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REVIEW: POWER AND INFORMATION TECHNOLOGY RESEARCH: A METATRIANGULATION REVIEW[1, 2]

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[1]Jane Webster was the accepting senior editor for this paper.

[2]MISQ Review articles survey, conceptualize, and synthesize prior MIS research and set directions for future research. For more details, see http://www.misq.org/misreview/announce.html

Abstract

This study uses a metatriangulation approach to explore the relationships between power and information technology impacts, development or deployment, and management or use in a sample

of 82 articles from 12 management and MIS journals published between 1980 and 1999. We explore the multiple paradigms underlying this research by applying two sets of lenses to examine the major findings from our sample. The technological imperative, organizational imperative, and emergent perspectives (Markus and Robey 1988) are used as one set of lenses to better understand researchers' views regarding the causal structure between IT and organizational power. A second set of lenses, which includes the rational, pluralist, interpretive, and radical perspectives (Bradshaw-Camball and Murray 1991), is used to focus on researchers' views of the role of power and different IT outcomes. We apply each lens separately to describe patterns emerging from the previous power and IT studies. In addition, we discuss the similarities and differences that occur when the two sets of lenses are simultaneously applied. We draw from this discussion to develop metaconjectures, (i.e., propositions that can be interpreted from multiple perspectives), and to suggest guidelines for studying power in future research.

Keywords: Power, politics, IT use, IT management, metatriangulation

ISRL Categories: DD03, FD07, IB01

Introduction

> *Power is plainly a crucial warp thread in the theoretical fabric of IT and new organizational forms (Baskerville and Smithson 1995).*

Over the past two decades, the study of power has been a regular, if somewhat peripheral, part of management information systems (MIS) and management studies. In recent years, mainstream MIS and management researchers have shown a steady interest in the role of power when viewing information technology (IT) impacts, deployment or development, management, or use within organizational settings. Although many researchers view power as a recognizable and important aspect of organizations, these researchers have had difficulty defining and measuring the theoretical construct. Further, while power has long been considered endemic to organizational practice, power is a messy, elusive concept that not only has surface or visible characteristics, but also hidden characteristics that are difficult to define and grasp (Frost 1987; March 1966; Morgan 1986; Pfeffer 1981; Pfeffer and Salancik 1978; Walsham 1993, 2001). Research on power is further complicated by the multiple paradigms that have been used to understand the interrelationships between power and IT. These multiple paradigms are grounded in a number of disciplines including political science, management, sociology, and marketing. Such diversity makes it difficult to generate continued discussion and to accumulate a foundational body of research.

Information technology research aimed at understanding power relationships has largely drawn from narrative reviews in which authors advocate a favored theoretical solution as the key to resolving conflicting findings arising from multiple, diverse perspectives. However, these narrative reviews are often slanted by researchers' *a priori* biases (Robey and Boudreau 1999). In this paper, we attempt to mitigate the effects of *a priori* biases by applying metatriangulation (Lewis and Grimes 1999) to draw together the prior research that investigates power and IT. In general, MIS researchers have focused on three broad study topics: (1) impact of IT, (2) development, deployment, and use of IT, and (3) organization and management of IT resources including centralized/decentralized governance structures (Orlikowski and Barley 2001). We incorporate these three topical areas by examining research that investigates IT impacts, deployment or development, management or use (ITIDMU)[3].

[3]We use the acronym ITIDMU in this review as shorthand notation. We are not suggesting that the multiple constructs across the three topical areas can be combined into a single, all-inclusive, construct. We recognize that power may have different relationships with individual constructs represented by this acronym. In the discussion section of the paper, we develop propositions specific to the individual constructs.

Our purpose is to (1) explore the paradigms that have been used to investigate power and ITIDMU, (2) describe patterns that have emerged in previous research on power and ITIDMU, and (3) use the disparity and complementarity across paradigms to develop metaconjectures about the relationship between power and the specific constructs within ITIDMU. First, we focus on the multiple conceptualizations of power which challenge our understanding of the phenomenon. Next, we briefly describe our research methodology. Then, we present the analysis of our metatriangulation efforts. Finally, we synthesize our results into metaconjectures (propositions) and conclude with a discussion of how these findings can guide the study of power in future MIS research.

Multiple Conceptualizations of Power

In South Florida, where snow seldom falls, one term suffices to explain the concept of snow. However, the Kobuk Eskimos, an Alaskan Inuit tribe that lives in an environment of snow and ice, use each of the following words to represent and to differentiate multiple types or concepts of snow (Williams and Major 1984).

- Annui—falling snow
- Api—snow on the ground
- Pukak—snow that can cause avalanches
- Qali—snow that collects horizontally on trees
- Siqoq—swirling or drifting snow
- Upsik—wind-beaten snow
- Kimoagruk—snow drift
- Qamaniq—snow in a bowl-shaped hollow around the base of a tree

Like the Eskimos with snow, researchers investigating the role of power in organizations would benefit from clearer distinctions among the different conceptualizations of power. Sometimes researchers have used different terms—such as power, politics, or authority—to distinguish among critical power concepts. All too often, researchers have used a single term, power, even though the term represents different ideas to the different researchers (Blau 1964; Clegg 1989; Emerson 1962; Foucault 1980; French and Raven 1959; Frost 1987; Knights and Vurdubakis 1994; Lukes 1974; March 1966; Mumby 2001; Pettigrew 1972; Pfeffer 1981; Walsham 2001; Walsham and Waema 1994). In general, "power has to do with relationships between two or more actors in which the behavior of one is affected by the behavior of the other" (Hall 1999, p. 110). Recognizing that this concept holds multiple meanings, we defined power to include authority, centralization, decision rights, participation in decision making, influence, politics, or power.

In defining power, we relied upon the work of five studies by management and MIS researchers who sought to clarify conceptualizations of power by offering power categorizations (Astley and Sachdeva 1984; Bloomfield and Coombs 1992; Bradshaw-Camball and Murray 1991; Fincham 1992; Sillince and Mouakket 1997). In Table 1, we grouped examples of power conceptualizations from these five studies into the broad power-related constructs included in our definition of power. While our conceptualization of power covers a wide spectrum of power-related topics, we recognize that, by defining power in these terms, we also excluded other distinct, but potentially related, topics (e.g., control [Kirsch 1996, 1997] and normative influence [Kraut et al. 1998]).

Table 1 indicates that the various concepts of power are frequently mentioned together and often intertwined. For example, the rational view of power emphasizes both authority and decision rights (Bradshaw-Camball and Murray 1991); zero sum power considers both ownership of resources and political games (Sillince and Mouakket 1997); and politics is typically discussed in terms of power (Bradshaw-Camball and Murray 1991; Fincham 1992; Sillince and Mouakket 1997). Furthermore, Fincham (1992) uses the terms *organizational power* and *processual power* to refer to authority and politics respectively; whereas Sillince and Mouakket (1997) define organizational power as politics and processual power as emergent power embedded in a social relationship (see Table 1).

Table 1. Common Themes in Power Conceptualizations	
Authority	
Hierarchical Authority	Structural power that stems from "rational-legal" legitimation of authority. "Power [is considered] something that inheres in official positions...[and] as the product of formal decree" (Astley and Sachdeva 1984, p. 105).
Institutional Power	Power is "mandated from ownership" (Fincham 1992, p. 747).
Organizational Power	Power is allocated along hierarchical mechanisms and relationships. Power is structured internally by the dominant coalition and via a dominant rationale (Fincham 1992).
Rational	Structural power that focuses on authority, information, and expertise as bases of power. (Bradshaw-Camball and Murray 1991).
Centralization, Decision Rights, Participation in Decision Making	
Disciplinary Power	Power is a mechanism constituted by the multiplicity of power/knowledge relationships between agents. It is associated with bodies of knowledge (disciplines) that constitute the dominant view and meaning of things (Bloomfield and Coombs 1992).
Rational	Structural power that emphasizes rational decision making (Bradshaw-Camball and Murray 1991).
Resource Control	Power that relies heavily on exchange theory and "is derived from the ability to control the supply of resources to others" (Astley and Sachdeva 1984, p. 106).
Sovereign Power	Power is a thing that has simple mechanical causal effects, is owned and apportioned within a zero-sum game; focuses on intentional sources of power. "[P]ower is assumed to be derived from sources who are intentional agents, e.g., the sovereign, an originating subject whose will is power" (Bloomfield and Coombs 1992, p. 462).
Systems/Structural Power	Computers reinforce the power of the already potent players. Power resides not in people but in systems and structures (Bloomfield and Coombs 1992)
Zero Sum Power	Power is "defined in terms of the control or ownership of resources" (Sillince and Mouakket 1997, p. 369).
Influence	
Behavioral Power	Focuses on exercise of power in which one actor influences another actor to behave in a manner differently than s/he would have behaved without the influence (Bloomfield and Coombs 1992).
Interpretive	Power that "assumes that reality is socially constructed...[and] that the parties involved exert influence by constructing the meaning of what others experience" (Bradshaw-Camball and Murray 1991, p. 382).
Network Centrality	Emergent power derived from a relatively stable network of patterned interactions. Structural properties of location offer opportunities for creating "structural dependence" as opposed to dependence within two-party exchange relationship. "To the extent that actors are located at tightly coupled interconnected nodes in the network [of interactions], they gain power because their immersion in multiple interdependencies makes them functionally indispensable" (Astley and Sachdeva 1984, p. 106).

Table 1. Common Themes in Power Conceptualizations (Continued)

Politics	
Organizational Power	Power is derived from how political roles are played; rational view of political interests (Sillince and Mouakket 1997).
Pluralist	Development, prioritization, and execution of organizational goals is an explicitly political process involving conscious negotiation based on control of resources and information (Bradshaw-Camball and Murray 1991).
Processual Power	Power is part of the decision-making sphere and micropolitics of organizational life. Decisions and priorities involved in negotiation are emergent phenomena. Power lies "not in concrete resources but in strategies like coalition-formation and the manipulation of information that protagonists employ in the power game" (Fincham 1992, p. 743).
Radical	Power and politics are outgrowths of social structures. Political activity, broadly defined, involves either maintaining or undermining (and ultimately overthrowing) existing power structures (Bradshaw-Camball and Murray 1991).
Zero Sum Power	Power is a zero-sum political game in which there is a fight between individuals over an object—when one party wins the other loses (Sillince and Mouakket 1997).
Power (not covered above)	
Institutional Power	Power is derived from social structures of class and ownership which mediate organizational power relationships. Power rests "on the relationships in which organizations are embedded" (Fincham 1992).
Interpretive	Power is based on the ability to control access to and direct the construction of organizational realities (Bradshaw-Camball and Murray 1991).
Processual Power	Emergent power that is a social relationship; resource dependency; power as force (Sillince and Mouakket 1997).
Socially Shaped Power	Power is derived from intersubjectively created meaning; power is in the beholder's eye. Power is derived from the social construction of meaning (Sillince and Mouakket 1997).
Structurally Constrained Power	Structural power focused at the super-organizational level. Power is the structural influence on behavior within organizations including class perceptions and ideologies (Sillince and Mouakket 1997).

Two distinct themes emerge from the five articles regarding organization structure and its relationship to power: (1) several researchers refer to the *authority* of structural-based power (Astley and Sachdeva 1984; Bradshaw-Camball and Murray 1991; Fincham 1992) and (2) individuals or collectives involved in decision making hold decision rights and control the allocation of organizational resources (Astley and Sachdeva 1984; Bloomfield and Coombs 1992; Bradshaw-Camball and Murray 1991; Sillince and Mouakket 1997). We used the terms centralization, decision rights, and participation in decision making to represent this second theme.

Influence is often subsumed in definitions of power. Influence occurs when "a social actor frames others' choices in the sense of its

interests" and cannot "impose these interests by sheer force," whereas in power situations, social actors may rely on sheer force to impose their wills (Castells 1998, p. 474). Behavioral power, interpretive power, and network centrality all refer to the exercise of power in which one actor behaves differently than s/he would have acted if not for the influence of another actor (Astley and Sachdeva 1984; Bloomfield and Coombs 1992; Bradshaw-Camball and Murray 1991).

Three categorizing articles address politics as distinctly different from power (Bradshaw-Camball and Murray 1991; Fincham 1992; Sillince and Mouakket 1997). The level at which politics are played varies from the micropolitics of organizational life (Fincham 1992) through political outgrowths of social structures (Bradshaw-Camball and Murray 1991). These same studies also address power as a concept by itself. The institutional, interpretive, processual, socially-shaped, and structurally-constrained categorizations all represent definitions that rely on the use of the power terminology.

Research Methodology

Metatriangulation is a theory-building process that assists researchers in recognizing, cultivating, and accommodating diverse paradigmatic insights (Gioia and Pitre 1990; Lewis and Grimes 1999). A researcher can use metatriangulation to articulate the paradigms underlying extant theory and to derive richer theoretical bases for understanding the phenomenon being studied. The metatriangulation process consists of a three-phased model (groundwork, data analysis, and theory building) to explore variations in the assumptions of alternative paradigms, to gain insights into the multiple paradigms, and to address emerging themes and theories (Lewis and Grimes 1999). Our application of this process is summarized in Table 2.

The metatheoretical sample in this study includes 82 journal articles. Interestingly, our search strategy produced a sample of articles that spans the ITIDMU research streams and is tied together by the "crucial warp thread" suggested by Baskerville and Smithson (1995). In the Appendix, we identify the ITIDMU research stream or theme for each article in our sample and provide summaries of other coding dimensions.

Results: Viewing the Phenomenon Through Different Lenses

We examined the complex interrelationships among power and ITIDMU concepts using two sets of lenses. We used one set of lenses, referred to as technology lenses, to better characterize the causal structures between ITIDMU constructs and power. The other set of lenses, referred to as power lenses, facilitates understanding the assumptions made in IT research about the nature of power. Using these two sets of lenses simultaneously allowed us to view the complexity of power relationships in IT research from multiple perspectives. For the technology lenses, we adopted the three causal structures proposed by Markus and Robey (1988). MIS researchers have frequently cited these lenses and used them in research (cf., George and King 1991; Orlikowski 1992; Pinsonneault and Kraemer 1993). The concept of causal agency captures authors' beliefs about the nature of causality. In particular, causal agency focuses on whether external forces (e.g., IT) cause change, whether people act purposefully to accomplish intended objectives, or whether changes emerge unpredictably from the interaction of people and events. Table 3 contains the definitions of the three technology lenses (i.e., technological imperative, organizational imperative, and emergent perspective).

The technology lenses lack the ability to address power in deeper societal structures. The narrowly constructed explanations of social order and change—rational or political—do not explain, much less predict, the conceptualization of power that was hinted at in several articles in our sample. Possibly even more problematic, the technology lenses force classification into bifur-

Table 2. Summary of Metatriangulation Approach

Activity	Application in This Study
Phase I. Groundwork: *In the groundwork phase, researchers identify the phenomenon of interest, choose the paradigmatic lenses, and collect a metatheoretical sample. By defining the phenomenon of interest and choosing the paradigm lenses, researchers establish the boundaries of what will be considered in their multiparadigm investigation (Eisenhardt 1989; Lewis and Grimes 1999).*	
Define phenomenon of interest	**Phenomenon of Interest**: We defined our phenomenon of interest as research that investigates the intersection of power and ITIDMU. Research articles published in academic journals that examined both power and ITIDMU were included in our study. **Major obstacle**: *Matching our definition of the phenomenon of interest to the published research*. Ironically, the term *power* is not used in many studies. Rather it is often replaced by terms such as participation in decision making that are less pejorative to the study's subjects.
Focus paradigm lenses	**Lens Selection**: We selected two sets of lenses: (1) technology lenses and (2) power lenses. **Major obstacle**: *Identifying a set of lenses that allowed for a full view of our phenomenon*. We chose two sets of paradigm lenses: (1) technology lenses, to focus on researchers' views regarding the causal structure between ITIDMU constructs and organizational power, and (2) power lenses, to focus on researchers' views regarding the role of power in ITIDMU.
Collect metatheoretical sample (data interpretable from multiple lenses)	**Sampling frame**: Although computer searches by topic are recommended for reviews, this was not possible in our study because of the different terms used for power in the literature. In fact, a trial computer search failed to find many articles that we identified by hand searching journals. Therefore, rather than a computer search, we conducted hand searches of highly ranked journals for 1980-1999. We relied upon published journal rankings of both management and MIS journals to determine which journals to include in our study.[a] We included six highly ranked MIS journals: *MIS Quarterly, Communications of the ACM, Information Systems Research, Management Science, Decision Sciences*, and *Journal of Management Information Systems.* In addition, we included *Organization Science*, a relatively new journal at the intersection of MIS and management research. We also included three highly rated management journals: *Administrative Science Quarterly, Academy of Management Journal*, and *Academy of Management Review*. To reduce a potential North American bias in our sample, we included two highly-ranked European journals: *European Journal of Information Systems* and *Journal of Management Studies.*
	Sampling Criteria: To be included in our sample, an article had to address (1) one or more power aspects and (2) one or more ITIDMU constructs. We read the title, abstract, and keywords for every article published in these journals from 1980 through 1999 to determine if the article met these two criteria. Of the articles selected, we later excluded some because they either (1) focused exclusively on power, but not ITIDMU, or vice versa, or (2) used the terms influence, power, or politics in a manner that was not related to power (e.g., variable A influences variable B, or politics in reference to governmental behavior).

Table 2. Summary of Metatriangulation Approach (Continued)	
Activity	**Application in This Study**
	Major obstacle: *Identifying an acceptable strategy for sample selection*. Lewis and Grimes provide no guidance for sample selection, and no search strategy was likely to provide the complete set of articles, chapters, and books that investigate our phenomenon of interest. Acknowledging that we could not collect the population of works, we opted for a focused search of highly ranked academic journals.
Phase II. Data Analysis: *Data analysis consists of planning the paradigm itinerary, conducting multiparadigm coding, and constructing paradigm accounts. Applying a systematic series of analyses allows researchers to overcome information processing limitations that emerge when trying to understand information intensive data (Eisenhardt 1989; Lewis and Grimes 1999).*	
Plan paradigm itinerary	**Paradigm itinerary**: We constructed a coding scheme to capture critical study characteristics, and refined it during three preliminary rounds of coding. Among other things, we identified the dominant technology perspective (i.e., technological, organizational, or emergent), dominant power perspective (i.e., rational, pluralist, interpretive, or radical), definition of power, measures of power, key research findings, level of analysis, research method, nature of exploration, and length of study. The results of our coding activities are summarized in the Appendix. **Major obstacle***: Coder agreement*. Early in the process, coders tended to categorize articles largely as emphasizing the technology perspective that reflected their own biases. Other researchers who experienced similar problems recommended coding based upon the authors' use of metaphorical and paradigmatic language to identify the authors' primary paradigm (Lewis and Grimes 1999; Smircich 1983).[b] We modified the coding form to require coders to provide textual evidence from each article to support their conclusions about the technology perspective used by the article author(s). This served to focus coders on the language used by the authors and, as a result, shifted identification of the technology perspective to a more rule-driven process that was less influenced by the coder's own view of the world.
Conduct multipara-digm coding	**Coding process**: After refining the coding scheme, we assigned a primary and secondary coder to each article. Six researchers participated in the coding activities. To decrease the potential of systematic biases arising from specific coding pairs, coders were randomly assigned to each article as either the primary or secondary coder. The primary and secondary coders independently applied the coding scheme to each assigned article. Afterward, the pairs resolved their differences and generated one coding sheet for each article. The initial agreement among the pairs of coders ranged from 57.1% to 92.5%, with an average agreement of 77.8%. If coders could not resolve disagreements for a particular article, the article was put aside and final coding was determined in a meeting with all researchers. **Major obstacle***: Resolving coding differences*. Resolution was time-consuming, but enlightening. It helped surface the different paradigmatic bases of the research. By the conclusion of the fourth coding round, each coding pair reached 100% agreement on the article coding.

Table 2. Summary of Metatriangulation Approach (Continued)

Activity	Application in This Study
Write paradigm accounts	**Developing accounts**: Following the fourth round of coding, each researcher wrote a paradigm account for each of the seven perspectives (i.e., three technology and four power perspectives) (see Table 5 for a listing of the articles coded into each paradigm). These accounts focused on characterizing the research in each perspective with regard to power and ITIDMU. Each researcher read the other researchers' completed accounts, and all researchers met to discuss significant findings from the data analysis. **Major obstacle**: *Volume of data*. We used Lotus Notes to record our coding. Its facilities for view creation made the volume of data more manageable.
Phase III. Theory Building: *The final phase of metatriangulation attempts to build theory by exploring metaconjectures, attaining a metaparadigm perspective that can accommodate representations from multiple paradigms, and articulating/critiquing the resulting theory and theory-building process.*	
Explore meta-conjectures	**Developing metaconjectures**: Metaconjectures flow from unearthing what is unexpected or unanswered in the paradigm accounts. The paradigm debates probe apparent contradictions and discrepant explanations. In addition to using paradigm accounts to build metaconjectures, we attempted to paint a picture of our entire data set by examining several different characteristics of the data. **Major obstacle**: *Synthesizing the findings*. Because metatriangulation focuses on pulling together multiple views of our phenomenon, our metaconjectures were often fragmented. Iteration, and lots of it, was necessary to work beyond the separate findings to the more meta findings.

[a]For MIS journal rankings, we used Gillenson and Stutz 1991; Hardgrave and Walstrom 1997; Holsapple et al. 1994; Mylonopoulos and Theoharakis 2001; Walstrom et al. 1995; Whitman et al. 1999. For Management journal rankings, we used Coe and Weinstock 1984; Franke et al. 1980; Gomez-Mejia and Balkin 1992; Johnson and Podsakoff 1994.

[b]Gioia and Pitre (1990) note that while a multiparadigm perspective is desirable, it is nonetheless rooted in a specific paradigm depending on the ground assumptions of the observer.

Table 3. Technology Lenses

Lens	Definition
Technological	"Views technology as an exogenous force which determines or strongly constrains the behavior of individuals and organizations" (Markus and Robey 1988, p. 585). The technological imperative is also called *technological determinism* because technology is considered a determinant, or strong driver, of organizational outcomes (Orlikowski 1992; Pinsonneault and Kraemer 1993).
Organizational	"Assumes almost unlimited choice over technological options and almost unlimited control over the consequences...human actors design information systems to satisfy organizational needs for information. Thus, information technology is the dependent variable in the organizational imperative, caused by the organization's information processing needs and the manager's choices about how to satisfy them" (Markus and Robey 1988, p. 587). The organizational imperative, also called *managerial choice* or *strategic choice*, emphasizes that individuals choose how and when to apply IT to accomplish work in the organization (Orlikowski 1992; Pinsonneault and Kraemer 1993).
Emergent	"The uses and consequences of information technology emerge unpredictably from complex social interactions" (Markus and Robey 1988, pg. 588). The emergent perspective is typified by studies applying the structurational model of technology (Orlikowski 1992; Orlikowski and Robey 1991). The emergent perspective views the introduction of IT into an organizational setting as a catalyst, initiating a series of reciprocal causes and effects from which the use of the technology and the organizational outcomes arise (Orlikowski 1992; Pinsonneault and Kraemer 1993).

cated categories of objectivity versus subjectivity based upon some preexisting reality. This precludes an alternative view in which meaningful reality is created intersubjectively. Some authors introduced this alternative view that meaning and the world as we know it are created through language and symbols.

To overcome these limitations, we adapted the framework developed and used by Bradshaw-Camball and Murray (1991) to understand power and organizational politics. This framework is a modified version of Burrell and Morgan's (1979) framework of sociological paradigms. Another modified version of these lenses has also been applied in other MIS research (e.g., Hirschheim and Klein 1989) as well as management and communication studies. The Burrell and Morgan framework accommodates a variety of conceptualizations of power typically found in IT research: authority, political activity, and the social construction of meaning. In addition, it offers a view of power in deeper societal structures. Finally, because of the extensive descriptions and applications of the Burrell and Morgan framework, the modified framework described by Bradshaw-Camball and Murray (1991) is relatively well-defined. Some potential shortcomings of the Bradshaw-Camball and Murray framework are provided in the limitations section of this paper, but we believe the benefits of its well-articulated theoretical base provide this study with the best possible set of paradigm lenses to apply to the murky concepts of power associated with IT research. Table 4 presents the definitions of the four power lenses (i.e., rational, pluralist, interpretive, and radical).

The paradigm accounts from the perspectives of these two frameworks highlighted different aspects of the role of power in IT research. Table 5

Table 4. Power Lenses

Lens	Definition
Rational	Structural power that focuses on authority, information, and expertise as bases of power; emphasizes rational decision making. Power is viewed in terms of an objective reality in which there is an objectively identifiable, ordered set of optimal goals for the organization (Bradshaw-Camball and Murray 1991).
Pluralist	Power that assumes *objective* definitions of power and that conflict is the norm; development, prioritization, and execution of organizational goals is an explicitly political process involving conscious negotiation based on control of resources and information. Power viewed in terms of an objective reality in which there are objectively identifiable sets of optimal goals for each participant in an organization (Bradshaw-Camball and Murray 1991).
Interpretive	Power is based on the ability to control access to and direct the construction of organizational realities. Power that "assumes that reality is socially constructed... [and] that the parties involved exert influence by constructing the meaning of what others experience" (Bradshaw-Camball and Murray 1991, p. 382).
Radical	Power and politics are outgrowths of social structures, such as class, racial, gender, or institutional structures, that exist outside any particular organization. Political activity, broadly defined, involves either maintaining or undermining (and ultimately overthrowing) existing power structures (Bradshaw-Camball and Murray 1991).

contains a listing of the articles coded into each lens. In this section, we discuss the findings and summarize the accounts for each lens.

Technological Lens

Studies based on the technological imperative place technology in the role of an external agent capable of directly transforming organizations. These studies theorize and empirically examine ways that the introduction and use of IT alters the exercise and distribution of power. Group support systems (GSS) studies applying this approach focus on the role of status and influence in group decision-making processes. They suggest that GSS use generally leads to greater equality of participation in decision making for low-status participants, and thus temporarily hinders the use of role-based power (Dennis et al. 1998; Ho and Raman 1991; Huang and Wei 1997; Rao and Jarvenpaa 1991; Tan et al. 1995; Tan et al. 1998a; Williams and Wilson 1997; Zigurs et al. 1988). However, low-status participants still perceive that high-status members influenced them (Tan et al. 1998b; Weisband et al. 1995).

Researchers also adopted the technological perspective when studying the relationship between IT and formal power structures present in organizations. This work includes both descriptive and normative studies based on the premise that investment in IT, by altering the information processing capabilities of the firm, can alter the set of feasible (or optimal), formal decision-making structures (Anand and Mendelson 1997; Carter 1984; Hitt and Brynjolfsson 1997; Nault 1998; Zeffane 1989). In addition, researchers argued that IT management should increase the power of organizational departments by increasing their importance to the firm and their ability to reduce uncertainty (Saunders 1981). However, empirical studies of the perceived power of the IT function consistently found that IT departments had relatively little power in the organization (Lucas 1984; Lucas and Palley 1987; Saunders and Scamell 1986).

Table 5. Articles Grouped by Technology and Power Perspective[a]

	Technological	Organizational	Emergent
Rational	1 Anand and Mendelson 1997 2 Carter 1984 3 Dennis et al. 1998 4 Hitt and Brynjolfsson 1997 5 Ho and Raman 1991 6 Huang and Wei 1997 7 Lucas 1984 8 Lucas and Palley 1987 9 Nault 1998 10 Rao and Jarvenpaa 1991 11 Saunders 1981 12 Saunders and Scamell 1986 13 Tan et al. 1998a 14 Tan et al. 1998b 15 Weisband et al. 1995 16 Zeffane 1989 17 Zigurs et al. 1988	1 Ahituv et al. 1989 2 Ang and Cummings 1997 3 Brown and Magill 1998 4 **Dean et al. 1992** 5 *Franz and Robey 1984* 6 Franz and Robey 1986 7 George and King 1991 8 Hann and Weber 1996 9 **Huber 1981** 10 Leonard-Barton and Deschamps 1988 11 *Markus and Bjørn-Andersen 1987* 12 Olson and Chervany 1980 13 Pinsonneault and Kraemer 1997 14 Sambamurthy and Zmud 1999 15 *Sillince and Mouakket 1997* 16 *Sillince and Mouakket 1998* 17 **Tractinsky and Jarvenpaa 1995** 18 Zmud 1982	1 Brown and Magill 1994 2 Kim and Umanath 1993 3 *Kling and Iacono 1984* 4 Pinsonneault and Kraemer 1993
Pluralist	1 Lee 1991 2 Reekers and Smithson 1996 3 Tan et al. 1995 4 Williams and Wilson 1997	1 Bamber and Lansbury 1988 2 Barki and Hartwick 1994 3 **Beath 1991** 4 De Brabander and Thiers 1984 5 **Franz and Robey 1984** 6 Griffith et al. 1998 7 Hart and Saunders 1997 8 Hart and Saunders 1998 9 **Howell and Higgins 1990** 10 *Huber 1981* 11 Iacovou et al. 1995 12 Keen 1981 13 Kim and Michelman 1990 14 Lederer et al. 1990 15 Levine and Rossmoore 1995 16 McKeen et al. 1994 17 **Newman, and Noble 1990** 18 Premkumar and Ramamurthy 1995 19 Robey and Farrow 1982 20 Robey et al. 1989 21 Robey et al. 1993 22 Sabherwal and King 1992 23 *Sillince and Mouakket 1997* 24 *Sillince and Mouakket 1998* 25 *Tractinsky and Jarvenpaa 1995* 26 Watson et al. 1999 27 Weill and Olson 1989	1 Baskerville and Smithson 1995 2 Burkhardt and Brass 1990 3 Cavaye and Christiansen 1996 4 Clemons and Row 1993 5 Dawson and McLoughlin 1986 6 Joshi 1991 7 *Kling and Iacono 1984* 8 *Markus 1983* 9 Noble and Newman 1993 10 **Robey and Boudreau 1999** 11 Romm and Pliskin 1997

Table 5. Articles Grouped by Technology and Power Perspective (Continued)[a]

	Technological	Organizational	Emergent
Interpretive		1 *Beath 1991* 2 Bloomfield and Danieli 1995 3 *Howell and Higgins 1990* 4 **Markus and Bjørn-Andersen 1987** 5 *Newman and Noble 1990* 6 Sillince and Harindranath 1998 7 **Sillince and Mouakket 1997** 8 **Sillince and Mouakket 1998**	1 Bloomfield and Coombs 1992 2 Brown 1998 3 **Kling and Iacono 1984** 4 **Markus 1983** 5 Nidumolu et al. 1996 6 *Robey and Boudreau 1999* 7 Robey and Markus 1984
Radical		1 *Dean et al. 1992* 2 *Sillince and Mouakket 1997* 3 *Sillince and Mouakket 1998*	1 King et al. 1994 2 *Robey and Boudreau 1999*

[a]Articles that appear in multiple cells represent bridging articles (i.e., articles that span multiple perspectives). The dominant perspective is represented by bold typeface, while secondary perspectives are represented by italicized typeface.

Organizational Lens

The organizational imperative emphasizes the role of power and political action in designing, developing, and implementing IT. The political approach appears in the earliest MIS research to address power (cf., Kling and Iacono 1984; Markus 1983; Pettigrew 1972). Studies employing this perspective suggest IT development and use is a politically-charged process with outcomes that benefit those in power (Newman and Noble 1990; Robey and Markus 1984). In addition, the political actions of those involved in the decision-making process often determine IT management outcomes (Bamber and Lansbury 1988; Bloomfield and Danieli 1995; Huber 1981; Lederer et al. 1990; Sabherwal and King 1992; Weill and Olson 1989). The organizational imperative suggests that user participation in the systems development process provides users with power, leading to conflict, and raising questions about the resulting processes and systems (Barki and Hartwick 1994; Franz and Robey 1986; McKeen et al. 1994; Robey and Farrow 1982; Robey et al. 1989; Robey et al. 1993).

Other power bases, such as institutional structures and resource dependency, empower organizations to implement new interorganizational systems (Ang and Cummings 1997; Hart and Saunders 1997, 1998; Iacovou et al. 1995; Premkumar and Ramamurthy 1995). Powerful organizations can require adoption of certain technologies by less powerful organizations to facilitate a trading relationship. However, by using power in this way, organizations may hinder the development of trust and risk damaging long-term interorganizational relationships (Hart and Saunders 1997). Overall, organizational imperative studies suggest, and somewhat support, the notion that individuals and organizations can be expected to use their power to guide ITIDMU.

Emergent Lens

Studies that apply the emergent perspective meld the organizational and technological imperative views by considering reciprocal effects in which ITIDMU impacts power and power influences ITIDMU. The technological imperative suggests that IT introduction and use changes power structures, but does not consider how this expectation itself might change the behaviors of individuals or organizations involved. The organizational imperative considers how organizational actors can (and do) use power and political action to affect the

way IT is managed and used. The emergent perspective extends these two views to posit that ITIDMU both impacts and is impacted by the distribution of power. As a result, power concerns are likely to be a factor in all activities surrounding IT. Under this view, power concerns may affect how individuals and organizations adopt technology, design systems, train users, and promote (or hinder) projects—whether these activities are explicitly political or not (Brown 1998; Cavaye and Christiansen 1996; Kling and Iacono 1984; Markus 1983; Noble and Newman 1993).

Studies employing this conceptualization suggest that power redistributions impact not only decision makers' behavior toward technology, but also the behavior of the less powerful (Bloomfield and Coombs 1992; Burkhardt and Brass 1990; Dawson and McLoughlin 1986; Kim and Umanath 1993; King et al. 1994; Pinsonneault and Kraemer 1993). It is most clearly seen in studies of resistance in which organizational actors are resisting *because* of power concerns not *with* the use of power (Clemons and Row 1993; Dawson and McLoughlin 1986; Joshi 1991; Kling and Iacono 1984; Markus 1983; Nidumolu et al. 1996; Noble and Newman 1993; Robey and Boudreau 1999; Romm and Pliskin 1997).

Rational Lens

The rational perspective assumes that a single, identifiable set of goals can be objectively prioritized. In the extreme, research taking this perspective focuses on a single goal, such as group performance or firm profitability, which is presumed to be unambiguously desirable for all participants. Studies applying the rational lens focus on how IT and power structures (typically the distribution of formal authority, allocation of decision-making rights, or membership in a minority or majority) interact to affect a collective's ability to achieve its unambiguously desirable goal(s).

Although their conclusions are mixed, studies applying the rational perspective to investigate the impact of IT on formal organizational power consider the role IT plays in determining the most appropriate decision-making structures for a firm seeking to maximize profits (Anand and Mendelson 1997; Dean et al. 1992; Hitt and Brynjolfsson 1997; Nault 1998). Studies of power and GSS applying the rational approach consider how IT and the distribution of power interact to affect decision-making performance (Dennis et al. 1998; Ho and Raman 1991; Huang and Wei 1997; Rao and Jarvenpaa 1991; Tan et al. 1998a; Tan et al. 1998b; Weisband et al. 1995; Zigurs et al. 1988).

Studies of IT function governance (Brown and Magill 1994, 1998; Kim and Umanath 1993; Olson and Chervany 1980; Sambamurthy and Zmud 1999) and IT function power (Lucas 1984; Lucas and Palley 1987; Saunders and Scamell 1986) have also applied the rational viewpoint. Other researchers applying this approach conclude that formal position of participants and degree of centralization play a significant role in the outcome and impact of computerization (i.e., IT implementation projects) (Ahituv et al. 1989; Ang and Cummings 1997; Carter 1984; Franz and Robey 1986; George and King 1991; Hann and Weber 1996; Leonard-Barton and Deschamps 1988; Pinsonneault and Kraemer 1993, 1997; Saunders 1981; Tractinsky and Jarvenpaa 1995; Zeffane 1989; Zmud 1982).

Explicit discussions of power, politics, and conflict are conspicuously absent in the substantial body of research applying the rational perspective. The incompatibility between the assumptions underlying the rational view and popular conceptualizations of power provide one reason for this absence. As indicated in Table 4, the rational perspective assumes (1) an objective, most appropriate set of goals exists for the organization and (2) organizational actors work to achieve this goal set. On the other hand, power is commonly defined as an individual's or collective's ability to influence another individual or collective to think or to act differently than that individual or collective would otherwise think or act (Frost 1987; Hall 1999). Thus, from the rational perspective, power is exercised only when someone strives to reach

some goal(s) other than the organization's goal(s), a situation characterized as irrational. If considered at all, conflict is characterized as a problem arising from bounded rationality or incomplete information, not a consequence of divergent goals or interests. If organizational participants do not see the value of IT for achieving a firm's goals, they are said to need education or information (Lucas 1984). Persuading others to do something that they otherwise would not do is seen as a matter of communication, coordination, or education—issues that can be studied without explicit reference to the concept of power.

Groups or organizations with stable identities and a high level of shared vision and goals should benefit most from findings of the rational perspective studies. In such contexts, the formal power structures, decision-making distributions, and information-based conflict considered by the rational perspective studies are most likely to be prominent. Conversely, caution should be used when applying the rational perspective findings in contexts characterized by differing interests and low levels of collective identity.

Pluralist Lens

The pluralist perspective, like the rationalist perspective, conceptualizes power as an objective reality. However, in contrast to the rational perspective, the pluralist perspective does not assume a single, unified goal set. Rather, participants are assumed to have different, potentially conflicting, interests. Organization or group action is viewed as a consequence of reconciling individual interests through ongoing political processes of negotiation and compromise (i.e., overt politicking is expected).

The pluralist perspective defines power in terms of actors' ability to influence others' behaviors. The conceptualization of power used in these studies is often based on Emerson's dependence theory; i.e.,

> the dependence of Actor A upon Actor B is (1) directly proportional to A's motivational investment in goals mediated by B and (2) inversely proportional to the availability of these goals to A outside the A-B relationship (Emerson 1962, p. 32).

Pluralist conceptualizations of power assume that resources, possession of resources, and the resulting dependency relationships are characteristics of objective reality (i.e., features of the social context that are identifiable and apparent to all reasonable participants).

Pluralist studies assume that power plays arise from differing interests of the involved parties. For example, in studies of interorganizational systems, many development challenges arise directly from the conflicting goals of different organizations (Clemons and Row 1993; Hart and Saunders 1997, 1998; Iacovou et al. 1995; Premkumar and Ramamurthy 1995; Reekers and Smithson 1996). At a group level of analysis, researchers using this lens conclude that power plays arise when the facilitator participates in a decision situation as an actor whose goals may not align with those of the group rather than participating as part of the IT infrastructure (Griffith et al. 1998).

Studies of the political maneuvering associated with IT management and implementation also apply the pluralist perspective. In these studies, IT staff members derive their power from their knowledge of and access to technology. In contrast, business units can use their control of financial resources to guide systems implementation. Thus, systems implementation becomes a negotiation exercise in which various stakeholders attempt to achieve outcomes that favor their interests. Conflict is considered to be a fundamental, but not necessarily dysfunctional, aspect of ITIDMU. Conflict resolution can have positive aspects and often necessitates the use of power (Bamber and Lansbury 1988; Barki and Hartwick 1994; Cavaye and Christiansen 1996; Newman and Noble 1990; Noble and Newman 1993; Robey and Farrow 1982; Robey et al. 1989; Robey et al. 1993).

Interpretive Lens

The interpretive perspective focuses on symbolism, metaphors, language, and meaning. Unlike the rational perspective (which assumes objectively identifiable, unified goals and roles) and the pluralist perspective (which posits distinct, objective goals and resources) the interpretive perspective deals primarily with perceptions and the processes that shape them. Power is defined in terms of actors' (individuals or collectives) ability to control and to shape the dominant interpretation of organizational events. In this perspective, sensemaking is not only the product of mutually shared assumptions and interpretive procedures, but also a political dialog through which actors influence the perceptions, decisions, and behavior of others.

In the interpretive perspective, whoever controls the dialog, and hence the formation of subjective meaning, ultimately determines outcomes. As an approach to control meaning, individuals or collectives use rituals or symbolic activities to make political activities and events acceptable within an organization. Whether it involves presenting IT in a way that is consistent with the dominant, rational view in the organization (Brown 1998; Markus and Bjørn-Andersen 1987; Robey and Markus 1984; Sillince and Harindranath 1998; Sillince and Mouakket 1997, 1998) or changing the presentation of a system to avoid the resistance of other individuals in the organization (Bloomfield and Danieli 1995; Markus 1983; Nidumolu et al. 1996), this approach emphasizes the use of language and symbolic processes to frame activities as consistent with a widely accepted organizational viewpoint.

Another way to manipulate meaning involves an organizational actor's ability to use power to alter another actor's perspective (Beath 1991; Bloomfield and Danieli 1995; Brown 1998; Howell and Higgins 1990; Kling and Iacono 1984; Markus 1983; Markus and Bjørn-Andersen 1987; Nidumolu et al. 1996; Robey and Boudreau 1999; Robey and Markus 1984; Sillince and Mouakket 1997, 1998).[4] This research, which includes discussions of consultancy, transformational leadership, and ideological elements of political activities, focuses on combining discourse, persuasion, and communication to shape subjective reality about IT rather than deriving power from control of resources or formal authority. Significantly, this type of power can change behavior without external control or even discernable disagreement or conflict. In the extreme, the dominant meaning may neutralize alternative, opposing interpretations of events and actions—and thereby eliminate dialog altogether.

Studies using this perspective examine actions taken to create and/or to control symbols and language about IT and the impact of those actions on IT. Interestingly, studies using this perspective focus on raising awareness of these more symbolic and deeper-rooted actions. Authors stress the importance of all parties being aware of the different types of exercised power available and in use during a systems implementation effort (Markus and Bjørn-Andersen 1987; Robey and Markus 1984; Sillince and Mouakket 1997, 1998).

The interpretive perspective offers another point of view regarding the intersection of the rational and pluralist perspectives. Control of dialogs, rituals, and symbolic activity are mechanisms that can enable pluralist political activity in a supposedly rational organization. In the extreme, differing interests remain unrecognized by the members of the organization. For example, consider the long-standing recommendation of IS research regarding the education of top management. In rational terms, this recommendation is a call to communicate—to explain how a new tool can be used to accomplish organizational goals. From the interpretive perspective, this recommendation is a political recommendation—a call to change the premises of action, such that, it becomes not only acceptable to allocate resources to the development of IT, but also, a good idea to do so.

[4]Although the Beath (1991), Howell and Higgins (1990), and Robey and Boudreau (1999) articles have a primarily pluralist focus, some interpretive ideas are also incorporated into these studies as indicated in Table 5.

Radical Lens

The radical perspective frames the discussion of power and IT in terms of power and goals that are exercised within a larger social context. In the extreme, exercise of power and goals occurs in the society as a whole. Whether applied to a group, organization, or industry, the radical perspective focuses on how power structures that exist independently of the specific context affect the application and consequences of IT in that context. This perspective focuses on domination, asymmetries of power, and conflict, while examining activities in terms of whether they contribute to the overthrow or maintenance of the larger societal power structures.

One study in our sample applies the radical perspective to explore the role of institutions in IT diffusion and innovation (King et al. 1994). An institution is considered to be "any standing, social entity that exerts influence and regulation over other social entities as a persistent feature of social life, outlasting the social entities it influences and regulates, and surviving upheaval in the social order" (King et al. 1994, p. 141). Institutions are powerful sources of influence that, over time, can change their focus and methods of influence.

While not their primary emphasis, four other articles in our sample view organizational events from the radical perspective (Dean et al. 1992; Robey and Boudreau 1999; Sillince and Mouakket 1997, 1998). However, these authors downplay the role of class-based coercion and economic exploitation frequently found in radical writings and, instead, equate the interests of the organization with managerial interests, or a universalized management. The radical lens suggests power and political behaviors *imported* from the larger social context may be as important as the internal forms of power examined by the rational, pluralist, and interpretive studies in understanding ITIDMU.

Only one study in our sample used the radical lens as the primary perspective for investigating power (King et al. 1994). In one sense, this seems surprising given that many consider it to be a key aspect of individual, organizational, and societal activity (Frost 1987; March 1966; Russell 1995; Walsham 2001). On the other hand, it is quite difficult to identify, describe, and analyze those deep structures of social interaction in which power is embedded. Researchers are sometimes so immersed in the underlying power phenomenon they may be totally unaware of larger power structures. The same structures and struggles that are played out in business organizations also impact the type of research conduced by IS researchers. This is similar to the idea that when one is standing amidst hundreds of trees, it is difficult to see the whole forest. The deep power structures that are the focus of the radical approach often change so slowly that many researchers consider them to be relatively constant, if they notice them at all. Furthermore, researchers who do recognize the impact of deep power structures are further constrained by institutional pressures. In many cases, characteristics of the academic research environment implicitly lead researchers toward other power lenses (i.e., rational, pluralist, and interpretive) that seem to provide a simpler, less costly, and less risky approach to investigating power and its relationship to ITIDMU constructs.

Discussion: Spurring Development of Metaconjectures

In the results section, we presented the findings of our study from the viewpoint of each technology and power lens. In this section, we discuss a broader range of conceptual issues by examining anomalies and complementarities within and across paradigms to identify cross-paradigm insights and questions, or metaconjectures. Anomalies point out differences that facilitate distinguishing power characteristics across paradigms, whereas complementarities may hint at more universal aspects of power. Anomalies and complementarities are most pronounced at the juncture of power lenses within each separate technology lens (see Table 5).

Lewis and Grimes (1999) argue that the quality of theory building resulting from metatriangulation cannot be assessed using traditional criteria, but instead must be assessed based on comprehensiveness. A comprehensive metaconjecture can be interpreted through each lens, albeit using different language. One can evaluate comprehensiveness by viewing the metaconjecture through the various lenses. Thus, in this section we more fully explore power at the juncture points by using the technology and power lenses simultaneously to synthesize our findings and develop metaconjectures.

As noted in Table 5, the majority of articles (42 of them) adopt an organizational perspective. Of the 21 articles with the technological perspective, 17 fall in the technological-rational cell. No articles adopt the technological-interpretive or technological-radical perspective. The 18 articles with the emergent perspective are fairly evenly distributed across the four power lenses. In Table 6, we summarize the differences across the power lenses within each technology lens.

To guide our discussion, we treat each technology perspective separately. The value in doing this is two-fold: (1) a structure is created that distills the major findings from the articles and (2) the technology lenses provide guidance about the typical treatment of IT (i.e., in the technological perspective, IT generally is an independent variable; in the organizational perspective, IT often is a dependent variable; and in the emergent perspective, IT may be both a dependent and independent variable). For each technology lens, we provide metaconjectures and a table that describes the metaconjectures from each power lens.

Technological Imperative and the Power Lenses

Studies utilizing a technological-rational approach assume that organizational goals are fixed and, hence, unaffected by changes in influence processes. These studies seek evidence of IT's impact, not on goals, but on power bases and behavior (e.g., Dennis et al. 1998; Ho and Raman 1991). While suggesting that IT use, most notably GSS, can lead to short-term equality of participation in decision making, these findings have no substantial evidence that IT use has lasting effects on power.

In contrast, studies based on the technological-pluralist perspective allow for the possibility of competing goals and demonstrate IT's potentially lasting impact on both formal and informal power. The technological-pluralist studies suggest that through on-going use of new information technologies, users may create new information-based sources of power and achieve greater prominence in their communication networks. Thus, IT use enables users to achieve one goal set while preventing the attainment of goals by others (Lee 1991; Tan et al. 1995; Williams and Wilson 1997).

No studies in our sample adopted the technological-interpretive viewpoint. Studies using this perspective might focus on understanding the impact of ITIDMU constructs on the symbols and language used in an organization. Here, the power outcomes are long term, and the manipulation of language and symbols creates a perception that there is a common goal. The technological-interpretive view might also be applied to testing Castells' (1998) *real virtuality*. Real virtuality emerges from the interaction between cultural processes and information and communication technologies. It creates a culture in which the media shapes popular moralities and sensibilities. Soap operas and other images received from the media, instead of political-economic conditions, may create the shared symbolic culture that guides everyday living and political decision making.

Unlike the rationalist and pluralist perspectives, which view power as something possessed or owned, radicalism conceptualizes power as a "social relationship embedded in a structure of selection rules for dealing with the world system" (Clegg 1979). Power is very deeply embedded in the structure of society as a whole (rather than merely in the structure of a single organization) (Bradshaw-Camball and Murray 1991). It is even a deeper structure than that found in the interpretive perspective because it is part of long-held

Table 6. Summary of Differences Across Lenses

Lens	Differences
Technological Imperative	
Rational	Information technology use can alter short-term power bases and create greater equality of participation; however, there is no evidence of lasting effects on legitimate power. Information technology does not alter goals since they are fixed and superordinate.
Pluralist	Information technology use allows for the possibility of competing goals and leads to technology's potentially lasting impact on both formal and informal power.
Interpretive	Language and symbols are used to communicate the value of IT to the organization. The power outcomes are organizationally focused and long-term. The manipulation of language and symbols creates a perception that there is a common goal.
Radical	Information technology is a powerful force that causes changes in organizational and societal structures.
Organizational Imperative	
Rational	Information technology reinforces existing formal decision structure. Focus is on why managers make the choices they do about decision structures.
Pluralist	Organizational actors may use IT to subvert rational power processes or to maintain or enhance formal and informal power positions.
Interpretive	Manipulation of language and symbols to define IT and thereby exercise power and construct social reality about appropriate decisions, structures, and goals.
Radical	Information technology is the powerful driver that is used by a class to change the deep structures of society.
Emergent Perspective	
Rational	Decision-making structures change in response to IT use and IT supporting those structures change accordingly.
Pluralist	Focus on how the less powerful attain subgroup outcomes and resist IT implementation. The goals of the organizational stakeholders are important for understanding organizational power.
Interpretive	Proactive and reactive use of IT to construct social reality about the IT.
Radical	Information technology evolves over time to change society's deep structures and to have its use shaped by the dominant class in that society.

and unquestioned social values. Thus, a continuum of structure in organizational politics exists—from a surface level in the pluralist and rational perspectives, through a deep structure in the interpretive perspective, to a *very* deep structure in the radical perspective (Bradshaw-Camball and Murray 1991).

The different perspectives obfuscate one another. Focus on the broad societal influences of the radical perspective makes it difficult to see the fine grains of organizational life at the center of the technological perspective. The very granularity of the technological and organizational perspectives may overcome a stated limitation of the radical perspective that relates inequalities of class differences, but then does not extend the analysis beyond obvious symmetries (Fincham 1992).

Because of the difficulty of seeing the broad view and fine grains at the same time, it is not surprising that the combination of the technological perspective with the radical lens did not surface in our sample. From the technological-radical perspective, IT is a powerful driver or force capable of shaking the very cornerstones of the organizations it touches. Scott Morton had such a vision for IT in the 1990s when he stated,

> All dimensions of the organization will have to be reexamined in light of the power of the new IT. The economics are so powerful and apply to so much of the organization that one has to question everything before accepting the status quo (Scott Morton 1991, p. 11).

On one hand, one could argue that this vision has not yet been realized. On the other hand, Internet use has grown phenomenally and over 553 million users are online throughout the world (*PR Newswire* 2002). The changes resulting from the Internet could be expected to have a profound impact in large portions of the globe. In the United States alone, where 166.4 million users account for 30 percent of the global access, one would anticipate that IT impacts would be felt (*PR Newswire* 2002). Yet, surprisingly the MIS researchers in our sample have not focused on any aspect of this evolution. Of course, many articles in our study were written before the emergence of the World Wide Web. In the future, MIS researchers may use the technological-radical perspective to study this evolutionary phenomenon.

In the combined technological-radical view, individuals and groups discipline themselves to do what is normal within an institutionalized set of social relationships. They act in accordance with the role prescribed by their social position. They suspend their judgments about alternative courses of action even though such actions might free them from domination (Robey and Boudreau 1999). While their individual goals may compete with the societal goal, their actions suggest a superordinate goal to which all members of that society adhere.

In summary, results from studies using the technological imperative suggest that while IT does not bring about change in formal authority structures, it can be used by the less powerful to increase their visibility and enhance informal bases of power such as expertise and network centrality. Because IT (i.e., GSS) tends to block out cues, participants may be less knowledgeable about broad social classifications (i.e., gender, ethnicity, professional status, formal position) of other participants in the group. Consequently, IT has a moderating effect on participation in decision making to the extent that it equalizes the participation of individuals across social classes. Without IT, the less powerful have lower levels of participation in decision making than do the more powerful. These studies uncover an elemental question: Can IT fundamentally change power dynamics in a situation or does it just provide a temporary shock to the system? The following are examples of metaconjectures (and the aspect of ITIDMU that they address) that seek to explore this question. We summarize our evaluation of metaconjectures 1 and 2 in Table 7.

> ***Metaconjecture 1 (IT Impact):*** *IT use can moderate the effects of externally based power differentials on the distribution of participation in a group, organizational, or interorganizational decision-making process.*

Table 7. Viewing Metaconjectures 1 and 2 Through the Power Lenses

Power Lens	Metaconjecture Specific to Lens	Example Study	Temporary Basis?
Rational	IT use can lead to greater equality of participation in decision making.	Dennis et al. 1998	Power shift occurs only while IT is in use.
Pluralist	IT use can reduce the salience of influence behavior by giving more individuals and coalitions an opportunity to have their positions heard.	Williams and Wilson 1997	Power shift occurs only while IT is in use.
Interpretive	Successful technological interventions can enable the legitimation of new language and symbols that potentially change the balance of power.	Not studied	Power is gained or lost only until the next successful technological intervention.
Radical	IT can moderate the relationship between external power (power that derives from social structures outside the immediate context of formal authority) and the internal exercise of power.	Not studied	Power shift occurs when a radical use of IT is institutionalized and continues until another radical shift occurs.

> ***Metaconjecture 2 (IT Impact):*** *IT use can only moderate the effects of external power structures on participation in group, organization, or interorganizational decision making on a temporary basis.*

Organizational Imperative and Power Lenses

Studies adopting an organizational imperative generally focus on organizational roles, decision making, and ITIDMU. Some organizational-rationalist studies in our sample focused on interactions between superior and subordinate in the context of IT development or adoption. For example, researchers have investigated the impact of managerial attempts to influence user adoption (Leonard-Barton and Deschamps 1988) and the impact of user participation in decision making on implementation outcomes (Franz and Robey 1986). In addition, Markus and Bjørn-Andersen (1987) provide a framework to identify different forms of exercised power to make users and developers more aware of influence behavior. These studies focus on role-based power and the rational exercise of improving interactions and fostering understanding between superior and subordinate.

Unlike the organizational-rationalist perspective, the organizational-pluralist perspective considers informal power sources and subverted rational processes. The organizational-pluralist perspective facilitates rational decision making in a political context (Franz and Robey 1984; Robey and Markus 1984), potentially even leveraging IT to subvert formal decision structures and rational processes (Lederer et al. 1990; Weill and Olson 1989). In an effort to achieve individual goals, organizational actors may use IT to protect or enhance power bases (Barki and Hartwick 1994; De Brabander and Thiers 1984; Hart and Saunders 1997; Robey and Farrow 1982; Watson et al. 1999). Further, those without formal authority may be especially prone to use political activities when they sense a power vacuum in the

actions of formal leaders (Kim and Michelman 1990; Levine and Rossmoore 1995).

If the context is certain and legitimates an individual's actions as rational, then it is not necessary to use political behavior to achieve a desired goal. However, if the context is uncertain and does not legitimate the action, individuals may turn to political activity if they believe they have the power to play the game and win. Thus, political behavior may occur not only because individuals with legitimate power have failed to exercise it, but also because they have individual goals that conflict with official organizational goals (Kim and Michelman 1990; Levine and Rossmoore 1995).

Articles in the organizational-interpretive view consider sources of power embedded in the social realities constructed by organizational actors. Studies in this cell are characterized by the manipulation of language and symbols to achieve a desired outcome (Beath 1991; Bloomfield and Danieli 1995; Howell and Higgins 1990; Markus and Bjørn-Andersen 1987; Newman and Noble 1990; Sillince and Harindranath 1998). Often couched in rational phrases like *cost reduction* or *process efficiency*, the exercise of interpretive power may look like rational decision making. The subtle difference, however, is that actors manipulate social reality such that others use these phrases in reference to a course of action that maintains or improves the actors' power. Organizational actors engage in this behavior either by building support for the favored IT initiative or by undermining the opposing viewpoint (Kling and Iacono 1984).

In building support for a project, top management or potential project champions are often targeted. Gaining top management or IT champion support, or engaging in other legitimizing actions, may promote the impression of rational decision making regarding IT, at least on the surface. However, multiple underlying goals, not directly conflicting with the organization's overall goals, are likely to be driving individual behavior in various ways (Bamber and Lansbury 1988; Lederer et al. 1990; Sabherwal and King 1992; Tractinsky and Jarvenpaa 1995; Weill and Olson 1989). As a result, various actors engage in political behavior aimed at convincing others that their desired outcome is the only rational one. Cases of overt politicking emerge as a result of failure to effectively manipulate language and the social construction of what is rational. This failure creates a conflict-laden situation that cannot be resolved by the application of formal authority.

Three organizational perspective studies were viewed from the radical lens. These were all bridging articles designed to look at the same phenomenon from multiple views, including the radical view (Dean et al. 1992; Sillince and Mouakket 1997, 1998). Another area offering great potential for future organizational-radical research is the digital divide between the "haves" and the "have-nots" on institutional and societal levels. It is possible that in those situations where power elites fail to exercise power, the have nots may seize the opportunity and gain power.

The studies in the organizational imperative uncover an elemental question about the ubiquitously recommended top management support. Where should researchers' greatest emphasis be placed: the formal authority that top management has, the involvement in the resource allocation process, or the "bully pulpit" in the dialogs that determine meaning? Future research investigating the following metaconjectures about top management support could serve to refine the top management recommendation by answering questions about this support. The comprehensiveness of these metaconjectures is evaluated in Table 8.

> ***Metaconjecture 3 (IT Management):*** *Top management's failure to exercise formal authority leads to more prevalent exercises of influence behavior in IT decisions by other parties.*
>
> ***Metaconjecture 4 (IT Development):*** *Top management support has more impact on project success in development environments characterized by resource conflict.*

Table 8. Viewing Metaconjectures 3, 4, and 5 Through the Power Lenses

Power Lens	Metaconjecture Specific to Lens	Example Study	Resources/ Uncertainty?
Rational	When top management has a weak understanding of the task or IT, others with legitimate authority (e.g., expert power) may be sought to lead the development effort.	Hann and Weber 1996 (findings were contrary)	• Transfer of authority more likely when importance of IT or project is uncertain. • Transfer of authority less likely when there is resource conflict.
Pluralist	When top management does not exercise formal authority, coalitions will attempt to influence outcomes to their own advantage. The power base derived from the coalition helps in negotiating for resources needed to maintain influence.	Levine and Rossmoore 1995	• Power seeking behavior is more likely to be successful when importance of project or IT is uncertain. • Power seeking behavior is more likely when there is resource conflict.
Interpretive	When top management has failed to establish specific language and symbols, an opportunity exists for an individual, group, or organization to install language and symbols that improve their power base.	Newman and Noble 1990	• Power seeking behavior is more likely to be successful when importance of project or IT is uncertain. • Power seeking behavior is more likely when there is resource conflict.
Radical	Organizations and groups characterized by a high power differential (formal, resource, or symbol control) are less likely to undertake IT innovations; therefore, the opportunity to seek power through IT is less prevalent.	Not studied	• Opportunity for power gain more likely when importance of IT or project is uncertain. • Opportunity for power gain less likely when there is resource conflict.

Metaconjecture 5 (IT Development): *Top management support has more impact when there is uncertainty about the importance of IT generally or the project specifically.*

Emergent Perspective and the Power Lenses

Researchers utilizing an emergent-rational approach in our sample investigated decision-making structures supported by IT, the impact of those structures on people with and without power, and any resulting changes in structure. These researchers discovered that rather than being fixed, decision-making structures sometimes change in response to the organizational environment. Consequently, IT supporting those structures changes accordingly (Brown and Magill 1994; Pinsonneault and Kraemer 1993). Further, certain contingencies drive these changes, such as poor IT performance or a desire for better IT strategic alignment (Brown and Magill 1994; Kim and Umanath 1993; Pinsonneault and Kraemer 1993). The four emergent-rational studies suggest that reciprocal impacts of IT on structure (and structure on IT) occur over time.

Emergent-pluralist studies largely investigate implementation efforts and the role of power in implementation activities and outcomes. These studies emphasize attaining subgroup outcomes through a political process of acquiring, using, and preserving power. In our sample, less powerful actors asserted power through tactical resistance that was typically focused on a particular event or activity (Burkhardt and Brass 1990; Cavaye and Christiansen 1996; Clemons and Row 1993; Dawson and McLoughlin 1986; Romm and Pliskin 1997). For example, in response to a major manufacturer's display of power through a new policy, retailers resisted using a new technology even though it may have improved the existing coordination mechanisms between the organizations (Clemons and Row 1993). In a second case, trade union and middle management resistance frustrated management's attempts to eliminate intermediate levels from control of freight operations (Dawson and McLoughlin 1986). In another case, the less powerful assimilated the new technology in a way unintended by decision makers (Romm and Pliskin 1997). Still others, such as early adopters, increased their network centrality and the power of their position by using a new technology before their less power-aware coworkers (Burkhardt and Brass 1990). These studies demonstrate that the individual goals of the multiple stakeholders are clearly more important in this cell than in the emergent-rational cell.

Emergent-interpretive studies suggest that managers and users both act and react to IT (Bloomfield and Coombs 1992; Brown 1998; Kling and Iacono 1984; Markus 1983; Nidumolu et al. 1996; Robey and Markus 1984). Interactions occur in the context of what might be called socially constructed rationality. Managers and users negotiate for control and shared understanding of the language and symbols used in reference to new IT systems. Consequently, any new system follows a development trajectory or path that is a byproduct of conflict, domination, sabotage, or compromise. From the emergent-pluralist view, this trajectory evolves as individuals or collectives actively engage in behavior that best supports their own interests (i.e., IT use in an unintended fashion, resistance to use, adopting early, etc.). In addition to these behaviors, from the emergent-interpretive perspective, this trajectory evolves as those in control navigate the multiple goals and use language or symbols to construct a shared belief about what constitutes the rational choice that is consistent with or promotes their own goals and values. Kling and Iacono (1984) used a longitudinal case study to explore the impact of an MRP on power distributions. Their study extends beyond the initial implementation and demonstrates how symbolism is created over time through training and the establishment of legitimizing mechanisms such as the steering committee and top management education.

The system development trajectory may be grounded in a complementary application of pluralist and interpretive strategies. For example,

in the emergent-pluralist viewpoint, organizational actors use political strategies and tactics to achieve their goals in the day-to-day, ongoing, functioning of the organization (Baskerville and Smithson 1995; Franz and Robey 1986; McKeen et al. 1994; Robey and Farrow 1982; Robey et al. 1989). However, politics may also exist at a much deeper level when organizational actors intentionally build frameworks of rules, symbols, and meanings underlying systems of influence (Beath 1991; Bloomfield and Danieli 1995; Brown 1998; Howell and Higgins 1990; Markus and Bjørn-Andersen 1987; Newman and Noble 1990; Sillince and Mouakket 1997). These frameworks ultimately impact day-to-day organizational functioning (Frost 1987).

In building the frameworks of rules, symbols, and meanings, organizational actors must be cognizant of the more superficial political activities as they work to shape the deeper, more embedded structures. These actors not only conduct organizational politics within and through existing structures, but also through political activity directed at framing and reframing aspects of structure that allow them to pursue their own interests or the interests of subgroups (e.g., top management education or the application of a methodology that is perceived as helpful, but difficult to implement for all but highly-trained IT professionals). Thus, emergent-interpretive views affect and are affected by the surface structures which are the focus of the emergent-pluralist perspective. Conversely, it may be argued that these various strategies are antithetical rather than complementary. That is, where actors do not possess formal authority, resources, or adequate political clout, they may be forced to rely solely on symbolism and meaning offered in the emergent-interpretive perspective. The symbolism or shared meaning may be created by educating top managers or business users in a manner that helps IT management move in its desired direction (Bloomfield and Danieli 1995). However, creating symbols or shared meaning is a slow process. In those circumstances where IT managers have enough power to gain control of the resources needed to move in a desired direction, they may chose the speedier route of negotiating for resources. Where options are available, they may choose those strategies that generate the most immediate results.

In contrast to the other emergent cells, the emergent-radical perspective views IT as capable of changing a society, but also of being modified by dominant groups to more ably serve as a means of domination. King et al. (1994) explored both the role of institutions in IT innovation and the institutional responses to IT-induced changes. Applying a network variation of the emergent-radical perspective, Castells (1998) describes systemic power in a major institution— today's global financial networks. Capital is moved in and out of global financial markets based on informational turbulences that are interpreted by the information systems of large investors. The power of the large investors is delegated from a higher power, the global financial network itself, a network based on information. The Asian financial crisis of 1997-1998 reflected a flow of capital halting in countries that were excluded from the global financial network by the network itself. Castells adopts an emergent perspective when he notes that the power of the flows prevails over the flows of any specific power.

The emergent research in our review recognizes the evolving nature of IT and power structures. What strategies can be implemented by the IT function and developers to maintain and extend their power? We conjecture:

> ***Metaconjecture 6 (IT Management):*** *In situations where the IT function and/or developers lack formal authority or resources, there is greater emphasis placed upon generating acceptance of a formal methodology which in turn alters the formal structures of authority.*

> ***Metaconjecture 7 (IT Management):*** *In organizations or groups where the IT function and/or developers have high levels of formal authority or resources, there is less emphasis on educating top management and more on negotiating.*

Table 9. Viewing Metaconjectures 6, 7, and 8 Through the Power Lenses

Power Lens	Metaconjecture Specific to Lens	Example Study	Strategy?
Rational	Formal IT methodologies help achieve organizational goals.	Kling and Iacono 1984	Formal IT methodologies identify the best approach to develop systems designed to meet organizational goals, but do not result in power shifts.
Pluralist	When IT function developers lack formal authority, they introduce formal IT methodologies to extend their power.	Kling and Iacono 1984	IT function developers gain power through the use of formal IT methodologies that can be implemented only by highly trained IT professionals. In time, shifts due to expert power lead to changes in formal structures of authority.
Interpretive	When IT function developers lack formal authority, they educate top management to realize the value of a formal IT methodology.	Kling and Iacono 1984	• *When IT function developers lack formal authority*, they create a social construction of the value of the methodology and the IT professionals who implement it. Over time, the value of the IT professionals' work leads to shifts in power. • *When IT function developers possess formal authority*, they use the speedier alternative of negotiating for resources that will further their interests.
Radical	Formal structures of authority evolve to reflect the institutionalization of the methodology.	King et al. 1994	The IT methodology is formally accepted at a societal level and institutionalized. Established organizations offer training on the methodology. The importance of the methodology is reflected in new organization structures, specialized language, and symbols of authority.

Metaconjecture 8 (IT Impacts): *Once power-altering IT has been introduced, it takes some time for the organization to reach a new equilibrium state. The indicators of IT's impact on a new equilibrium state are evidenced by new power structures, language, and symbols.*

Because of the evolving nature inherent in the emergent perspective, the identification of dependent and independent variables is not straightforward. The evaluation of metaconjectures 6 through 8 in Table 9 reflects the complexity of this perspective.

Reflections on Power

What does the juxtaposition of the technology and power lenses reveal about the current body of power and IT research? We suggest that the stories conveyed by the various perspectives are best understood from different levels or layers. The layers of power are similar to the rings found in the cross-sectional piece of an ancient tree trunk. The support structure of the tree (i.e., the trunk and branches of the tree) is directly subject to rain and other environmental elements year after year. Likewise, over time, technology and other environmental factors impact the support structure of an organization (i.e., the power distributions and decision structures). Power embedded in the deep structure of the interpretive perspective and even more so in the very deep structure of the radical perspective could be compared to the innermost rings of the tree.

Although the size and shape of a tree's rings change over time as the tree responds to various stimuli in its environment, these environmental stimuli do not influence all parts of the tree in the same manner. Similarly, time and context impact the layering of power in both the development of power structures and in the dissemination of power (Fincham 1992). Introduction of a new IT does not influence all components and levels of the organization equally and simultaneously. As an example of the role of time and contextual impacts on power, Burkhardt and Brass (1990) found that early adopters of a new IT experienced an increase in power; however, these early adopters were not able to displace those individuals who had power prior to the technology's introduction. Those who held power prior to the IT introduction maintained their power even though they adopted the IT later.

The combination of time and context in the emerging power layers creates an increasing level of theoretical complexity as anomalies and paradoxes of extant paradigms are reconciled by richer, cross-paradigmatic perspectives (Ofori-Dankwa and Julian 2001). At the start of our research, we believed that creating cross-paradigmatic perspectives would enable us to develop one all-encompassing theory or framework. In retrospect, such an expectation was naïve. The underlying assumptions of these various paradigms cannot be reconciled into one theory. However, these anomalies and paradoxes served as theoretical irritants to help us generate the earlier metaconjectures. In the remainder of this section, we discuss the implications of our review for guiding future research by addressing the topics (1) reconciling the role of time in power and IT with selection of research methods, (2) accommodating power and IT context issues with selection of analysis level, and (3) using bridging to examine power and ITIDMU concepts from multiple perspectives.

Time Horizons and Methodology

Time is an important consideration when choosing a research methodology for cross-paradigmatic power studies. Research applying the technological imperative tends to be short-term and, typically, does not address the progression of IT impacts on power. While these impacts certainly could be long-term, the technological imperative is more often employed by researchers to understand short-term shifts in power resulting from the use of a new IT (e.g., GSS studies [Dennis et al. 1998; Huang and Wei 1997; Rao and Jarvenpaa 1991; Tan et al. 1995; Tan et al. 1998a; Tan et al.

1998b; Zigurs et al. 1988]) or the impact of IT on power that is viewed as relatively static and impervious to time (e.g., the power that IT units derive from information [Lucas 1984; Lucas and Palley 1987; Saunders 1981; Saunders and Scamell 1986]). The theories studied in the technological perspective tend to be conceptually simpler (Ofori-Dankwa and Julian 2001) than theories studied in the other perspectives (i.e., King et al. 1994; Robey and Boudreau 1999). These studies tend to be cross-sectional in nature and more straightforward to test empirically because their linear propositions and hypotheses can be more clearly specified. For example, in our sample, not unexpectedly, most studies with a technological perspective employ either lab experiments, conducted over short periods of time, or cross-sectional surveys (see the Appendix). In addition, such methodological approaches are appropriate for studying short-term, direct impacts of power on IT management and use.

The organizational imperative extends the time horizon when it looks beyond the immediate impact and tries to understand how the technology is used to gain or maintain power over time. An even longer-term orientation (and methodology) is required to study the evolution suggested by the more complex, albeit less exact, emergent perspective. From the emergent perspective, power develops in a socio-historical process in which the outcomes of contests and struggles among actors are incorporated into systems of influence in the form of rules and interpretations of reality that subsequently shape the actors' activities (Frost 1987). An excellent example is the change in power structures evidenced over a period of years after the implementation of an MRP (Kling and Iacono 1984). Not surprisingly, researchers often find it difficult to develop and test the theoretical predictions of this perspective because of the nonlinearity of emergent patterns. To capture evolving power dynamics, longitudinal research methodologies seem more useful, albeit more challenging to execute, than cross-sectional and short-term methods. To their credit, 12 of the 14 emergent studies with empirical data in our sample relied on longitudinal data collection (see the Appendix).

Context and Levels of Analysis

Structural context has been linked to level of analysis. External structure, or institutional power, is viewed as the ultimate source of power. Organizational power, with its focus on the firm's internal structure, provides the instruments of power, whereas operationalizing sources of power through these instruments is best studied at a lower level of analysis (Fincham 1992). The studies in our research spanned individual, group, project, intra-organizational, organizational, and interorganizational levels. Future research may seek to view some of the same phenomenon from a different level. For example, most GSS studies were at the individual and/or group level. Studies that explore the use of collaborative technologies at the organizational, interorganizational, or societal levels may discover additional insights regarding power related issues. Alternatively, research could address societal impacts of IT on power distributions among networks of nations in which power is distributed asymmetrically.

Power from Multiple Perspectives

We identified 13 articles in Table 5 as bridging articles, or articles that view power from multiple perspectives. The authors of the bridging articles explore empirical findings (Beath 1991; Dean et al. 1992; Franz and Robey 1984; Howell and Higgins 1990; Kling and Iacono 1984; Markus 1983; Newman and Noble 1990; Sillince and Mouakket 1997, 1998; Tractinsky and Jarvenpaa 1995) or theoretical frameworks (Huber 1981; Markus 1983; Robey and Boudreau 1999) within a single technology lens while using multiple power perspectives. Applying multiple perspectives in a single study allows researchers to uncover *transition zones* between perspectives (i.e., "representations that integrate paradigmatic insights and emphasize paradigm similarities," Lewis and Grimes 1999, p. 675).

Although we did not find any articles that bridged the power perspectives within the technological lens, at least one study could bridge power

perspectives. Within the network of social relationships characterized by radicalism, culture assumes an important role. One study in our sample used technological-rational arguments to build hypotheses about cultural differences in GSS outcomes. The GSS was effective in reducing majority influence in an individualistic society such as the United States, but it was not effective in a collectivist society such as Singapore (Tan et al. 1998a). Task type played a role in this study to the extent that intellective tasks have a strong, shared objective or goal while preference tasks do not, a distinction that suggestively corresponds to differences captured in the key assumptions of the rational and interpretive lens. The authors, had they applied the technological-radical approach, might also have concluded that the differing outcomes ensued because the power structures embedded in the societies of the two countries dictate two different sets of norms. These norms create a shared identity within a culture that constrains the behavior of people in each society differently. Future research could further investigate this perspective regarding cultural impacts on power and ITIDMU constructs.

The organizational perspective contained the greatest number of bridging articles (10); this is at least in part an artifact of the research perspective. The organizational perspective typically assumes a subjective treatment of human behavior. Often, in fact, authors describe an actor's behavior, attempt to ascribe that behavior to motives, and then describe the reaction of others and draw conclusions about why all parties behaved in such a fashion. Many authors in our sample accomplished this by describing the behavior from a rational lens and then digging deeper to root causes that included conflicting goals (Franz and Robey 1984). As an alternative application of bridging, interactions in a development project often include negotiation: a rational process with different sides potentially vying for control over language (Newman and Noble 1990).

One could attempt to bridge all four power lenses within the organizational perspective (e.g., Sillince and Mouakket 1997, 1998). Organizational decision making about technology can impact power or decision structures and affect surface-level dependency relationships among actors based on the distribution of organizational resources (Frost 1987). Power relationships temporarily change with perturbations in decision structures, power distributions, and dependency relationships (Ahituv et al. 1989; Brown and Magill 1998; George and King 1991; Hann and Weber 1996; Olson and Chervany 1980; Pinsonneault and Kraemer 1997). Only after periods of continued use is the full impact of IT on organizational power realized. The deep power structures gradually shape and are shaped by IT and organizational context (Dean et al. 1992; Sillince and Mouakket 1997). The deeper structure for power within an organization is at the level where common symbols and language are widely accepted throughout.

> [The] power holders have constituted and institutionalized their provinces of meaning in the very structuring of organizational interactions so that assumptions, interpretations and relevances become the generalized interpretive frame, the cognitive map, of organizational members (Ranson et al. 1980, p. 8).

This deep power structure is so completely embedded in the organization that issues and challenges to power holders are unlikely to arise and power relationships appear relatively stable.

The emergent perspective contains three bridging articles (Kling and Iacono 1984; Markus 1983; Robey and Boudreau 1999). In all three studies, the authors attempt to understand a single phenomenon by examining it through various lenses. In two studies, the authors examined the post-implementation success of a newly introduced IT application from multiple perspectives using slightly different approaches (Kling and Iacono 1984; Markus 1983). Kling and Iacono (1984) show how various actors in the organization engaged in political behavior through the use of rational language (e.g., "increasing efficiency and productivity") to define an *ideological* worldview surrounding the new

technology. Alternatively, Markus (1983) recognizes that organizational actors often have multiple conflicting goals, and hence, engage in political behavior to rally support for accomplishing their objectives (i.e., a pluralist view). For example, use of the new system was labeled *voluntary* even though

> [t]hose who wanted to wait [to begin using the technology]...had to provide the same information manually...[so] it really wasn't all that voluntary (p. 435).

In both studies, the authors discuss how the outcome of the implementation process could be viewed from two different perspectives (rational and interpretive or pluralist and interpretive) and how the combined perspective furthers our understanding the role of power in IT implementation. Future researchers could take similar approaches to examining other ITIDMU constructs and their relationship to power.

Strengths and Limitations

This review makes three major contributions to power and ITIDMU research. First, this research contains an extensive and thorough review of MIS research in the realm of power and its role in IT impacts, deployment or development, management, and use. Second, this review provides an example of how metatriangulation can be applied to facilitate understanding complex phenomenon from various perspectives. Third, the metaconjectures bridge paradigms and illustrate how a single research proposition can be examined from multiple views. We hope that future researchers can draw upon our findings and propositions for guidance in their endeavors to understand the role of power in ITIDMU.

The limitations of our research can be attributed to some extent to researcher biases that shaped our exploration. These biases affected our choice of reference disciplines, journals, the phenomenon of interest, and paradigmatic lenses. Although our review based on the metatriangulation approach is extensive, our selected sample is not exhaustive and could be expanded. For instance, our sample included several studies of interorganizational power, but it did not include a stream of research on dependencies and interorganizational power found in marketing journals. Expanding the sample to include journals that are not mainstream MIS or management research journals would potentially provide a different paradigmatic view of the role of power in IT management and use.

Ten of the journals from which we drew our sample of studies are published in North America and might be considered dominated by the North American MIS research community. This raises questions about the generalizability of the presented characterization of technology and power perspectives. To test the extent of this potential bias, we compared the 14 articles drawn from two journals published in Europe (i.e., *European Journal of Information Systems* and *Journal of Management Studies*) with the 68 articles from the 10 journals published in North America. Chi-square tests indicated significant differences between the subgroups with respect to study type ($p \leq 0.01$) and nature of exploration ($p \leq 0.05$). The studies published in North America included a greater number that used survey-based research to test hypotheses, while the work published in Europe was more likely to be case-based explorations of research questions. However, the Chi-square analysis provided no evidence of significant differences between the two groups with respect to level of analysis ($p = 0.189$), IT phenomena ($p = 0.830$), technology lenses ($p = 0.211$), or power perspectives ($p = 0.146$).[5]

Overall the results of these comparisons suggest a core similarity between the two research com-

[5]In addition to the Chi-square tests, we considered the university affiliation of the authors who published in North America. Of the 68 articles published in North America, 21 (31%) had at least one author who was associated with a university outside North America at the time of publication. The 68 articles included 120 unique authors, 28 (23%) of whom were associated with a university outside North America at the time of publication.

munities with respect to the choice of phenomena, technology lens, and power perspective. These results imply that, at least in the area of power and ITIDMU, differences and similarities between the North American and European IS research communities may be subtler than often thought. Specifically, while there are significant differences with respect to research methodology and approach, the underlying distribution of various conceptualizations of power and technology appear to be comparable. While the subgroup of studies published in Europe did not reveal strong paradigmatic differences from our subgroup of North American studies, a sampling of Pacific Rim (or other regional) publications may demonstrate differences.

The manner in which we selected what we considered to be a manageable sample precluded some work that is potentially related to our phenomenon of interest. For example, our definition of power excluded articles that address issues of control (e.g., Kirsch 1996, 1997) and normative influence (e.g., Kraut et al. 1998). Further, research that did not include power related topics in the title, abstract, or keywords was not included in our sample. Future research could extend our efforts by using a broader definition of power and/or by applying a different selection strategy for identifying articles to include in the research sample.

Finally, we chose paradigm lenses because of their ability to explain the phenomenon of interest and because of their past application to IT studies. However, there is some debate about the appropriateness of the Burrell and Morgan framework that underlies our power perspectives. For example, Deetz (1996, 2001) viewed it as focusing debate on less important issues and normalizing emerging research paradigms by favoring the more traditional directions within them. That is, when Burrell and Morgan, and subsequent others, designate *interpretive* work with the *subjective* label, they may favor cultural studies that focus on member's meanings that are more subject to cultural management and managerial control. The subjective label often connotes research that is more particularistic or personal. In contrast, the objective label is often viewed as more acceptable and mainstream. It protects *functionalist* studies from a thorough analysis of possible hidden values and sources of subjectivity. Deetz (2001) argues that objective-subjective labels (1) are socially contrived and overlook the fact that objective research is often based on concepts and methods that are unknown projections of the researchers' own worldview and value-laden beliefs about what problems should be studied; (2) do not describe meaningful differences in research programs; and (3) lead to misleading conflicts and relationships between qualitative and quantitative research. Nevertheless, the Burrell and Morgan framework accommodates a variety of power conceptualizations and is relatively well defined. Thus, we feel that it provided the best possible set of lenses to apply to the murky concepts of power associated with ITIDMU.

Conclusions

Metatriangulation helps us view the multiple conceptualizations of the relationships between power and IT. From one perspective, IT may be seen as a driver of change in power structures and processes. Alternatively, the creation and introduction of IT can be seen as a process that involves interested parties intentionally using their power to affect the nature of the systems that are put in place. At a more complex level, expectations regarding changes to power structures and power can serve as an important factor in decisions to adopt, promote, or develop IT even if the actions that result are not themselves particularly power-laden or political. IT can be used to create symbols and meaning that reinforce current power structures or to mold altered structures. Power is clearly a complex phenomenon that can be viewed and best understood from multiple layers. At a most basic level, a metaparadigmatic approach can help authors understand, delimit, and carefully describe the conceptualization of power that they are adopting when studying IT. At a deeper level, the metaparadigmatic approach can help surface anomalies and paradoxes. The process of reconciling these anomalies and paradoxes may stimulate researchers to build and test richer theories about these complex relationships.

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Appendix

In this appendix, we identify the ITIDMU research theme and provide a brief summary of power definitions, power measures, and power findings for each article in our sample. In addition, we provide the level of analysis, method of study, nature of study, and length of study for each article.

Ahituv, Neumann, and Zviran, 1989

ITIDMU Theme	IT Structure
Power Definition	Power is not explicitly defined but article implies power = locus of decision making.
Power Measures	Centralization is measured as the degree to which decision making is geographically distributed.
Findings	Locus of decision making has a significant relationship with distribution of hardware in an organization. Centralized decision making tended to have centralized distribution of hardware.
Level of Analysis	Organizational
Method of Study	Survey
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Anand and Mendelson, 1997

ITIDMU Theme	IT Structure
Power Definition	Power is not explicitly defined but article implies power = decision rights (i.e., the power to make decisions).
Power Measures	Four mathematical models that vary the location of decision rights and information and look for the combination that maximizes profit are tested.
Findings	Organization should collocate decision rights with information via its IT implementation. Decision structure and information structure (i.e., information systems) should be co-determined—varying one without varying the other leads to sub-optimal profit.
Level of Analysis	Organizational
Method of Study	Other
Nature of Study	Framework development
Length of Study	NA

Ang and Cummings, 1997

ITIDMU Theme	Interorganizational Relationships
Power Definition	Institutional influence is external social influence towards conformity.
Power Measures	Institutional influence is measured as perceived peer influence and perceived federal influence towards outsourcing.
Findings	All banks tend to acquiesce to federal regulator influence with regard to IT outsourcing; however, this influence is moderated by technological uncertainty for large banks. Most banks take a strategic response to peer influence with regard to IT outsourcing.
Level of Analysis	Organizational
Method of Study	Survey
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Bamber and Lansbury, 1988

ITIDMU Theme	IT Structure
Power Definition	Power is not explicitly defined but article implies power = ability to successfully mandate or block strategic choice.
Power Measures	NA (case study)
Findings	Differing managerial strategies, patterns of industrial relations, and work organization are crucial in determining the success of technological change. These factors are more important than the particular type of technology in determining organizational behavior.
Level of Analysis	Intra-organizational, organizational
Method of Study	Case study
Nature of Study	Research questions explored
Length of Study	Longitudinal

Barki and Hartwick, 1994

ITIDMU Theme	Information Systems Implementation
Power Definition	Power = influence defined as the extent to which users have affected the final design of an IS.
Power Measures	User influence is measured as the amount of perceived influence a user had during systems development.
Findings	Influence is more likely to lead to conflict resolution rather than conflict. Individuals with greater influence were more likely to resolve conflict to their satisfaction. Negative relationship between influence and conflict. When users have influence, they generally get what they want and experience less conflict.
Level of Analysis	Individual
Method of Study	Survey
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Baskerville and Smithson, 1995

ITIDMU Theme	IT Structure
Power Definition	Power is not explicitly defined but article implies power = management's "use of IT as an instrument of organizational control."
Power Measures	NA (non-empirical)
Findings	The influence of IT on new organizational forms is often overstated. Authors suggest that power, organizational learning, and the structural/contextual aspects of IT are important factors to consider when examining the impact of IT on new organizational forms.
Level of Analysis	Intra-organizational
Method of Study	Non-empirical
Nature of Study	Research questions explored
Length of Study	NA

Beath, 1991

ITIDMU Theme	Information Systems Implementation
Power Definition	Power = championing which is using influence beyond the hierarchy within which the champion normally exercised influence.
Power Measures	IT champions were asked to identify an incident or period during which "championing" was critical to the life of the application.
Findings	IT champions are able to influence the outcome of systems development projects. IT

	champions often request that long-range goals be compromised in favor of reaching short-range goals.
Level of Analysis	Individual
Method of Study	Survey
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Bloomfield and Coombs, 1992

ITIDMU Theme	IT Structure
Power Definition	Power is a "technique embodied in discursive practices" that defines the way subjects see themselves which disciplines the subjects.
Power Measures	NA (case study)
Findings	Information systems are not centralizing or decentralizing in character. Power is not a property or a thing, but rather a relationship that evolves between the creation of a new information system and the organizational changes (changes in both work practice and professional knowledge) that occur as the new information system is used. Use of information technology has the capacity to alter the user's view of the work system and to promote self-discipline behavior that agrees with the new and evolving understanding of work.
Level of Analysis	Organizational
Method of Study	Case study
Nature of Study	Research questions explored
Length of Study	Longitudinal

Bloomfield and Danieli, 1995

ITIDMU Theme	Information Systems Implementation
Power Definition	Power is embedded in the political strategies employed by IT consultants to establish their identity.
Power Measures	NA (case study)
Findings	IT consultants regularly exercise power by drawing upon their technical expertise to define others' interests and identities. Consultants not only exercise power over clients, but they are also "subjects of the discourse and practice of consultancy."
Level of Analysis	Project
Method of Study	Case study
Nature of Study	Research questions explored
Length of Study	Longitudinal

Brown, 1998

ITIDMU Theme	Information Systems Implementation
Power Definition	Power is an attempt to "privilege one voice and to suppress other voices which might offer counter-interpretations of actions and events." Exercise of power is an "attempt to legitimate a particular interpretation of events."
Power Measures	NA (case study)
Findings	Narratives are an important tool used by groups and individuals as they attempt to understand and give meaning to IT and work. Narratives can be employed in a political manner as attempts to legitimize individual and/or group interests and actions.
Level of Analysis	Intra-organizational
Method of Study	Case study
Nature of Study	Research questions explored
Length of Study	Longitudinal

Brown and Magill, 1994

ITIDMU Theme	IT Structure
Power Definition	Power is not explicitly defined but article implies that power = locus of responsibility (decision-making authority).
Power Measures	Centralization is measured as the extent to which responsibility for 7 IS functions is centralized or decentralized.
Findings	IS structure changes are made to better align responsibilities for the IS functions with the characteristics of the overall organization. Perceived deficiencies in IS performance under decentralization can be a source of misalignment and results in recentralization actions.
Level of Analysis	Individual, organizational
Method of Study	Survey, Meta-analysis
Nature of Study	Research questions explored
Length of Study	Longitudinal

Brown and Magill, 1998

ITIDMU Theme	IT Structure
Power Definition	Power is not explicitly defined but article implies that power = locus of IT decision making.
Power Measures	NA (non-empirical)
Findings	Authors develop a theory to predict the locus of the lead role for systems development decision making for business units and conclude with six propositions.
Level of Analysis	Intra-organizational, organizational
Method of Study	Non-empirical
Nature of Study	Propositions developed
Length of Study	NA

Burkhardt and Brass, 1990

ITIDMU Theme	Information Systems Implementation
Power Definition	Power is a structural phenomenon. Those in power seek to maintain power by reinforcing existing organizational structure.
Power Measures	Individuals were asked to rate the influence of each of their coworkers with whom they communicated as part of their job during a typical week.
Findings	Being central and powerful prior to the introduction of a new technology was not related to early adoption. Early adopters gained power and centrality by reducing uncertainty for other adopters. While early adopters gained substantially more influence, they were not able to totally displace individuals with power prior to the introduction of new technology. Changes in technology provide occasion for structuring or changes in power distribution.
Level of Analysis	Individual
Method of Study	Survey
Nature of Study	Hypothesis testing
Length of Study	Longitudinal

Carter, 1984

ITIDMU Theme	IT Structure
Power Definition	Power is not explicitly defined but article implies power = locus of decision authority.
Power Measures	Locus of decision authority is measured by asking respondents to consider 26 key decision topics and to indicate at which of six management levels the decision was made.

Findings	Findings mixed on the impact of computerization on centralization of decision making, mostly related to the type of tasks the computer was used for. Organization size moderated two decision type relationships. Computerization has more impact in smaller organizations; the impact of computer technology on locus of decision making and division of labor is directly related to specific tasks (i.e., under stable conditions, centralization is reinforced; under dynamic conditions, decentralization is facilitated).
Level of Analysis	Organizational
Method of Study	Survey
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Cavaye and Christiansen, 1996

ITIDMU Theme	Information Systems Implementation
Power Definition	Power is reflected in the ability to overcome resistance in achieving desired objectives.
Power Measures	NA (case study)
Findings	Units that stand to gain power will support the implementation of new systems, while those that are likely to lose power will resist.
Level of Analysis	Group, intra-organizational
Method of Study	Case study
Nature of Study	Framework development
Length of Study	Longitudinal

Clemons and Row, 1993

ITIDMU Theme	Interorganizational Relationships
Power Definition	Power is not explicitly defined but article implies power = bargaining power or the ability of a retailer to take advantage of information asymmetry during bargaining.
Power Measures	NA (case study)
Findings	Retailers, who foresee a loss of bargaining power, will resist using IT that can improve coordination structure.
Level of Analysis	Interorganizational
Method of Study	Case study
Nature of Study	Research questions explored
Length of Study	Cross sectional

Dawson and McLoughlin, 1986

ITIDMU Theme	IT Structure
Power Definition	Power is not explicitly defined but article implies power = decision-making authority.
Power Measures	NA (case study)
Findings	Computerization enables the redefinition of supervision. Computerization contributed to centralization of overall operational control; however, it also led to the delegation of responsibility to a local level. In the context of computerization, decentralization of decision making to supervisors is not inconsistent with an increase of management control.
Level of Analysis	Organizational
Method of Study	Case study
Nature of Study	Research questions explored
Length of Study	Longitudinal

De Brabander and Thiers, 1984

ITIDMU Theme	Information Systems Implementation
Power Definition	Sanctionary power is the ability to reward or punish.
Power Measures	Asymmetry in sanctionary power was measured as one subject's ability to provide (or withhold) peer recognition.
Findings	Power asymmetry led to deviations from implementation plans and to ineffective communication when a semantic gap existed. Power asymmetry could be reduced when a third-party intervened on behalf of the users.
Level of Analysis	Individual, group
Method of Study	Lab experiment
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Dean, Yoon, and Susman, 1992

ITIDMU Theme	IT Structure
Power Definition	Power is a form of management control via either centralization or formalization.
Power Measures	Centralization measured as the organizational level that made decisions in five areas. Formalization was measured as the extent to which formal documents and descriptions existed for work.
Findings	Consistent with Marxist view, advanced manufacturing IT use was associated with increased formalization. Consistent with Idealist view, advanced manufacturing IT use was associated with increased decentralization.
Level of Analysis	Organizational
Method of Study	Survey
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Dennis, Hilmer, and Taylor, 1998

ITIDMU Theme	Group Support Systems
Power Definition	Power is not explicitly defined but article implies power = influence or the ability to shape another's preferences.
Power Measures	Majority/minority influence is manipulated by giving individual group members different information about a decision situation.
Findings	GSS use enabled minority group to overcome the group inertia toward the majority preference.
Level of Analysis	Individual, group
Method of Study	Lab experiment
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Franz and Robey, 1984

ITIDMU Theme	Information Systems Implementation
Power Definition	Power = political activity where actors engage in conflict and negotiate for their private interests.
Power Measures	NA (case study)
Findings	System development can be viewed as both a rational and a political process. Political behavior sets the background or broad context against which the rational behaviors can be seen.
Level of Analysis	Project
Method of Study	Case study

Nature of Study	Research questions explored
Length of Study	Longitudinal

Franz and Robey, 1986

ITIDMU Theme	Information Systems Implementation
Power Definition	Power is not explicitly defined but article implies power = user influence during systems development (user involvement and user influence used synonymously by authors).
Power Measures	User influence was measured as the extent that a user was influential in leading and managing aspects of the system development process.
Findings	Significant positive relationship between user influence and perceived system usefulness. Decentralization of decision making moderated the relationship between influence and usefulness (i.e., less decentralization led to higher perceptions of usefulness). User's level in organization moderated the relationship between influence and usefulness (i.e., lower user position led to higher perceptions of usefulness).
Level of Analysis	Individual
Method of Study	Survey
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

George and King, 1991

ITIDMU Theme	IT Structure
Power Definition	Power is not explicitly defined but article implies power = organizational decision authority structures.
Power Measures	NA (non-empirical)
Findings	The relationship between computerization and centralization should best be viewed from the reinforcement politics perspective. Those in power will use computerization to reinforce their position; organizational actors make decisions to apply technology and to structure decision making in such a way as to maintain power.
Level of Analysis	Organizational
Method of Study	Non-empirical
Nature of Study	Research questions explored
Length of Study	NA

Griffith, Fuller, and Northcraft, 1998

ITIDMU Theme	Group Support Systems
Power Definition	Influence is a facilitator's ability to enhance or assist a group in achieving its own outcome. Legitimate power is authority or the right to give orders. Expert power is possession of knowledge or expertise. Status power is the deference or esteem given to someone because of his/her standing as an expert.
Power Measures	NA (non-empirical)
Findings	The very sources of influence that allow facilitators to enhance group processes and outcomes may undermine a facilitator's intended impartiality. Facilitators are supposed to influence the group process without affecting the content. However, facilitators may unintentionally bias group outcomes or may act in response to personal goals.
Level of Analysis	Individual, group
Method of Study	Non-empirical
Nature of Study	Propositions developed
Length of Study	NA

Hann and Weber, 1996

ITIDMU Theme	IT Structure
Power Definition	Power is not explicitly defined but article implies power = location of decision rights.
Power Measures	The extent of delegation of decision rights measured as the percent of total revenue allocated to the IS manager.
Findings	Higher levels of management IS task uncertainty leads to less delegation of decision rights (unexpected result).
Level of Analysis	Intra-organizational
Method of Study	Survey
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Hart and Saunders, 1997

ITIDMU Theme	Interorganizational Relationships
Power Definition	Power is a firm's capacity to influence another organization to act in a prescribed manner.
Power Measures	NA (case study)
Findings	The authors develop multiple propositions regarding the role of power and trust in EDI adoption and use. The central theme of the propositions is that resource rich organizations will likely have suppliers or customers that depend upon them. This organization will then exercise its power to exert influence on trading partners to adopt EDI; however, these organizations need to be careful as they wield their power that they do not destroy the trust relationship that is necessary for continued expansion of EDI level of use.
Level of Analysis	Interorganizational
Method of Study	Case study
Nature of Study	Propositions developed
Length of Study	Cross sectional

Hart and Saunders, 1998

ITIDMU Theme	Interorganizational Relationships
Power Definition	Power is a firm's ability to influence change in another organization that is dependent upon that firm's resources.
Power Measures	Power is measured as perceived influence regarding EDI adoption.
Findings	Supplier dependence is a determinant of customer power. Customer power is negatively associated with diversity of EDI use. Trust is more influential than exercised power in increasing diversity of EDI use.
Level of Analysis	Organizational, interorganizational
Method of Study	Survey
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Hitt and Brynjolfsson, 1997

ITIDMU Theme	IT Structure
Power Definition	Power is not explicitly defined but article implies power = decision authority.
Power Measures	Three items to measure extent of structural decentralization. Two items to measure extent of individual decentralization.
Findings	Higher levels of IT investment (i.e., IT use) are broadly related to a work system that includes decentralized authority.

Level of Analysis	Organizational
Method of Study	Survey
Nature of Study	Research questions explored
Length of Study	Cross sectional

Ho and Raman, 1991

ITIDMU Theme	Group Support Systems
Power Definition	A leader exercises positive influence on others. Influence is defined as the effects of leader acts on a group's consensus. Equality of influence is the degree of group member domination during decision-making activities.
Power Measures	Equality of influence is measured as the degree of evenness in influence among group members. Leader influence is measured as the degree of influence possessed by the group leader.
Findings	Equality of influence is negatively correlated with pre-meeting consensus. GSS use does not improve equality of influence. Group support in the form of structure undermines leadership. Leaders in manual supported and IT supported groups appeared less influential than leaders in non-supported groups.
Level of Analysis	Group
Method of Study	Lab experiment
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Howell and Higgins, 1990

ITIDMU Theme	Information Systems Implementation
Power Definition	Power is not explicitly defined but article implies that power = influence of champion.
Power Measures	Variety of influence tactics used by champion. Frequency of influence tactics used by champion.
Findings	Champions use influence tactics more than non-champions do. Personality and leadership characteristics predict use of influence tactics.
Level of Analysis	Group, organizational
Method of Study	Survey
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Huang and Wei, 1997

ITIDMU Theme	Group Support Systems
Power Definition	Influence is actions that attempt to affect or determine the course of group behavior.
Power Measures	Influence behavior measured as the count of verbal acts emitted by group members. Influence distribution measured as the variance of the amount of influence behavior in a group. Dominance significance measured as the ratio of the most dominant member's amount of influence behavior over the average of the other members' amount of influence behavior.
Findings	GSS use increased the amount of influence behavior for an intellective task. No difference in influence behavior between GSS support and no support for groups working on decision-making task. GSS supported groups had less even distributions of influence for an intellective task. Task type acts as a moderator for GSS impacts.
Level of Analysis	Group
Method of Study	Lab experiment
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Huber, 1981

ITIDMU Theme	Decision Making
Power Definition	Political model of decision making—a decision environment where organizational decisions are consequences of the application of strategies and tactics by units seeking to influence decision processes in directions that will result in choices favorable to themselves.
Power Measures	NA (non-empirical)
Findings	As technologies continue to evolve, the nature of the organizational decision environment (i.e., how political is the decision environment) should be considered as a variable during the design and development of computerized decision support systems.
Level of Analysis	Organizational
Method of Study	Non-empirical
Nature of Study	Research questions explored
Length of Study	NA

Iacovou, Benbasat, and Dexter, 1995

ITIDMU Theme	Interorganizational Relationships
Power Definition	The pressure exerted by trading partners to adopt EDI is a function of two factors: the potential power of the imposing partner and its chosen influence strategy. Potential power is not explicitly defined but the authors imply that large organizations have more power than small organizations.
Power Measures	External pressure is measured as the proportion of a firm's competitors and partners that are EDI-capable and perceptual measures that tapped possible competitive disadvantage due to non-adoption. Power of trading partner is measured using net dependency measures such as proportion of future profit attributed to trading partner.
Findings	The strongest explanatory variable influencing small firms to adopt EDI is the external pressure from EDI initiators.
Level of Analysis	Organizational, interorganizational
Method of Study	Case study
Nature of Study	Framework development
Length of Study	Cross sectional

Joshi, 1991

ITIDMU Theme	Information Systems Implementation
Power Definition	Power is not explicitly defined.
Power Measures	NA (non-empirical)
Findings	A change in power is only one of several changes in relative inputs and outputs that users consider during IT implementation. Therefore, the relative impact of power on IT implementation will be minimal as changes in power will be offset by one or more of the other factors considered.
Level of Analysis	Project
Method of Study	Non-empirical
Nature of Study	Framework development
Length of Study	NA

Keen, 1981

ITIDMU Theme	Information Systems Implementation
Power Definition	Power is control of data and information. Politics is the process of getting commitment, building support, or creating momentum for change.

Power Measures	NA (non-empirical)
Findings	Data are not merely an intellectual commodity but a political resource, whose redistribution through new information systems affects the interests of particular groups. Thus, information systems development and implementation is political in nature.
Level of Analysis	Intra-organizational
Method of Study	Non-empirical
Nature of Study	Research questions developed
Length of Study	NA

Kim and Michelman, 1990

ITIDMU Theme	Information Systems Implementation
Power Definition	Power is not explicitly defined but article implies power = control of information.
Power Measures	NA (non-empirical)
Findings	Integrating isolated systems often cuts across political boundaries. The integrated system may change the balance of power among business units. Top management must provide sufficient support to arbitrate political issues surrounding systems integration.
Level of Analysis	Interorganizational
Method of Study	Non-empirical
Nature of Study	Propositions developed
Length of Study	NA

Kim and Umanath, 1993

ITIDMU Theme	IT Structure
Power Definition	Power is not explicitly defined but article implies power = locus of authority and decision making, (i.e., decision discretion).
Power Measures	Decentralization measured with five Likert scale items adapted from Hage (1969). Discretion measured as four Likert scale items adapted from Hage (1969).
Findings	Given a mechanistic decision-making structure (i.e., highly centralized decision making), increases in task complexity leads to deterioration of perceived software development subunit effectiveness. Given an organic decision-making structure (i.e., highly decentralized decision making), increases in task complexity leads to greater perceived effectiveness of the software development subunit.
Level of Analysis	Organizational
Method of Study	Survey, meta analysis
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

King, Gurbaxani, Kraemer, McFarlane, Raman, and Yap, 1994

ITIDMU Theme	Information Systems Implementation
Power Definition	Power = institutional influence defined as exerting persuasive control over the practices, rules, and belief systems of those under the institution's sway.
Power Measures	NA (non-empirical)
Findings	Institutions influence IT innovation in organizations.
Level of Analysis	Interorganizational, societal
Method of Study	Non-empirical
Nature of Study	Propositions developed
Length of Study	NA

Kling and Iacono, 1984

ITIDMU Theme	Information Systems Implementation
Power Definition	Power is not explicitly defined but article implies power = structure (dominant coalition) and power = politics (passionate advocates establish an ideology).
Power Measures	NA (case study)
Findings	Post implementation politics are important in shaping an organization's computing milieu. Organizational politics metaphor was more useful in explaining post implementation computing developments. An organizing ideology and the legitimizing of specific structural elements are useful tools for coalitions trying to control the development trajectory of a computer-based information system.
Level of Analysis	Project
Method of Study	Case study
Nature of Study	Research questions explored
Length of Study	Longitudinal

Lederer, Mirani, Boon, Pollard, Prasad, and Ramamurthy, 1990

ITIDMU Theme	Decision Making
Power Definition	Political model of cost estimating—participants in cost estimation decisions have differing goals, motives, and relative power and may seek to use their power to influence the cost estimation decision in their favor.
Power Measures	NA (case study)
Findings	Rational and political model are useful for understanding interactions of participants involved in cost estimation for proposed information systems. However, political actors can subvert the rational model in pursuit of individual/group objectives.
Level of Analysis	Group
Method of Study	Case study
Nature of Study	Research questions explored
Length of Study	Longitudinal

Lee, 1991

ITIDMU Theme	Information Systems Implementation
Power Definition	Power = potential influence (i.e., the capacity or potential to affect change if required).
Power Measures	Perceived impact of an office information system on individual's potential influence.
Findings	Office information systems increased an individual's potential influence primarily through network centrality (for administrative personnel) and through resource provision (for technical personnel).
Level of Analysis	Individual
Method of Study	Survey
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Leonard-Barton and Deschamps, 1988

ITIDMU Theme	Information Systems Implementation
Power Definition	Power is not explicitly defined but article implies power = managerial influence which is end user's perceptions of manager's support for technology use.
Power Measures	Perceived management support is measured by three Likert scale items.
Findings	Individuals with low skills, need, attitude, and performance had higher perceptions of managerial influence than individuals with high skills, need, attitude, and performance. Individuals rated "low" are more influenced by managerial influence.

Level of Analysis	Individual
Method of Study	Survey
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Levine and Rossmoore, 1995

ITIDMU Theme	Information Systems Implementation
Power Definition	Power is the capacity to determine the behavior of other individuals in accordance with one's own wishes. Political behavior is the use of power to resolve conflict in one's favor, usually at the expense of others.
Power Measures	NA (case study)
Findings	During IT implementation: (1) the absence of exercised power leads to negative political behavior; (2) the absence of exercised power also leads to the absence of decision making that will produce meaningful agreement on strategic issues related to the IT project; and (3) individuals with power must either exercise their power or delegate unilateral authority to subordinates.
Level of Analysis	Project
Method of Study	Case study
Nature of Study	Propositions developed
Length of Study	Longitudinal

Lucas, 1984

ITIDMU Theme	IT Function
Power Definition	Power is the ability to influence the behavior of another.
Power Measures	Influence of organizational departments is measured as the perception of influence on key organizational decisions. Power of organizational departments is measured by items to tap the amount of power possessed by the department.
Findings	IT department has relatively little influence as compared to other departments (accounting, engineering, marketing, and production). IT department has relatively little power when compared to other departments (accounting, engineering, marketing, and production).
Level of Analysis	Intra-organizational
Method of Study	Survey
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Lucas and Palley, 1987

ITIDMU Theme	IT Function
Power Definition	Power is the ability of one subunit to influence the behavior of other units.
Power Measures	Influence of organizational departments is measured as the perception of influence on key organizational decisions. Power of organizational departments is measured by items to tap the amount of power possessed by the department.
Findings	The authors successfully replicate results in Lucas (1984). IT departments have low levels of power as compared to other departments. IT departments that have higher levels of support will be perceived as powerful by department managers but not plant managers. In plants with more decentralization of decision making, IT departments are perceived as less powerful as compared to plants with more centralized decision making.
Level of Analysis	Intra-organizational

Method of Study	Survey
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Markus, 1983

ITIDMU Theme	Information Systems Implementation
Power Definition	Power is the ability to get one's way in the face of opposition or resistance to those desires.
Power Measures	NA (case study)
Findings	Political variant of interaction theory is more useful than other theories in explaining, predicting, and understanding user resistance to newly introduced information systems. An organizational subunit that gains control over data will likely accept the new system readily. However, the unit that loses control will likely resist.
Level of Analysis	Project, intra-organizational
Method of Study	Case study
Nature of Study	Research questions explored
Length of Study	Longitudinal

Markus and Bjørn-Andersen, 1987

ITIDMU Theme	Information Systems Implementation
Power Definition	Exercised power over users (i.e., users behave differently from the way they would have if not for the IT professionals).
Power Measures	NA (non-empirical)
Findings	IT professionals exercise power over users during systems development in four ways: Technical—use of technical expertise to influence design outcomes. Structural—use of organizational structure and operating procedures to establish formal authority over design decisions. Conceptual—use of systems design to define the conceptual objectives of the system. Symbolic—attempts to shape user's desires and values toward IT.
Level of Analysis	Individual
Method of Study	Non-empirical
Nature of Study	Framework development
Length of Study	NA

McKeen, Guimaraes, and Wetherbe, 1994

ITIDMU Theme	Information Systems Implementation
Power Definition	Power = user influence during systems development. Influence is the extent to which users affect decision related to the final design of an information system.
Power Measures	Items adopted from Franz and Robey (1986) to measure user influence over the development and implementation process.
Findings	User influence has a positive association with user satisfaction. User influence does not moderate the relationship between user participation and user satisfaction.
Level of Analysis	Project
Method of Study	Survey
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Nault, 1998

ITIDMU Theme	IT Structure

Power Definition	Power is not explicitly defined but article implies power = location of decision rights.
Power Measures	Mathematical models are used to examine the relationship between collocation of decision rights and information and firm profit.
Findings	Results do not support the premise that collocation of decision rights and information via IT is desirable. Although each solution improves organization performance, neither centralization nor decentralization is perfect. Results do not unconditionally support the conclusion that collocation is desirable.
Level of Analysis	Organizational
Method of Study	Other
Nature of Study	Framework development
Length of Study	NA

Newman and Noble, 1990

ITIDMU Theme	Information Systems Implementation
Power Definition	Political model of user involvement in systems development—users engage in negotiating and bargaining as political tactics to resolve conflict.
Power Measures	NA (case study)
Findings	Political model offers a partial description of the user involvement process. A combination of four different process models provides a more complete picture. The political model is more useful for understanding complex design situations, especially where conflict is likely to occur. Political tactics will be used when the limits of learning and compromise have been exhausted.
Level of Analysis	Project
Method of Study	Case study
Nature of Study	Research questions explored
Length of Study	Longitudinal

Nidumolu, Goodman, Vogel, and Danowitz, 1996

ITIDMU Theme	Information Systems Implementation
Power Definition	Power is not explicitly defined but article implies power = control of information.
Power Measures	NA (case study)
Findings	The political perspective is useful for understanding adoption and implementation of IT in less developed countries; however, this model is not sufficient by itself to explain the changes in perceptions and behavior during IT adoption and implementation. The political perspective had high ability to explain outcomes during implementation but relatively low ability to explain outcomes during system evaluation and transformation.
Level of Analysis	Project, intra-organizational
Method of Study	Case study
Nature of Study	Framework development
Length of Study	Longitudinal

Noble and Newman, 1993

ITIDMU Theme	Information Systems Implementation
Power Definition	Power is not explicitly defined but article implies power = authority derived from organizational structure.
Power Measures	NA (case study)
Findings	A case study of a university system shows how organizational structures can impact the development process so as to alter computer-based systems to a design which is

	unintended but more consistent with organizational arrangements. The role of authority is viewed as important during the implementation process.
Level of Analysis	Individual, project, organizational
Method of Study	Case study
Nature of Study	Research questions explored
Length of Study	Longitudinal

Olson and Chervany, 1980

ITIDMU Theme	IT Structure
Power Definition	Power = influence as perceived by users of the IT department relative to other departments.
Power Measures	User departments' perceptions of the IT department's influence in important decisions regarding systems.
Findings	Organizations with decentralized systems development tended to provide user liaisons to help improve communications between users and the central IT development staff. Organizations that perceived the power of the IT function as low employed mechanisms that ensured decentralized control over project management.
Level of Analysis	Organizational
Method of Study	Survey
Nature of Study	Research questions explored
Length of Study	Cross sectional

Pinsonneault and Kraemer, 1993

ITIDMU Theme	IT Structure
Power Definition	Power is not explicitly defined but article implies power = decision-making authority.
Power Measures	NA (case study)
Findings	When computing and organizational decisions are centralized, top managers tend to use IT to reduce the number of middle managers. When computing and organizational decisions are decentralized, top managers tend to use IT to increase the number of middle managers.
Level of Analysis	Organizational
Method of Study	Case study
Nature of Study	Propositions developed
Length of Study	Longitudinal

Pinsonneault and Kraemer, 1997

ITIDMU Theme	IT Structure
Power Definition	Power is not explicitly defined but article implies power = decision-making authority.
Power Measures	Centralization of computing decision authority was measured as the level of management with authority to make computing decisions.
Findings	In partially and extensively centralized organizations, top managers tend to use IT to reduce the number of middle managers. In extensively decentralized organizations, top managers tend to use IT to increase the number of middle managers.
Level of Analysis	Organizational
Method of Study	Survey
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Premkumar and Ramamurthy, 1995

ITIDMU Theme	Interorganizational Relationships
Power Definition	Potential power is the capacity to control (i.e., net dependence of one firm on another). Exercised power is the act of control (i.e., an attempt to influence the behavior of another firm).
Power Measures	Potential power is measured as the net dependence of the responding firm on the EDI partner firm. Exercised power is measured as perceptions of extent to which respondent used its power.
Findings	Firms that are proactive EDI adopters exercise greater power relative to firms that are reactive EDI adopters.
Level of Analysis	Interorganizational
Method of Study	Survey
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Rao and Jarvenpaa, 1991

ITIDMU Theme	Group Support Systems
Power Definition	Power is not explicitly defined but article implies power = influence or the ability to shape another's preferences.
Power Measures	NA (non-empirical)
Findings	Use of GSS allows minority position to be voiced. Presence of minority position leads to greater cognitive effort on the part of group members as they attempt to resolve conflict. Greater cognitive effort leads to more correct and novel decisions.
Level of Analysis	Individual, group
Method of Study	Non-empirical
Nature of Study	Propositions developed
Length of Study	NA

Reekers and Smithson, 1996

ITIDMU Theme	Interorganizational Relationships
Power Definition	Power is related to the ability to control uncertainty and level of dependency in interorganizational relationships.
Power Measures	Power is assessed in terms of market dependence.
Findings	Level of EDI use required by manufacturer (dominant organization in a network of related organizations) reinforces and even increases power of the powerful.
Level of Analysis	Interorganizational
Method of Study	Survey
Nature of Study	Framework development
Length of Study	Cross sectional

Robey and Boudreau, 1999

ITIDMU Theme	Information Systems Implementation
Power Definition	Organizational politics = groups with incompatible opposing interests engage in political activity (using IT as a resource) from which organizational changes emerge.
Power Measures	NA (non-empirical)
Findings	Organizations are arenas in which the contributions and rewards of multiple parties are sometimes aligned, often misaligned, and occasionally realigned. The tension created by misalignment becomes the source of energy from which efforts to transform organizations may arise. Researchers studying IT's role in organizational transformation

	should be aware of both the interests of those promoting transformation and those opposing transformation. Political theory directs attention to these opposing interests and sensitizes the researcher to the political dynamics underlying change.
Level of Analysis	Individual, group, intra-organizational
Method of Study	Non-empirical
Nature of Study	Research questions explored
Length of Study	NA

Robey and Farrow, 1982

ITIDMU Theme	Information Systems Implementation
Power Definition	Power is not explicitly defined but article implies power = user influence during systems development.
Power Measures	Single item to measure degree of perceived influence during a system development project.
Findings	User influence has a positive relationship with frequency of user participation. User influence has a strong positive effect on conflict during initiation; however, this effect decreases during later system development stages. User influence has a greater impact on conflict resolution during later stages of system development.
Level of Analysis	Individual
Method of Study	Survey
Nature of Study	Research questions explored
Length of Study	Cross sectional

Robey and Markus, 1984

ITIDMU Theme	Information Systems Implementation
Power Definition	Political model of systems development—two or more participating actors with differing objectives and one actor has the opportunity to achieve its objectives at the expense of the other.
Power Measures	NA (non-empirical)
Findings	It seems important for systems designers, managers, and researchers to be aware of rituals in systems development. Systems development can be both a rational and political process. Therefore, it is essential for participants in the process to be aware of what is really going on. There is nothing inherently wrong with organizational politics. However, the naïve actor who remains unaware of the differences between symbol and substance, or between ritual and reality, will be a less effective participant in the process.
Level of Analysis	Project
Method of Study	Non-empirical
Nature of Study	Research questions explored
Length of Study	NA

Robey, Farrow, and Franz, 1989

ITIDMU Theme	Information Systems Implementation
Power Definition	Power = user influence during system development. Influence is defined as the extent to which members of an organization affect decisions related to the final design of an IS.
Power Measures	Four items to tap perceptions of influence during systems development activities. The number of confirmative speech acts made during a meeting.

Findings	The authors successfully replicate Robey and Farrow (1982). User participation is directly related to user influence—implying that users cannot exercise influence without participating. User influence has a dual role of influence in both creating conflict and leading to its resolution.
Level of Analysis	Individual, group
Method of Study	Survey
Nature of Study	Hypothesis testing
Length of Study	Longitudinal

Robey, Smith, and Vijayasarathy, 1993

ITIDMU Theme	Information Systems Implementation
Power Definition	Power = user influence during system development. Influence is defined as the extent to which members of an organization affect decisions related to the final design of an IS.
Power Measures	User influence measured with items developed by Robey et al (1989).
Findings	The authors successfully replicate Robey et al (1989). User participation is directly related to user influence—implying that users cannot exercise influence without participating. User influence has a dual role of influence in both creating conflict and leading to its resolution.
Level of Analysis	Individual
Method of Study	Survey
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Romm and Pliskin, 1997

ITIDMU Theme	Information Systems Implementation
Power Definition	Virtual politicking is the use of email to support organizational politics. Political behavior involves attempts to wield influence and has two elements: direction and scope.
Power Measures	NA (case study)
Findings	Individuals with relatively more power tended to resist virtual politicking as their power base was potentially eroded. Individuals with relatively less power welcomed email as a vehicle for virtual politicking. Use of email has political potency due to its speed, multiple addressability, processing, and routing capabilities. Use of email can lend itself to a variety of tactics that are potentially dangerous to those in power.
Level of Analysis	Individual, group, intra-organizational
Method of Study	Case study
Nature of Study	Framework development
Length of Study	Longitudinal

Sabherwal and King, 1992

ITIDMU Theme	Decision Making
Power Definition	Political decision-making model—decision situation in which power affects the decision outcome. Top-management influence is undefined. IS influence represents the influence the expert IS department has on the decision.
Power Measures	Three items to tap extent to which politics was involved in decision-making process. Three items to assess extent of top management influence in decision-making process. Four items to measure extent of IS influence on decision-making process.
Findings	The nature of the external environment seems to determine whether a rational or political decision process is applied when making decisions about strategic IT

	applications. A more hostile industry environment is associated with a more political decision process. Politics positively related to environmental hostility and heterogeneity, but negatively related to dynamism. Top-management influence and IS influence are positively associated to IS maturity. Organizational structure did not play a role in determining whether a rational or political decision model was applied.
Level of Analysis	Project, organizational
Method of Study	Survey
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Sambamurthy and Zmud, 1999

ITIDMU Theme	IT Structure
Power Definition	Power is not explicitly defined but article implies power = locus of decision rights.
Power Measures	Power measured as the locus of IT decision making.
Findings	The extent to which corporate IS, divisional IS, and line management are vested with authority for key IT activities (i.e., IT infrastructure management, IT use management, and project management) varies by IT governance mode. Reinforcing and dominating contingencies tend to support centralized or decentralized IT governance. Conflicting contingencies are likely to support federal IT governance. Organizational structure, scope, and absorptive capacity contingencies impact IT governance differentially depending on whether there is conflicting, reinforcing, or dominating contingencies.
Level of Analysis	Organizational
Method of Study	Case study, survey
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Saunders, 1981

ITIDMU Theme	IT Function
Power Definition	Power is the capability of one subunit, either through formal position or through action or perceived participation in organizational activities, to exert influence on another subunit to act in a prescribed manner.
Power Measures	NA (non-empirical)
Findings	The use of an MIS will increase the pervasiveness, ability to cope with uncertainty, and non-substitutability of departments whose task the MIS was directly designed to facilitate. For departments engaged in highly critical tasks, pervasiveness, ability to cope with uncertainty, and non-substitutability will be positively related to the power of the departments.
Level of Analysis	Intra-organizational
Method of Study	Non-empirical
Nature of Study	Propositions developed
Length of Study	NA

Saunders and Scamell, 1986

ITIDMU Theme	IT Function
Power Definition	Power is based on the ability of an organization to deal with organizational problems (strategic contingencies).
Power Measures	Perceived influence of IT department. Participation of department in 16 major decision areas.

Findings	The authors successfully replicate results in Lucas (1984). Low power of IT department explained by rational model (i.e., IT does not help other departments or other departments do not perceive help). Low power also explained by political model (i.e., low political negotiation skills of technical staff).
Level of Analysis	Intra-organizational
Method of Study	Survey
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Sillince and Harindranath, 1998

ITIDMU Theme	Information Systems Implementation
Power Definition	Power is not explicitly defined but the article implies power = ability to influence IS development and business process reengineering projects.
Power Measures	NA (case study)
Findings	Integration of the freezing (certainty) and unfreezing (uncertainty) of the "political" processes explains the relationship between IS development and business process reengineering (BPR) activities.
Level of Analysis	Group, project, intra-organizational
Method of Study	Case study
Nature of Study	Research questions explored
Length of Study	Longitudinal

Sillince and Mouakket, 1997

ITIDMU Theme	Information Systems Implementation
Power Definition	Power is the ability to get someone to do something against his or her will.
Power Measures	NA (case study)
Findings	Power is multidimensional and attempts to understand power in systems development must apply several complementary perspectives: zero-sum power, processual power, organizational power, structurally constrained power, and socially shaped power. All five perspectives are useful in understanding power behaviors during systems development. Some perspectives have greater explanatory potential while others have greater prescriptive potential.
Level of Analysis	Project
Method of Study	Case study
Nature of Study	Research questions explored
Length of Study	Longitudinal

Sillince and Mouakket, 1998

ITIDMU Theme	Information Systems Implementation
Power Definition	Power is not explicitly defined but the article discusses several perspectives of power (i.e., zero-sum power, processual power, organizational power, structurally constrained power, and socially shaped power) and implies power = political strategies used to get someone to do something s/he would not ordinarily do.
Power Measures	NA (case study)
Findings	In their dealings with users during IS development, software developers use divisive political strategies during the early stages (definition of problem, ensuring of sponsorship, and elicitation of requirements) and integrative political strategies during the later stages (stimulating and maintaining support). Divisive political strategies assume zero-sum power and are useful to dissipate power. Integrative political strategies assume positive sum power and are useful in gaining consensus.

Level of Analysis	Project, organizational
Method of Study	Case study
Nature of Study	Framework development
Length of Study	Longitudinal

Tan, Watson, and Wei, 1995

ITIDMU Theme	Group Support Systems
Power Definition	Power distance = the extent to which the less powerful members of organizations within a country expect and accept that power is distributed unequally.
Power Measures	NA (non-empirical)
Findings	The features of GSS (media and anonymity) will reduce impact of power differentials in decision making groups. This will interact with the cultural perception of power distance (less reduction in low power differential cultures), group size (greater reduction in smaller groups), and task type (greater reduction in preference tasks than intellective).
Level of Analysis	Group
Method of Study	Non-empirical
Nature of Study	Propositions developed
Length of Study	NA

Tan, Wei, Watson, Clapper, and McLean, 1998

ITIDMU Theme	Group Support Systems
Power Definition	Majority influence = the attempt by the majority of the people in a group to impose its common position on a minority of dissenters during decision making.
Power Measures	Majority influence was manipulated in the experiment through the use of confederates who made normative statements in support of their comments during the decision situation.
Findings	The impact of computer mediated communication (CMC) technologies is contingent on national culture. CMC are useful for alleviating majority influence in an individualistic but not a collectivistic culture. The impact of CMC on majority influence is independent of task type.
Level of Analysis	Individual
Method of Study	Lab experiment
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Tan, Wei, Watson, and Walczuch, 1998

ITIDMU Theme	Group Support Systems
Power Definition	Status influence is the extent to which lower-status individuals defer to opinions of higher-status individuals. Sustained influence is the amount of status influence remaining after group communication when status individual is no longer present.
Power Measures	Status influence was manipulated (teaching assistant vs. undergraduate students). The impact of status influence was measured as the average subject position as a proportion of confederate position, at the beginning and end of group communication. Sustained influence measured similar to status influence, but after the high status confederate had left meeting. Perceived influence measured with three items to tap extent of perceived influence.
Findings	Status influence and sustained influence were reduced through use of CMC. Perceived influence was reduced by CMC use for Singapore subjects working on a preference task.

Level of Analysis	Group
Method of Study	Lab experiment
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Tractinsky and Jarvenpaa, 1995

ITIDMU Theme	Decision Making
Power Definition	Power is the ability to get things done the way one wants them to be done.
Power Measures	Power is measured by four items to tap organizational power structure that were ranked along with 29 other items in a Q-sort by respondents.
Findings	Power items were ranked 14, 18, 25, and 28 out of 33 items with respect to their degree of importance during IT distribution decisions. Thus, issues of power and politics were considered; however, they did not rank among the most critical items. In general, no difference between global managers and domestic managers views of critical factors to consider when making IT distribution decisions.
Level of Analysis	Project
Method of Study	Survey
Nature of Study	Research questions explored
Length of Study	Cross sectional

Watson, Akselsen, Evjemo, and Aarsæther, 1999

ITIDMU Theme	Information Systems Implementation
Power Definition	Power is not explicitly defined but article implies power = influence.
Power Measures	NA (case study)
Findings	Politicians with relatively more power tended to resist use of the technology, while politicians with relatively less power tended to readily use the technology. CMC gave those politicians on the edge of power a chance to increase their influence during decision making. CMC provided motivation for peripheral members to participate in decision making. Rapid and easy distribution of information via CMC threatened influence and position in local party (i.e., balance of power).
Level of Analysis	Project, interorganizational
Method of Study	Other
Nature of Study	Research questions explored
Length of Study	Longitudinal

Weill and Olson, 1989

ITIDMU Theme	Decision Making
Power Definition	Power is not explicitly defined but the article implies power is related to political behavior during IT investment decisions.
Power Measures	NA (case study)
Findings	IT investment decisions are often highly political in nature. Political considerations sometimes eclipse technical and economic considerations during IT investment decision making.
Level of Analysis	Organizational
Method of Study	Case study
Nature of Study	Research questions explored
Length of Study	Cross sectional

Weisband, Schneider, and Connolly, 1995

ITIDMU Theme	Group Support Systems
Power Definition	Power is not explicitly defined but article implies power = status influence or the ability of high status individuals to impact decisions.
Power Measures	Influence was measured as subjects' perceptions of the extent of influence over decision outcome.
Findings	CMC use did not reduce status influence.
Level of Analysis	Individual, group
Method of Study	Lab experiment
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Williams and Wilson, 1997

ITIDMU Theme	Group Support Systems
Power Definition	Power is the ability to influence decision outcomes. Influence is the ability to affect a change in beliefs. Perceived power is the influence attributed to a subunit by members of the organization. Participation power is the involvement and scope of influence a given subunit has in decision making. Position power is the formal, legitimate position of the subunit within the organization.
Power Measures	NA (case study)
Findings	The use of group technologies is perceived to affect the theoretical determinants of power and influence. GSS are perceived to: (1) improve access to information (reduce uncertainty); (2) increase participation in decision-making process; (3) provide increased opportunities to influence opinions of others; and (4) improve access to persons, thereby reducing the perceived power distance to key individuals in the organization.
Level of Analysis	Organizational
Method of Study	Case study
Nature of Study	Research questions explored
Length of Study	Longitudinal

Zeffane, 1989

ITIDMU Theme	IT Structure
Power Definition	Power is not explicitly defined but article implies power = locus of decision authority.
Power Measures	Centralization measured as the hierarchical level of the last person whose consent is necessary for the execution of 17 different organizational decisions.
Findings	Computer use goes hand-in-hand with decentralized, formalized, and more departmentalized means of structural control. Computer use more likely to be accompanied by low centralization in medium to large organizations.
Level of Analysis	Organizational
Method of Study	Survey
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Zigurs, Poole, and DeSanctis, 1988

ITIDMU Theme	Group Support Systems
Power Definition	Influence is attempts to move, affect, or determine a course of action. Expressed influence behavior is individual verbal, non-verbal, written, and/or electronic actions that attempt to affect or determine the course of group behavior.

Power Measures	Amount of influence behavior, distribution of influence behavior, and pattern of influence behavior are measured as: (1) number of verbal acts representing influence behavior; (2) observer ratings of influence behavior in group; and (3) number of non-verbal acts and group messaging acts.
Findings	GSS use did not change the total amount of influence behavior in group decision making. In GSS groups, the distribution of influence was more even on prominence. The pattern of influence was different between GSS and manual groups.
Level of Analysis	Group
Method of Study	Lab experiment
Nature of Study	Hypothesis testing
Length of Study	Cross sectional

Zmud, 1982

ITIDMU Theme	IT Structure
Power Definition	Power is not explicitly defined but article implies power = locus of decision responsibility.
Power Measures	Centralization measured by asking respondents to indicate the organizational level where eight common decisions were made.
Findings	Centralization positively impacts the initiation, adoption, and implementation of compatible administrative and incompatible technical IT innovations.
Level of Analysis	Group, organizational
Method of Study	Survey
Nature of Study	Hypothesis testing
Length of Study	Cross sectional