieving business objectives effectively and efficiently through collaboration; both in the educational system and in the workplace. Users are typically given a set of tools that may or may not represent a proper fit with their collaborative requirements. Although corporate or project specific manuals may be very specific in certain areas, few

of these manuals contain any specific guidance on how to use collaborative systems to achieve business objectives. As these systems are too complex for the user to understand intuitively without proper guidance or training, the *common assumption that most people intuitively know how to collaborate effectively and efficiently is therefore not accurate in most cases.*

As managing collaboration requires involvement of IT, HR and FM departments as well as other disciplines, the complexity and multidisciplinary nature of collaboration can sometimes cause a form of organizational gridlock where change management is difficult because success ultimately depend on approval for a range of changes from all disciplines. An analysis of a number of large corporations suggests a number of levers for collaborative performance improvement. These are described in Table 1.

## CONCLUSION

Collaboration is rapidly manifesting itself as a key driver of overall business performance. New IT tools and systems may enable new types of interactions, or extend existing interactions to new settings, thereby increasing mobility and collaborative performance in new contexts. However, companies seeking to use collaboration strategically to build a sustainable competitive advantage should take a broader approach than merely looking to implementation of new features or new tools. Collabora-

*Table 1. Levers for collaborative performance improvement*

<b>Lever</b>	<b>Description</b>
<i>Motivational work</i>	<i>Build internal understanding of how collaboration can constitute a key competitiveness factor for large, coordination-intensive corporations, as well as awareness initiatives</i>
<i>Attitude and cultural issues</i>	<i>Build attitudes and a culture that embraces open sharing of knowledge and contributes to overall knowledge creation and dissemination</i>
<i>Infrastructure: Shared facilities</i>	<i>Improve meeting room equipment standards; common principles, additional functionalities, improved user interface</i>
<i>Infrastructure: Server / asynchronous</i>	<i>Improve document and data management systems for ongoing and finished projects (life cycle perspective)</i>
<i>Infrastructure: Server / synchronous</i>	<i>Develop flexible systems for communication and collaboration that handle collaborative sessions across different IT platforms</i>
<i>Infrastructure: Search engine / portal</i>	<i>Develop a powerful user interface that enables search across different databases and information resources</i>
<i>Infrastructure: Network capacity</i>	<i>Adapt bandwidth requirements to allow for ad hoc rich media conferencing</i>
<i>Infrastructure: Personal hardware / software</i>	<i>Streamline the management of PCs, smartphones and other handheld devices including software for synchronous and asynchronous collaboration</i>
<i>Infrastructure: Competency library</i>	<i>Develop a searchable, tagged competency library that is integrated with information and knowledge resources</i>
<i>Training</i>	<i>Launch broad competency development initiatives, including specific, contextualized training and continuous improvement initiatives</i>
<i>ROI evaluation</i>	<i>Initiate systematic evaluation of collaborative performance, including benchmarking and identification of high priority areas</i>
<i>Collaboration management</i>	<i>Identify high-level management and leadership principles, emphasizing coordination and integration of roles and responsibilities</i>

tion works at its best when it forms an integral part of the organization itself, and only when new collaboration concepts and scenarios are supported by a joint focus on new technology and new organizational practices do they form the typical embedded system that is difficult to copy by competitors.

A number of dimensions of collaborative work have been highlighted to provide a comprehensive coverage of key drivers of collaborative performance. The importance of collaboration is further emphasized by the rapid

proliferation of interactions in general and tacit interactions in particular. When coupled with the apparent under-investment in IT systems supporting tacit knowledge work, opportunities emerge for businesses that seize the opportunity to develop a competitive advantage that is not easily scripted and copied by competitors. Investments in IT infrastructure alone are not enough; they should be followed by a co-investment in methods and management practices to secure productivity improvements. Studies indicate that an investment in

collaborative tools and methods that enable effective knowledge interactions represents a good investment. One can argue that collaboration comes at a cost, but so does “non-collaboration” or poor collaboration - and these costs can in many cases far exceed the total cost of collaboration. However, since the costs of “non-collaboration” appear on budgets other than IT investment and organizational development, the optimization should be done on an enterprise-wide level. This requires direct involvement of senior executives with the authority to balance these tradeoffs between units, departments and projects on an enterprise-wide level, or even inter-enterprise or network level. Below a few suggested action points are described.

**Business case:** As a starting point, senior managers should recognize the importance of collaboration and start building a company-specific business case for collaboration to clarify how improved collaboration affects business performance. This business case can assist a general understanding of the importance of collaboration in today’s coordination-intensive business environment, and justify collaboration improvement initiatives. The potential cost implications related to “non-collaboration” for different security policies should be evaluated against the corresponding risk profiles for different collaboration scenarios. To achieve this, it is recommended to work closely with other units to understand the deeper implications of collaboration

(or non-collaboration) in an extended network of consisting of company offices, contractors, suppliers, customers and partners.

**Collaborative performance – optimizing for effectiveness:** Companies interested in improving their collaborative performance should not focus only on collaborative efficiency (converting knowledge inputs to knowledge outputs by means of collaboration, using a minimum of resources) – studies indicate that the current underinvestment in IT tools and methods supporting tacit knowledge work does not yield the expected efficiency improvements. What is perhaps even more critical is collaborative effectiveness, or the alignment of knowledge outputs generated by means of collaboration, with organizational goals or objectives.

**Collaboration management:** IT managers must get involved in the process by defining and elaborating principles that balance the need for a flexible collaborative working environment with the required security level for different collaboration scenarios. This is required to improve the collaboration capabilities of the organization. Furthermore, organizations should seek to define a set of collaboration guidelines that support high-performance collaboration practices.

**Role consolidation and service provision:** Collaboration is multidisciplinary, and ultimately involves stakeholders from IT, HR, senior management, and other line and staff disciplines. The need for establishing a



cross-functional collaboration task force that convenes regularly should be considered. To improve the collaboration quality or collaborative infrastructure utilization rates, it is recommended to initiate a support function (collaboration helpdesk) that handles a range of (multidisciplinary) collaboration issues. This function has the potential to simultaneously improve service levels and the fundamental understanding of user needs and bottlenecks. Furthermore, it can initiate changes that expand the range of potentially profitable collaboration services that can be provided internally.

Companies that increase the awareness of collaborative challenges for tacit knowledge workers, establish an infrastructure that enables robust collaboration in a variety of settings, and use a defined approach to systematically evaluate what collaborative strategies to pursue, can use this to establish a sustainable competitive advantage. Through this approach, they can leverage their own and other companies' competencies and capabilities effectively in global networks.

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## ENDNOTE

- <sup>1</sup> The variation in company-level performance is defined as the ratio of standard deviation to mean for EBITDA per employee within each industry.

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