Design to Delight

Rethinking how the business enterprise specifies, buys, builds and deploys tools.

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(from *Wrench in the System – What's sabotaging your business software and how you can release the power to innovate*)

The manufacturers of most consumer products make it a priority to make things that are easy to use, whether it's a staple remover or a sports car. Once we've learned to operate these products, they consistently perform to our expectations: at the very least, they satisfy, and at best, they delight. Not so with software: we've come to expect that the best of our technological solutions will be delivered in the form of software that may not be easy to use—not at first, and possibly not ever.

It's assumed that any new information technology will require a process of adjustment and a significant investment in training. Although it's reasonable to expect that training will be needed before people can learn to use a device of any complexity, it's generally acknowledged that when it comes to software, ease of use is a problem. For most global corporations, government agencies, and other large organizations, the process of adopting a new system is a major headache because it usually requires time-consuming, expensive training. However, almost no one wants to admit just how painful the process of adjustment can be, let alone how much it costs.

It's not considered acceptable to recognize that using new software may be such a miserable experience that it may actually lower productivity. Instead, the assumption is that extensive training is a basic requirement of any new information technology, a process that will need to be repeated as experienced workers are replaced by new workers who are unfamiliar with the system. Most managers have become resigned to the fact that no amount of training will eliminate all of the problems built into their new systems, but they believe that these problems are an unavoidable result of complex technologies. The delays and errors routinely caused by clumsy software systems are accepted as a cost of doing business, and the frustration and complaints of the men and women who use these systems are ignored.

Why do so many of us have so much trouble using even the most common software products such as word-processing programs? Is it because these systems are too intricate to be understood by ordinary men and women?

More than 150 years ago, Hans Christian Andersen made some observations about public perception in a tale he called "The Emperor's New Clothes," the story of a proud ruler who was so bedazzled by a merchant's extravagant promises that he became ashamed to trust his own eyes. Believing that he had purchased garments so magnificent that they could not be seen by anyone who was unqualified to appreciate them, he ultimately paraded naked through the streets as throngs of his subjects stood along the road, obediently expressing admiration for "The Emperor's New Clothes."

Some parallels exist with the claims made for enterprise resource planning systems, the software programs that promise to seamlessly integrate an organization's multiple business applications into one robust system that will streamline operations, reduce costs, and improve revenues, using powerful technology that will be simple to install and easy to implement. More often, the result resembles The Emperor's New Enterprise System.

The Emperor's New Enterprise System

Once upon a time there lived a chief executive officer who ruled a global empire. As much as he enjoyed fine clothes and vintage wines and traveling to distant parts of his kingdom in his Gulfstream, he was exceedingly fond of new technology. He took great pleasure in the voluminous reports produced by his corporate computers, and he ordered sophisticated software for every department of his empire. This increasingly complex network generated ever-multiplying, ever-widening streams of data.

The vast resources at his disposal attracted many vendors and consultants, and one day two strangers requested a meeting. They let it be known that they represented a renowned supplier who could provide the most magnificent information technology imaginable—an Enterprise Resource Planning system that would integrate all of the empire's operations. Not only would this ERP system be unimaginably fast and efficient, but it also would be custom-designed. In addition, this proprietary system could not be used by anyone who was stupid or otherwise incompetent.

"This would be the ultimate information technology," thought the CEO, "and it would enable me to instantly identify those who are unfit for their jobs." He asked Accounting to cut an enormous check as a down payment, and commanded the consultants to begin work.

The two consultants departed. For a long time, nothing was heard from them.

"I'd like to know how the new system is coming along," the CEO thought. But when he remembered that those who were unfit for their positions would be unable to use the new system, he felt slightly uneasy, and it occurred to him that it might be better to delegate someone to investigate.

"I'll send my Chief Financial Officer," the CEO decided. "He has decades of experience, and no one is more trustworthy."

So the CFO paid a visit to the consultants, who greeted him effusively and led him to a desktop monitor. As he watched they swiftly clicked onto one-page view after another, some filled with text, others crowded with graphs or charts, and others featuring lively animation. The poor old CFO stared as hard as he dared.

Good grief!" he thought; "I can't make heads or tails of this." He wondered, Am I getting too old for this job? I must never let on that I don't understand.

"Don't hesitate to tell us what you think," said one of the consultants.

"Why, this is amazing." The Chief Financial Officer peered at the screen through his reading glasses. "I'll let the CEO know how delighted I am." And so he did.

Soon the CEO sent a junior vice president to form her own opinion on how the work was progressing, and the same thing happened: As hard as she tried, she couldn't understand the system.

I'm sure everyone else will know how to use this, she thought to herself, but I just don't have the technical background. I mustn't let anyone find out how stupid I am. So she reported to the CEO, "It's everything we could wish it to be."

Word of the ERP system had spread throughout the empire, and soon everyone was anticipating its arrival with a mixture of optimism and dread, hoping it would make their jobs easier but worrying about whether they would have trouble learning to use it.

At last it was ready to be previewed. Attended by the Chief Technology Officer, the Chief Financial Officer, and the young vice president who had met with the consultants earlier, the CEO was led to a seat before a large monitor. As each file flashed by, the CEO and his entourage stared intently.

The first to speak was the Chief Technology Officer. "Extraordinary!" he exclaimed. "A triumph of technology!" The young VP and the old CFO, each assuming that the others could follow the demonstration, chimed in: "Such clever icons!" "Such vivid colors!"

What's this? thought the CEO. It's so confusing! How can this be happening, to me of all people? He thought hard. And then he said to the consultants, "Most impressive. My congratulations!"

And so it was that the CEO's new enterprise system was approved.

Soon the new system was installed and a splendid deployment ceremony was arranged in the conference center, with several hundred vice presidents, managers, supervisors, their assistants, and even clerks seated before monitors.

With his Chief Technology Officer at his side, the CEO rose to his feet to praise each feature of the new system. As everyone tried to follow along on the screens before them, the CEO spoke long and passionately, until at last he concluded his remarks.

For a moment there was silence. Then the Chief Technology Officer began to applaud, and slowly, others followed, until everyone in the room was politely applauding. The CEO was all smiles. But when the applause died away, a young clerk who had been hired just that morning raised her hand.

"I don't understand how to use this system," she said. "I can't figure out how to make it work."

Then someone else said, "I don't understand, either!" And yet another said, "And neither do I." And throughout the room, others thought to themselves, And neither do I.

The CEO shivered, for by now he suspected that his new enterprise system was profoundly flawed. But he thought, "This system has been developed at great expense, and it has been installed, and now everyone will simply have to learn how to use it." So he held his head high as he brought the ceremony to a conclusion and strode confidently back to his office, his retinue trailing behind him.

Software's Missing Feature

Recently I visited Washington, D.C., to meet with eight members of a large law firm whose clients include several of the world's largest software companies, and they told me about the trouble that so many government agencies are experiencing in implementing their clients' new enterprise systems. At one agency after another, managers were reporting significant disruptions and delays as their staff struggled to learn new terminology, new passwords, and all the new procedures that the systems require.

It was clear to the lawyers that these sophisticated new systems were difficult to use. But although they had made an observation that was entirely accurate, they all believed that their perception was unacceptable. Despite widespread reports that the men and women who were using these new systems were learning slowly and even complaining that they hated to use them, the lawyers, like most other observers, attributed this general dissatisfaction to the human condition: *This is what happens whenever people encounter something new—especially new technology.*

Despite their professional expertise in challenging assumptions, the lawyers had accepted the problem of user adoption as a given. In this case, their skepticism had deserted them: It hadn't occurred to them to raise an objection.

Try to imagine approving a large check for any other business product that's difficult to use. Whether the price is $50 million or $50,000, we usually expect to be satisfied with a business product: We expect it to be delivered on time, and we expect it to be fully operational on the day it's delivered. Not so with the products of information technology.

Since the late 1990s, private industries, government agencies, and large nonprofits have spent billions of dollars deploying, maintaining, and upgrading Enterprise Resource Planning systems that promised to transform the speed and accuracy of their operations. SAP, Oracle, Microsoft, and other manufacturers claim that with their wares, information will be better organized, systems and departments will communicate more effectively with one another, supplies and inventory will be managed more efficiently, and customers will enjoy unparalleled quality of service. Employees have been trained and retrained, upgrades have been installed, and expensive consultants have repaired, reinstalled, and upgraded these systems. And still, something's not right: These systems aren't working as promised. While manufacturers celebrate the transformations that they are bringing to industry, and as Information Technology departments point to launches and installations as "successes," employees throughout their organizations struggle minute by minute with ineffective systems.

There's no doubt that ERP systems represent remarkable technological advances and a deep knowledge of many of the most esoteric aspects of business and management philosophy. Until very recently, every large organization built systems of information technology piece by piece, department by department, stringing them together haphazardly. The fact that we now have the capability to coordinate the operations of a global organization and serve the business needs of its fifty thousand employees by means of a single database is nearly incredible. Yet these multi-million-dollar products are profoundly lacking in the characteristics of our most useful everyday tools: simplicity, consistency, flexibility, and responsiveness. The truth is that many of these systems are unusable.

Think of an ERP system deployed by a typical business as simply another tool of the trade. Like any business tool, an ERP system is meant to be used by employees to perform specific tasks that drive the business. The relevance of the tool to the tasks of the employees and to their business should be self-evident; after all, the responsibility of the users (the employees) is to serve the business. But self-evidence is not a characteristic of the vast majority of ERP systems, and despite billions of dollars spent on intricate and typically ineffective training, employees are often forced to shift their focus from the subtleties of accomplishing a business task to the complexities of using the business tool.

Widespread concerns about the performance of ERP systems were confirmed by a study published by Forrester Research a decade ago. In this report, *App User Interfaces Still*

Need Work, Forrester examined ERP systems from SAP, Oracle, and Lawson to measure the ease with which users could complete three basic tasks. All of the systems examined made each of these three basic tasks tremendously complex—sometimes so complex that they could not be performed at all. The interesting aspect of this study is that all of these systems worked; each of them offered what technologists call full functionality. What they lacked was a clear, flexible path that their users could easily follow to complete their tasks. They all lacked the one essential feature that would make them easy to use: None of them had been well designed.

Who's the Customer

One day not long ago I was chatting with a senior sales rep for one of the world's largest software companies, and he proudly told me that his company's research was showing real improvement in customer service. After I congratulated him, I said, "How about user research—how are you doing with the people who use your products?" He paused and then said, "You've got me there."

One odd aspect of business software is that the people who buy these products are usually not the people who use them. The buyers are the chief technology officers, financial officers, directors of government agencies, and other decision-makers who sign the purchase orders and licensing agreements. These executives may have broad and deep knowledge of their operations, but they lack the hands-on knowledge possessed by the mortgage processors, call-center clerks, air-traffic controllers, insurance brokers, firefighters, purchasing officers, medical records personnel, and other professionals whose daily tasks the software is meant to support. However, the software industry regards the buyers as its customers.

People who drive cars are called drivers; people who use telephones are known as callers; and people who read are called readers. Just as the publishing industry considers their customers to include booksellers, libraries, and readers, most industries make no distinction between those who buy their products and those who use them. Only two major industries, one of which is illegal, refer to their ultimate customers as *users*. In any context, it's an unattractive word, and its connotation of powerlessness and self-victimization denigrates the people it describes and implies that nothing of value could be learned from their experiences.

Those who buy business software and those who operate it usually have divergent viewpoints and goals, so they often have different standards in judging the effectiveness of these products. To an executive who has conscientiously labored to assemble a complete inventory of all the capabilities that software must deliver, the product succeeds if it meets every business requirement and fulfills every function on the list of specifications. To a Chief Technology Officer, success may be to achieve the deployment of a powerful new product from SAP or Oracle throughout the organization. When the CTO flips a switch to turn it on and announces to the board of directors that everything is in order—glossing over the arduous process of training and other messy details—rarely does anyone in the boardroom have the expertise to delve beneath the surface to examine discrepancies between the software's performance capabilities and its ease of use. Yet to the workers who can't see how to use these expensive, highly touted systems, the disparity between what these products can do and how they actually work is as puzzling as extravagant praise for the emperor's mythical new clothes.

Ask the heads of five or six global corporations whether they're satisfied with their enterprise systems, and you may be told that in general, everything is fine, or even that the system is performing beautifully. More often than not, the experience of these executives in getting a complex system in place has been so time-consuming, so expensive, and so stressful that they think it's miraculous just to get the system running, and they regard any other aspects of implementation as insignificant. But if you poll a thousand employees of those companies to ask about their experiences with those enterprise systems (or, better yet, if you observe some of them at work), you may get different data.

The feature that makes so many products easy to use isn't their technical wizardry, and it isn't the beauty of their styling. Great products are the result of good design, a problem-solving process that develops the form of a product by considering the needs, the limitations, the capabilities, and the habits of the people who use it.

In the automobile industry, design is the process that molds specifications for the driver's seat into a form that accommodates the contours of our bodies and dictates that all the controls be located within easy reach. In the practice of architecture, design is the process that creates construction specifications for buildings that please our eyes and lift our spirits, whether they be massive cathedrals of commerce that serve multiple functions or private residences with graceful floor plans that harmonize with the daily rhythms of its residents. In information technology, design is a collaborative process that links business and technology by identifying both the business needs and the human requirements, communicating those requirements to technologists, and translating technology's solutions into products that can be quickly adopted by the individuals who use them.

The traditional design process is the only method that consistently achieves practical technological solutions to complex business problems. Information technology is a powerful tool, but many of the software products we use are awkward because they've been developed without a process of design that creates clear channels of communication between technology and its customers.

In order to make software that communicates more clearly, we must listen much more closely to the men and women who use it. What we can learn from them will help us design solutions to some of our most expensive business problems.

About the Author

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