EDITOR'S COMMENTS

Researchable Directions for ERP and Other New Information Technologies

Last year, Professor Ted Weston of Colorado State University invited me to do a presentation at the November 1999 meeting of the Decision Sciences Institute. He asked me to talk about the sorts of articles on enterprise resource planning (ERP) systems that *MIS Quarterly* would consider publishing. Naturally, this led me to reflect on the larger context.

The emergence of new information technologies is relentless. Some of the information technologies that emerged as new in the last two decades are database management systems, decision support systems, expert systems, executive information systems, group support systems, end-user computing, computer-aided software engineering, client-server systems, local and wide area networks, technology-enabled business process reengineering, and the internet. Today, the newly emerging information technologies are electronic commerce, knowledge management, and ERP systems. Given the relentless onslaught of new technologies, how might the information systems research community hope to achieve a cumulative and current body of research findings?

A theme in the editorial policy of *MIS Quarterly* is that the *Quarterly* is not a technology journal, but an information systems journal, where the term "information systems" refers to technological as well as organizational subsystems, and where there is interest in the problems and solutions that emerge in the interactions between the technological and the organizational. My position is that *information technologies* can (and do) come and go, but the *information systems* lessons remain the same (or at least this is the ideal that we, as teachers and researchers, should strive for in the lessons that we develop).

In playing out what this would mean for ERP, I wondered about whether the lessons that past *MIS Quarterly* articles, all involving what would now be "old" information technologies, might still hold. In preparation for my presentation at the Decision Sciences Institute meeting, I examined the abstracts of some of the recipients of the *Quarterly*'s best paper awards and then edited the abstracts in a deliberately playful way to apply to ERP. Consider the following side-by-side comparisons.

ERP and Information Economics

Actual	Hypothetical
Best Paper of 1996: "Productivity, Business Profitability, and Consumer Surplus: Three Different Measures of Information Technology Value," by Lorin Hitt and Erik Brynjolfsson	"Advancing Theory on Productivity, Business Profitability, and Consumer Surplus: Three Different Measures of ~~Information Technology~~ ERP Value"
Abstract	Abstract
The business value of information technology (IT)	The business value of ~~information technology (IT)~~

has been debated for a number of years. While some authors attributed large productivity improvements and substantial consumer benefits to IT, others report that IT has not had any bottom-line impact on business profitability. The focus is on the fact that, while productivity, consumer value, and business profitability are related, they are ultimately separate questions. Applying methods based on economic theory, the relevant hypotheses for each of these three questions are defined and examined, using recent firm-level data on IT spending by 370 large firms. The findings indicate that IT has increased productivity and created substantial value for consumers. However, evidence is not found that these benefits have resulted in supranormal business profitability. It is concluded that, while modeling techniques need to be improved, these results are collectively consistent with economic theory. Thus, there is no inherent contradiction between increased productivity, increased consumer value, and unchanged business profitability.

ERP is a matter for debate. While some authors theorize large productivity improvements and substantial consumer benefits to ~~IT~~ ERP, others theorize that ~~IT~~ ERP does not have any bottom-line impact on business profitability. This study extends and advances past research that has established the fact that, while productivity, consumer value, and business profitability are related, they are ultimately separate questions. Applying methods based on economic theory, the relevant hypotheses for each of these three questions are defined and examined, using recent firm-level data on ~~IT~~ ERP spending by [30] large firms. [In accordance with/in contradiction to past theory] the findings indicate that ~~IT~~ ERP [has/has not] increased productivity and [has/has not] created substantial value for consumers, and evidence [is/is not] found that these benefits have resulted in supranormal business profitability. It is concluded that, while modeling techniques need to be improved, these results [are/are not] collectively consistent with economic theory. Thus, in the ERP arena, there [is/is not] an inherent contradiction between increased productivity, increased consumer value, and unchanged business profitability. This study's new contributions to the research literature on the business value of information technology are...

Note that above hypothetical research on ERP research would have the following qualities, which *MIS Quarterly* welcomes: the research would (1) be positivist, quantitative, and mathematical, (2) involve a rationalistic/economic decision-making framework, and (3) conduct hypothesis testing.

ERP and Collaborative Relationships

Actual	Hypothetical
Best Paper of 1998: "The Merchant of Prato-- Revisited: Toward a Third Rationality of Information Systems" by Kuldeep Kumar, Han G. van Dissel, and Paola Bielli	"A Third Rationality of ~~Information Systems~~ ERP Systems"
Abstract	Abstract
The failure of SPRINTEL, an interorganizational information system in Prato (Italy) raises a number of interesting questions with regard to the *technical economic* and *socio-political* perspectives that currently dominate the information-systems/information-	The failure of ~~SPRINTEL~~ SAP, an ERP software in the Acme Products Corporation, raises a number of interesting questions with regard to the *technical-economic* and *socio-political* perspectives that still dominate the MIS implementation literature. These questions underscore the importance of developing additional theoretical

technology literature. These questions underscore the importance of developing additional theoretical perspectives to help us better understand the role of information systems in organizations. In this article we reflect upon these questions and their theoretical foundations in the context of a case study. The case study describes the implementation, usage and outcome of an inter-organizational information system. An analysis is made of the extent to which the *technical-economic* and *socio-political* perspectives are sufficient to explain the failure of this system. The outcome of the analysis shows that these two perspectives are insufficient to provide an explanation. Based upon literatures from a variety of sources we develop a third, complementary, perspective. Like Kling (1980)'s socio-political perspective, this perspective is also an interactionist perspective. However, instead of focusing on politics and conflict as the primary interaction mode, it focuses on collaboration and cooperation as the key to understanding interaction processes. This perspective introduces a third rationality of information systems in which *trust, social capital, and collaborative relationships* become the key concepts for interpretation.

perspectives to help us better understand the role of ~~information systems~~ ERP in organizations. In this article we reflect upon these questions and their theoretical foundations in the context of a historical case study of ERP at Acme Products Corporation. The case study describes the implementation, usage and outcome of an ~~inter-organizational information system~~ ERP software -- SAP. An analysis is made of the extent to which the *technical-economic* and *socio-political* perspectives are sufficient to explain the failure of this ERP implementation. Consistent with past research, the outcome of the analysis shows that these two perspectives are insufficient to provide an explanation. Also consistent with past research, we apply a third, complementary, perspective, which Kumar *et al.* (1998) introduced. Instead of focusing on politics and conflict as the primary interaction mode, it focuses on collaboration and cooperation as the key to understanding interaction processes. This perspective introduces a third rationality of ~~information systems~~ ERP implementation in which *trust, social capital, and collaborative relationships* are the key concepts for interpretation. The result of this study confirms some aspects of the work of Kumar *et al.*, but modifies and advances it in the following major ways...

The above hypothetical scenario would involve (1) qualitative, interpretive, and case research, (2) a historical framework, and (3) theory building—all of which the *Quarterly* welcomes.

ERP and Systems Development

Actual	Hypothetical
Best Paper of 1993: "CASE Tools as Organizational Change: Investigating Incremental and Radical Changes in Systems Development," by Wanda J. Orlikowski	"~~CASE Tools~~ ERP as Organizational Change: Advancing Knowledge on Incremental and Radical Changes in Systems Development"
Abstract	Abstract
The findings of an empirical study into two organizations' experiences with the adoption and use of CASE tools over time are presented. Using a grounded theory research approach, the study characterizes the organizations' experiences in	The findings of an empirical study into two organizations' experiences with the adoption and use of ~~CASE tools~~ ERP over time are presented. Building on the work of Orlikowski (1993), this study also distinguishes the two organizations' experiences in terms of processes of incremental or

terms of processes of incremental or radical organizational change. These findings are used to develop a theoretical framework for conceptualizing the organizational issues around the adoption and use of these tools -- issues that have been largely missing from contemporary discussions of CASE tools. The framework and findings suggest that, in order to account for the experiences and outcomes associated with CASE tools, researchers should consider the social context of systems development, the intentions and actions of key players, and the implementation process followed by the organization.	radical organizational change. These findings are used to introduce a theoretical framework for conceptualizing the organizational issues around the adoption and use of ~~these tools~~ ERP -- issues that have been largely missing from contemporary discussions of ~~CASE tools~~ ERP softwares. The framework and findings suggest that, in order to account for the experiences and outcomes associated with ~~CASE tools~~ ERP, researchers should consider the social context of systems development, the intentions and actions of key players, and the implementation process followed by the organization. Whereas this study largely confirms past research on this topic, a major change amounting to a major new finding is that...

As a field study employing a political perspective, this research would involve qualities that *MIS Quarterly* welcomes.

The next scenario involves a different emerging information technology (electronic commerce, rather than ERP), but remains illustrative of how to think about whether lessons from past research might still hold.

Electronic Commerce and the Electronic Markets Hypothesis

Actual	**Hypothetical**
Best Paper of 1994: "Computerized Loan Origination Systems," by Christopher M. Hess and Chris F. Kemerer	"Electronic Commerce Systems in the Residential Real Estate Market"
Abstract	Abstract
An analysis considers the advent of electronic market coordination in the home mortgage industry, focusing on Computerized Loan Origination (CLO) systems. Case studies of CLOs reveal a range of system functionalities. Predictions from the Electronic Markets Hypothesis (EMH) are tested against the empirical results of the 5 case studies. As suggested by EMH, financial intermediaries have been threatened by the introduction of CLOs, and in some cases opposition has been mounted against the systems. On the other hand, despite the availability of the technology and mortgages' seemingly favorable characteristics as an electronically mediated market product, the industry has not been fundamentally changed by the introduction of these systems, despite more than a decade of experience with them.	An analysis considers the evolution of electronic market coordination in the home mortgage industry, focusing on ~~Computerized Loan Origination (CLO) systems~~ fully fledged electronic commerce systems (ECS) now emerging in the overall residential real estate industry. Case studies of ~~CLOs~~ ECS reveal a range of system functionalities. Predictions based on the work of Hess and Kemerer (1994) and others on the Electronic Markets Hypothesis (EMH) are tested against the empirical results of 5 positivist case studies. As suggested by EMH and as demonstrated by past research, financial intermediaries have been threatened by the introduction of electronic systems and in some cases opposition has been mounted against the systems. The study finds that the industry [has/has not] been fundamentally changed by the introduction of ECS over

Results suggest that either the full results predicted by the EMH require a longer gestation period or that the underlying hypothesis will require augmentation in order to fully explain the result in the home mortgage market.	the past decade of experience with them. Results suggest that the full results predicted by the EMH [do/do not] require a longer gestation period and that the underlying hypothesis [does/ does not] require augmentation in order to fully explain the result in the residential real estate industry. This study advances knowledge about electronic commerce and the EMH in the following two major ways...

MIS Quarterly would welcome the positivist, deductive, rationalist, and hypothesis-testing features of the hypothetical paper no less than the same features in the award-winning Hess and Kemerer paper.

The preceding four side-by-side scenarios raise an interesting question. Might they suggest that information systems researchers simply attempt replications of old theories in new settings? On the one hand, if replications of our old theories in new settings could be successfully executed, then a logical conclusion would be that the earlier studies are still current and, therefore, our information systems research discipline has indeed achieved a cumulative tradition! On the other hand, old research often does not apply successfully in new circumstances and, indeed, science involves the process whereby old theories are refined and improved through testing under new conditions. My position is that straightforward replications are not interesting in themselves; however, research that revises, refines, or refutes existing significant theories can motivate research that *MIS Quarterly* readers, editors, and reviewers find compelling. The above four hypothetical abstracts are deliberately worded to indicate how they go beyond straightforward replications and how they invite major advances in or refutations of old research.

Today's new technologies are, of course, only a case in point. The framework embodied in the above four scenarios pertain to new information technologies in the future as well. The framework itself also suggests one approach by which the information systems research community can achieve a cumulative and current body of research findings despite the never-ending onslaught of newly emerging technologies. The key would be for our research to focus not on the information technologies themselves (a task already in the good hands of able researchers in computer science, engineering, and the high-technology industries), but on the lessons that emerge in the interactive system effects between the technological and the organizational, where these lessons pertain to the management of information technology and the uses of information technology for managerial and organizational purposes. Sure, as imperfect as all scientific theories are, these lessons (based on theory) will change in the normal course of their being refined and even replaced. However, the above scenarios suggest that we might better succeed by seeking stability in *information systems lessons* rather than in *information technologies.*

Changes in the Editorial Board

There has been turnover in one-third of the associate editor members of the Editorial Board. Beginning in January of this year, the following nine scholars commenced three-year terms as associate members: Anitesh Barua (University of Texas, Austin), Terri Griffith (Washington University), C. Suzanne Iacono (National Science Foundation), Barbara Marcolin (University of Calgary), Rajiv Saberwal (Florida International University), Carol Saunders (University of Oklahoma), Peter Seddon (University of Melbourne), Sandy Slaughter (Carnegie Mellon University), and Ron Thompson (University of Vermont). They replaced the following nine associate editors whose performance for the *Quarterly* has been exemplary: Wynne Chin (University of Houston), Fred Davis (University of Arkansas), Mark Keil (Georgia State University),

Tridas Mukhopadhyay (Carnegie Mellon University), Leyland Pitt (Curtin University of Technology), Arun Rai (Georgia State University), Tapio Reponen (Turku School of Economics and Business Administration), Joseph Valacich (Washington State University), and Jane Webster (University of Waterloo). All 18 of these individuals represent the best academic resources in our community of information systems researchers; they deserve the credit for the day-to-day driving of the research engine of the *Quarterly*.

Women now represent 42% of the 39 members of the overall Editorial Board, including two of the six senior editors. North Americans occupy 75% of the editorial positions; just one senior editor is not from North America. More geographic diversity is needed. Because new associate editors are selected largely from those scholars who have developed good track records in reviewing for the *Quarterly*, I am taking the affirmative steps of compiling lists of scholars who are from outside North America and who would be well qualified as *Quarterly* reviewers, and distributing the lists to all members of the Editorial Board. The intention is for these lists to supplement the international relationships and networks on which our Editorial Board members already rely when identifying reviewers for a newly submitted manuscript. At our last Editorial Board meeting (in Charlotte, North Carolina), I mentioned that there should be an effort to include, among the qualified reviewers for every submitted manuscript, representation from outside of North America.

Allen Lee
Editor-in-Chief