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ALTERNATFFE THEORETTICAL INTERPRETATIONS OF AN ORGANIZATIONAL CASE: DHFUSION OF KNNOVATTON VERSUS AGENCY THEORY

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* N E W D O C *

PANEL 14

ALTERNATIVE THEORETICAL INTERPRETATIONS OF AN ORGANIZATIONAL CASE: DIFFUSION OF INNOVATION VERSUS AGENCY THEORY

Panel Chair: Jeanne W. Ross, Worcester Polytechnic Institute, USA

Panelists: James C. Brancheau, University of Colorado, Boulder, USA
Seung-jin Whang, Stanford University, USA
Michael R. Vitale, Executive Vice President, The Prudential Service Company, USA

Increasingly, theoretical frameworks are viewed as fundamental to sound MIS research. In quantitative research, the selection of a theoretical framework dictates, to a large extent, the data which will be collected. The data either confirm or disconfirm predetermined hypotheses, while the theory helps to interpret the findings. Case study research offers the opportunity to explore alternative theoretical explanations during data collection. New hypotheses may emerge to replace those which are disconfirmed, thereby altering the data collection process.

Although the value of theoretically-based case study research is not controversial, implementation can be problematic. Some of the questions confronting researchers are:

- (1) How does a researcher choose a theoretical framework for analyzing an organizational event?
- (2) How does a researcher gather evidence to support or disconfirm a theory in a case study environment?
- (3) Is there a single "best" theory which explains a given organizational event? When do multiple theories offer richer explanations of organizational events in a case study than a single theory?
- (4) To what extent do findings from theoretically-based case studies offer prescriptions for organizational actions?

This panel will study the above questions by staging a debate pitting diffusion of innovation theory against agency theory as potential frameworks for explaining events associated with The Prudential's Technology Transfer Center (TTC) in the mid-1980s. (Please read the Appendix for further information on the Technology Transfer Center.) Although written as a teaching case, the events raise questions of interest to researchers. Specifically, how can organizational structures and relationships facilitate the adoption of new information technologies?

The debate will involve fifteen-minute presentations of each theory, which will include (a) an overview of the theory, (b) identification of the evidence supporting the theory, and (c) discussion of the key research questions which the theory addresses. Each presentation will be followed by a five-minute rebuttal in which the proponent of the alternative theory exposes the weaknesses of the theory under discussion. A one-minute response will reiterate the strengths of the theory.

Jeanne Ross will introduce the panel by addressing the question of how a researcher chooses a theory. She will present an overview of the range of theories available and discuss the criteria for choosing among them. Finally, she will summarize the key facts of the TTC case and explain why diffusion of innovation and agency theory were chosen as theoretical frameworks for analyzing the case facts.

Jim Brancheau will use diffusion of innovation theory to explain both the successful and unsuccessful attempts by the TTC to introduce information technologies at The Prudential. Diffusion of innovation theory characterizes TTC staff as change agents attempting to influence the adoption behavior of operating division managers. Their success depends upon their ability to change users' perceptions of (a) the relative advantage of the new technology, (b) its compatibility with existing social values, (c) its complexity, (d) its testability, and (e) its observability.

Jin Whang will examine the efforts of the TTC through agency theory. Agency theory views TTC staff and managers of operating divisions as agents of top management. These agents have distinctly different objectives from each other and from top management, and this discrepancy results in agency costs. While top management would like to minimize

agency costs, agents look to maximize their utility. Thus, TTC efforts to transfer technology will succeed when both agents feel that the transfer is in their best interest.

Mike Vitale, Executive Vice President in charge of the Technology Transfer Center, will close the panel by offering his perspective on the explanatory power of the two theories. He will also discuss the value of theoretically-based case study research to practitioners.

APPENDIX

THE TECHNOLOGY TRANSFER CENTER¹

The Prudential's Technology Transfer Center (TTC) was formed in 1985 to investigate emerging information technologies and identify appropriate applications. In 1989, the Center had seven staff members, who were responsible for presenting the technologies to Prudential business units and working with individuals within the units to develop initial applications. The role of the TTC in business unit adoptions of the technologies could range from that of a consultant, responding to technical questions and working with vendors, to helping to develop parts of the application. As new technologies were absorbed within business units, the TTC intended to transfer responsibility for supporting them to other systems groups.

Many of the Prudential's forty business units had separate IS groups, which was a reflection of the highly decentralized structure of the company as a whole. Only 100 of The Prudential's 4,200 applications development staff reported directly to the senior vice president in charge of the Information Systems Office (ISOF). The remainder reported to individual business and corporate units. Thirty-five information system executives (ISE) accepted responsibility for managing applications and data within units and for acting as liaisons between business units and the ISOF. The ISEs reported directly to business unit heads but had dotted line responsibility to the head of ISOF.

In 1989, the TTC was at different stages in the research and transfer of its three focal technologies: voice response, expert systems, and image processing. Its experiences with each technology are described below.

Voice response — In late 1986, the TTC identified Infobot as a potentially useful voice response product, a technology in which several business units had expressed an interest. In January, 1987, the senior IS consultant at Prudential Property and Casualty (PRUPAC) met with the Infobot vendor to discuss applications. By February, PRUPAC was operating its first Infobot application and by year-end it had installed Infobot in most of its regional service offices. Three other business units developed applications in late 1987 and early 1988. The TTC tried to transfer support for Infobot to ISOF's Office Systems Planning and Consulting Group, but users continued to rely on the TTC for support.

Expert Systems — A number of business units were interested in expert systems. The TTC investigated several different platforms before recommending the AION Development System in 1987. In consultation with the TTC, PRUPAC successfully developed an AION-based Claims Advisor expert system. At the same time, the largest business unit, Individual Insurance Systems and Administration, decided to experiment with a different expert system platform and worked independently of the TTC.

Image Processing — The TTC found that imaging involved bundling several different technologies, such as local area networks, optical storage technologies, and optical character recognition. The TTC began investigating imaging in 1986, but by 1989 it had not yet developed any applications, despite strong interest in the technology.

¹This appendix summarizes key facts from "The Prudential: Organizing for Technology Innovation," written by Nicole A. Wishart and Professor Lynda M. Applegate of Harvard Business School. Case 9-190-101 copyright © 1989 by the President and Fellows of Harvard College. Summary provided with special permission from the authors.