It's Time for a Revolution in Knowledge Worker Productivity

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Traditional measures of productivity don't optimize the contribution of knowledge workers or maximize the competitiveness of their firms. To compete in the knowledge age, companies must redefine what productivity means.
It's difficult to make a business case for certain kinds of IT tools. Search and collaboration tools, some applications of document and content management, and messaging applications fall into this category. What's the problem? We know these systems can save time and effort for high-value employees, but what does that savings equate to?

The question most-often asked, however, is, "How does this affect the bottom line?" If it isn't asked explicitly, then it's lurking somewhere behind the scene. Capitalist economies focus myopically on one and only one way of measuring productivity and efficiency — operational productivity. If you can tie operational efficiency to improved financial performance in your IT business case, then you've got a winner. Without it, you're sailing into the wind.

This doesn't discount the importance of the bottom line, but business success can be measured in other ways. Corporate social responsibility, sustainable business models, ethical standards and behavior are important topics in the business press. If there are other objectives besides profit, then there must also be other measures of success — for example, speed of decision making or time to market. Of course, those measures are still expected to be linked back to improved financial performance. Thus, we tend to fall back on that other great industrial-age measure: speed. When everyone was working on an assembly line — and in places where people still do work on assembly lines — speed and the lowest cost per-unit produced are among the only things that matter. The old saying that "you can have it cheap, quick or good — pick two" doesn't hold true in industrial operations. There are thousands of examples of product companies that do all three.

However, when it comes to knowledge work and measuring its outcomes, there's often a trade-off. Decisions made quickly often aren't the best ones. Actions taken solely on the basis of cost may undermine the long-term future of the business, as demonstrated by evidence that workforce reductions improve profitability over a few quarters, but have a negative effect on longer-term stock performance. In managing knowledge work and knowledge workers, we must manage trade-offs between cheap, quick and good. The problem is that objective measures of "goodness" in knowledge work are notoriously difficult to find, mainly because knowledge work is varied and its objectives are often unclear — even to those conducting it. This indicates a need for better measures of goodness.

Applying industrial-age measures such as speed and throughput to knowledge-age work means that companies focus on familiar but arguably less-valid aspects of knowledge workers' output. In knowledge work, what you "see" is someone using a keyboard, talking on the telephone, peering at BlackBerry devices, engaging in conversation, using whiteboards or watching a computer screen. What you don't see are the intangible, mental aspects of knowledge work — thinking, reflecting, listening, analyzing, collaborating, responding, brainstorming, coordinating, seeking, learning, synthesizing, reading and processing — all of which are applied in unpredictable ways to companies' designs, plans, services, products, decisions, innovations and actions. Failing to acknowledge the intangible aspects of knowledge work, companies focus instead on the more-familiar aspects of speed, cost and throughput — ignoring the more-difficult issue of measuring intangible benefits.

It's not that companies don't appreciate how work is changing (some do, some don't); rather, they have no practical way of "teasing out" the intangible aspects of performance. Fortunately, many leading-edge companies move forward anyway, fueling the intangible aspects of knowledge-work performance without waiting for proof. That's what makes them leading edge: They intuitively know — and invest on that basis — that supporting intangible aspects of knowledge work through
information, leadership, tools and decision-making discretion will enhance individual productivity, galvanize team performance, ignite collaboration and inspire innovation.

These issues are important because more workers are becoming knowledge workers than ever before. But knowledge workers aren't one homogeneous group that requires identical tools and support. There are probably hundreds of ways to describe and categorize knowledge workers and what they do.

One way is to describe, at an abstract level, the kinds of tasks that knowledge workers perform. In a 2003 academic study, “The Skill Content of Recent Technological Change: An Empirical Exploration,” Autor, Levy and Murnane examined how computer technology alters job-skill demands. They found that between 1960 and 1998, employment rose in jobs featuring nonroutine cognitive tasks (analytic and interactive people-to-people tasks) and fell in jobs featuring routine cognitive (and noncognitive) tasks. To their thinking (and ours):

- IT capital substitutes for a limited and well-defined set of human activities involving routine (repetitive) cognitive and manual tasks.
- IT complements (that is, it's synergistic with and doesn't substitute for) activities involved in nonroutine problem solving and interactive (person-to-person) tasks.

IT cuts employment opportunities for routine (repetitive, algorithmic) cognitive and manual tasks while increasing opportunities for people performing nonroutine cognitive tasks. (The authors' work has been replicated in several countries, including the United Kingdom and western Germany.) Therefore, we must define categories of knowledge workers, describe their tasks and make decisions about them based on their characteristics.

The pieces in this Knowledge Support Spotlight firmly establish the central roles of knowledge-intensive processes and nonroutine cognitive tasks as the focus of knowledge worker productivity measurement efforts. The pieces will address the following questions:

- How can we describe and benchmark these nonroutine cognitive/interactive tasks?
- How do organizations support the knowledge workers who carry out these tasks?

Although our work is ongoing, we can provide some preliminary answers to these questions. The nature of knowledge work and how to benchmark it are covered in three pieces:

In "New Knowledge Worker Demands Will Challenge IT Practitioners," we argue that the focus on knowledge workers is misguided and should instead be focusing on defining knowledge work more precisely. This focus on types of knowledge work and knowledge work products will enable us to more-precisely benchmark and measure the effectiveness of knowledge work and, therefore, the effectiveness of the tools that IT can provide for supporting and augmenting it.

In "How to Put the Knowledge Into Knowledge Work," we suggest that the application is the most-important activity in most organizations, not the creation of knowledge. We conclude that knowledge management (KM) programs and tools should focus on the application, not on knowledge creation, in key task areas such as designing, planning, problem solving and decision making.

We take this a step further by suggesting how the outcomes of knowledge work should be measured. In "How to Measure the Productivity of Knowledge Workers," we identify five distinct situations in which knowledge workers play a central role and suggest different metrics for each one. Although this isn't a comprehensive set of knowledge work processes, the notion that different metrics apply is an important one, and this diversity of situations suggests that the search for meaningful metrics for knowledge work will be ongoing.
We address the question of how best to support knowledge workers in two pieces:

In "Make Processes Flexible When Enhancing Knowledge Work," we use several case studies to define and illustrate what the knowledge-intensive steps are in various processes, then suggest some general characteristics that supporting applications must have to optimize knowledge worker effectiveness in those processes.

"KM Adoption Model Highlights Critical Success Factors" completes the Spotlight with examples of successful KM programs. We discuss gathering the elements of knowledge worker support into a sustainable program. This Spotlight postulates that knowledge worker support and KM programs must be process-focused to be measurable, and the cases cited here overwhelmingly support that hypothesis.

The Future

Having answers to these questions, or at least understanding what we're trying to affect, will make IT purchasing decisions more rational and easier to justify, with more methods at our disposal than "cost justification" or return on investment. Definitive answers will take time, but at least we've started.