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Pocket PC works — defining all of the acronyms and items that would be on the screens when they set it up. I wanted them to understand what they were doing, rather than just reading instructions to click on some choices in hopes that it magically worked.”

One of the course goals is to help students become better problem solvers: “I want them to recognize what the tools are and which ones are appropriate for which tasks. And I want them to discover these things for themselves so they realize the topics are relevant and real.”

Students are using their Pocket PCs to maintain schedules, create customized spreadsheets, download e-mail and web content, and collaborate with other students in the class. They’re not only learning what the IT 101 basic course teaches, but they’re learning it at a faster rate. More to the point, they’re not just learning about leading-edge technology — they’re learning in a hands-on way.

So far the students’ resourcefulness has been put to the test. They’ve learned to use their pocket PCs to create budgets, view pictures from their digital cameras, access their Bentley laptops, play MP3s and watch DVDs. They’ve gone off campus in search of wireless Internet

access, created web pages that display differently on their laptops and Pocket PCs, used surveying software to collect and analyze data, and even had a taste of programming. They can also play games — as long as it is outside of class, says Frydenberg.

He also wants the students to get in the habit of writing about their experiences with their Pocket PCs so they can see for themselves how much they are doing. On the first day of class, the students created weblogs, and are now required to add weekly entries on topics related to the technologies of the week.

“After experimenting with my Pocket PC for a full week, I can honestly say I don’t know what I would do without it,” writes Corey Drucker, a freshman from Maple Glen, Pennsylvania, in his weekly blog. “I am finding it so useful, for everything from keeping my schedule to listening to music, researching information or taking down quick notes ... I hope to eventually reach a point where I am always online and connected. I think that is important, especially in the working world, in case problems arise. Instant communication is an important factor in how productive people can become in their lives.”

Frydenberg believes the IT 101 “intensive” will serve as a model class in



Senior Lecturer in Computer Information Systems Mark Frydenberg shows students a function on the Pocket PC.

which students develop a strong understanding of ethical and honest behavior. “We talk about the ethics of downloading music and software, how to document web resources, and how to use the Internet responsibly,” he says. “These steps will prepare the students for the remainder of their time at Bentley and beyond. Hopefully, this class will become a permanent IT 101 alternative for years to come.”

2005 Provost Seminar Series

As part of Bentley’s goal to promote practical research that addresses current and future issues in the world of business and society, the Provost Seminar Series was launched last year. Speakers include internationally recognized professionals and researchers who discuss various topics of interest to scholars and practitioners dedicated to a transdisciplinary treatment of key issues in the modern world.

SPEAKER / DATE	AFFILIATION	EXPERTISE
John L. King February 11, 2005	Professor and Dean, School of Information, University of Michigan	Information economics, management and policy; information systems design and implementation; organizational and institutional forces that shape how information technology is developed.
Gary L. Kreps April 8, 2005	Chief of the Health Communication and Informatics Research Branch at the National Cancer Institute (NCI)	Planning, developing and coordinating major new national research and outreach initiatives concerning risk communication, health promotion, behavior change, technology development and information dissemination to promote cancer prevention and control.

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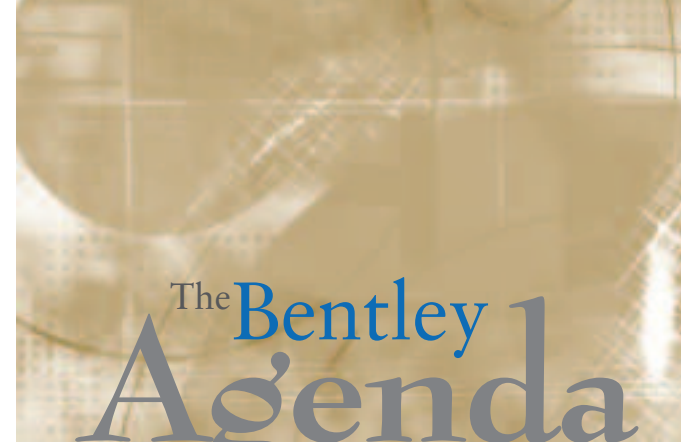
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BENTLEY is a premier business university. Centered on education and research in business and related professions, Bentley blends the breadth and technological strength of a university with the values and student focus of a small college. Our undergraduate curriculum combines business study with a strong foundation in the arts and sciences. A broad array of offerings, including MBA, Master of Science and certificate programs at the McCallum Graduate School, emphasize the impact of technology on business practice. Enrolling approximately 3,900 full-time undergraduate, 400 adult part-time undergraduate, and 1,300 graduate students, Bentley is located in Waltham, Massachusetts, minutes west of Boston.

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In this issue of *The Bentley Agenda*, we’ve put a spotlight on business and information technology — one of Bentley’s key strengths. But other key issues will also emerge: global commerce and culture, and ethics and social responsibility. As a premier business university, we are committed to advancing research, curriculum and pedagogy that generate and disseminate new knowledge at the intersection of business and technology. We pursue this commitment through transdisciplinary faculty research teams, uniting skills, techniques and lessons drawn from the worlds of business, IT and the liberal arts to address a broad spectrum of topics in the business-IT domain. We adopt and study leading-edge technologies to educate managers and provide actionable research for practitioners.



One outstanding illustration of that commitment is highlighted in this issue: a research team, made up of faculty from the departments of Behavioral and Political Sciences, Computer Information Systems, and Information Design and Corporate Communication, is examining how one company’s globally distributed software teams communicate and collaborate through technology. Their goal is to discover what works

and what falls short in this process of global teamwork, as researchers study first-hand both the limitations and possibilities of technology-mediated interaction where professional “best practices” are not yet well established.

Also in this issue is an example of how one computer information systems professor is using leading-edge technology to

engage self-proclaimed computer wizards fresh out of high school — students who would typically test out of the required IT 101 course. This experimental IT 101 “technology intensive” uses a Pocket PC instead of textbooks, and is clearly challenging even the best computer wizard.

I hope this issue of *The Bentley Agenda* gives you a glimpse of the excitement at the intersection of business and IT here at Bentley; our commitment to the use and study of IT has continued to lead business education and practice for the last two decades. As always, I welcome your comments and communication.

Robert D. Galliers

Provost and Vice President for Academic Affairs

Bentley Research Team Examines Complexities of Globalization Through a Transdisciplinary Lens

The globalization of everything from manufacturing to software development has its critics and its cheerleaders. The former group rails against the millions of U.S. jobs lost to offshore outsourcing. The other camp claims that every dollar spent offshore creates \$1.45 in global terms. Argue the specifics, but in aggregate terms, the losses and gains on both sides are genuine, complex and growing.

A recent report by Connecticut-based consulting and research firm META Group Inc. forecasts offshore outsourcing to rise by 20 percent a year through 2008. But companies driving the increase may be in for a rough ride, as employees work to communicate and collaborate across cultures, languages, time zones — even beliefs.

At Bentley, four professors whose own backgrounds span three academic disciplines have teamed up to study the issue. Specifically, they are exploring how one company’s software development teams, dispersed across the world, use technology to bridge the divide of globalization. Or not. [The research is still in progress, so the company name is confidential.]

Rooted in computer information systems, behavioral sciences, and corporate communication, the research takes a multi-dimensional look at global collaboration: what strategies work well, what needs improvement, and how technology-mediated communication can help make a global workforce “work” in an environment where professional best practices are not yet well established. The team hopes to package the results of the research and offer a graduate course, study-abroad program, and executive seminars and workshops for companies wrestling with outsourcing issues.

“Global collaboration cannot be studied without a context,” says Professor of Computer Information Systems Donald Chand, an expert in business process analysis, systems design and IT project management. “Software development is an

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iterative process of tacit and explicit knowledge sharing among customers, analysts, designers, programmers and testers and provides an ideal setting from which to extract the information that is the focus of our research.”

That focus centers on several factors that may affect the success of projects and teams in global work settings: Human relationship building; tacit knowledge sharing; national and corporate culture; project management across time zone, distance and language differences; and technology-mediated communication and crisis management.

Transdisciplinary research like this is nothing new at Bentley. The school has a long history of working relationships between the disciplines in business and the arts and sciences.

“At Bentley, there is more opportunity to build human relationships across departments and discipline boundaries,” he says. “We understand the value of each other and the importance of focusing on real-world problems through the different lenses of many disciplines because it brings research to a new level of understanding.”

Chand’s research partners are Gary David, assistant professor of Sociology; Simon Moore, associate professor of Information Design and Corporate Communication; and Sri Vasudevan, assistant professor of Computer Information Systems.

Raising Questions

The research team’s welcome into the complex environment of the company under study has been facilitated by Bentley alumni who work there. The professors began by interviewing the company’s software teams, to understand the context of the social dynamics. They then studied all e-mails, video conferencing and other technology-enabled interaction; the goal was to discover how effective this kind of high-tech interplay can be.

“The moment we went in,” Chand says, “managers began to understand the great value in learning the answers to the kinds of questions we were raising.”

Indeed, the organization that decides to outsource faces a host of operational issues, according to Chand. These include deciding what to outsource, finding the right vendors, dividing the

work among vendor sites, and managing vendor relationships and work teams. His part of the project homes in on these management issues, to identify processes that mitigate the impact of logistics and language differences to improve a company’s offshore program and project management.

Specifically, Chand is looking for answers to questions like these: “Can one onshore manager control an offshore development, or do you need a project manager at the offshore site? What level of rigor is needed to document requirements that are sent offshore for software development? When is it necessary to meet face-to-face — and when does computer-mediated communication suffice?”

A Volatile Mix

Program and project management are only part of the global collaboration picture, according to fellow team member Simon Moore. The corporate communication expert is examining how globalization is changing communication and its effect on internal morale and the protection of corporate reputation.

“Managers moving into the wider world must take the wider world’s volatilities into account,” says Moore, whose professional pursuits in the past 16 years have included public relations strategy and crisis management. “Global audiences are armed with technology to form instant perceptions, drive emotions, and inflict increasingly potent and rapid punishments.”

Moore’s focus is on learning whether organizations that move offshore for software and IT services are truly conscious of all company stakeholders — and if they have communication systems in place to handle a crisis.

“There is a dangerous gap in managerial understanding of what communication is,” he says. “Business is living in a period of incessant flux and has trouble keeping pace with it. Structures and strategies rise and crash with alarming rapidity. Overworked managers are yanked along by the seat of their pants and, because they don’t understand the modern communication environment, they run the risk of finding themselves dangerously — fatally — exposed if an issue melts down or an unexpected disaster explodes upon the scene.”

Moore finds a cautionary tale in oil and gas industry services giant Halliburton,

under fire for bribery and other alleged misdeeds in its offshore operations. The Houston-based company, which employs more than 100,000 people in some 120 countries, faces what Moore calls “the multiple communication consequences of worldwide public scrutiny, globally scattered operations, and escalating attacks on its reputation — all powered by information technology.”

When More is Less

Team member Gary David adds a sociological perspective to the research. An expert in intercultural communication, intergroup relations and interaction analysis, he is examining day-to-day encounters that happen through e-mail, conference calls, and other communication vehicles.

“Increased avenues of communication do not mean that people arrive at an increasingly shared sense of understanding,” David observes. “Technology may facilitate contact, but it doesn’t facilitate collaboration. More attention needs to be placed on the social and interaction-driven aspects of global collaboration.”

Consider, for example, that decreased labor costs are an oft-cited reason for companies to go offshore. The assumption that “more can be accomplished for less” doesn’t take into account the cost of human relationship-building among workers collaborating in a virtual environment, according to the Bentley team.

That virtual environment is where many communication gaps occur. For example, say a U.S.-based employee sends an e-mail to another team member. The message is a serious one, but uses humor to make the point. Sent to another U.S. team member, the message could hit the mark.

“Send it to a team member in India and it can totally fall apart,” says Chand. “The person sending the e-mail needs to know whether they even use humor in India as a means of communicating. So the research team is very interested in workers’ thought processes as they communicate and collaborate with each other.”

The fourth member of the research team is Sri Vasudevan, who has extensive industry experience in IT and has taught in companies such as IBM, Sun, Citicorp and Sprint. Vasudevan is studying the role of technology in

knowledge-sharing among the subject-company’s global software teams.

Knowledge sharing can be difficult enough when people work across the hall from each other. For global work teams, says Vasudevan, several additional uncertainties come into play, such as increased attrition in the labor force and new challenges for retaining employees.

“The priority for knowledge preservation and re-use becomes more significant — so it is not enough to have effective collaboration in ongoing projects,” he says. “Companies need to formulate longer term strategies for preserving lessons learned and re-using knowledge in future projects.”

Strengths and Limitations

Fifteen months into the project, Bentley’s team has found both strengths and limitations in technology-mediated communication and collaboration. Gary David, for example, believes video conferences are very useful for general status reports of projects — but less so for brainstorming across the global sites.

“There is something about being in a room together that is essential to many aspects of software development,” he says. “Companies believe that they can cut travel budgets, given the rise of communication technologies. In fact, the increased use of these technologies may mean an increased need for travel — to iron out misunderstandings that arise from the technology-mediated communication.”

Other technology tools are being applied in “very creative ways” to accomplish virtual collaboration, but “we are seeing mixed results based on how [the tools] are used and who uses them,” says Vasudevan.

For example, one of the subject-company’s offshore centers uses the tool *SameTime*, which was originally intended as a collaboration tool for training offshore employees. As a bonus, the tool enabled the center to capture training sessions offered by U.S.

employees and re-use the sessions when new employees joined the offshore center. Notes Vasudevan: “The tool was effective for this specific group, but we did not see it being used by other groups [in the company] for the same purpose.”

Companies have a valuable, and often untapped, resource in their employees. “Based on personal experiences, workers have adopted ad hoc strategies regarding when to use a conference call,

e-mail, telephone, video conference, and other technologies,” says sociologist David. “This tacit knowledge needs to be captured, by focusing on how workers go about their tasks on a daily basis.”

Once harnessed, the knowledge can help current workers use communica-



The Team: Sri Vasudevan, Gary David, Don Chand, Simon Moore

tion technology more strategically as well as help in training new employees.

Senior managers must pay attention as well. “Businesses in the 21st century must protect their reputation on a global scale, with a planned communication strategy,” says Simon Moore.

“They must understand that communication isn’t a purely internal problem of helping projects go better, but a volatile, powerful web stretching across countries, continents and cultures.

IT 101 “Intensive” Trades Textbooks for Pocket PC

Bentley students in Mark Frydenberg’s experimental IT 101 “technology intensive” class have traded their textbooks for a Pocket PC. This intensive, introductory course uses leading-edge technology in a creative way to engage self-proclaimed computer wizards fresh out of high school who would easily test out of Bentley’s required, introductory IT course. “Now we’re asking students to ‘opt in’ rather than test out,” says Frydenberg, a senior lecturer and software specialist in Computer Information Systems. “I want this to be an engaging, relevant and hands-on class.”

The idea for using handheld technology for this IT 101 “intensive” pilot course came to Frydenberg when he realized

that for not much more than the cost of the required textbooks, students could purchase a handheld computer and “learn about technology by experiencing it rather than by reading about it,” he says. Bentley purchased Dell Axim x30 Pocket PCs at an academic discount and sold them to students at a further subsidized price. But students haven’t abandoned books or reading. In addition to web resources, course materials include two E-Books from Books 24x7, one about the Pocket PC and the other about Microsoft Windows XP.

The use of handheld technology in education is not unheard of, but as far as Frydenberg knows, its use in an intro IT class is unusual, if not rare. Many med-

ical schools, such as those at Harvard University and the University of Minnesota, for example, offer Palm Pilots or Pocket PCs because there are electronic documents or specialized software applications in the medical field where handhelds can easily be used for data collection. Some MBA programs, such as the one at the University of Maryland, have students using BlackBerry handhelds. And professors at other schools are digitizing their lectures or putting books on audio so students can listen to them with iPods.

“The Pocket PC is a great tool for learning about technology,” says Frydenberg. “Before we set up wireless Internet access, I explained how the

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