

Technology Paradise Lost

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*Why Companies
Will Spend Less
to Get More from
Information Technology*

ERIK KELLER



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*To my father, Ralph James,
who taught me how to think, and*

*To my mother, Norma Jean, and wife, Juana Maria,
who showed me how to love*

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preface

Evaluating big IT projects and trends has consumed a large part of my professional life. After graduating from engineering school in 1979, I spent nearly a decade as a technical journalist, reporting on technologies ranging from robots that painted automobiles, to voice-recognition systems that took orders over the phone, to software that controlled and managed the brewing of beer. I toured hundreds of facilities in the United States and learned firsthand how companies used technology. When the technology was used well, the results were amazing. There was always a risk of failure, however, when companies jumped into a technology too quickly.

I then became a technology analyst and spent over a decade at Gartner Inc., starting when it was shy of \$40 million per year in revenues and leaving when revenues had grown above \$600 million. During that time, I became a trusted advisor to both sellers and buyers of complex technologies, particularly in the area of back-office and operations software. I worked with many of the Fortune 500 companies around the world as well as some of the largest software providers, including SAP, Oracle, Computer Associates, and IBM. During my tenure at Gartner, I advised more than 1,000 companies.

As I spent more time with buyers I began to see that the promise of technology was not always fulfilled. Even when projects were

successful in the beginning, they were often followed by unanticipated difficulties downstream.

“How do you do a live upgrade with R/3 [SAP’s ERP system]?” asked a client over lunch one day. I didn’t have the faintest idea—R/3 infrastructure was covered by another Gartner analyst. He continued: “If we do it the way that SAP recommends, we will have to shut down our systems for four days. I don’t know how we’d do it.” I still remember my sharp sense of embarrassment. Here was a technology that I had readily recommended to the company, yet I had no idea of some of the consequences of its use. I passed the buck to my Gartner colleague.

Another time, I was working with a client who wanted to replace a perfectly good piece of software with a new one because the older one ran on mainframe technology. I kept trying to talk him out of it, encouraging him to look for alternatives. I couldn’t understand what the point was. The client made it very clear to me: “It’s a good career move for me.”

By the end of my tenure at Gartner, in the late 1990s, I was spending more time helping clients clean up problems than launch new technology initiatives. By then I had serious doubts about the widely held theory that technology would always help businesses better themselves.

In the next stretch of my career, as a consultant, I started to look with fresh eyes at what it takes to be successful with technology. Over the next few years, I found more questions than answers.

Back in the 1990s, it appeared that an irrational exuberance for IT-based capital spending grabbed hold of corporate America—and didn’t let go for a long time. (Ironically, Europe and Asia did not catch this illness to the same degree, though I had non-U.S. clients who made mistakes similar to those of their U.S. counterparts.)

When the exuberance finally died down in 2001, corporate technology buying was left in a state of exhaustion and malaise, with little future direction. A new way of thinking and implementing IT was long overdue.

In 2002, the Sand Hill Group asked me to discuss the future of the software industry during its annual Enterprise conference. This was well past the bursting of the IT stock-market bubble, yet few pundits or companies believed that the worst was over. My presentation, “The New Competition,” told how new technology combined with a new buying sobriety and economic shortfalls had changed the landscape of corporate IT buying and selling, perhaps forever. While it was a downbeat presentation to more than 200 CEOs and decision makers in the IT industry, it was received thoughtfully.

Before dinner, one conference attendee approached me and asked, “If things are going to become so bad, how will you make a living?” We both laughed, and although he may have been kidding, I felt a twinge of discomfort. A change was in the air for corporate buyers and sellers of technology, but I couldn’t put my finger on what it was. Unlike during the previous 15 years, there was no Big Thing. No Y2K. No ERP. No Internet mania to stoke the hype fires. Instead, many small things were happening: major companies were experimenting with offshore development; clients were choosing to build open-source software solutions for under \$100,000 rather than buying \$2 million software packages; CIOs were looking to cut back rather than accelerate spending. Everyone was waiting for the Next Big Thing—but what was it?

The answer may seem obvious given all the technological advances in cell phones, broadband Internet access, DVDs, instant messaging, and personal computers. But we need to distinguish between *consumer* technologies, which are booming, and *corporate* technologies, which are not.

I was not the only one thinking this way. In mid-2003, Nicholas Carr’s eight-page article “IT Doesn’t Matter” in the *Harvard Business Review* triggered a firestorm of criticism. Regardless of the details of Carr’s argument that the strategic importance of technology had diminished, his article served a useful purpose in triggering serious public debate. This debate covers three important themes: 1) the appropriate role of IT within business, 2) the right level of investment in technology, and 3) the benefits ultimately derived from technology.

With this book, I am attempting to consider all sides. You will find discussions and examples identifying participants with no more than a first name (to protect the confidentiality of my clients, it was not possible to identify them more precisely). All of the examples and conversations described in the book are real; they took place at various points over the course of my career.

In contrast to much of the research done by traditional analyst firms (which assumes and, in fact, promotes more spending in IT), this book maintains that companies can move ahead over the next few years *without* large increases in their IT budgets. The only thing a company needs is a different perspective.

A lot of books and reports focusing on business improvement via technology have a catch: Before you can hope to see any benefits, you are required to spend *more* money on a new technology than what you initially paid. While I have favorite technologies that I believe can improve business processes, those technologies are not the subject of this book. This book is about increasing the effectiveness of technology while reducing IT expenses. Instead of a silver-bullet technology, companies need silver-haired thinking, grounded in solid returns, not airy promises.

Let me be blunt: The 1990s way of doing business is dead. Buyers and sellers of technology have two choices: Deny the practice of spending less and getting more, and be rolled over by change—or embrace the change and move forward into a new business environment.

If I am right and we are living through an IT inflection point, it is useful to know that such points occurred in all major technological revolutions dating back to the industrial revolution of the 18th century. Carlota Perez's excellent book, *Technological Revolutions and Financial Capital*, places IT as the fifth such revolution. Nothing is new about this revolution except that few people remember the prior ones.

These inflection points have one consistent feature: The companies that recognize the nature of change before everyone else prosper greatly. The goal of this book is to help anyone whose livelihood depends on the IT industry to navigate the difficult times ahead.

acknowledgments

Having the name of a single author, or even a few, on a book such as this is an injustice, because so many people have contributed to its genesis as well as its morphing through the research and writing process. To all of you, I am grateful for the generosity of your time and input. Many people and companies contributed to this book, but in particular I would like to thank the following:

All my clients, former and present, for letting me become a part of their decision teams. The insights I have received from you are core to the premise of this book.

The many companies that permitted me to profile their use of technology. Their views and honesty provided a framework for many of the chapters. In particular, I'd like to thank Marvin Balliet of Merrill Lynch; John Boushy and Gary Loveman of Harrah's; Tom Claydon of JetBlue; and Toby Redshaw of Motorola. Not to be overlooked are the many other individuals and companies who may be anonymous in the book but who have earned my deepest appreciation.

The companies that are helping users to better understand and manage their IT costs in a new and innovative way. Many are embarking on this journey, and a few have shared their visions and successes with

me. Thanks to BDNA, Descartes Systems Group, JetStream Group, Salesforce.com, Symphony Technology Group, Tata Consultancy Services, VMware, Veritas, and others who gave me insights to how buyers can spend less and get more from their technology investments.

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Finally, *all the companies—buyers and sellers—that seek the best from technology by following the vision of spending less to get more.*

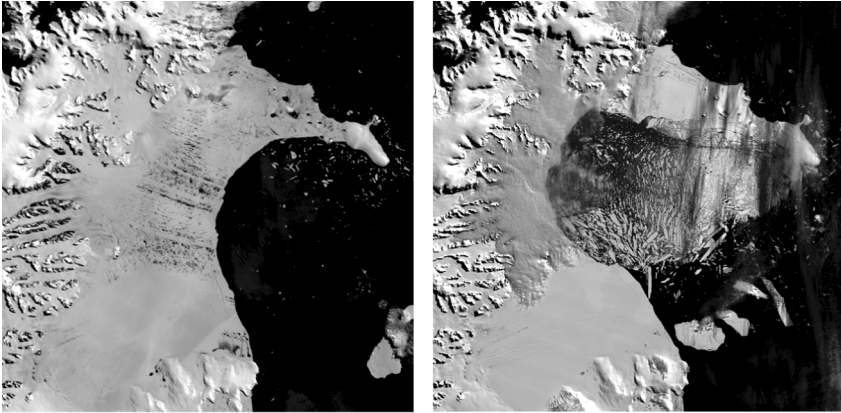
Even after all of this wonderful help, mistakes will appear in the book. They are all mine. *Mea culpa.*

CHAPTER ONE

PARADISE LOST?

MASSIVE CHANGE OCCURS QUIETLY, insidiously, and without apparent direction. A single event didn't cause the collapse of the Antarctic Larsen B Ice Shelf; instead, the accumulation of countless tiny changes—a slight rise in temperature, the appearance of a few fissures, small streams forming on the surface of the glacier, deep cracks and chasms opening at an accelerated rate—together and applied over time had catastrophic results, as recorded by satellite photos in early 2002.¹ In a little over five weeks, a mass of ice approximately the size of Rhode Island (weighing 720 billion tons and approximately 220 meters thick) broke apart, shattered, and separated, as shown in the figure on the next page.

About the same time, the information technology (IT) business was beginning to experience a similar accumulation of unremarkable changes set into motion by a deteriorating global economy. The signs were there: missed revenue targets, corporate layoffs, and an overall industry malaise, all of which were expected to stop by the end of 2003. These initial changes in the industry were widely dismissed as cyclical.



The collapse of the Larsen B Ice Shelf. Between January 31, 2002 (left) and March 5, 2002 (right), the Larsen B Ice Shelf in Antarctica broke apart due to the global increase in temperature and other factors. No one foresaw this catastrophic event even though the forces that caused it had been occurring for many years. *Source: MODIS images courtesy of NASA's Terra satellite, supplied by Ted Scambos, National Snow and Ice Data Center, University of Colorado, Boulder.*

The consensus is that once the economy rebounds, IT spending and growth will continue to climb as they have for the last 20 years. However, this is a dangerous and illogical assumption that time will prove wrong. In fact, both business and technology trends predict that IT spending will decline, while delivering higher levels of business value and productivity. The buying and selling of IT is about to change forever. Consider the following:

- A software programmer in India making \$5,000 a year putting the finishing touches on a new procurement program for a Midwest manufacturer
- Technology budgets that consume more than 50 percent of capital goods spending being increasingly scrutinized
- Multimillion-dollar software investments being abandoned for approaches costing a tenth as much
- IT budgets being slashed without a discernible difference in service or productivity
- Technology product companies giving away software products while increasing their service revenue
- Free, open source software delivering the same value as high-priced systems

Not unlike the opening scenes of a suspense film, these individual events appear to have little connection. Taken together, though, they are clues to understanding an underlying change in the IT industry, in much the same way that unseen forces such as global warming caused the Larsen B Ice Shelf to collapse.

A NEW ORDER EMERGES

We take many things for granted today that would not be possible without the sophisticated and well-deployed technology base that exists. Applications ranging from using credit cards at gas pumps, to buying products over the Internet, to running power plants, to tracking packages sent around the world, are essential to companies and consumers. Such applications will never go away—and they shouldn't. However, there has been a high cost for some of these conveniences.

For years, corporate use of IT has been plagued with overcomplexity, redundancy, and wastefulness. That is about to change. Companies like Harrah's, JetBlue, Motorola, and Merrill Lynch (see chapters 8 and 9 for examples) are starting to realize that they can do much more with much less. These lessons, along with some new technology approaches, outsourcing opportunities, and a focus on IT spending, will allow corporations to increase their use of IT at a lower initial and ongoing cost.

IT buyers and sellers will see a dramatic change in the way they do business. IT sellers will need to meet the new corporate IT buying requirements to survive in the economically competitive environment. IT buyers must also change the way they deploy and justify their technology purchases. Much more business savvy will be needed from both groups for the following reasons:

- **Technologists must deliver business value.** The view that IT must be controlled by IT purists is just plain wrong. Business sectors that take control of and understand all aspects of their IT budgets are positioned to profit. Sellers will no longer be able to dazzle buyers with the promise of hot technology. Return on investment (ROI) and business understanding will be required. (See chapters 4 and 8 for more on ROI and IT budgets.)

- **Cheaper and simpler is better.** Complicated technology deployments and architectures deliver less benefit to companies than systems that accomplish things more quickly and cheaply. Easy-to-use and 80 percent solutions are providing better business benefits at lower costs than complex customized technologies. (Chapter 6 discusses these types of strategies.)
- **Companies have underutilized technology.** A vast array of IT assets go underutilized within corporate walls. This realization is forcing many companies to use what they have or throw it out. The rebalancing and rationalization of IT asset portfolios are allowing companies to spend much less on IT, as you'll see in chapter 5.
- **Labor costs are going down.** IT support and labor are shifting to India and other low-cost nations. Employees and consultants must either deliver higher value to customers/employers or accept lower compensation. Companies can trim a large part of their tactical technology labor spending by outsourcing as much as 70 percent of their IT labor. (See chapter 7 for a discussion of offshoring.)
- **New buying and selling models are emerging.** Buyers are shy-ing away from investing millions of dollars up front for projects that require years to realize business benefits. Sellers are no longer able to afford year-long selling cycles that consume many people and dollars. Chapters 10 and 11 will show you how to take advantage of these new buying and selling models.

The days of “caviar” spending are gone and are being replaced with a new “pork and beans” attitude.

New software attitude

Moore's Law, formulated by Intel founder Gordon Moore in 1965, predicts a doubling of the integrated circuit price/performance ratio every 18 to 24 months.² Hardware has followed this route, but software has not. Standardized technologies and a better understanding of how software should best be deployed have emerged. The development of open source products, including the operating system Linux and other “freeware” initiatives, has changed the market, forcing prices down in many sectors in a “Moore-like” fashion. Other

factors, such as Extensible Markup Language (XML) and web services as well as new approaches in architecture, are changing the software cost equation for companies. (Again, check out chapter 6 for more on this topic.)

These developments have led companies to find and deploy cost-effective alternative solutions that are driving down IT software spending. They include the use of open source software, the expansion of Microsoft into corporate computing, and cheaper and easier connectivity via Internet protocols and specifications. These solutions are decreasing the cost and complexity of integrating different systems within corporations.

New labor attitude

As software prices drop, so does the cost of labor needed to install and maintain the software. Offshoring is reducing costs for sellers and buyers at an accelerating pace, as you'll see in chapter 7. Countries such as India, Russia, and other developing nations have a labor-cost advantage of up to 15-to-1 over the United States and Western Europe. A booming infrastructure and an employee pool offering a 40- to 70-percent reduction in personnel costs for programming are being tapped. As a result, a few U.S. companies have already sent more than 20,000 technical jobs to India and other low-cost countries.

Along with this trend is the offshoring of entire business processes. U.S. companies might have underestimated both the quality and capacity of offshoring companies; for example, some global firms based in India have capabilities exceeding their large U.S. counterparts.

Together these trends will have a large impact on IT deployments and budgets in years to come.

New buyer attitude

Given the availability of low-priced software and cheap labor, a great potential exists to decrease IT spending while holding the line on service levels and capabilities. It's not likely that the free and easy spending of IT in years past will ever come back to corporations. After years of questionable returns, cost overruns, and increased

complexity, companies are pushing financial rigor to IT groups. Here are some of the approaches:

- Managing and rationalizing IT asset bases; eliminating redundant, unnecessary systems along with their associated maintenance costs
- Showing “tough love” to suppliers and internal champions of technology
- Adopting a “show-me” attitude
- Putting business units in charge of technology budgets and forcing technologists to justify all technology investments, even “pure” ones

Chapters 5, 9, and 10 will examine how companies are reevaluating their IT investment plans and are getting much more from technology while spending much less.

New seller attitude

All of these buyer changes will make the flush days of IT spending a thing of the past. In fact, many of the corporate IT markets may soon resemble the rough-and-tough consumer electronics market with ruthless price-cutting and even tighter margins. This type of environment will extend to employees of both buyers and sellers as the new economics of corporate IT puts tight wage pressures on all workers. Opportunities for future growth will still exist, but in a very different way than in the past. Some significant changes we can expect are:

- New selling and buying models that will be deployed to accommodate slower and more cautious buying patterns. Subscription and on-demand-type selling will become more commonplace. To accommodate these new selling models, sellers will need to slash their cost models by at least 20 percent.
- Many of the traditional technical career paths in IT will disappear. Best opportunities will exist for those whose understanding of the business complements their technical skills. Expertise in either an individual industry (e.g., automotive, financial services) or a function (e.g., logistics, marketing) will be essential.

Only those technology sellers with a tight market focus, realistic growth expectations, and tight cost controls will succeed. Rather than attempt to become the next mega-vendor, a company might need to focus on a strategy that will help it become a desirable acquisition target. Chapter 11 will examine how the changes in buying will affect IT employees and sellers.

WHY NOW?

Like the factors leading up to the collapse of the Larsen B Ice Shelf, problems with corporate IT use have been insidious and have been accumulating for some time. In 2000, headlines started to hit the *Wall Street Journal* and *Fortune Magazine*. Beyond the collapse of Internet dot.com companies and technologies, there were stories of large corporate failures driven by IT. One such example was how a bungled \$100-million-plus enterprise resource planning/supply chain management (ERP/SCM) integration at Hershey's crippled the company, as well as analyst reports revealing how both company and industry initiatives had failed. (See chapters 3 and 4 for more examples.)

Back in the mid-1990s, Gartner Inc. (my employer at the time and a leading IT research company based in Stamford, CT) well knew that such problems existed but did not publicize them outside the client base. I remember a conversation with a European client that revolved around a \$50 million implementation of SAP's general-ledger functionality.³

"It was our fault as much as SAP's," the client said. "Its software was complex, and we just threw consultants at the problem. Some days we were burning \$50,000 in fees just to have people sit around and wait for our decision. We learned a lot but at a huge cost."

Such stories were not common just to SAP. Bad buying and implementation practices as well as unclear returns are just two of the many reasons technology spending growth will not return to its glory days. With this new focus and operational discipline, the review and justification of IT for corporations will most likely become similar to that required for any new piece of capital equipment. This trend was first manifested in 2002 when many chief

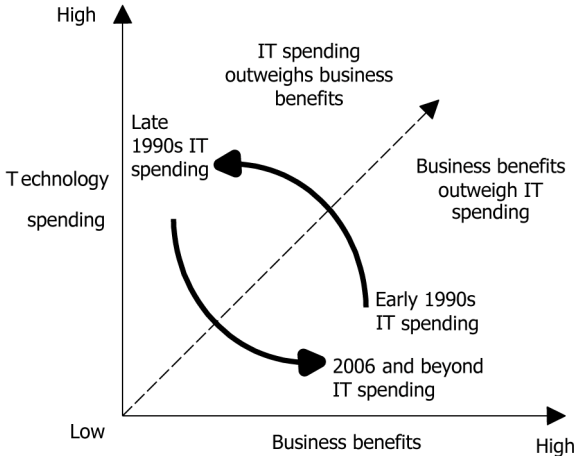
information officers (CIOs) were given incentives to spend less than their budget called for and nearly 60 percent complied, according to a Morgan Stanley survey of CIOs.⁴ One of my neighbors, the chief financial officer (CFO) for a multinational consumer goods company, summed up this point nicely while raking leaves one day.

“IT has driven many of the initiatives in our company, many of which were viewed as failures with little return,” he said. “The trouble is that they are rarely aligned with the problems we are having, which can range from the price of transportation to the price of a raw material. We used to ask for a capital return of 10 percent before we would approve something; now we ask for 30 [percent] and also which workers or machines will be replaced. If they need a requisition of \$150,000, I need to see \$150,000 of people or equipment go in short order.”

This ruthless type of quantification is not something IT buyers or sellers are accustomed to. In fact, such proof is hard to find when searching through most technology vendors’ web sites or marketing literature. Their value proposition has always been based on faith rather than cold, hard economic arguments. This is a reality that they must align themselves with, because an increased percentage of buying oversight is coming from CFOs and business unit leaders.

A recent survey by *CFO Magazine* indicated that CFOs are taking a much larger role in spending approval and corporate governance.⁵ Such professionals care little for the bells and whistles of the latest Intel chip or new web service, but instead want to know how the new technology will cut costs or increase revenues or profitability. As the figure on the next page illustrates, IT sellers will need to deliver highly tangible benefits that can be translated to profits or losses and communicate these benefits in simple terms.

The equation is simple: The amount of money companies spend on IT will be measured against the business benefits received. This investment includes expenses of people, products, and services. The benefits range from quantifiable productivity benefits, such as reducing the cost of labor, to qualifiable ones, such as a better customer experience on the corporate web site. Such benefits will be



Business benefits compared with technology expenditures. In the 1990s, companies spent more on their technology investments than they received in business benefits. This tide of spending is about to turn back as companies focus more on quantifying the business benefits received from their IT spending.

difficult for traditional buyers of technology to deliver, given the systems that must be supported and the legacy of investments.

A MESSY LEGACY

IT is often discussed as something new and exciting, but it is a tough and often inflexible environment. This environment was created over the last 30 years by the fire drill-like atmosphere of daily IT operations combined with inconsistent strategic initiatives. More to the point, IT buyers spend approximately 70 percent of their total budgets on *existing* systems.⁶ There are a few simple reasons for this high level of spending:

- Additional annual payments of up to 28 percent of the initial list price for installed and supported software solutions
- Upgrades of desktop hardware and software in cycles of three year or fewer
- Consultants charging between \$100 and \$300 per hour for services
- Enterprise software upgrades costing anywhere from 20 to 100 percent of the initial implementation cost

- Integration between existing systems, altering business practices, and expensive reimplementations of existing systems

These actions have lured corporations into collecting myriad technologies that are incompatible and ever changing. They range from COBOL-based custom programs running on IBM mainframe technology that process insurance claims to Java applets running on PCs that check the location and tracking of ordered goods. Nearly every major corporation has such a collection of systems whose contents have increased dramatically over the last decade. Many of these new options substantially increase the amount of money a company spends on IT without a corresponding business benefit.

Companies are now deciding whether their investments will remain a La Brea tar pit of economic debt and corporate waste or become a renewed set of assets positioned to deliver corporate benefits. Unlike in the past, many new options, mechanisms, and techniques now exist to help companies work their way out of their respective tar pits and become more agile in their use of technology.

A METAPHOR FOR SURVIVAL

Sir Ernest Shackleton made a journey from England to Antarctica in August 1914. With a crew of 27 men, he sailed into dangerous waters on the *Endurance*, became trapped in ice (as shown in the photographs on the next page), and ultimately watched as his ship was consumed by the harsh Antarctic environment. His initial mission to explore was quickly replaced with another: how to get himself and all his men home safely. Amazingly, he did, delivering all of them back to safety in September 1916.

His passion for life and singular drive for survival are what brought him and his men home safely. Shackleton's choices were more critical than those that IT buyers and sellers will face in the coming years but were perhaps no less challenging, strategically.

Businesses will continue investing in IT, but the growth experienced in the past 15 years, particularly in software and services, will not continue. This is in sharp contrast to the accepted opinion of many industry pundits, research firms, investors, and companies who



Endurance trapped in (left) and then consumed by (right) an ice pack near Antarctica in 1915. The story of Sir Ernest Shackleton is one about leadership and survival, and it serves as an inspiration to anyone facing insurmountable obstacles. *Source:* Licensed with permission of the Scott Polar Research Institute, University of Cambridge.

believe that once the world economy turns around, the type of growth experienced in the past will continue. Even the relatively modest (by historical standards) growth estimates of double the Gross Domestic Product (GDP) put forth by seasoned companies such as IBM are a stretch.⁷

Indeed, it appears that peak corporate technology expenditures in the United States approaching \$1 trillion yearly are poised to enter the slow-growing, mature phase of their lifecycle. In fact, they could drop significantly in the next few years if companies become seriously focused on reducing waste and obtaining more benefits from IT expenditures. On the other hand, because necessity is the mother of invention, an era of scarcity could also trigger tremendous innovation in how existing technologies are used.

THE IMPACT OF CHANGE

All of this points to one conclusion: “The Next New Thing” in IT is not a “thing” at all, but a new way of thinking—an evolutionary

leap forward in which the needs of humankind, money, and machine are blended together in harmony.

The “technology-thing” of the past is quickly being replaced by the “business-thing” as defined by those who master spreadsheets and ledgers. It’s the bottom line that survives this battle. A quiet pragmatism will emerge within a handful of hardy companies, one that will call for a simpler, more efficient, business-driven view of how to deploy technology.

The new business-thing is a bitter pill to swallow for sellers and buyers with a vested interest in the production and purchase of more technology. However, it is proving to be therapeutic for corporations that are seeing an increase in IT effectiveness and a decrease in IT spending through the exploitation of new technologies along with buying and management approaches. Those in denial about such a conclusion will be sorely affected by these changes.

IT is not immune to the same business forces noted by Adam Smith in 1776 in *An Inquiry into the Nature and Causes of the Wealth of Nations*. The “invisible hand” of natural economic law that drove the growth of IT spending in the 1990s can also facilitate its decline. History not only repeats but also follows certain economic laws of “gravity”; what goes up must come down. To understand the future, it is important to examine the trajectory of the past.