





MINDING OUR

# P's & Q's

INFORMATION MANAGEMENT  
HAS EMERGED AS THE SINGLE  
MOST IMPORTANT FACTOR IN  
MAKING OR BREAKING AN  
AMERICAN BUSINESS. BUT WHERE  
ARE THE INFORMATION  
MANAGERS OF TOMORROW  
COMING FROM? HERE'S THE STORY  
OF THE GREATEST JOB NO ONE IS  
QUALIFIED FOR.

*By Carol North Schmuckler*

CAROL NORTH SCHMUCKLER, an M.F.A. candidate in film who holds SU degrees in English and advertising, is a member of the SU Publications Office staff.

If you were flying from Syracuse to New York City in 1981, you probably flew People Express Airlines, \$29 each way. But by 1986 that fare was just a memory (as was People Express itself), and in 1990 you're paying \$115 each way for the same flight. ♦ What happened? What killed this Cinderella company, which in four years had grown from an unknown upstart to the fifth-largest airline in the world, with 150 planes offering 400 flights a day and nearly \$2 billion in revenues? ♦ Information—or rather, the lack of it. The failure of People Express demonstrates what can happen to any company that loses its competitive edge because it has neglected information management. ♦ In its heyday, People Express deliberately chose not to develop a full-featured computer reservation system. Instead, the company invested its money in planes and staff. It offered fares that were just a fraction of the competition's and attracted a gung-ho, non-union work force. The airline decreed that all employees were managers and no one would be pigeonholed in a single job. Sometimes senior managers collected tickets and pilots checked baggage. ♦ By and large, these ideas worked.

Though the bargain-basement, no-frills approach sometimes exacted a toll—long lines at the ticket counter, dingy and distant terminals, pay-as-you-go refreshments—customers kept coming and the airline was expanding.

But in 1985, United Airlines declared war on People Express by underpricing them—not all the time, but on a spot basis. It was a war United could win because of its sophisticated Apollo computer system.

Apollo allowed United to offer a limited number of “ultra super-saver” fares (lower than People Express’s prices) for any plane, anywhere, a year in advance. While People Express flew every flight with across-the-board low fares, Apollo automatically adjusted the number of low-fare seats as was needed and prudent. In effect, United’s computers allowed them to offer just enough low-fare, loss-leader seats to fill planes, while still selling the majority of seats at a profit. What’s more, United bragged loudly that it was throwing in all the amenities experienced travelers had a right to expect.

People Express’s computers just weren’t capable of varying fares. Within a year, People Express was out of business.

The difference between the two airlines? Not the equipment or the number of flights—both had more than enough. Not the cities served—they were as competitive as any two airlines could be. Not even the service, which, in People’s case, could have been better but was acceptable. In fact, the only real difference between People Express and United Airlines was that one of them was ahead in information management. In the end, that’s what determined the winner.

That’s what Donald Burr, former president of People Express, firmly believes. What’s more, in a recent interview in *Chief Information Officer*, he predicted that this scenario will be played out more and more frequently.

“The airline industry is the first to be radically transformed by information technology,” Burr was quoted as saying. “What they’re doing today, someone in the paper industry, the automotive industry, or the drug industry will do

tomorrow. Modern computing power is putting in the hands of those who understand it best the ability to absolutely and totally dominate industries and lock out competition.”

Donald Marchand, dean of Syracuse University’s School of Information Studies, couldn’t agree more. “People Express is the classic example of the decade,” he says. “It demonstrates that if any business underestimates the significance of information resources and technologies and doesn’t use them in product manufacturing, service delivery, marketing and sales, and service maintenance, it will be at a tremendous disadvantage.”

Many of America’s international competitors have learned these lessons already. Japan declared information management a national priority in the early sixties and had achieved a full-scale economic development strategy by the seventies. In the late sixties, European governments began studying how information would affect economic development.

The United States has not kept pace. Experts say that part of the blame falls on American managers and politicians who were less perceptive than their foreign counterparts two decades ago. But here in the nineties, when the value of information management is clear and the desire to proceed is universal, another challenge has emerged: there aren’t enough professionals in the workplace who understand information management and technologies. There are too few information managers to fill the needs of American business, much less lead it.

For that, the blame falls on American universities, which have been slow to recognize the need for information professionals and to address it.

**I**n the years immediately after World War II, the American economy was largely viewed in industrial terms and increasing productivity meant concentrating on labor, capital, and technology. The best-managed companies were those that handled these elements the most successfully.

But the advent of increasingly sophisticated computers and telecommunications equipment changed that. Today, the successful business increases productivity by adding one vital ingredient: information.

The application of industrial technology forever altered agriculture during the 19th and 20th centuries; today, the information economy is revolutionizing both manufacturing and agriculture. One of the most important management tasks of modern business is the skillful use of intellect. What more and more determines the big winner or loser—the United Airlines or the People Express—is information management.

Leading companies create, collect, organize, store, retrieve, communicate, and use information to make crucial decisions. They are achieving what SU’s Marchand identifies as the key to competitive success: working smarter, not just harder.

Heavy equipment manufacturer Deere & Company, for example, has a database designed to track the 600,000 active part numbers used at the firm’s 22 manufacturing sites. The company’s managers also use the database to standardize their parts and subassemblies and to radically reduce the number used. Other applications allow Deere managers to get information on what parts share certain production characteristics (i.e., material, length, finish, processing on a certain machine) and then manufacture those products as a group. Plant layouts can be changed to streamline the flow of products. In the first 18 months Deere used such systems at two factories, it documented more than \$10 million in savings.

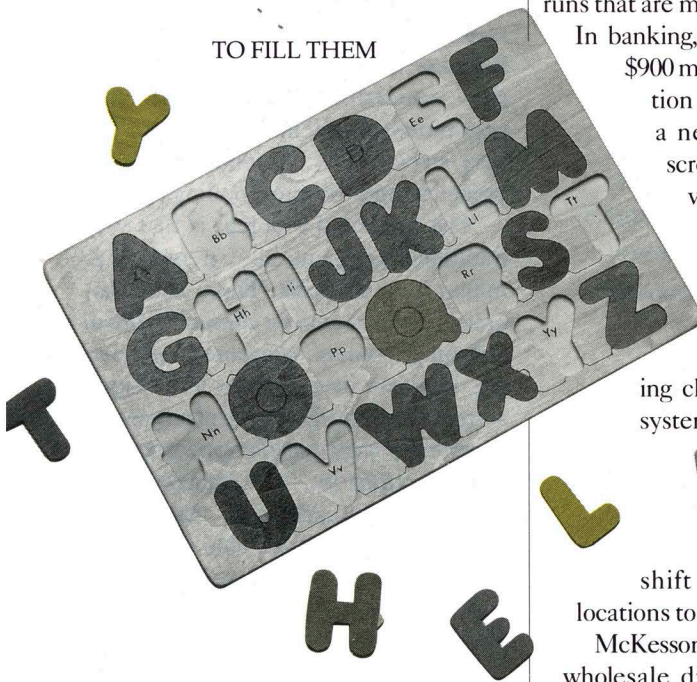
Information management may mean sharing knowledge that’s ineffectively scattered throughout a company. The marketing staff doesn’t know a competitor has filed a patent on a new product, even though the research and development group knew for months that the competitor is working on such a product. A manufacturing vice president overreacts to a competitor’s announced plans for additional capacity because the vice president doesn’t know, as does the busi-

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ness staff, that the competitor hasn't the cash flow to carry out the plans. The industrial relations staff knows a union is planning to strike against a competitor, but never shares this information with the marketing staff, which might be able to capture additional market share if it knows.

There are hundreds of examples of companies that have used information processing to advantage. Schneider National, the largest truckload carrier in the country, keeps track of its thousands of tractors, trailers, and drivers through two-way satellite links. This allows the company to make last-minute scheduling changes, thereby producing shipping runs that are more cost-efficient.

In banking, Citicorp's investment of \$900 million annually for information technology is developing a new generation of touch-screen terminals, which provide a plethora of services to happy customers, including discount brokerage.

The Limited, a national specialty clothing chain, uses its information systems to discover which outlets are having the greatest success with a particular product, so it may shift products from weaker locations to stronger ones.

McKesson Corporation, the leading wholesale distributor of health-care products, gives customers automatic ordering via hand-held order-entry devices. In addition, McKesson gives retailers reports on how its products sold, shelf-management guidelines, and pre-printed price labels matching the stores' layout.

Within such companies and serving such companies, a massive information-management complex has emerged. In 1985, the information processing industry had mushroomed to approximately \$200 billion a year worldwide; today it's well over \$400 billion. Its explosion over the past 10 years makes it one of the largest industries in the world.

And so, information management is possibly the most important and rewarding career for the 21st century. Managing, understanding, and absorbing information is the greatest challenge confronting modern society. Job opportunities for trained information management professionals are available everywhere. They're being filled by thousands of bright young college graduates, right?

Wrong. The jobs are there, but virtually no one is qualified to fill them.

"I've had to take people from someplace else and train them, because I haven't been able to find anyone coming out of school who knows how to do this," says Denis Rose, president of DARCOM Consultants near Washington, D.C., which helps information-systems manufacturers create customized products to fill specific customer needs. It's no small coincidence that Rose's son, Larry, is a junior in SU's School of Information Studies.

"Universities today are graduating electrical engineers who can create the electrical connections in a product, mechanical engineers who can develop the product connected by the electrical pieces, design engineers who can discuss what human factors you should have in place, and MBAs who can manage a business utilizing that product," says Rose. "But no one has been trained to look at [information] products and systems from a management impact perspective."

According to Rose, students are not learning to define the objectives of a company and translate them into informational needs, products, and systems. They are unable to explain to senior executives, in management terms, what the tangible results of information management will be—a better competitive stance, enhanced productivity, cheaper production.

According to Dr. Herbert Brinberg, founder of Parnassus Associates in New York City, people coming out of college don't have a firm understanding of the content of the information and how it



## THE INFORMATION GAME

*How Syracuse leads the way.*



When we changed our name in 1974 from the School of Library Science to the School of Information Studies, we took a lot of flak because no one understood what was going on," says Dean Donald Marchand.

But the SU administration did, and embarked upon a 16-year program of philosophical and financial support that today finds the college way ahead in the information game and a model for less farsighted institutions.

The name change masterminded by then-Dean Robert Taylor redefined the information area as an interdisciplinary one. It required recruiting faculty members with backgrounds in computer science, communications, telecommunications, management, public administration, information science, and library science in one school and encouraging them to teach courses and conduct research across traditional boundaries.

The strength of the college, according to Marchand, is that its changing focus evolved organically, rather than by force. Along the way it has increased its offerings from a single graduate program to three graduate degrees plus an undergraduate program. Enrollment has jumped to 361 students, fueled by the infusion of undergraduates with eclectic interests in information, computers, telecommunications, and management.

There are four undergraduate tracks for different careers: preprofessional education, information industry, information systems and telecommunications, and information resources management. Two of the graduate programs deal with information resource management and library science, while the third is an interdisciplinary doctoral degree.

Last year the school's 15-member faculty did more than \$1 million in grant- and contract-funded research, an unusual sum for such a small group. Because they're located in the state-of-the-art Center for Science and Technology, faculty members rub shoulders every day with colleagues in computer engineering, computer science, the Computer Applications and Software Engineering (CASE) Center, and the Northeast Parallel Architectures Center—an arrangement of groups that are already cooperating on projects in unexpected ways.

"For us, the beauty of it is that so few universities have recognized the need, much less responded to it," says Marchand. "We're way ahead and we're flexible enough to stay ahead. This University has made the institutional investment to be there. Now it's up to us to make it happen."

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information different managers will need, combine it, and then decide how to transmit it most effectively," says Brinberg, who last spring received an honorary doctorate from SU for his pioneering service to his profession. "If a business person says, 'I've got an information problem,' too often the first response is 'Let's get a better computer system!' Instead, it should be 'Let's get a better information system.'"

Why haven't universities jumped on the bandwagon to fill this explosion of job possibilities? SU's Marchand says that many of the developments in business and industry have come faster than education administrators have accommodated them. What's more, the very structure of university programs prevents them from responding.

The structural problem is that very traditional programs, all extremely segmented, already exist. There are autonomous departments for computer design and programming, computer engineering, business management information systems, and liberal arts. "Unfortunately, what technology doesn't respect is disciplinary boundaries," says Marchand.

Information experts are very special people. They must be able to employ the technology. They must understand and relate to users—all kinds of users. They must understand information resources and how to deploy them. They must understand the information itself and be able to organize and package it, using the variety of tools at their disposal. This combination of concerns—the technology, the user, the management, the information organization and delivery—is not easily accommodated within academic disciplinary boundaries.

Nor is it easy to teach. Ruth Stanat comes to Syracuse periodically to do just that, teaching a seminar for graduate students in information management on strategic intelligence. Stanat founded her own New York City firm, Strategic Intelligence Systems, after serving as

can most effectively be applied to improving the decision-making process. Brinberg's firm teaches clients to use information more effectively. He was formerly president and CEO of Wolters

Kluwer U.S. Corporation, a major information publishing and management company.

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vice president of strategic planning for several firms. Her company specializes in designing and developing customized databases for large corporations.

She breaks her class into teams for three skill-stretching projects. First, they must conduct an industry assessment of a field, analyzing trends, issues, and market structure. Then they perform a comparative analysis of one company against several competitors regarding financial performance, market performance, product performance, and overall strategy. Finally, they research either a foreign competitor or a privately held company in that industry.

"If I saw on a resume that a student had done these three projects, I'd hire that person in a snap," Stanat avers. "Those kinds of strong analytical and research skills normally require five years of work experience to acquire."

According to Marchand, in order to distinguish itself in information management education, a university must have some key ingredients in place. First, it must associate itself with some of the leading companies and government organizations already in the forefront of information management. Next, it must educate people,

at both the undergraduate and graduate levels, who can meet some of the employment needs of these organizations.

Another important consideration is faculty members involved in relevant research. "No university can hope to

match the \$5-6 billion that one company such as IBM spends to develop new hardware and applications," Marchand says. "But it can make sure its faculty doesn't lag five years behind." Instead, an aggressive university must have a research program that closely follows what changes are being made by industry in the real world.

Also vital is that the university offer continuing education and executive training programs that help companies and other information practitioners cope with present needs. Last year Syracuse beat out five major schools (including Harvard) for the contract to teach a summer information management program for the Netherlands Ministry of Science and Education. This year it will expand that program to serve managers from the Canadian and U.S. governments as well. In addition, it is negotiating with several major corporations to offer month-long education tailored for their executives.

"Those universities that have already invested in these programs will have a significant competitive edge, because they're already doing things other schools simply can't do," says Marchand. "In other universities, it hasn't even crossed administrators' minds that something is happening in business they're not addressing."

Some universities will be able to respond. "A few universities, like Syracuse, Drexel, and Pittsburgh, have recognized that information resources and technologies are the keys to strategic advantage now and in the future," he says.

Some will be dragged, kicking and screaming, pressured by their alumni or state legislatures. They'll find themselves in the unenviable position of playing catch-up. Marchand, who has served as dean of SU's School of Information Studies since 1987, is quite certain where his own program stands: "When you think of business, you say Harvard. When you think of engineering, you say MIT. By the year 2000, when you think of information management, you're going to say Syracuse." **S**