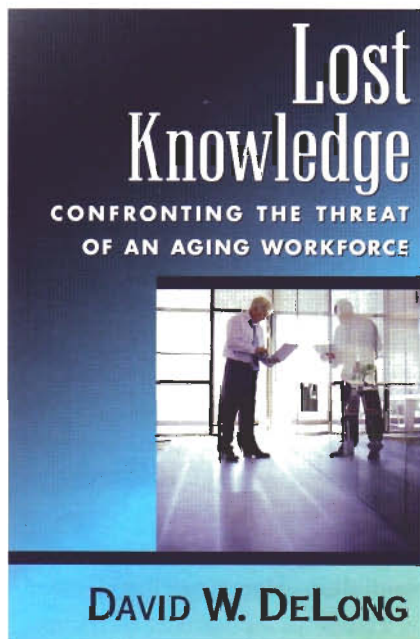


Regenerating Knowledge

Preserving the wisdom of older workers



The ruin of the Royal Library of Alexandria in the third century destroyed more than 400,000 papyrus scrolls, including many original manuscripts from Greek scholars and writers. Violin makers have spent hundreds of years attempting in vain to duplicate the sound of Stradivarius instruments. Throughout history, essential knowledge has often been lost.

In today's technology-intensive world, however, this problem is growing more costly. NASA presents a dramatic example. Twelve astronauts landed on the moon in six Apollo missions between 1969 and 1972, yet the incredible fact is that the engineers who built the original Saturn V rocket retired from the U.S. space agency in the 1990s and important blueprints were never catalogued. As a result, if NASA wanted to send a manned rocket to the moon today, it couldn't.

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towards retirement, it's no secret that society is headed for a huge demographic shift in the workplace. The full costs and effects of these population changes on industry and society are as yet unknown.

We interviewed David DeLong, adjunct professor at Babson in the management division, about his new book, *Lost Knowledge: Confronting the Threat of an Aging Workforce*. His current research on "Diagnosing the Costs of Lost Knowledge" is sponsored by the Working Knowledge Research Program of Babson Executive Education.

by Laurie A. Ensley

baby boomers

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How did you begin researching the issue of knowledge and information loss and what specifically prompted you to write this book?

A few years ago, Accenture's Institute for Strategic Change, headed at the time by Babson professor Tom Davenport, [President's Distinguished Professor of Information Technology and Management], asked me to research the problems an aging workforce posed for the global chemicals industry. Doing this research convinced me that the aging baby boomer population creates a serious threat to both business and the public sector, particularly because organizations have become so knowledge-intensive in recent decades.

The numbers are staggering. For example, between 2002 and 2008, 75 percent of the U.S. Department of Defense civilian workforce of 675,000 people are expected to retire. One-third of all secondary schoolteachers in the United States are likely to quit by 2008. The oil and gas production industry will be another hard-hit sector, with an expected loss of more than 60 percent of veteran employees by 2010.

In the last 25 years, we've experienced amazing advances in technical and scientific fields, made possible in large part by the spread of computer technologies. Many fields have become much more specialized and complex, as have almost every professional's job, whether it's marketing consumer products, developing new software applications, or managing financial portfolios. There's much more to know in doing most jobs today. As a result, when employees walk out the door, they are taking with them new types of knowledge that didn't exist a generation ago.

Losing critical knowledge gained from experience means that, in the next few years, many organizations are going to face not simply a labor shortage, but a knowledge shortage. We're going to be bleeding technical, scientific, and managerial know-how at unprecedented rates when baby boomers start to retire. My book provides solutions to this problem.

Your research delves into the current workings of our technological age; were other eras similarly affected as technologies shifted?

As society experiences major technology shifts, undoubt-



PIERRE CHIHIA, PHOTOGRAPHY

edly knowledge of older ways of working is lost. Blacksmiths and Morse code operators, for example, have knowledge that is increasingly rare. The difference today is work activities have become so interdependent and complex, that failure to perform in one area can have tremendous ripple effects across organizations. For example, the failure of a few power system operators to react properly in August 2003 basically shut down the whole East Coast in a blackout. Increased reliance on technology systems has made us much more vulnerable to systemic failures. And never in history have so many people with so much experiential knowledge about complex technologies left the workforce at once.

How does an aging population affect small businesses?

Many small company executives are terrified of the lost knowledge problem, and they may actually face a tougher problem. Smaller firms can more easily become dependent on the expertise of one individual, whether it's the founder who understands the market, a sales manager who monop-

olizes relationships with all key customers, or an inventive genius who is the sole source of new products. Smaller organizations, including nonprofits, can face very tricky succession planning issues.

What is your confidence level in companies' abilities to adapt to upcoming change?

From more than 200 interviews I did for the book, one surprise is how unprepared many organizations are for dealing with big jumps in turnover due to inevitable retirements. Surprisingly, it is also easy to lose important knowledge that is only used infrequently. And this expertise, if it's not captured and passed on to others, can be very costly and even dangerous to replace.

The financial impact can be enormous. Boeing was caught off guard a few years ago when an unanticipated number of veterans took early retirement in its manufacturing area. When new airplane orders unexpectedly jumped, Boeing didn't have enough experienced workers to handle the business. Their assembly lines for 737s and 747s became chaotic. Workers were literally chasing planes down the line trying to finish jobs. To fix things, Boeing had to shut down production for three weeks. This disruption cost the company over \$1 billion.

As another example of serious consequence, a lot of complex technical knowledge about how nuclear weapons were assembled was never documented. So the Department of Energy has had some scary moments trying to decommission nuclear weapons when no one could remember how they were built. Workers literally weren't sure how much force to apply when trying to separate two parts of a bomb. This is a dramatic case, but lots of technical and scientific knowledge is lost when it is only needed infrequently.

But the DOE has learned some hard lessons. It is now investing aggressively in retaining knowledge and developing younger "nuclear weaponeers" – that's what they call them – who can help maintain the stockpile of aging weapons. I'm afraid other organizations will have to have a similar experience. They'll have to witness some serious problems before confronting these issues.

What has the corporate reaction been to your book?

I've been excited about the book's reception. Interest in the problem – and the book – is continuing to grow. I am getting new calls every week now to speak or consult about solutions to this growing problem. Unlike the dot-com bubble, challenges posed by the aging workforce are definitely not going away. In fact, they are just now coming onto management's radar screen in lots of organizations. The problem is the longer executives wait, the fewer options they are going to have to build an effective workforce in the future.

In addition to leaders reacting to the loss of institutional knowledge, how should other levels of employees respond?

In a lot of cases today, top management doesn't have a clue about the value of the knowledge their organization is losing. That's partly because a lot of knowledge is now so specialized. Ironically, employees lower down in the organization are often much more sensitive to what is being lost when an experienced colleague leaves. They know, on a daily basis, the value a particular engineer, manager, or sales rep brings to the organization. But it's up to leaders to signal that knowledge sharing and retention are critical, and to provide resources for these activities.

You note in your introduction that this book has an ambitious goal. Do you feel you were successful?

So far, readers seem to think so. Executives in many industries are intuitively aware that essential knowledge is being lost in their organizations every day. That is, knowledge that could keep costs down, improve innovation, and support growth. But leaders have also been in denial about this problem because they don't know how to take action to reduce its impact. My primary goal with *Lost Knowledge* is to give managers and professionals a detailed action plan for retaining more critical intellectual capital from both older workers who are retiring and mid-career employees who leave unexpectedly. The real challenge, of course, is implementing these solutions before it's too late.

many organizations

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