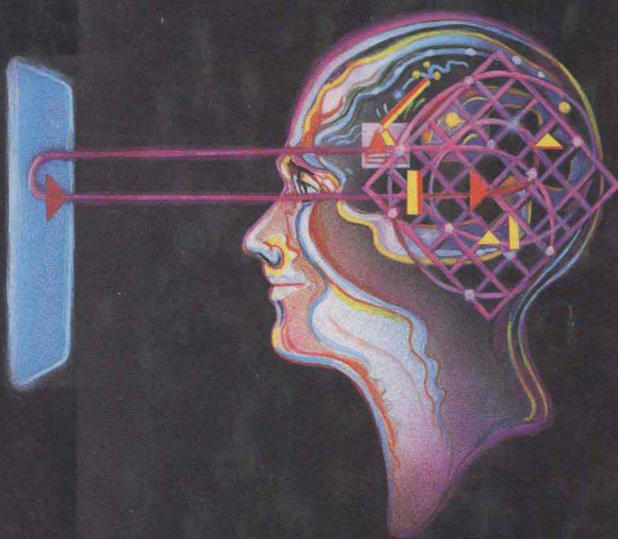


FutureWork

PUTTING KNOWLEDGE TO WORK
IN THE KNOWLEDGE ECONOMY



ANDERSEN
CONSULTING

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Charles D. Winslow • William L. Bramer

FUTUREWORK

Putting Knowledge to Work
in the Knowledge Economy

Charles D. Winslow
William L. Bramer



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FOREWORD

This book reflects a massive economic transformation in modern enterprise. No longer do huge capital facilities determine who wins and loses in competition. Managing intellect—knowledge-based assets and knowledge workers—has become the centerpiece for profitability in virtually all companies. Services—dominated by knowledge work—account for 79% of all employment and 74% of the value-added in U.S. Gross Domestic Product; 80% to 85% of all measured information technology (IT) investments are in services industries. Of the remaining 15% of IT investments, a large proportion supports “knowledge-based” work in manufacturing firms.

In a world where the economists’ land, labor, and capital no longer explain wealth generation, we need new concepts to capture and harness the forces of economic growth. Intellect, intelligence, ideas are the substance of production. The essence of management now involves systematizing, supporting, and motivating these ephemeral forces. The old “worker and manager” paradigm has been effectively demolished elsewhere. Bramer and Winslow create an Integrated Performance Support environment—consisting of a Librarian, Coach, Coordinator, Historian, and Assistant—as the new integrated management unit. But these are not just cute terms. The authors call on a rich array of practical cases and results to bring their ideas to life. This work will be a reference for all pragmatic managers.

Knowledge, and knowledge work, dominate the value chains of virtually all companies—whether in services or manufacturing. Knowledge work includes research and development, process design, product design, logistics, market research, marketing, advertising, sales, distribution, legal, public relations, accounting, personnel, finance, health care, and so on.

During the 1980s, a number of books and articles recorded a lack of growth in the productivity of the white collar workers in their activities despite the massive information technology investments supporting them. So serious was the disparity between investment and apparent output that it became known

as the “productivity paradox.” Managers were often frustrated in their attempts to leverage their knowledge workers and intellectual assets with information technology. Although many books pointed to the benefits of IT use—that is, flatter organizations, more responsiveness, greater empowerment, and the capacity to manage highly dispersed systems—few offered useful insights on how to achieve these benefits effectively. *Future Work* does just that.

Focusing on a “performance-centered workplace,” Bramer and Winslow provide practical insights and thorough examples to tell us how managers can convert the highly disaggregated and constantly changing jobs of knowledge workers into a truly effective enterprise. They concentrate on the fundamental level at which work is performed. But they extend their commentary into the rarefied atmosphere of strategy as well. They even lace the work with historic quotations and words of wisdom that offer a timelessness rarely achieved in management books.

They focus on achieving optimum performance, every time. And they recognize that only the customer can determine what optimum performance is. Wisely, they make customer satisfaction, worker satisfaction, and profitability the triad of goals toward which managers must guide white collar performance. Research shows that when these three goals are optimized simultaneously, firms achieve six to 10 times the benefits of those seeking more simplistic, short-term financial targets. In their system, the organization continues to learn and to build—as well-designed knowledge organizations do—exponentially on their past successes.

A critical insight is their attention to “Integrated Performance Support” to allow both the workers and technology to synchronize most effectively. Their approach moves beyond solving today’s problems to systems that can anticipate future performance needs and enable knowledge workers to handle challenging moments not yet anticipated. While consistent with current theories, this is no theoretical book. Nor is it a “how to” handbook designed for those looking for a quick fix. It consciously looks at “organizations in movement,” the full dynamics of building, supporting, and leveraging knowledge workers. The authors look at not just improving present work, but at what sort of work workers should be performing in the new knowledge age, or “Infocosm,” as they call it.

The book is energized by the knowledge and experience of Andersen Consulting. Andersen itself has been a leading innovator in linking and leveraging its own knowledge work through its AANET, stimulating and integrating 55,000 knowledge workers worldwide. The company has become a leader in both software and software management practices. Drawing on this rich re-

source, the authors go well beyond the popular concepts of “reengineering process” to the full dynamics of human-computer interaction. The computer becomes an extension of human capabilities—while the human extends machine capabilities in a symbiotic relationship to perform work that neither could perform alone. Symbols, metaphors, and zooming electronic lenses allow a new dimensionality for Integrated Performance Systems. Neither the knowledge worker nor the computer is a static system. Each starts with previously learned concepts and builds wholly new capabilities. This is the true power of Integrated Performance Support environments. The same concepts of interactive learning between knowledge workers and computers can extend to the interactiveness, changed symbols, and massive integration of complexity necessary to manage a modern refinery or distribution system. The entire approach of Bramer and Winslow anticipates and avoids resistance and builds a dynamic for future development.

This book is designed to use experience—not to replicate that experience, but to change the entire future dynamic of systems. If applied well, the book’s concepts should avoid the productivity crises many companies have experienced in moving to knowledge work. These concepts are a flow of fresh mountain air into a stale realm that has often been too narrowly confined by technicians, too rigidly constrained by how-to-do-it tacticians, or dealt with in the rarefied hyperbole of futuristic dreamers. This book spans all levels and is useful beyond them all. This is truly an “Integrated Performance Support” book, in itself.

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January 21, 1994

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INTRODUCTION

INTRODUCTION

In 1911, a race car driver named Ray Harroun won the first running of the Indianapolis 500 auto race. Today, if we put his car on a freeway or autobahn, he would barely be able to keep pace: his average speed was not quite 75 miles per hour. This is the fate of all machines and technologies as they are shaped by the hands of human genius and innovation: they get better, faster, more powerful. Changes are rarely dramatic in any given year. If you look at the list of winning times in the Indianapolis 500 since 1911, for example, improvements are rarely more than a couple of miles per hour. But when you add together those incremental improvements, you end up with the jawdropping, 200 mph speeds of today's cars.

The power of today's information technologies is similarly awesome. Indeed, computer systems and related technology, particularly in the workplace, appear to be outstripping the capacity of human beings to use them efficiently. Here the analogy to the racing car is again fortuitous. The modern racing engine is so powerful that it frequently strains to the maximum the ability of other components of the car—its tires, metal structure, braking systems, and so forth—to keep up. Finally, in fact, the speed potential of the car is so great that ways must be found to keep that power under control so that a human being can even drive it safely.

In the world of computers, safety is not as direct an issue, but *usability* is. If we look at the history of information systems over the past few decades, we see that the hardware itself has often outstripped the ability of the software to keep up with its power. In turn, the software has often outstripped the ability of people to use that software effectively. Again, the changes have come incrementally. But adding up those incremental changes, we find that knowledge workers today are challenged more than ever before to perform at the levels necessary to propel their organizations to success.

In a relatively brief period of time, computers and telecommunications have radically altered our world, and they promise to alter it even more in the coming years. The cycle of innovation-change-improvement has taken place rapidly in the world of information technology, and the modern organization, the modern workplace, is where the bulk of these innovations are first tested. For better

KEY MESSAGES: INTRODUCTION

- The focus of today's and tomorrow's successful organization must be on *workforce performance*.
- Powerful emerging information technologies will have an impact on workforce performance only if they are designed from a human-centered point of view.
- Integrated Performance Support, or IPS, is a strategy that links technology with workforce performance and productivity, and thus with overall organizational performance.
- IPS contains three primary imperatives: (1) focus at the level of knowledge worker performance; (2) support that performance on demand, at point of need; (3) integrate the performance support facilities into every system available to a worker.
- An IPS strategy can help organizations meet today's toughest marketplace challenges: time compression, tough standards for customer service, high-quality goods and services, worker proficiency and productivity, information overload, downsizing initiatives.
- An IPS strategy can also help organizations prepare for *tomorrow's* marketplace challenges: new workforce demographics, the need to respond to radical change, the ability of knowledge workers and consumers to take advantage of new technologies..
- Above all, Integrated Performance Support anticipates the next phase of the world economy: the movement from an information economy to a knowledge economy. Here, the basic economic resource will not be capital, nor labor, nor natural resources, but rather *knowledge*.
- In the knowledge economy, productivity of knowledge workers is the primary performance imperative. Integrated Performance Support aims to achieve for knowledge workers what Frederick Taylor achieved for manual workers in the industrial economy.

and for worse, the modern worker has been a participant in a grand experiment testing the effects of information technology on productivity, efficiency, and quality. The results of this experiment, surprisingly, have been mixed. When information systems have been introduced properly, with concurrent efforts to manage change in the organization, technology has done great things. It has enabled organizations to be more competitive, to do more in a shorter period of time. But for some organizations, the dramatic productivity improvements promised by information technology have eluded them.

We argue in this book that one of the reasons that productivity and efficiency have not always followed on the heels of technological innovation is that the innovation-change-improvement cycle has taken place at the level of the machines themselves. Efforts have been focused on making the *machines* faster, more powerful, and smarter. The results have been breathtaking, to be sure. Our point, however, is that unless those smart machines succeed in making an organization's *workers* smarter, the real potential of the machines may never be realized. We want to talk about the way in which technology can be directed toward *workforce performance*; we want to reach the subject of technology by beginning first with the people, the emerging class of *knowledge workers*, who are to use that technology. This is a deceptively simple point, one that has exceedingly powerful ramifications. Indeed, as others talk today about reengineering the organization, reinventing the factory, redesigning business processes, we want to talk about *reinventing the way we work*: The manner in which we support the people within our organizations to perform at their highest levels so that the entire organization can perform at *its* highest level.

Technology, in particular the information technology that forms the infrastructure of the modern business organization, must do two things to fulfill its promise:

1. Support the work we do *right now*, helping us to perform at higher levels of proficiency, by giving us access to advice, tools, knowledge, and training at the place we need it, at the time we need it, and in the amount and strength we need.
2. Support the work we will do *in the future* by creating a knowledge infrastructure within our organizations that will help us learn and grow and change in line with market demands.

This dual perspective—support us now, and help us prepare for the future—is the focus of this book. *FutureWork* reflects knowledge gleaned from countless conversations with executives and line workers, from our brightest colleagues and from academicians, from years of experience helping organizations find the right technological mix to meet their needs, and from similar years helping organizations change to exploit the technology they have chosen.

The primary enabler, the catalyst that can help organizations meet both short-term and long-term needs, we call “Integrated Performance Support,”™ or “IPS”™ for short. IPS is not itself a technology or an information system, though powerful new information technologies and computing architectures are its key elements. Instead, IPS is best understood as a strategy with three primary imperatives:

1. *Focus at the level of knowledge worker performance.* First, Integrated Performance Support is founded on a particular orientation toward the work of an organization. It involves a focus at the most important level for a business: a focus on the *performance* of people doing their jobs at every moment. IPS says that it is no longer sufficient for information technology to help workers process transactions; technology must now support workers as they transact their business. This support enables workers to apply their knowledge and increase it as a natural by-product of working: knowledge workers doing knowledge work.
2. *Support that performance on demand, at point of need.* Second, IPS involves *supporting* (not controlling) worker performance with the knowledge firepower of the entire organization whenever and wherever a worker needs support. Embedded within the IPS concept are unique and powerful approaches to the design of information systems so that advice, tools, reference, and training are provided to a worker at his or her work location at the moment of need.
3. *Integrate the performance support facilities.* Finally, IPS involves *integrating* that performance support into every system available to a worker, particularly the information systems of the organization. Technologically, this means a quantum leap forward in application design. Today's systems, for the most part, require the workforce to adapt to fit the needs of the system. With Integrated Performance Support we can construct systems that can themselves adapt to meet the needs of the workforce, continuously. With IPS we move beyond the conception of the employee as a "system user" to an employee who is a true "knowledge worker." With IPS we move beyond systems that merely teach and inform to systems that can anticipate performance needs and coach workers through particularly challenging moments. With IPS we move from a "one size fits all" system to a true *performance* system that knows the profile of the particular worker, and that provides support tailorable to that individual's work objective, background, ability level, preferences, and, indeed, the immediate task at hand. This task may never have been encountered before by the knowledge worker, but it must still be supported with knowledge and skill, and dispatched with speed and accuracy.

At a higher level than technology, however, the integrated nature of IPS means something much more important: it means that a focus on workforce performance and on performance support is integrated into the mindset of the organization. This mindset means that an organization is thinking both of today's needs and of tomorrow's.

WHAT IS INTEGRATED PERFORMANCE SUPPORT (IPS)?

Integrated Performance Support, or IPS, is both a high-level, organizational concept and a systems design strategy.

1. As a *concept*, IPS allows organizations to focus their attention on worker performance, on the moment of value as performance occurs for each person in the organization, from the CEO on down to the front-line clerk. IPS gains much of its power by linking individual performance to overall organization performance.
2. As a *systems design strategy*, IPS enables organizations to build performance systems. Unlike traditional systems that are built to process transactions around specific business functions, performance systems are built to transact business across multiple business functions. A performance system provides integrated advice, tools, reference, and training to the worker on demand, at point of need. With a performance system, support can be tailored to meet the needs of workers based on their experience and proficiency levels.

The benefits of Integrated Performance Support: more satisfied workers; more productive and efficient workers; workers who take a fraction of the time to reach basic proficiency levels and then higher proficiency levels; workers who can exceed customer expectations because the support they require to respond to a customer's needs is right there at the workstation; workers who, above all, meet or exceed the performance requirements of their jobs continuously. And the overall result: satisfied customers.

WANTED: PRESCRIPTIONS FOR THE WHOLE ORGANIZATION

One frequents the pages of business books to try to find an edge, that approach or theory that can make an organization more competitive and successful. Occasionally one may become frustrated at the bewildering variety of prescriptions provided. Are organizations supposed to concentrate at high strategic levels or at lower levels where new management techniques are frequently recommended? Are they supposed to look inside or outside their organizations for the answer? Are they supposed to take advantage of what is going well within their companies and only fix what's not working, or are