MIS Quarterly

RESEARCH ARTICLE

CHASING THE HOTTEST IT: EFFECTS OF INFORMATION TECHNOLOGY FASHION ON ORGANIZATIONS[1]

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Abstract

What happens to organizations that chase the hottest information technologies? This study examines some of the important organizational impacts of the fashion phenomenon in IT. An IT fashion is a transitory collective belief that an information technology is new, efficient, and at the forefront of practice. Using data collected from published discourse and annual IT budgets of 109 large companies for a decade, I have found that firms whose names were associated with IT fashions in the press did not have higher performance, but they had better reputation and higher executive compensation in the near term. Companies investing in IT in fashion also had higher reputation and executive pay, but they had lower performance in the short term and then improved performance in the long term. These results support a fashion explanation for the middle phase diffusion of IT innovations, illustrating that following fashion can legitimize organizations and their leaders regardless of performance improvement. The findings also extend institutional theory from its usual focus on taken-for-granted practices to fashion as a novel source of social approval. This study suggests that practitioners balance between performance pressure and social approval when they confront whatever is hottest in IT.

Keywords: Information technology fashion, management fashion, innovation, diffusion, discourse, corporate reputation, executive compensation, legitimacy, performance

Introduction

New information technologies emerge constantly. When managers confront a promising new IT, a question they often ask is whether the technology will become the next big thing or if it is just a passing fad. The former means an important innovation that will come to be adopted widely and institutionalized to transform IT and business practices, whereas the latter refers to a trivial tool that will be rejected or abandoned. A fad often experiences a short fashion period when the focal IT is considered *hot*: it attracts fierce enthusiasm and attention and triggers exaggerated expectations about its benefits. Interestingly, most *big things* (i.e., the IT widely adopted and institutionalized) frequently go through similar fashion periods. For example, data warehouse, ERP (enterprise resource planning), and CRM (customer relationship management) underwent wide swings in popularity, progressed through hype cycles filled with inflated expectations, and spread across organizations via passionate bandwagons of adoption. As the enthusiasm about these innovations faded away, many adopting organizations assimilated them into everyday work practice (see Kumar and van Hillegersberg 2000). Regardless

[1]Varun Grover was the accepting senior editor for this paper. Elizabeth Davidson served as the associate editor.

A research-in-progress version of this study was presented at the 27th International Conference on Information Systems in 2006. Another earlier version of the paper was presented at the Academy of Management Annual Meeting in 2007, where it won the Best Paper Award from the Academy's Organizational Communication and Information Systems (OCIS) Division.

of the differentiated destinies of IT, fashion seems to become a commonplace phenomenon in IT nowadays (Baskerville and Myers 2009; Swanson and Ramiller 2004).

Despite wide recognition of and often lamentations on the faddishness of IT practice (and our own academic community's research agenda), little is known about fashions in IT. What is an IT fashion in the first place? Acknowledging the diverse definitions of IT fashion (Fichman 2004), in this study an IT fashion is defined as a *transitory collective belief that an information technology is new, efficient, and at the forefront of practice*. When such a belief is prevalent for an IT, the technology can be described as "in fashion." Coming into fashion, though, does not imply that the technology is without practical merit. Technologies with lasting utility, some short-lived benefits, or little value are all subject to the swings of fashion. Several recent studies have just begun to examine the fashion phenomenon in IT. For example, studying the diffusion of business process reengineering (BPR) across European firms, Newell et al. (1998) found that consultants and software vendors created a fashion that helped disseminate BPR as a "packaged solution" among firms adopting it for political rather than economic reasons. The analysis by Wang and Ramiller (2009) showed that the formation of the ERP fashion concurred with a collective learning process participated in by a wide array of diverse organizations.

These pioneering studies were primarily focused on the emergence and evolution of the fashion phenomenon in IT. They fell short of demonstrating the *significance* of the phenomenon in the first place. If IT fashion is essentially trivial, then why should anyone care about its development and evolution? Accordingly, this study aims to examine the organizational consequences of IT fashion, raising the research question: *What happens to key outcomes of organizations engaging with IT fashion.* Specifically, the study drew on a sample of 109 Fortune 500 companies. Using data collected from published discourse and annual corporate IT budgets, the extent to which firms in the sample engaged themselves with IT innovations in fashion over a decade was examined. The study found that companies whose names were associated with IT fashions in the press did not have higher performance, but they had better reputation and higher executive compensation in the near term. Similarly, companies investing in IT in fashion were also admired more and their chief executives received higher pay. However, these firms had lower performance in the short term, but improved their performance in the long term. These findings demonstrate that IT fashion brings about serious consequences to organizations on their performance, reputation, and executive compensation. Further, these results support a fashion explanation for the middle phase diffusion of IT innovations, illustrating that following fashion can legitimize organizations and their leaders regardless of performance improvement. The findings also extend institutional theory from its usual focus on taken-for-granted practices to fashion as a novel source of social approval. This study suggests that practitioners balance between performance pressure and social approval when they confront fashionable IT.

In the sections that follow, this study is first situated in the broader research stream of diffusion of innovations. The theories that motivated the study are then reviewed. Following the description of the methods are the main findings and their discussion. The paper concludes with the broader implications of this study to the theory and practice of managing IT in organizations.

Theories

An organizational innovation is a structure, practice, or technology new to the organization adopting it. Diffusion is the process by which an innovation spreads over time among organizations (Rogers 2003). Central to the research on diffusion of innovations is a question: Why do organizations adopt innovations? Among the numerous attempts to answer this question, there are two main schools of thought. On the one hand, the *economic–rationalistic* perspective is focused on organizational *performance*, which refers to the extent to which an organization realizes its objectives, often measured in financial or economic terms.[2] Scholars from the economic–rationalistic perspective argue that organizations recognize performance problems and then search and adopt innovations to solve the problems efficiently, thus improving performance (Cyert and March 1992). On the other hand, the *institutional* perspective stresses organizational *legitimacy*, which refers to a generalized perception or assumption that the actions of an organization are desirable or appropriate within the organization's socially constructed environment of norms, values, and beliefs (Suchman 1995). Institutional researchers contend that organizations adopt innovations that are taken for granted as legitimate practices in order to gain organizational legitimacy, regardless of the actual impact of the innovation on the performance of particular organizations (Meyer and Rowan 1977).

[2]Among the diverse definitions of organizational performance in the literature (Melville et al. 2004), the focus here was on performance at the organizational level using financial measures that capture both efficiency and effectiveness.

While the debate continues on whether performance or legitimacy drives the diffusion of innovations, research has shown that, in its early diffusion, adopters undertake an innovation to improve performance, and in its later diffusion, most organizations adopt it to pursue legitimacy (Tolbert and Zucker 1983). In other words, when an innovation is nascent, early adoption is driven by rational choice made by each organization, based upon its local calculation of the innovation's projected benefits in enhancing organizational performance. Once the innovation has been widely adopted and institutionalized as a legitimate practice, however, late adopters implement it simply to conform to institutional norms. Although this performance-and-then-legitimacy-driven diffusion theory has received support in empirical studies (e.g., Fligstein 1985; Tolbert and Zucker 1983), the theory is ambiguous as to what happens in the *middle*: When an innovation moves from its early diffusion toward institutionalization, does the pursuit of performance or quest for legitimacy drive organizations to adopt the innovation?

In fact, the middle phase is often crucial to technological innovations. During this phase, a new technology has to cross the chasm from the early adopters to the majority of adopters (Moore 2002). It is also the period when various stakeholders build an industrial infrastructure to institutionalize the innovation (Van de Ven 2005). The fact that only some innovations succeed in crossing the chasm and others fail begs a theoretical explanation for the important middle phase of diffusion. One might propose that, in the middle phase, the most efficient innovations for enhancing organizational performance come to be widely adopted and accepted as legitimate practices. Despite its potential to synthesize the performance- and legitimacy-focused perspectives, the proposition faces at least two challenges in its validation. First, because each organization is unique in some aspects, the innovation most efficient for one organization may not be so for another. Second, even in circumstances where efficiency evaluation criteria are applicable across organizations, the most efficient innovation is often not the most widely adopted, nor is it institutionalized as a legitimate practice. Many cases show that innovations with suboptimal efficiency (e.g., David 1985) or even no obvious benefits come to be widely accepted (Abrahamson 1991). Beyond the performance- and legitimacy-driven adoption rationales, an innovation's middle phase of diffusion often witnesses a notable surge in popularity, reminiscent of fashion waves in aesthetics and entertainment. The recently developed *management fashion theory* may offer a promising explanation for the middle phase.

Management Fashion

According to management fashion theory, idea entrepreneurs (such as consultants, gurus, journalists, and academics) compete in a market for providing management knowledge. They identify and highlight widespread problems with organizational performance, or so-called performance gaps: the difference between the performance level managers aspire to and the level they actually achieve. They sense managers' demands for new management techniques and produce discourse to articulate ideas that promote the use of certain techniques to help narrow the performance gaps. When discourse converges on a technique (e.g., TQM—total quality management), a dramatic surge of media coverage and the ensuing managerial attention and interest will create a *management fashion*: a relatively transitory collective belief that an administrative technique is new, efficient, and at the forefront of management practice (Abrahamson 1996). This belief, although often based on early adopters' anecdotal success, generates increasing pressure on *every* organization to adopt the innovation, because organizational stakeholders expect managers to employ modern and efficient techniques to manage their organizations (Meyer and Rowan 1977). The more organizations adopt the innovation, the stronger the collective belief. Then even more organizations will adopt. In this way, management fashion and adoption build upon each other in a self-reinforcing cycle. Consequently, "certain innovations may garner managerial attention and organizational adoption out of all proportion to the ultimate benefits flowing from their actual use" (Fichman 2004, pp. 327-328). Apparently, management fashion theory has absorbed elements from both the performance- and legitimacy-based theories of diffusion: Performance gaps motivate the search for innovations, and adoptions of innovations in high fashion convey legitimacy. In this way, management fashion theory complements other theories for diffusion and provides a novel explanation of an innovation's mid-career.

Information Technology Fashion

The above description of management fashion should not sound unfamiliar when it comes to the diffusion of IT innovations. On the one hand, numerous idea entrepreneurs (such as vendors, market research analysts, consultants, pundits, gurus, and academics) compete in the market for IT knowledge by producing voluminous discourse to promote various IT or IT-enabled innovations through a host of outlets such as books, articles, workshops, and conferences. On the other hand, executives and IT managers are characteristically on the lookout for the next big thing to help their organizations perform and compete. Every now and then idea entrepreneurs'

discourse converges on an innovation that becomes a "big thing." Be it ERP or Web 2.0, each of these major innovations enjoys an instant fame and attracts tremendous managerial attention and interest, which in turn generates a transitory collective belief that an information technology is new, efficient, and at the forefront of practice—the IT innovation comes into fashion! Organizations seeking new, efficient, and cutting-edge IT thus adopt the innovation in fashion, a course of action often pejoratively depicted as "jumping on the bandwagon." However, the *hype* associated with every IT fashion will soon reach the point where the expectation of the benefits the innovation will bring is inflated beyond the capabilities of the innovation. Unfulfilled promise generates backlash, which quickly drives the innovation out of fashion and sends it to the "trough of disillusionment." This "hype cycle," originally sketched by Gartner, plausibly depicts the fashion phenomenon in IT (Linden and Fenn 2003).

Although both administrative and IT practices are subject to the swings of fashion, the theoretical distinction between administrative and IT innovations cautions against a hasty wholesale acceptance of management fashion theory in the field of IT as a mere test-bed for the theory. Previous innovation research suspected that administrative and technical innovations (of which IT is a special type) imply different decision-making processes and different adoption drivers and processes (Damanpour 1991). The uniqueness of IT innovations (as opposed to administrative techniques such as employee empowerment and TQM) motivates IT fashion research as a distinctive stream of IT diffusion studies. Most conspicuously, IT innovations usually have tangible artifacts (such as hardware and software components) that are provided by vendors and used by the adopters. Both a vendor's production assets and an adopter's work processes are specifically tailored for a type of IT innovation (such as enterprise software) and are often difficult to apply to another type (such as consumer electronics). Therefore, unlike management consultants who can capitalize on their skill-sets in multiple types of administrative innovations, IT practitioners face high switching costs, which might make IT practice less prone to the fickleness of fashion. Also, in contrast to administrative innovations that are often abandoned when they go out of fashion, several fashionable IT innovations are institutionalized (Fichman 2004). These innovations go out of fashion not because adopters find them useless and abandon them. Rather, they move from the forefront of IT practice to the background as they have been assimilated into the adopting organizations and thus there is no need to hype them anymore. A case in point is ERP. As this highly popular 1990s innovation achieved widespread adoption in and across many industries worldwide and eventually became institutionalized (Kumar and van Hillegersberg 2000), the hype about ERP has faded away.

The distinction between IT and administrative innovations is *theoretical*, however. In practice, IT innovations often have administrative components and administrative innovations often have IT components, especially with the increasing penetration of IT in administrative practices. While it would be ideal to measure the "IT-ness" or "administrative-ness" of an innovation, in practice it is relatively straightforward to identify innovations that have intensive IT components or intensive administrative components. For simplicity, IT-intensive innovations are referred to as IT innovations in this paper. The uniqueness of IT innovations illustrated above requires IT fashion research to not only articulate and advance management fashion theory broadly, but also develop a fashion theory specific to IT innovations.

Thus far, IT fashion research has focused on the emergence and evolution of IT fashions (e.g., Baskerville and Myers 2009; Lee and Collar 2003; Newell et al. 1998; Wang and Ramiller 2009), assuming that IT fashions matter to adopting organizations. However, that assumption has not been verified. To justify IT fashion as a worthy phenomenon to study, research must investigate the organizational consequences of IT fashions. What influence does an organization's engagement with IT fashions have on important outcomes such as performance and legitimacy? If the ebb and flow of IT fashions are found to indeed shape key organizational outcomes, then the study of the emergence and evolution of IT fashion is warranted. If, however, fashion is found to have no effect on organizations either on or off the bandwagon, then IT fashion research might become an esoteric dead-end (Ramiller et al. 2008). To investigate the impacts of organizational engagement with IT fashions, such engagement needs to be defined.

Engagement with IT Fashions

An organization's engagement with an IT fashion is the establishment of a *material* or *informational* relationship between the organization and the IT innovation in fashion. While an organization can establish such a relationship at various points of an innovation's diffusion, for the purpose of this paper, the focus is on organizational engagement with the IT innovation during its *fashion period*—when the innovation is *in fashion*. Engaging with an IT fashion can take on a material or informational form. Material engagement refers to the adoption, implementation, and utilization of the IT. These material activities have been the traditional focus of IT innovation research mainly from the economic–rationalistic

perspective. Especially where performance is concerned, it is argued that *what organizations do* matters most (Pfeffer and Sutton 2000). On the other hand, from the institutional perspective, organizations gain legitimacy by *informing* their stakeholders that they are associated with socially approved IT. By way of signaling, organizations informationally engage with IT fashions. The informational engagement is sometimes in synch with the material engagement, just as in the case when an organization announces that it adopts CRM and it actually adopts it. Sometimes, however, an organization's informational engagement does not necessarily correspond to its material engagement; that is, the rhetoric does not always match the reality (Zbaracki 1998). For example, in this study's dataset, some firms that were reported in the news to have adopted CRM were actually considering adoption, with no budget yet committed to CRM. A number of management fashions in the 1980s conveyed the alignment of corporate executives and shareholder interests such as through long-term incentive plans (LTIPs). Westphal and Zajac (1998) found that many firms announced the adoption of LTIPs but never implemented the plans and that, nevertheless, the stock market reacted favorably in terms of excess returns to these *symbolic* adopters anyway. In other words, *what organizations say they do* also seems to matter, especially where legitimacy is concerned. Hence the effects of engagement with IT fashion on organizational legitimacy and performance deserve more detailed discussion next.

Fashion Effect on Legitimacy

Organizations considered legitimate not only enjoy social approval, but also gain access to resources, increasing their chances of survival and growth. In contrast, organizations lacking legitimacy are likely to disappear (Aldrich and Fiol 1994). Meyer and Rowan (1977) noted that organizations seek legitimacy by incorporating practices that match widely accepted cultural models embodying common beliefs. Building upon and extending from this argument, management fashion theorists claim that an important common belief in an organization's environment is the belief that certain innovations are efficient and at the forefront of practice, even though these innovations have not yet been widely adopted. Organizations sensitive to such belief will engage with current fashions and gain legitimacy.

Studies of organizational legitimacy traditionally focused on coercive, dichotomous measures, such as approvals of regulatory agencies (Deephouse 1996) and accreditation (Westphal et al. 1997), that are based on negative deviation from goals or standards. More recently, Staw and Epstein (2000) argued that once an organization has met the standards and expectations specified by its external stakeholders, it can still improve its legitimacy by pursuing valued ends such as corporate reputation (Fombrun 1996). Because this normative view of legitimacy has far more potential to apply to a broad cross-section of organizations than the coercive view, which is most applicable to highly regulated industries, this study follows Staw and Epstein's approach to examine corporate reputation as a means to gaining organizational legitimacy.

Staw and Epstein found that firms engaging with TQM in its fashion period (the first half of the 1990s) significantly augmented their reputation in the eyes of external stakeholders. Interestingly, beyond the effect of firms' actual adoption and implementation of TQM, they found that co-occurrences of companies' names and TQM in the news made independent contribution to the increased legitimacy. Similar to what Westphal and Zajac (1998) uncovered in the case of LTIPs, the finding suggests that some organizations could improve their legitimacy by informationally associating themselves with TQM in discourse even without adopting or implementing TQM. While these studies were among the first to directly assess the effect of fashion on organizational legitimacy, they only tested the effect of fashions for administrative techniques. In investigating the effects of IT fashions on organizational legitimacy, the first two hypotheses are raised:

H1: Organizations gain in reputation when they are informationally associated with IT in fashion.

H2: Organizations gain in reputation when they adopt and implement IT in fashion.

Besides the impact of fashion on an organization's legitimacy in its external environment, Staw and Epstein suggested that a similar effect might also exist inside each organization. In contrast to external legitimacy as indicated by organizational reputation, *internal* legitimacy is the collective perception held by an organization's internal stakeholders that their organization's leaders manage the organization appropriately according to internal rules, norms, and values. While each organization's internal environment always has its uniqueness, according to institutional theory, most organizations seek to align their internal environment with the external environment to gain external legitimacy (Scott 2003). Rules, norms, and values inside an organization are thus largely congruent with those outside it. Hence, an organization's engagement with innovations in fashion may not only increase its external legitimacy, but also raise the internal legitimacy of the organizational leaders who make the key decision to engage with innovations in fashion. Indeed, Staw and Epstein found that firms with both informational and

material engagement with management fashions had significant, positive effects on executive compensation, even absent any effect on firm performance. For IT fashions, one might make a similar argument that leaders engaging their organizations with trendy IT might obtain higher pay approved by their organizations' internal stakeholders. Accordingly, another two hypotheses are raised.

H3: Organizational leaders are compensated more when their organizations are informationally associated with IT in fashion.

H4: Organizational leaders are compensated more when their organizations adopt and implement IT in fashion.

Fashion Effect on Performance

Informationally associating an organization with innovations that are in fashion and collectively believed to improve performance may not actually improve the organization's performance. According to Pfeffer and Sutton (2000), because performance is an outcome of what people in the organization *do*, not of what they say or know, information or knowledge about how to improve performance needs to be turned into material actions and it is these actions that actually improve performance. Therefore, an organization's informational link to IT in fashion should have no direct effect on performance.

However, when an organization's engagement with innovations in fashion becomes material—when the firm invests in, adopts, and implements the innovation—will there be any effect on performance? Research from the *economic–rationalistic* perspective has traditionally focused on the relationship between IT spending and performance. Initially, in the early 1980s, researchers found scant evidence of performance improvement despite dramatic increase in computing power and spending and hence coined the term *productivity paradox*. Since then Brynjolfsson and colleagues have demonstrated that substantial firm- and task-level evidence for the positive link between IT investment and performance often lagged for several years (e.g., Aral et al. 2006; Brynjolfsson and Hitt 1996). It has been argued that "the changes in business processes needed to realize the benefits of IT may have taken some time to implement" (Brynjolfsson and Hitt 1996, p. 556). Notwithstanding the positive and temporal link between IT investment and performance, studies on IT productivity do not usually differentiate the technologies by the stage of their development and diffusion. IT productivity research does not tell whether the positive link between general IT spending and performance also holds for the relationship between investment in IT *fashions* and performance.

On the other hand, innovation research from the *institutional* perspective is sensitive to the various stages in the development and diffusion of an innovation because the innovation's own *legitimacy*, the core concern in institutional research, changes over time in different development and diffusion stages. However, institutional research still falls short of theorizing or empirically testing the effects of legitimacy-based adoption on performance. In fact, the relationship between legitimacy-based adoption and performance stands at the center of the debate among institutional theorists. It has been argued that organizations' quest for legitimacy often conflicts with their pursuit of economic performance and thus it is best the two activities be decoupled (Meyer and Rowan 1977). Further, Meyer and Rowan (1977) argued that the quest for legitimacy simply entails that firms *appear* to conform to taken-for-granted norms without having to implement the norms in action (e.g., informational association with the innovations in fashion), as if the norms were mere myths and ceremonies. Other institutional theorists, however, have contended that conformance to institutional norms must generate actions (e.g., adoption and implementation of the innovations in fashion) (Tolbert and Zucker 1996). Further, the implications of such legitimacy-motivated actions are rather inconclusive. On the one hand, any particular organization's legitimacy seeking activities such as its adoption and implementation of innovations in fashion would draw resources away from performance-enhancing activities and thus influence performance negatively. On the other hand, a positive effect of fashion on performance seems plausible: Gain in legitimacy may help organizations secure valued resources, which enable better economic performance (Scott 1995).

This theoretical ambiguity seems to manifest itself in the reality of IT management. Seeing everyone else is doing it, some organizations adopt the most hyped IT only to find out that it is useless in improving performance. Others adopt the same innovation around the same time, implement and assimilate it, and gain significant benefits. Further, an essential component of an IT fashion is the collective belief that an innovation will efficiently solve an important organizational problem. This collective belief, beyond anecdotal success stories, has never been substantiated at any level of IT practice. Thus, a pair of competing hypotheses are raised.

H5a: Adopting and implementing IT in fashion leads to lower organizational performance.

H5b: Adopting and implementing IT in fashion leads to higher organizational performance.

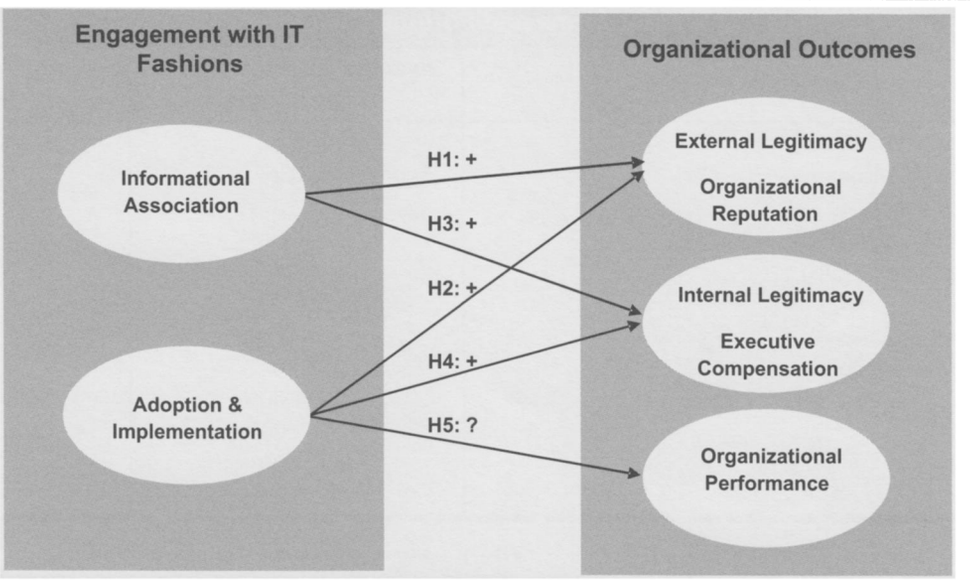

Figure 1. Research Framework with Main Constructs and Hypotheses

Figure 1 illustrates the research framework showing all constructs and hypotheses.

Methods

To test these hypotheses, several methodological features have been borrowed from the Staw and Epstein (2000) study of popular administrative techniques. These common features make it possible to compare the results of this study with theirs, possibly extending management fashion theory for IT research and practice. In this section, the methods that were drawn from their study are noted, as well as where and why different methods were used.

Sample of Organizations

Initially this study drew a sample of 109 large U.S.-based companies that meet the following criteria. First, they appeared on the Fortune 500 list between 1994 and 2003 at least five times. *Fortune* magazine compiles and publishes the ranking of American corporations (by gross revenue) that make their financial data publicly available. Thousands of companies have appeared on the list at least once. Firms more frequently on the list are more likely to meet the following two criteria. Second, the company names survived mergers, acquisitions, or divestitures between 1994 and 2003. This criterion made it relatively straightforward to search the company names in discourse over time. Third, data on these companies (as described below) can be obtained. Together these criteria ensure a suitable sample size that balances between the data collection effort and sufficient statistical power for the subsequent regression analysis. Firms in the sample, with average total assets of approximately US$36 billion and net annual sales of US$16 billion, belonged to 14 industries. Table 1 shows that the sample is diverse and largely representative of the Fortune 500 companies in terms of size, performance, and industry composition.

IT Fashions

A list of 83innovations with intensive IT components was compiled by reviewing 23 information systems textbooks published between 1983 and 2002. Specifically, the innovations on the list are IT-intensive concepts that appeared in the indices of more than two of the IS textbooks. This criterion allowed elimination of idiosyncratic concepts included by only one or two textbooks and focused attention on innovations that enjoyed at least some visibility at various points of time in the two decades (1983-2002). The list was then given to five senior IT practitioners and five senior professors in IS, all having at least 20 years of experience in IT practice or research. Each of them was asked to select from the list the innovations that he/she *once* believed to be new, efficient, and at the forefront of IT practice, regardless

Table 1. Descriptive Statistics of Sample Firms and Fortune 500 Firms

	Average if Sample Firms in this Study	Fortune 500 Average (1994–2003)
Average total assets (in billions)	$35.22	$34.25
Average net sales (in billions)	$16.23	$14.96
Average return on assets (ROA)	2.37%	2.45%
Average return on equity (ROE)	6.06%	5.97%
Average return on sales (ROS)	14.70%	14.84%
Industries		
Manufacturing	26.00%	32.00%
Finance and Insurance	20.00%	18.00%
Retail	11.00%	13.00%
Utilities	9.00%	8.00%
Information	4.00%	5.00%
Other	30.00%	23.00%

of the innovation's actual destiny (such as institutionalization or collective abandonment). Their independent selections generated a list of 28 innovations, each of which was selected by at least 8 out of the 10 senior practitioners and professors. Their *collective beliefs* generated these candidates for IT fashions. Next, articles that included each innovation (by its full name or variant labels) in either the title or the abstract each year (between 1971 and 2002) in the ABI/Inform Global database (a frequently used source for discourse analysis containing over 2,700 periodicals) were counted.[3] In this way, a discourse curve with yearly article counts for each innovation was constructed. Most management and IT fashion researchers describe a distinctive lifecycle for fashion discourse: A period of dormancy is followed by a sudden but short-lived surge, resulting in an unusually peaked curve (Abrahamson and Fairchild 1999). According to this description, while the discourse curves for most topics are wave-like, it is the *unusual peakedness* that indicates the presence of fashion. The kurtosis, a widely accepted measure for the *peakedness* of the probability distribution of a random variable, of each discourse curve was then calculated. Eighteen curves turned out leptokurtic (with positive kurtosis values and more acute peaks than that of a normal curve), while the other ten curves' kurtosis values were not significantly different from that of a bell-shaped normal curve. Essentially, the zero point of the kurtosis was used as a threshold: A positive kurtosis suggests the presence of fashion, while a zero or negative kurtosis suggests absence. While this approach may appear a little mechanical, the comparison between IT fashions and non-fashion IT innovations discussed later suggests that the threshold has some validity. Among the 18 innovations with leptokurtic curves, 8 are more recent, coming in fashion between 1993 and 2002. For their higher relevance to recent and current practice, these eight IT innovations, listed in Table 2 with a brief definition for each, were chosen as the focus of this study.

As Table 2 shows, the degree of "IT-ness vs. administrativeness" varies across the innovations, with data warehouse and groupware on the technical end, and business process reengineering (BPR) and knowledge management (KM) on the administrative end. Nonetheless, both BPR and KM are IT-intensive: First, the conceptualization and implementation of each innovation has IT as a strong, indispensable component from the beginning of and throughout its diffusion. Second, the administrative component of each innovation is enabled by IT. Third, major IT projects have been conducted under the banner of BPR or KM. For example, in their original formulation of the BPR innovation, Hammer and Champy (1993) observed that one major theme emerging from successful reengineering projects is the creative use of IT. They further argued that the *agent* that enabled companies to "break their old rules and create new process models was modern information technology" (p. 50). Partially because of the daunting task of developing new information systems to support new business processes, many organizations turned to packaged IT (such ERP and CRM) with specific embedded processes as their means to do BPR (Davenport 2008). Therefore, even if BPR and KM have significant administrative connotations, their strong IT component differentiates

[3]Although these innovations were selected from textbooks published between 1983 and 2002, some innovations had appeared before 1983. To visualize the entire discourse curves of these innovations, we searched each innovation in the ABI from 1971, the database's inaugural year.

Table 2. Information Technology Innovations and Their Fashion Periods

	Definition from Dictionary.com	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Application service provider (ASP)	A service (usually a business) that provides remote access to an application program across a network protocol, typically HTTP.								✓		
Business process reengineering (BPR)	Any radical change in the way in which an organization performs its business activities. BPR involves a fundamental rethink of the business processes followed by a redesign of business activities to enhance all or most of its critical measures (costs, quality of service, staff dynamics, etc.).	✓	✓								
Customer relationship management (CRM)	Enterprise-wide software applications that allow companies to manage every aspect of their relationship with a customer. The aim of these systems is to assist in building lasting customer relationships (to turn customer satisfaction into customer loyalty).						✓	✓	✓	✓	
Data warehouse (DW)	Any system for storing, retrieving, and managing large amounts of data. Data warehouse software often includes sophisticated compression and hashing techniques for fast searches, as well as advanced filtering. A data warehouse is often a relational database containing a recent snapshot of corporate data and optimized for searching.			✓	✓	✓					
E-commerce	Commerce that is transacted electronically, as over the Internet.							✓	✓		
Enterprise resource planning (ERP)	A process by which a company (often a manufacturer) manages and integrates the important parts of its business. An ERP management information system integrates areas such as planning, purchasing, inventory, sales, marketing, finance, human resources. etc.					✓	✓	✓			
Groupware	Software that integrates work on a single project by several concurrent users at separated workstations.		✓	✓	✓						
Knowledge management (KM)	The technologies involved in creating, disseminating, and utilizing knowledge data.						✓	✓	✓	✓	✓

✓The innovation was in fashion that year.

them from the relatively pure administrative techniques, such as TQM, self-managed teams, and employee empowerment that Staw and Epstein (2000) studied.

Figure 2 depicts the discourse curves of the eight IT innovations examined in this study. These innovations came in fashion and peaked in popularity at different times and thus their fashion periods are different, albeit overlapping. Because the fashion period for an innovation is when the collective belief about its efficiency and currency is prevalent, this study operationalized the *fashion period* notion with the last third of the upswing phase of the discourse curve. For example, the upswing of the ERP discourse curve lasted for about nine years from 1991 through 1999. Therefore, ERP's fashion period is 1997–1999. Sensitivity analysis on the operationalization of the fashion period showed that the conclusions based on the findings reported here held when fashion period was defined as any segment between the middle point of the upswing phase and the peak of the discourse curve. Other segments of the curve do not seem to represent the theoretical meaning of the fashion period. For example, in the first half of the upswing phase, the collective belief about the focal innovation is not yet prevalent. And after the peak, the collective belief that the focal innovation is new and efficient faces increasing challenges and disagreement in the discourse. Table 2 also indicates the fashion periods of the eight innovations.

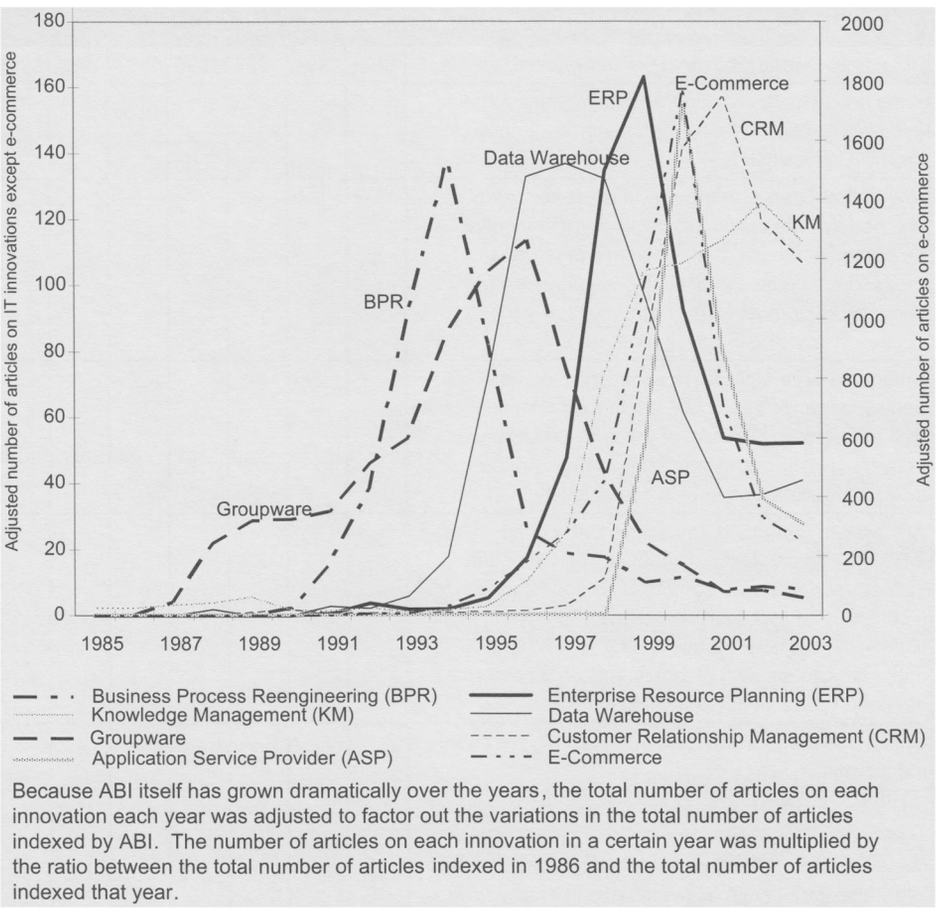

Figure 2. Discourse Curves of Selected IT Innovations

Engagement with IT Fashions

Two variables measure a firm's engagement with IT fashions: association with IT fashions (for informational engagement) and investment in IT fashions (for material engagement). The former measures the informational link between a company and IT fashions in discourse. Specifically, in ABI/Inform and the 50 largest U.S. newspapers indexed by Dow Jones' Factiva, for each year, articles were counted that mentioned both the name of a company in the sample and any of the eight IT innovations if the innovation was in its fashion period that year.[4] For example, data warehouse and groupware were in fashion in 1995. The company Motorola was mentioned in 39 articles where either data warehouse or groupware was also mentioned. Unlike the Staw and Epstein (2000) study, where the innovations studied were the same each year throughout the examination window, this study examines innovations only when they were in fashion, and so the number of innovations in fashion varies each year. For example, only two innovations were in fashion in 1995 and four were in fashion in 2000. This time-varying factor and the different scopes of the innovations made the total volume of IT fashion discourse fluctuate significantly from year to year. Therefore, the yearly raw counts of articles mentioning companies and innovations must be normalized to factor out such fluctuation. Accordingly, the yearly article counts obtained from the previous step were divided by the total number of articles that mentioned any IT innovations in fashion that year. For the example just mentioned, because there were 1,884 articles in 1995 in which data warehouse or groupware appeared at least once, Motorola's proportion of citations is then 2.07 percent (39 divided by 1,884). The

[4]Although an IT and an organization appear in the same article often because the organization adopts the IT, unlike Ranganathan and Brown (2006), the data was not limited to adoption announcements in this study mainly because the objective was to use the same measure as Staw and Epstein (2000) so that the results would be comparable.

result was further divided by firm size, measured as the average of normalized sales and assets, since firm size is highly correlated with the firm's proportion of citations in the fashion discourse (r = .81). The resulting measure, *association with IT fashions*, is then free from the multicollinearity problem when this variable and firm size are both included in regression equations. Interestingly, firm size is also highly correlated with annual total citations received by each firm in the sample (r = .85). The high correlation means that each sample firm's coverage in the press was largely proportionate to its size, irrespective of its varying degree of impression management effort. Hence the association measure, already adjusted for firm size, was not severely subject to corporate impression management in the media.[5]

In addition to informational engagement, to measure these firms' material engagement with IT fashions, data was collected on each firm's budgeted spending/investment in each of the IT innovations in its fashion period from the annual IT spending surveys conducted by IDC (a technology media and research company). Every year IDC interviews the CIOs (chief information officers) or vice president for IT at firms of various sizes worldwide to survey their IT usage and investment plans. IDC claims that this survey is the largest of its kind, with an average of approximately 1,000 complete responses and an average response rate of 68 percent annually in the past decade. As part of the survey, IDC provides definitions of mutually exclusive categories of IT and respondents are asked to provide their annual budgets in each category. The categories changed over time, but all of the eight IT innovations examined in this study were among the categories in the IDC survey at least during the innovations' fashion periods. For example, IDC initiated the ASP (application service provider) category in 1997 and eliminated it in 2003. According to the definition of fashion periods shown in Table 2, ASP was briefly in fashion in the year 2000 and thus only the ASP investment in 2000 was relevant to this study. A firm's spending on all IT innovations in fashion each year was then summed up as the firm's annual investment in IT fashions. For example, in 1995 Firm X budgeted \$Y for acquiring, implementing, and maintaining data warehousing, and allocated \$Z for groupware.[6] Since data warehousing and groupware were the two innovations in fashion that year, Firm X's investment in IT fashions in 1995 was \$Y+\$Z.

[5]Staw and Epstein used two association measures: one adjusted for firm size and the other adjusted for the firm's total media exposure. Since the two factors are highly correlated in this study, only one association measure (adjusted for both) is necessary.

[6]The agreement with IDC allows sharing the data only in aggregate form.

The *association* and *investment* variables capture a firm's informational and material (respectively) engagements with IT fashions. As previously argued, although informational association sometimes corresponds to the material investment, the rhetoric and the reality do not always connect. Causes for such disconnect may range from simple reporting errors to strategic impression management. More generally, even if a firm was reported to have adopted an IT and it actually adopted the IT, the level of reporting and the level of investment did not perfectly correlate. This observation suggests that, *ceteris paribus*, firms receiving the same number of mentions with an IT may not have invested the same amount of money in the IT, possibly caused by inadvertent or strategic impression management. Accordingly, we use these two related but separate variables and assess their differentiated influences on the dependent variables.

Dependent Variables

Corporate reputation and executive compensation are indicators for external legitimacy and internal legitimacy (respectively). The reputation scores for the sample companies were retrieved from *Fortune*'s "America's Most Admired Companies" lists from 1994 to 2003. Every year, *Fortune* sends surveys to approximately 10,000 executives, outside directors, and financial analysts asking them to rank companies' reputation by industry. The average response rate has been between 40 and 50 percent. Executive compensation is measured by the CEO's salary and bonus, retrieved from COMPUSTAT's Execucomp database. This measure is appropriate for two reasons: First, the same measure makes it possible to directly compare the results from this study with those from the Staw and Epstein (2000) study. Second, IT has evolved beyond the role of mere infrastructure in support of business strategy to become the business strategy itself, hence a firm's top executive is expected to have the top responsibility of IT investment and innovation (Earl and Feeny 2000). For the purpose of comparison with the Staw and Epstein study, firm performance is measured by the summation of normalized return on assets (ROA), return on equity (ROE), and return on sales (ROS).

Control Variables

Firm size may have direct effects on dependent variables (especially corporate reputation and executive compensation), so firm size was included in all regression equations as a control variable. In addition, industry performance was used as a control variable in models predicting firm performance, which itself is a control variable for corporate reputation. For

executive compensation, as Staw and Epstein suspected that an organization's internal stakeholders might compensate their leader according to how outsiders judge the organization in terms of its reputation, corporate reputation was included in all regression models predicting CEO pay. Other control variables included previously well-researched predictors such as board size, CEO tenure, proportion of inside directors, whether the CEO was also chair of the board, and CEO pay in previous years. Data of these control variables came from such sources as Fortune 500 (for industry performance), COMPUSTAT Execucomp database (for CEO tenure and pay), and the Standard and Poor's Register of Corporations, Directors, and Executives (for other control variables). Further, to control for other possible effects varying according to time and the industries and geographic region in which the organizations operate, dummy variables for the years, the sample firms' primary industries, and the regions of their headquarters were included in all regression equations. All models were estimated with the multiple regression procedure in Stata.[7] Table 3 summarizes all variables and their operational definitions except the dummy variables.

Results

Table 4 shows the correlations among the main variables in this study. The dummies were omitted from the table for brevity. The significant correlation between firm performance and reputation was expected and caused no multicollinearity problem as the dependent variables were entered into separate equations. The strong correlation between association and investment suggests that firms investing more in IT innovations in fashion are more likely to be mentioned together with the innovation in discourse. The relevant checks (eigen-analysis, tolerance values, variance inflation factors) did not find any evidence of multicollinearity due to this correlation or correlations among all other variables in every regression model to be discussed below. Additionally, to detect the potential presence of autocorrelation among error terms in the following regression analysis, the Breusch-Godfrey test was used; this test is suitable for models including lagged dependent variables (Breusch 1978; Godfrey 1978). Neither the chi-squared form nor the F form of the Breusch-Godfrey test showed signs of autocorrelation in the regression models.

[7]The "cluster" option was used to correct the estimated standard errors, accounting for the lack of independence across observations for each company.

Organizational Legitimacy

Nine regression models were run to examine the effect of IT fashions on corporate reputation, the indicator of external legitimacy (see Table 5). The dependent variable was lagged one year behind all independent and control variables in Models 1, 2, and 3. Since it is also possible to argue that the fashion effect on reputation might last longer than a year, in Models 4, 5, and 6, corporate reputation was lagged two years behind the independent variables, and in Models 7, 8, and 9, reputation was lagged three years behind the independent variables. All models included the control variables (dummies not shown in the table). Models 1, 2, 4, 5, 7, and 8 examined only one of the two independent variables (association or investment); Models 3, 6, and 9 included both independent variables (association and investment). The results confirmed that a firm's prior performance and prior reputation were significant predictors of corporate reputation. Models 1, 2, and 3 show that both association with and investment in IT fashions in Year t-1 were significantly and positively associated with corporate reputation in Year t and that each variable explained a significant amount of variance beyond that of the other independent and control variables. In contrast, Models 4 through 9 indicate that neither association with nor investment in IT fashions had significant effect on corporate reputation two or three years later, suggesting that the effect of fashions on corporate reputation disappeared after a year.

A similar set of regression was run on executive compensation, the indicator of internal legitimacy. Table 6 shows that firm size was a consistent predictor of the salary and bonus a firm gave to its top executive. Besides the effects of control variables, Models 1, 2, and 3 show that both association with and investment in IT fashions in Year t-1 were significantly positively correlated with the CEO pay in Year t. Again, each independent variable explained a significant and unique portion of the variance in the executive compensation. As the fashion effect on corporate reputation disappeared after one year, the fashion effect on CEO pay also vanished (Models 4 through 9 in Table 6).

Organizational Performance

Table 7 shows the effect of IT fashion on organizational performance, measured by a normalized average of returns on sales, equity, and assets. As expected, industry average performance and firm performance a year before consistently explained a firm's current performance. Models 1, 4, and 7 shows that association with IT fashions in discourse had negative effects on performance one and three years later, but

Table 3. Operational Definitions of Variables

	Operational Definition
Dependent Variables	
Firm performance	Sum of normalized returns on assets, equity, and sales
Reputation	Reputation scores retrieved from *Fortune*'s "America's Most Admired Companies"
CEO pay (in millions of US $)	CEO's salary and bonus retrieved from COMPUSTAT
Independent Variables	
Association with IT fashions	Number of articles that mention both the focal firm's name and any IT innovation in fashion that year, divided by the total number of articles that mention any IT innovation in fashion that year, and divided by firm size (measured as the average of normalized sales and assets)
Investment in IT fashions (in millions of US $)	The focal firm's annual budget for IT innovations in fashion that year
Control Variables	
Firm size	Average of normalized sales and assets
Industry performance	Average of normalized sales and assets in the focal firm's primary industry
Proportion inside directors	Percentage of directors of board who also serve as executives of the focal firm
Board size	Number of people on the focal firm's board of directors
CEO tenure	Number of years the current CEO has worked for the focal firm
CEO as board chair	Whether the chairperson of the board also serves as the CEO of the local firm

Table 4. Correlations Among Major Variables

	Mean	S.D.	1	2	3	4	5	6	7	8	9	10
Dependent Variables (t)												
Firm performance†	2.7E-17	0.66										
Reputation	5.50	0.80	0.40**									
CEO pay (in millions of US $)	3.22	1.18	0.10	0.06								
Independent Variables (t-1)												
Association with IT fashions	4.5E-16	0.79	-0.13	0.28*	0.17							
Investment in IT fashions (in millions of US $)	0.84	1.22	-0.26*	0.14	0.25	0.45**						
Control Variables (t-1)												
Firm size†	3.4E-17	0.86	-0.04	0.18	0.57**	-0.03	0.12					
Industry performance†	3.8E-17	0.91	0.47**	0.37**	0.16	0.13	-0.05	-0.04				
Proportion inside directors	0.42	0.85	0.03	0.03	-0.05	-0.08	-0.12	-0.06	-0.06			
Board size	12.33	2.98	-0.09	0.14	0.06	-0.09	-0.05	0.10	0.06	-0.13		
CEO tenure	7.44	5.89	-0.13	-0.12	-0.22	-0.14	-0.11	-0.15	-0.04	-0.14	0.06	
CEO as board chair	0.88	0.38	-0.05	0.05	-0.01	-0.12	-0.08	-0.12	-0.06	0.03	-0.13	0.27*

N = 931
t = 1994, 1995, … 2003
*p < 0.05; **p < 0.01; two-tailed tests.
†Variable has been normalized around mean of 0.

Table 5. Effects of Information Technology Fashions on Corporate Reputation in Year t

	1	2	3	4	5	6	7	8	9
Control Variables									
Firm performance (t-1)	0.123**	0.290***	0.258**	0.117**	0.288***	0.270**	0.115**	0.256**	0.225**
	(0.041)	(0.089)	(0.104)	(0.044)	(0.093)	(0.095)	(0.049)	(0.084)	(0.075)
Firm size (t-1)	0.166*	0.086*	0.074	0.142	0.079	0.089	0.132	0.174	0.106
	(0.086)	(0.047)	(0.046)	(0.090)	(0.052)	0.057)	(0.092)	(0.109)	(0.083)
Prior corporate reputation (t-1)	0.557***	0.503**	0.440**						
	(0.080)	(0.208)	(0.184)						
Prior corporate reputation (t-2)				0.589**	0.499**	0.520*			
				(0.220)	(0.202)	(0.224)			
Prior corporate reputation (t-3)							0.552**	0.529**	0.436*
							(0.196)	(0.203)	(0.258)
Independent Variables									
Association with IT fashions (t-1)	0.442***		0.516**						
	(0.130)		(0.169)						
Investment in IT fashions (t-1)		0.509**	0.664**						
		(0.208)	(0.224)						
Association with IT fashions (t-2)				0.437		0.419			
				(0.298)		(0.288)			
Investment in IT fashions (t-2)					0.496	0.478			
					(0.302)	(0.299)			
Association with IT fashions (t-3)							0.430		0.324
							(0.322)		(0.245)
Investment in IT fashions (t-3)								0.336	0.552
								(0.288)	(0.400)
R^2	0.679	0.594	0.733	0.309	0.252	0.332	0.244	0.231	0.269
N	745	745	745	684	684	684	602	602	602

t = 1994, 1995, ... 2003

*p < 0.05; **p < 0.01; ***p < 0.001; one-tailed tests.

Standard errors are in parentheses.

Table 6. Effects of Information Technology Fashions on CEO Pay (Salary and Bonus in Millions of US $) in Year t

	1	2	3	4	5	6	7	8	9
Control Variables									
Firm performance (t-1)	0.183	0.166	0.190	0.176	0.166	0.152	0.153	0.155	0.156
	(0.114)	(0.101)	(0.116)	(0.132)	(0.112)	(0.102)	(0.113)	(0.133)	(0.126)
Firm size (t-1)	0.532**	0.489***	0.536**	0.497**	0.518**	0.494**	0.465**	0.488**	0.498**
	(0.185)	(0.129)	(0.194)	(0.171)	(0.202)	(0.204)	(0.188)	(0.184)	(0.177)
Proportion inside directors (t-1)	-0.055	-0.059	-0.056	-0.059	-0.058	-0.051	-0.047	-0.035	-0.041
	(0.109)	(0.201)	(0.117)	(0.081)	(0.097)	(0.092)	(0.090)	(0.088)	(0.068)
Board size (t-1)	-0.022	-0.017	-0.021	-0.015	-0.017	-0.020	-0.016	-0.018	-0.011
	(0.028)	(0.034)	(0.031)	(0.021)	(0.024)	(0.024)	(0.029)	(0.022)	(0.021)
CEO tenure (t-1)	-0.017*	-0.011***	-0.007	-0.025	-0.017***	-0.019	-0.008	-0.013	-0.009
	(0.008)	(0.000)	(0.007)	(0.029)	(0.005)	(0.013)	(0.022)	(0.010)	(0.024)
CEO as board chair (t-1)	0.677	0.659	0.628	0.631	0.669*	0.545*	0.524	0.563	0.603*
	(0.444)	(0.436)	(0.392)	(0.390)	(0.386)	(0.327)	(0.330)	(0.356)	(0.337)
Corporate reputation (t-1)	0.029	0.030	0.028						
	(0.022)	(0.019)	(0.019)						
Corporate reputation (t-2)				0.002	0.025	0.023			
				(0.015)	(0.018)	(0.017)			
Corporate reputation (t-3)							0.013	0.016	0.022
							(0.011)	(0.010)	(0.015)
Prior CEO pay (t-1)	0.522***	0.518***	0.525***						
	(0.119)	(0.122)	(0.124)						
Prior CEO pay (t-2)				0.474***	0.435***	0.468**			
				(0.143)	(0.139)	(0.153)			
Prior CEO pay (t-3)							0.578**	0.533**	0.591**
							(0.203)	(0.199)	(0.218)
Independent Variables									
Association with IT fashions (t-1)	0.323**		0.272**						
	(0.114)		(0.092)						
Investment in IT fashions (t-1)		0.035**	0.045**						
		(0.014)	(0.016)						
Association with IT fashions (t-2)				0.117		0.106			
				(0.100)		(0.087)			
Investment in IT fashions (t-1)					0.025	0.014			
					(0.021)	(0.019)			
Association with IT fashions (t-3)							-0.215		-0.195
							(0.171)		(0.135)
Investment in IT fashions (t-3)								-0.002	0.004
								(0.006)	(0.002)
R^2	0.422	0.440	0.489	0.324	0.339	0.405	0.225	0.205	0.254
N	931	931	931	878	878	878	794	794	794

t = 1994, 1995, ... 2003

*p < 0.05; **p < 0.01; ***p < 0.001; one-tailed tests.

Standard errors are in parentheses.

Table 7. Effects of Information Technology Fashions on Firm Performance in Year t

	1	2	3	4	5	6	7	8	9
Control Variables									
Industry performance (t-1)	0.324**	0.288*	0.311*	0.253	0.266*	0.265*	0.286**	0.243*	0.220*
	(0.125)	(0.124)	(0.139)	(0.131)	(0.115)	(0.134)	(0.105)	(0.096)	(0.087)
Firm size (t-1)	-0.022	0.024	-0.037	-0.018	-0.024	-0.020	0.011	0.047	0.043
	(0.019)	(0.035)	(0.035)	(0.014)	(0.020)	(0.019)	(0.008)	(0.043)	(0.030)
Prior firm performance (t-1)	0.245**	0.244**	0.227**	0.283**	0.243*	0.199*	0.216*	0.206*	0.207*
	(0.085)	(0.089)	(0.079)	(0.093)	(0.112)	(0.086)	(0.089)	(0.103)	(0.088)
Independent Variables									
Association with IT fashions (t-1)	-20.349		-16.435						
	(24.395)		(23.526)						
Investment in IT fashions (t-1)		-5.341*	-4.353*						
		(2.546)	(2.014)						
Association with IT fashions (t-2)				-5.340		-4.356			
				(3.497)		(3.234)			
Investment in IT fashions (t-2)					-0.340	1.245			
					(0.235)	(0.849)			
Association with IT fashions (t-3)							-2.453		-2.450
							(2.596)		(2.464)
Investment in IT fashions (t-3)								6.495**	5.947**
								(2.055)	(2.245)
R^2	0.256	0.301	0.325	0.174	0.242	0.259	0.189	0.325	0.353
N	931	931	931	878	878	878	794	794	794

t = 1994, 1995, ... 2003
*p < 0.05; **p < 0.01; ***p < 0.001; two-tailed tests.
Standard errors are in parentheses.

Table 8. Summary of Regression Results

Organizational Outcome in Year t	Firm Performance	Corporate Reputation	CEO Pay
Association with IT fashions (t-1)	n.s.	+	+
Association with IT fashions (t-2)	n.s.	n.s.	n.s.
Association with IT fashions (t-3)	n.s.	n.s.	n.s.
Investment in IT fashions (t-1)	–	+	+
Investment in IT fashions (t-2)	n.s.	n.s.	n.s.
Investment in IT fashions (t-3)	+	n.s.	n.s.

t = 1994, 1995, ... 2003
n.s.: not significant
+: significant, positive association
–: significant, negative association

the effect was not statistically significant. In contrast, firm performance in Year t was negatively correlated with firms' actual investment in IT fashions in Year t-1 (Models 2 and 3), largely uncorrelated with the investment in Year t-2 (Models 5 and 6), but was positively correlated with the investment in Year t-3 (Models 8 and 9).

Table 8 summarizes the main findings from the study. First, firms associating themselves more frequently with and investing more in IT innovations in fashion tended to have increased reputation and CEO compensation the next year. These positive effects support hypotheses 1-4. Second, however, the positive effects of IT fashions on corporate reputation and CEO compensation disappeared after a year. Third, firms strengthening their informational association with IT innovations in fashion did not increase or decrease performance. Finally, firms investing more in IT innovations in fashion tended to have lower performance in a year and higher

performance in three years. Therefore, hypotheses 5a and 5b, which suggest opposite relationships between IT fashions and performance, are supported, but in different time frames.

Discussion

Are organizations that follow IT fashions admired more? Yes. Companies are considered more reputable when they are informationally linked to and invest in IT innovations in fashion, even if these innovations lead to sagging performance (at least temporarily). Specifically, Model 3 in Table 5 implies that when a firm increases its association with IT fashions by 1 percent, its reputation score will increase by 0.52 percent in the following year. The model also implies that for every $1 million a firm invests in IT fashions, its reputation score will increase .66, a substantial jump given that the reputation's standard deviation is only .80.

Do organizational leaders whose companies follow IT fashions receive higher pay? Yes. Model 3 in Table 6 implies that when a firm increases its association with IT fashions by 1 percent, its CEO's compensation will increase 0.27 percent the next year. The model also implies that, in more material terms, for every $1 million a firm invests in IT fashions, the CEO will reap an approximately $45,000 gain in salary or bonus within a year, regardless of firm performance. These findings suggest that internal legitimacy—an organization's internal stakeholders' confidence in its leader—stems in part from the leader's advocacy of IT in fashion.

While fashion association and investment had similar, positive influences on corporate reputation and executive compensation, these effects are distinctive from each other. On the one hand, as the hierarchical regression analysis (Models 1, 2, and 3 in Tables 5 and 6) shows, informational association with IT fashions significantly affected corporate reputation and CEO pay beyond the effect of investment in IT fashions. Similar to what Staw and Epstein (2000) and Westphal and Zajac (1998) found previously, the importance of discourse was demonstrated here again by the evidence that mere informational association with IT fashions influenced organizations' internal and external legitimacy. In the meantime, investment in IT fashions significantly affected corporate reputation and CEO pay beyond the effect of informational association with IT fashions. This finding means that, besides discourse, practice as manifested by organizations' material investment also had an impact on legitimacy. Hence in considering the effect of fashions on organizational legitimacy, it is useful to examine both what organizations say *and* what they do. It helps to conceptualize the discourse/practice distinction as a continuous spectrum rather than a dichotomy. One may argue that a self-reported IT budget is another form of discourse because (1) the budgeted money may never be spent and (2) even if an organization follows its budgets to purchase new IT, implementation may be delayed or canceled (Fichman and Kemerer 1999). Nonetheless, it is reasonable to assume that having a line item for ERP in the IT budget suggests a material step that an organization takes from just talking about ERP toward implementation of ERP. On the other hand, the lack of effect of corporate reputation on CEO pay in Table 6 suggests that internal stakeholders in the sample firms did not compensate their leaders according to corporate reputation. Fashion effect on executive compensation was thus direct and beyond the effect on corporate reputation.

Do organizations that follow IT fashions also perform better? It depends. Indeed, the answer depends on when performance is examined and whether organizations follow IT fashions informationally or materially. By following IT fashions informationally such as associating themselves with IT fashions in discourse, firms in the sample did not seem to perform better or worse one or more years down the line. One may suspect that informational association is simply reporting the innovations' effect on performance after the fact. To address this possibility, an additional regression analysis was conducted using association with IT fashions as a lagging, rather than a leading, indicator of performance. The result showed no significant effect either. This is consistent with Staw and Epstein's finding that informational association with popular management innovations such as TQM, self-managed teams, and employee empowerment had little effect on firm performance. Both studies cast doubt on the success stories being told about innovations in fashion. These stories characteristically link popular innovations to high performing organizations and attribute these organizations' success to the adoption and use of the innovations that the storytellers promote. To the contrary, the empirical result here implies that the protagonists in these success stories did not improve performance before or after their appearance in the stories. This finding conflicts not only with what the success stories meant to promote, but also with the collective belief, held by those who tell or hear these stories, that the innovations are efficient in enhancing organizational performance. Although explaining the conflict is beyond the scope of this study, at least two accounts are worth discussion. First, what is said and written and what people hear and read about organizations and innovations might be completely unrelated to the actions organizations take. This account, however, carries the implausible implication that innovation discourse is *entirely* the product of vendors' marketing campaigns and/or corporate impression manipulation. Nor could the account explain the significantly positive correlation between informational

association and material investment (see Table 4). Second, as also suspected by Staw and Epstein, performance effects of the innovations in this study might have been found with proximal measures of performance such as product quality and customer satisfaction that are usually not reflected in distal, traditional accounting measures such as returns on sales, equity, and assets. While this account seems to explain the nonsignificant effect of fashion association on performance, it fails to explain the significant effect of fashion investment on performance, which is discussed next.

By following IT fashions materially such as investing in IT innovations in fashion, firms in the sample suffered declining performance in the following year and then their performance improved in the third year. This significant, reversing effect on performance presents a sharp contrast to Staw and Epstein's finding: implementation of TQM in Fortune 500 companies during TQM's fashion period did not generate better or worse performance, even four or five years after the implementation. One might infer that the IT innovations are generally more efficient in enhancing performance than are administrative innovations. While caution is advised against such hasty inference because the comparison was imbalanced and the number of cases compared is small, a worthy research question is whether an IT in fashion tends to have a stronger impact on organizational performance than do popular administrative techniques. Nonetheless, the reversing pattern of the investment effect on performance is consistent with the IT productivity and implementation literature. As mentioned earlier, IT productivity researchers argue it takes time to implement the organizational structures and business processes that complement the new IT before realizing the benefits of the technologies (Brynjolfsson and Hitt 1996). Similarly, research on ERP implementation found that many firms that implemented ERP systems suffered an initial *performance dip* because the new systems required new business processes and thus were highly disruptive to the existing processes the firms relied on to perform (Ross and Vitale 2000). The finding here implies that performance dip applied to not just ERP, but also seven other innovations that were in fashion at various points of time. After the firms invested in these IT in fashion, it took them on average three years to absorb the negative impacts, recover from the disruptions, and improve performance.

How unique and robust are these findings to different specifications of key design features of this study? One important feature is that this study examines special types of innovations: those coming in and then out of fashion, as opposed to general IT spending examined by IT productivity studies for instance. To compare the effects of investments in IT fashions and general IT spending, an additional analysis was conducted by replacing IT fashion investment with total IT investment (based on total IT budget reported in IDC surveys) in the regression models. There was no evidence for significant effects of general IT spending on corporate reputation or CEO pay with one-, two-, or three-year lags. Nonetheless, evidence was found that general IT spending had a significant negative effect on performance one year later and then a significant positive effect on performance two years later. The result from this comparison suggests that the effects on legitimacy were unique to IT fashions.

Another key design feature of this study is the use of kurtosis threshold to identify IT fashions. Based on the characteristic patterns reported in previous research on administrative and IT fashions, innovations whose discourse curves are leptokurtic (with positive kurtosis values) were selected. To see how well this selection method serves the purpose of this study, data on eight other innovations whose discourse curves followed relatively normal distribution (i.e., the kurtosis values are below zero) were also collected. The operational definition for the fashion period helps define the popular period for each of these non-fashion innovations. That is, the popular period for each non-fashion innovation is the last third of the upswing phase of its discourse curve. The same regression analysis was then performed to examine the effects of these non-fashion innovations on the same dependent variables. The results show that firms' engagement with these non-fashion innovations was not associated with any significant effects on corporate reputation or CEO pay, regardless of the time lag between the independent and dependent variables and irrespective of the engagement form (informational association or material investments). However, the effects on firm performance were similar to those of IT fashions and general IT with worse performance in the near term and better performance in the long-term. The comparison of the results from analyses of IT fashions and non-fashions suggests, again, that the effects on legitimacy were unique to IT fashions. Thus measuring the unusual peakedness with kurtosis seems a reasonable method to detect the presence of fashion.

Common to the original and additional analyses thus far is that various IT innovations were examined in aggregate terms. Data were collected on individual IT innovations but were summed up each year to derive aggregate measures such as yearly association with and investment in IT fashions. To see whether the fashion effect found in the aggregate terms existed for each individual innovation that was in fashion, the same analysis was performed on each of the eight innovations. The eight replications generated results similar to those produced in the aggregate analysis. These separate analyses of individual fashions has revealed that the investment in some

fashions (ASP, data warehouse, groupware, and e-commerce) led to better performance in three years and the investment in others (BPR, CRM, ERP, and knowledge management) led to better performance in four years. Despite this nuance, the study's findings are robust in both aggregate and disaggregate terms. In addition, the consistent findings across the eight individual innovations suggest that the more administrative innovations such as BPR and KM with strong IT components behave much like IT innovations and unlike relatively pure administrative innovations such as TQM.[8]

The findings, however, should be interpreted within the limitations of the empirical data and analysis. With respect to internal validity, as with any study relating organizational actions to outcomes, careful model specification reduces but does not eliminate endogeneity and unobserved heterogeneity concerns. Regarding endogeneity, one might worry that organizations' current performance or reputation may influence their engagement with IT fashions. Using an extended Durbin-Wu-Hausman test (Davidson and MacKinnon 1993), no significant endogeneity problems were detected in any of the regression models. Regarding unobserved heterogeneity, an infinite number of variables might plague the results. For example, the industries and geographic regions in which the sample firms operate might place differentiated weights on the pressures for legitimacy and performance. Some industry and region dummies turned out to be significant, implying that certain industries and the Northeast region of the United States were associated with significantly higher performance, reputation, and CEO pay. However, the effects of fashions on the outcome variables remain robust to the addition of the industry and region terms, suggesting that the industry or region theses appear to explain additional variance rather than accounting for the hypothesized relationships. With respect to external validity or generalizability, it should be noted that economic prosperity and the boom phase of the dot-com bubble dominated the examination window (1994–2003). Whether the effects of IT fashions found here extend beyond this period is a question that future research may address. Also, the sample represents very large U.S.-based business organizations. Therefore, it would be interesting to test the hypotheses in smaller organizations and in other countries, where the pressures for legitimacy and performance may vary significantly from those found in the sample, with explicit controls for endogeneity and unobserved heterogeneity in future research.

[8]The results of the additional analysis on individual fashion and non-fashion innovations are available from the author upon request.

Conclusion

When organizations chase the hottest IT, they bear the impact of fashion. Specifically, when firms associate themselves in the press with IT in fashion or invest in these technologies, in the short term they tend to be more admired and their chief executives tend to be compensated more. However, mere association with IT fashions does not lead to better economic performance at any time. In contrast, investment in IT in fashion leads to lower performance in the short term and then higher performance in the longer term. This 10-year study of 109 large U.S. firms' engagement with 8 IT innovations demonstrates that the fashion phenomenon in IT matters to key organizational outcomes, thus justifying the research program to understand the emergence and evolution of fashions in IT practice.

Implications for Research

The findings here support a fashion explanation for the middle phase diffusion of IT innovations. Institutional theory holds that pressures for legitimacy lead organizations to follow institutionalized rules, expectations, and norms, which often direct attention away from task performance (Zucker 1987). Consistent with this theoretical view, the results of this study show that engagement with IT innovations collectively believed to be new, efficient, and cutting-edge could legitimize companies and their leaders without positive performance effects (at least in the short term). However, the long-term, positive effect of investment in IT fashions on performance seems to support those institutional theorists who argued against the decoupling of institutional norms and actions and contended that gain in legitimacy may help organizations secure valued resources, enabling better economic performance (Scott 1995). In fact, the long-term effect of IT fashions on performance is similar to that of non-fashions and IT investment in general, as revealed from the additional analysis discussed above. Therefore, the economic–rationalistic explanation may also apply here, in addition to the fashion explanation. To be more precise, the fashion explanation applies to IT innovations that go through the fashion cycles, whereas the economic–rationalistic explanation applies to IT innovations regardless of whether they become fashions or not. When firms engage with IT fashions, they are concerned with both short-term payoff in internal and external legitimacy and long-term performance. By differentiating between IT fashions and non-fashions and demonstrating their different impacts on organizational legitimacy, this study opens a line of inquiry to understand the trade-off between social approval and economic gain. For example, how much

short-term legitimacy gain could provide enough impetus for organizations to deviate from the pursuit of performance and adopt risky innovations without judicious implementation and thorough assimilation?

Tests of institutional theory in the context of innovation diffusion, however, traditionally focused on the later phase where innovations have already been widely accepted and taken for granted. This study, instead, provides evidence that the legitimacy-driven diffusion begins well before the later phase (Swanson and Ramiller 1997) and that fashion is the mechanism underlying the mid-phase of such institutional process. Instead of deriving from taken-for-granted practices, legitimacy stems from fashion, regardless of what the destiny of the innovation eventually turns out to be. Unlike institutionalized practices that may serve as a relatively enduring basis for legitimacy, fashion is a temporary source of legitimacy because the collective belief of what is new, by its own nature, is transitory and fast changing. The fashion source of legitimacy, discovered in this study, not only expands the applicability of institutional theory to a much broader phase of innovation diffusion, but also helps resolve a paradox that Staw and Epstein (2000) observed: Some scholars use institutional theory to explain the persistence of procedures widely accepted and taken-for-granted while others use institutional theory to explain why organizations jump from one practice to the next. This study contributes to the understanding that both institutionalized practices and transitory fashions induce legitimacy.

Fashion-induced legitimacy is apparently ephemeral. Staw and Epstein asked "how long the pursuit of popular management techniques can legitimize a company or its leader in the absence of any performance effects" (p. 551). No more than a year in the context of IT, as this study reveals. The effects of IT fashions on corporate reputation and executive compensation disappeared after one year and this result implies that, *ceteris paribus*, engagement with IT out of fashion, even just one year late, would not bring higher reputation or CEO pay. In contrast, Staw and Epstein found that the effects of management fashions on reputation and CEO pay lasted four or five years. While this comparison is based on a limited number of cases (three management innovations for about five years in Staw and Epstin's study versus eight IT innovations for a decade here), it is reasonable to conjecture that the shelf-life of fashion-based legitimacy depends on the clock-speed of *progress* in each facet of organizational life. Essentially, the constant substitution of fashions is driven in part by the norms of progress, the generalized expectation that organizations employ newer and better means to achieve their goals (Abrahamson 1996). Pressures for progress may vary in different fields. Does the progress clock run faster for IT than for administrative techniques? As more and more administrative techniques involve new IT, is the progress clock for these techniques getting increasingly in synch with that for IT?

Questions like these touch on the interesting issue of the uniqueness and commonness of practices in different facets of organizations and the sensitive issue of the uniqueness and commonness of research programs in different disciplines of management such as Information Systems and Organizational Behavior. Unfortunately, we as scholars cannot yet fully engage in discussing these interesting and sensitive issues because most of us work within our own disciplines and it is difficult to compare studies across fields in part due to the different methods used in different disciplines. Fortunately, this difficulty can be overcome with relative ease, as long as researchers are willing to try methods learned from other fields. This study borrowed several design features that Staw and Epstein used in their study of popular administrative techniques and applied them to the study of IT fashions. These common features include, for instance, the general theoretical perspective (institutional theory), the structure of the research question and hypotheses, key variables and their measures, and the regression analysis. These common design features made it possible to directly compare the findings from the Staw and Epstein study and the current study, revealing striking differences in the consequences of innovations in IT and administrative practices. The most conspicuous properties unique to IT fashions are their short-lived effects on legitimacy and the first-negative-and-then-positive impacts on performance. Different findings point to different implications. For example, while the lack of performance effect of TQM Staw and Epstein found may suggest the conventional wisdom that fashion is trivial and thus can be ignored by performance-driven managers, IT innovations coming in fashion may potentially improve performance and thus should not be rashly dismissed.

Besides the common design features shared by the Staw and Epstein study and this study, many key parameters of the two studies differ in most dimensions (problem, theory, context, method, and finding) of the research space (Berthon et al. 2002). For example, methodologically, this study contributes a set of systematic methods scalable for studying far more fashionable innovations for much longer periods than those examined by Staw and Epstein (2000). Theoretically, with its explicit positioning of management fashion theory and significant results, this study helps the theory shed the conventional myth that fashion is always trivial without performance implications. The different effects on performance found in

this study and Staw and Epstein's study echo another distinction between management fashion and IT fashion examined in previous research. Studies of the organizational culture (Barley et al. 1988) and quality circles (Abrahamson and Fairchild 2001) found that academic discourse lagged behind and followed practitioner discourse on these management fashions. In contrast, academic and practitioner discourses on four IT fashions (office automation, computer-aided software engineering, BPR, and e-commerce) largely paralleled each other (Baskerville and Myers 2009). These extensions and differences not only encourage IS researchers to study IT fashion in a distinctive research stream, but also signify the fruits that the interaction between IS research and Organization Studies may bear (Orlikowski and Barley 2001).

Implications for Practice

Practically speaking, findings from this study seem to agree with what the jump-on-the bandwagon caricature connotes: Firms associated with the hottest IT in the press may not actually have higher performance and investing in hyped technologies may hurt firm performance, at least in the short run. Nonetheless, IT fashions do bring better reputation to organizations and higher pay to their leaders in the near term and improved performance in the longer term. Therefore, practitioners should not be urged to concentrate on the bottom line only and ignore fashionable IT, nor should they be given a green light to chase whatever is hottest in IT. Rather, this study invites a more realistic look at the people who lead their organizations to make the jump. Of course they are concerned with organizational performance, but they are also embedded in institutional networks (Teo et al. 2003) and they strive for social approval by internal and external stakeholders. This study suggests that organizational leaders include both legitimacy and performance in their calculation of the return on IT investment and prioritize their objectives accordingly. When gains in social approval outweigh shortfalls in economic performance, engaging in the hottest IT may be a sensible course of action, as long as organizational leaders understand the dynamic interaction between IT fashions and organizational outcomes that this study seeks to reveal. At a higher level, unlike popular administrative techniques that are often rejected or abandoned for lack of utility, fashionable IT innovations seem to have benefited organizations in the long run. This observation suggests that, compared to their management counterparts, either IT knowledge entrepreneurs are more skillful in picking the more efficient innovations to promote or IT practitioners are more capable of extracting value after adopting innovations in fashion by expanding and extending their use. For either or both reasons, a continued research program on IT fashion will contribute to the understanding and improvement of these important skills and capabilities.

Acknowledgments

This research was supported in part by the National Science Foundation's Human and Social Dynamics program (Grant IIS-0729459) and Science of Science and Innovation Policy program (Grant SBE-0915645), and by the General Research Board of the Graduate School at the University of Maryland, College Park. Margarita Echeverri, Soojung Kim, and Chia-jung Tsui provided valuable research assistance. The author thanks JJ Hsieh, Steven Johnson, Hope Koch, Bob Zmud, and the anonymous reviewers of ICIS 2006 and the 2007 Academy of Management Annual Meeting for their useful comments on previous versions of the paper. The author is also grateful to the senior editor, associate editor, and four anonymous reviewers at *MIS Quarterly* for their helpful feedback and suggestions.

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