New Wine in Old Bottles?
The Role of Status and Market Identity
in Creating a 'Digital Media' Category

by

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CHAPTER ONE.   INTRODUCTION

The diffusion of a discontinuous technology, defined as a technology that creates a new technological paradigm, and in turn, represents a discontinuity in the trajectory of the current dominant paradigm (Dosi, 1982; Christensen and Rosenbloom, 1995), is a central research area in strategy and organizational theory (Schumpeter, 1934; 1942; Abernathy and Utterback, 1978; Tushman and Anderson, 1986). Previous literature in this field focuses on identifying factors that explain the success of discontinuous technologies and the overall evolution of innovations. It is generally assumed that the technical properties of discontinuous technologies are pre-determined before diffusion (Anderson and Tushman, 1990). In contrast, another stream of research regards organizational knowledge, or more specifically technologies, as social objects, instead of technical objects, and concentrates on the social construction process of these objects (Berger and Luckmann, 1966; Bijker, Hughes, and Pinch, 1987; Mizruchi and Fein, 1999). In particular, the social constructivist perspective of technologies emphasizes that different social groups can interpret the same technology differently, so, the consideration of different social groups in shaping technologies becomes critical (Bijker, Hughes, and Pinch, 1987; Hughes, 1983). My dissertation bridges these two streams of research and examines how discontinuous technologies can be socially constructed through interactions among different social groups, especially during diffusion processes.

Specifically, I focus on the "interpretative flexibility" of discontinuous technologies during the diffusion process (Bijker, Hughes, and Pinch, 1987: 4). Previous literature in discontinuous technology assumes that incumbent firms as a group often fail to adopt discontinuous technologies (Reinganum, 1983; Tushman and Anderson, 1986). I approach the diffusion of discontinuous technologies from a different angle and study how different social groups, especially various incumbent firms, respond to discontinuous technologies differently. In particular, when considering different incumbent firms in the diffusion process, their locations within a social system are important, because their locations often shape their relationships to the technologies in question (Russell, 1986). The locations that organizations occupy within the social system are commonly referred to as their statuses in that social system (Linton, 1936; Merton, 1957). Then, the occupants of a certain position within the social system often confront a particular set of expectations as each position encompasses a particular market identity, which defines the acceptable activities for the occupants of that particular position and shapes the expectations for external audiences. Market identity, as a cognitive interface between producers (Hannan, Pólos, and Carroll, 2007; March, 1994), therefore, facilitate or hinder the activities of the organizations located in the particular position, thereby potentially affecting the adoption behaviors and consequences of even identical technologies. The status and market identity of an incumbent firm, therefore, is of importance in the social construction of discontinuous technologies.

In my dissertation, I therefore theorize the role of status and market identity in the diffusion of discontinuous technologies. I ask why and how incumbent firms adopt and implement discontinuous technologies differently, depending on their status levels and

what the results of different adoption behaviors are. More specifically, I examine why incumbent firms attempt to adopt discontinuous technologies and what their particular motivations for the adoption decisions are: Do incumbent organizations with different status levels perceive and interpret identical discontinuous technologies differently, which in turn, affects their adoption motivation of these new technologies? Furthermore, I explore when and how incumbent firms adopt the technologies if they decide to do so: Are there any systematic differences among incumbent organizations with different status levels in terms of when they adopt and how they adopt discontinuous technologies? Finally, I examine what the performance consequences of the different adoption behaviors are, and how these adoption consequences influence the technology shaping process of the new technology: What are the consequences of different adoption behaviors of discontinuous technologies with respect to adoption timing and adoption form? Moreover, which attempts are more or less likely to be successful that may affect the perception and understanding of the new technology and its related newly created product category?

In particular, my dissertation addresses two theoretically and practically important aspects of the diffusion of discontinuous technologies. First, I examine how status and market identity affects adoption behaviors. Previous literature on the role of status in diffusion processes emphasizes that middle-status organizations are reluctant to be different from others since they face the strongest conformity pressures, whereas high- or low-status organizations are more willing to participate in innovations (Menzel, 1960; Phillips and Zuckerman, 2001). Facing the strongest conformity pressures, however, also means that middle-status organizations may actively look for innovative opportunities for

differentiation, which they can pursue without violating conformity pressures. I argue that discontinuous technologies relax the conformity pressures, especially on middle-status organizations. By adopting discontinuous technologies first, middle-status organizations may attempt to change the current 'disadvantageous' condition for themselves. Furthermore, they implement discontinuous technologies in a distinct way from the previous market in order to construct the new technology differently from the existing technologies. Through these distinctive adoption behaviors, middle-status organizations attempt to move up the status hierarchy or create their own market where they can be the market leaders. In contrast, high- or low-status organizations have less incentive to take the risk of discontinuous technologies first.

Second, based on these differences in adoption behaviors by status, I then examine the adoption consequences of discontinuous technologies among incumbent firms. I theorize how high-status organizations tend to have better adoption performance than middle-status organizations. High-status organizations tend not to choose to be the first to adopt a discontinuous technology to avoid any uncertainty related to the new technology more successfully than the first adopters. In addition, high-status organizations tend to deemphasize the dissimilar aspect of the new technology compared to the existing technology in implementation. These adoption behaviors of high-status organizations often result in better performance in both the current market and the new market triggered by the new technology. In contrast, middle-status organizations tend to face the uncertainty related to the new technology most by being the first adopter. They also need to build a new set of skills and resources to implement the discontinuous technology in a distinctive way from the existing technology, decreasing their overall

performance with respect to discontinuous technology adoption. The potentially better performance of high-status organizations compared to that of middle-status organizations also indicates that high-status organizations are more likely to be successful in shaping the *ex ante* discontinuous technology as the *ex post* less discontinuous one.

I test my theoretical arguments in the newspaper industry after the introduction of digital media in the early 1990s. Digital media, specifically, an electronic edition of newspapers on the web, is discontinuous from print media (Gilbert, 2005; 2006). Indeed, the distinctive characteristics of digital media from print media, including product features, newsroom practices, customers, or business models, have been well-theorized (Foust, 2009; Peng, Tham, and Xiaoming, 1999; Pavlik, 2008). Digital media, for example, enables newspapers to be published the most up-to-date news immediately (immediacy). There effectively exists no spatial limitation on the web (limitless space) and overall set-up and maintenance costs are relatively low (low cost). Newspapers can provide not only text-based news, but also sound-, animation-, and video-based news on the web (multimedia capability). Most distinctively, digital media allows readers to actively take part in news creation processes (interactivity). However, in contrast to the view that digital media would establish a distinct meaning of technologies based on all of these distinctive dimensions, there exists substantive variation in the ways of publishing news on the web and readers have been uncertain of what to expect from organizations (Boczkowski, 2005; Hindman, 2009). I argue and empirically show in my dissertation that this variation is caused by different adoption motivations of newspapers with different status levels: middle-status organizations want digital media to have a distinct meaning from print media, whereas high-status newspapers seek to establish 'print-

media-like' digital media. I also examine why high-status newspapers tend to be more successful in their attempts to construct the meaning of digital media.

My dissertation makes important contributions to literature on status in markets and literature on discontinuous technology by examining how middle-status organizations can be innovative when discontinuous technologies emerge. First of all, many previous studies, especially in status literature, focus on the conditions as to why middle-status firms tend to be the most passive with respect to social or psychological dimensions (Phillips and Zuckerman, 2001). The basic assumption for these arguments is that category expectations are fully established. My dissertation tackles this assumption and argues that middle-status firms can be innovative when a discontinuous technology is first introduced and in turn, conformity pressures relate to the new technology have not been fully established. From this aspect, my dissertation is also different from a few exceptional studies that examine the innovativeness of middle-status organizations. Like my research, Jensen (2011), for example, argued that sometimes middle-status social actors can be innovative. In the Danish movie industry, middle-status film actors and actresses tended to participate in the legitimizing process of an illegitimate form of movie genre, sex comedy. High-status actors and actresses had the ability to deviate from norms and expectations, but this ability did not, in itself, motivate them to do so, because the opportunity costs of losing high-status positions was significantly high. Like other studies in middle-status conformity literature, however, Jensen assumed that the overall expectations of firms in markets are fully established: Actors and actresses knew how general audiences perceived a particular kind of movie genre, such as pornography.

My dissertation also examines when and how incumbent firms with different-status levels often react to even identical technologies differently. Previous studies, especially in technology literature, generally assume that incumbent firms tend to respond to external threats, such as the emergence of discontinuous technology, similarly (Reinganum, 1983; Leonard-Barton, 1992; Tushman and Anderson, 1986; Henderson, 1993; Tripsas, 2009). Tripsas (2009: 441), for example, argued that organizations tend to find difficulties of adopting "identity-challenging technologies," which threatens the set of norms that "represent shared beliefs about legitimate behavior for an organization with that identity." I agree that high- and low-status organizations may face the difficulty in adopting discontinuous technologies as Tripsas predicted, but I argue differently that middle-status organizations may become more active in terms of adopting even identity-challenging technologies, as this adoption could be their one chance to increase business opportunities without directly confronting conformity pressures. From this angle, my study also expands Mitchell's work (1989). Mitchell argued that incumbent firms often enter into a new market, in which they can employ their existing assets. I argue further that high-status organizations also attempt to shape the new market in a way that makes their current assets more appropriate.

Finally, my dissertation contributes to technology literature by explicitly studying the adoption performance of discontinuous technologies by organizations with different-status levels. My dissertation particularly argues that organizations attempt to change the adoption performance by emphasizing different aspects of new innovations. Haveman (1992) showed, for example, that organizations with established competences tend to perform best in terms of entering into a new market. My dissertation argues further that

high-status organizations often emphasize the similar aspect of the new technologies in order to more directly exploit these established competences, whereas middle-status organizations tend to highlight the distinctive aspect of the discontinuous technology. As a consequence, high-status organizations tend to have better performance with respect to discontinuous technology adoption than middle-status organizations, because they attempt to create the most beneficial situation for their own group. Similarly, Gilbert (2006) argued that the perception of a new technology as a threat tends to increase routine rigidity, which may be one of the main reasons why incumbent firms often fail to adopt the new technology. I argue differently that high-status organizations may appropriate this "routine rigidity" in order to exploit their established competences and in turn, have better adoption performance in the long run.

My dissertation is organized as follows. First, in Chapter Two, I review previous literature on the diffusion of discontinuous technologies, the social constructivist perspective of technologies, and the status and market identity, before identifying the gap in previous literature that I strive to fill in with my dissertation. In Chapter Three, I describe the U.S. daily newspaper industry and the emergence of digital media, the empirical setting of my dissertation. In Chapters Four and Five, I examine the effects of status and market identity on the diffusion process, that is, adoption behaviors and adoption consequences of discontinuous technologies. Specifically, in Chapter Four, I focus on middle-status organizations and hypothesize that middle-status organizations are more likely to be the first to adopt the discontinuous technology and to emphasize the distinctive aspect of the new technology in the implementation process. In Chapter Five, I examine how different adoption behaviors influence the social system and individual

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performance. The variances of adoption behaviors at the status-group level are examined first. I then argue that high-status organizations tend to have the best adoption performance because of the advantages of high-status positions in the current market and their choices of focusing on the similar aspect of the new technology, whereas middle-status organizations tend to have the worst performance because of the first-mover disadvantages and their choices of emphasizing the distinctive aspect of the new technology. Finally, I conclude by discussing my general findings, limitations, and potential contributions of my dissertation in Chapters Six and Seven.

CHAPTER TWO.   LITERATURE REVIEW

In this chapter, I review previous literature on the diffusion of technologies, especially, that of discontinuous technologies, the social constructivist perspective of technologies, status and market identity, and the effects of status on the diffusion process of innovations.

Discontinuous technologies mean major changes that represent new technological paradigms for carrying out some task, which often sharply improves price-performance over existing technologies (Abernathy and Utterback, 1978; Tushman and Anderson, 1986; Dosi, 1982). Many studies in this field ask why incumbent firms often fail to adopt the new technology in terms of economical, behavioral, or capability explanations (Reinganum, 1983; Leonard-Barton, 1992; Tushman and Anderson, 1986; Henderson, 1993). What are paid less attention and which will be the focus of my dissertation are how the dominant configurations of product features, that is, the dominant designs of discontinuous technologies, have emerged (Anderson and Tushman, 1990; Tushman and Murmann, 2003) and more importantly which roles incumbent firms play in this technology shaping process. I particularly focus on the social constructivist perspective of technology literature, which extensively deals with the possibility of shaping technologies in various ways by incumbent firms (Bijker, Hughes, and Pinch, 1987; Berger and Luckmann 1966) and status and market identity literature, which are defined

by a position in the social system and behavioral expectations related to the particular

position, respectively. Based on these lines of research, I review the effects of status on

the diffusion of technologies, before presenting my arguments about the role of status and

market identity in creating a new product category related to a discontinuous technology.

Discontinuous Technology Literature

Technical Change and Discontinuous Technologies

As Marx (1936: 92) noted that "the hand-mill gives you society with the feudal

lord; the steam-mill, society with the industrial capitalist," technology and technical

change have been identified as one of the dominant factors that influence and shape our

society (Marx, 1887; 1936; Schumpeter, 1942). Given that organizations in markets are

the main actors in technology development and technical change in modern times,

understanding the diffusion of technical innovations has been a central question in

management and strategy literature (Tushman and Nelson, 1990; Rogers, 2003; Utterback,

1996).[1] Specifically, previous literature on the diffusion of technologies concentrates on

identifying internal and external factors that facilitate or hinder the diffusion process,

which includes the characteristics of the technologies, those of adopters, and

environmental contexts (Schumpeter, 1942; Rogers, 2003; Wejnert, 2002; Rosenberg,

1982). For example, any factors that improve the internal functioning of organizations or

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[1] Another line of research on technology focuses on the technology generating processes (Ahuja, Lampert, and Tandon, 2008; Damanpour and Wischnevsky, 2006). However, in my dissertation, I concentrate on another important aspect of technological change, the diffusion of technological innovations.

their profitability may facilitate the diffusion of a technology (Mansfield, 1961; Rosenberg, 1972; Tolbert and Zucker, 1983). If the adoption of a technology decreases organizational legitimacy, that is, its social acceptability, the diffusion of the technology tends to be hindered (Menzel, 1960; Davis and Greve, 1997).

The diffusion of a discontinuous technology, generally regarded as an initiator of the evolution of a new technological paradigm, has also received particular academic attention (Abernathy and Utterback, 1978; Tushman and Anderson, 1986; Dosi, 1982). Discontinuous technologies refer to technical innovations that "command a decisive cost or quality advantage and which strike not at the margins of the profits and the outputs of the existing firm but at their foundations and their lives" (Schumpeter, 1942:84). In other words, discontinuous technologies not only sharply improve price-performance over existing technologies, but also draw upon a fundamentally new set of knowledge bases, routines, and capabilities, which can potentially displace products, firms, and the overall social systems situated in existing technologies (Anderson and Tushman, 1990). In the late nineteenth century, for example, the natural ice industry, with harvested-ice firms using refrigeration, confronted a technological discontinuity when machine-made ice was first introduced (Jones, 1984). Oil lamps from candles, gas lamps from oil lamps, and incandescent lighting from gas lamps are other examples of discontinuous technologies in the lighting industry (Bright, 1949). The newspaper industry also has been undergoing a dramatic transformation since the introduction of several discontinuous technologies, such as radio, television, or digital media (Neuman, 2010).

Based on this definition of technical discontinuity, the evolutionary model of the technological paradigm has been well-studied, which is in general a three-stage model –

discontinuity, ferment, and incremental-change periods (Abernathy and Utterback, 1978; Cooper and Schendel, 1976). With respect to discontinuity, the first stage of the new paradigm, two types of discontinuous technologies –competence-enhancing and competence-destroying discontinuity, have been identified (Tushman and Anderson, 1986). Either type can be determined by whether the new technology enhances or destroys the existing firms' current bases of skills and resources. The second stage is the era of ferment, the period when product variation is substantially high as alternative forms compete for dominance, and is preceded by technological discontinuity. The product variation significantly reduces only after the emergence of a dominant design, which is the industry-wide agreement on core subsystems and their linking mechanisms of the product in question (Tushman and Murmann, 2003). Based on the shared dominant design, organizations in the same market then compete for market share and focus on incrementally improving the product around the dominant design, which is called as the era of incremental change, the third stage of the technological paradigm. This incremental change period is punctuated by another technological discontinuity, which starts another technological paradigm.

Discontinuous Technologies and Incumbent Firms

Given the importance of discontinuous technologies with respect to technical change, many studies have examined the locus of the diffusion of discontinuous technologies and identified that incumbent firms tend to face more difficulties of adopting discontinuous technologies compared to new entrants (Tushman and Anderson, 1986). To explain why established firms often fail to adopt discontinuous technologies,

previous studies focus on two aspects: less incentive of established firms to undertake discontinuous technologies and their existing capabilities and routines to constrain their adoption (Wu, Wan, and Levinthal, 2010). First, incumbents have less incentive to invest in discontinuous technologies since the new technologies often cannibalize their existing products (Reinganum, 1982; Rosen, 1991), destroy their existing capabilities (Tushman and Anderson, 1986; Henderson, 1993) or weaken current customer bases (Christensen and Rosenbloom, 1995). Economically, for example, incumbent firms have invested in the existing technologies and their future profits tend to be bound up in these technologies. As a result, incumbent firms tend to focus on maintaining the status quo and marginally improving the existing systems (Utterback, 1996). Even when machine-made ice was first introduced, ice-harvesting firms focused on lowering costs and improving their own skills related to ice harvesting: Plant-made ice rendered their ice-harvesting skills obsolete, making adoption economically less attractive for ice-harvesters (Jones, 1984; Utterback, 1996).

Second, incumbents often fail to adopt discontinuous technologies because of their inability to perceive or cope with the new technology (Leonard-Barton, 1992; Henderson and Clark, 1990; Tripsas, 1997; Gilbert, 2005). Organizations develop repertoires of routines that influence their business activities, including productions or search processes for new opportunities (March and Simon, 1958; Nelson, 1995). Since search processes for new technologies are also governed by current routines, these processes tend to be biased, reflecting the past core technologies, experiences, and orientations (Cyert and March, 1963). Semiconductor photolithographic alignment equipment engineers, for example, confronted difficulties of identifying the differences

between new competitive machines and currently used ones, because their perceptions and decisions were often pre-determined by the past core technologies (Henderson and Clark, 1990). Moreover, incumbent firms sometimes correctly perceive discontinuous technologies and invest a significant amount of resources in them, but they tend to employ the new technologies in the old routines. In contrast, new entrants tend not to be bound up by any existing routines, which make their products more competitive than those of incumbent firms (Gilbert, 2005; Tripsas, 1997). In the typesetter industry, incumbent firms invested in new technologies as much as entrants did over three generations of technologies, but incumbent firms were generally outperformed by entrants (Tripsas, 1997: 130).

According to this line of research, entrepreneurial firms are more likely to initiate the diffusion of a discontinuous technology, especially that of competence destroying discontinuity (Schumpeter, 1934; Abernathy and Utterback, 1978; Tushman and Anderson; 1986). Unlike established firms, new entrants have more adaptable or flexible organizational structures. As newcomers, they do not need to abandon any existing know-how bases, resources, physical utilities, or even psychological commitment since they are not "bound by traditions, sunk costs and internal political constraints" (Tushman and Anderson, 1986: 444). As outsiders, entrepreneurial firms also have stronger incentive to overturn the existing order since they have nothing to lose (Utterback, 1996). History is indeed full of industry examples, including domestic passenger airlines, Portland cement manufacturing, mini-computer manufacturing (Tushman and Anderson, 1986), fountain-pen manufacturing, safety-razor manufacturing (Cooper and Schendel, 1976) and lighting (Utterback, 1996), showing that entrepreneurial firms initiated 'creative destruction,' the

process of destroying the old system by creating a new one (Schumpeter, 1934). In contrast, incumbent firms play another important role of incrementally improving dominant innovations or initiating the diffusion of competence-enhancing innovations that often consolidate the existing industry order (Tushman and Anderson, 1986).

Although it is largely underemphasized in this line of research, some scholars argue that incumbent firms sometimes are the first to actively and aggressively adopt discontinuous technologies (Methe, Swaminathan, and Mitchell, 1996; King and Tucci, 2002; Eggers and Kaplan, 2008; Ahuja and Lampert, 2001). Methe, Swaminathan, and Mitchell (1996), for example, argued that incumbent firms play an active role in the diffusion of discontinuous technologies based on their abundant technical and financial resources, but tend to be less emphasized because major innovations are not the sole focus of incumbent firms and their failures tend to receive more attention. The authors indeed found that established firms in the telecommunications and medical sectors from the 1950s to 1980s often entered into new telecommunications and medical device product markets faster than new entrants. These empirical examples indicate that incumbent firms may also play a significant role in the diffusion of discontinuous technologies. Other scholars also have identified factors that may facilitate the adoption of discontinuous technologies by incumbent firms, such as previous experiences of entering new markets (King and Tucci, 2002) or CEOs' keen attention to emerging technologies (Eggers and Kaplan, 2002). Most studies in this line of research do not deny that entrepreneurial firms tend to be the first to initiate the diffusion of discontinuous technologies, but argue that incumbent firms can overcome the traps of failing to adopt

discontinuous technologies first and that they can also become the locus of the diffusion process.

Interestingly, the discussion of discontinuous technology itself, especially, how the shared understanding of the technology is constructed, is paid relatively less attention in this line of research. Previous literature on technology implicitly assumes that the contents of technologies are common knowledge to participants of the diffusion process, prior to the participations (Layton, 1977; Bijker, Hughes, and Pinch, 1987; Barley, 1986). Most studies in discontinuous technology literature also have focused little on the discussion of technology itself and its construction process. Like other studies in technology literature, they implicitly assume that discontinuous technologies inherently have distinctive characteristics from existing technologies and concentrate on why organizations within the social systems, in other words, incumbent firms, often fail to adopt the new technology, as mentioned previously. Although Tushman and Anderson (1986: 461) acknowledged that future studies should explore the politics of technological change "as interest groups attempt to shape technological progress to suit their own competence," they argued that the emergence of technological discontinuity per se is "a function of technological determinism" (Anderson and Tushman, 1990:616). Furthermore, these studies in discontinuous technologies, especially those on the locus of the diffusion process have placed more attention on differences between incumbent firms and new entrants, leaving differences among incumbent firms relatively underexplored.

In sum, previous literature on discontinuous technologies examines the technological evolution and the locus of the diffusion process of new technologies. A discontinuous technology, as a technological breakthrough, initiates a new technological

trajectory. Then, entrepreneurial firms tend to be the first to adopt discontinuous technologies and incumbent firms often focus on incrementally improving products and processes introduced by discontinuous technologies. Previous studies in this line of research, however, generally assume that incumbent firms as a group tend to confront the difficulty of adopting discontinuous technologies and pay less attention to how incumbent firms may respond to discontinuous technologies differently. Furthermore, how in turn, the technology can be shaped during the diffusion process is left relatively unexplored. The social constructivist perspective of technologies helps to overcome these shortcomings of discontinuous technology literature, which will be discussed in detail below.

Social Constructivist Perspective of Technology Literature

Social Construction of Technologies and Discontinuous Technologies

While previous literature on discontinuous technologies show that discontinuous technologies affect the overall evolution of technical innovations, how the technologies per se have taken shape and how different incumbent firms participate in this process differently have been paid less attention. Studies in the social constructivist perspective of technologies more explicitly address these questions from the broader technology perspective. They argue that technologies are social objects and are constructed through interactions among different social groups (Bijker, Hughes, and Pinch, 1987; MacKenzie and Wajcman, 1999; Barley, 1986). Fluorescent lighting, for example, could have been

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shaped in different directions, including tint lighting, high-efficiency lighting, and high-intensity lighting (Bijker, 1993). If fluorescent lighting had been shaped as tint lighting, fluorescent lighting would have been competence-enhancing discontinuity since tint lighting means brighter and deeper-color lighting than incandescent lighting based on extended skills and capabilities of incandescent lighting. The new lighting technology, at the same time, could have been interpreted as competence-destroying discontinuity: as it could be technically thirty to forty times more efficient than incandescent lighting, it could have re-organized the overall lighting industry. In other words, the new lighting technology opened up diverse possibilities, but did not have pre-deterministic characteristics: it could have been both competence-enhancing and competence-destroying. It was only during the diffusion process that new fluorescent lighting was shaped as daylight lighting, another possibility.

In particular, this line of research focuses on how different social groups can have different interpretations of identical technologies, highlighting the importance of the dynamics among different social groups in shaping technologies (Bijker, Hughes, and Pinch, 1987; Bijker and Law, 1992). In the aforementioned lighting industry, electricity utilities took a very strong stand for fluorescent lighting as tint- or high-intensity lighting since high-efficiency lighting could significantly reduce electricity consumption. In contrast, lamp-manufacturers first preferred high-efficiency lighting because they could promote this efficiency advantage of the new technology more easily to their customers (Bijker, 1993). In addition, when the bicycle was first invented in the 1880s, young gentlemen valued speed, whereas elderly men or women preferred safety (Pinch and Bijker, 1984). Different technical requirements by various social groups meant that the

design of the bicycle varied greatly depending on its emphasis: for speed, high and large wheels were necessary, which was simultaneously viewed as lacking safety. Previous research on discontinuous technologies also admits that both technological discontinuities and dominant designs can be known only in retrospect, implicitly meaning that participants often understand technologies during diffusion processes. Nevertheless, it assumes that this is because technologies are not well-understood, and not because their meanings have not yet been constructed through interactions among participating firms (Tushman and Anderson, 1986; Anderson and Tushman, 1990).

Discontinuous technologies, however, also can be socially constructed through interactions among different social groups, especially during diffusion processes, since the *ex ante* meaning and contents of any discontinuous technology inherently possess "deep" uncertainty (MacKenzi, 1996: 53; Anderson and Tushman, 1990). As a new set of knowledge bases and routines, different social groups can interpret discontinuous technologies in various ways based on their own past technologies and experiences. In the extreme case, the meaning and contents of discontinuous technologies can even change completely during the diffusion process. In effect, the social constructivist perspective of technologies sheds a new light on previous studies, especially those investigating in why incumbent firms are more likely to fail to initiate discontinuous technological changes. Their failures could be understood from a distinctive angle, in that incumbent firms actively participate in the construction process and strive to shape potentially discontinuous technologies as less discontinuous technologies. In other words, a new technology could have been regarded as a discontinuous technology *ex ante*, but it turns out to be less discontinuous *ex post*, because of incumbent firms' active intervention.

This possibility of shaping discontinuous technologies leads to reconsideration of the role of incumbent firms in the diffusion of new technologies. Incumbents are also active in terms of participating in the diffusion process of discontinuous technologies: the emergence of discontinuous technologies only tends to be perceived when their active intervention fails.

In conclusion, the social constructivist perspective of technologies can shed a new light on studies in the diffusion of discontinuous technologies by focusing on how discontinuous technologies can be shaped during the diffusion process. However, by emphasizing the importance of "thick description" of the setting in which technologies are being shaped (Bijker, Hughes, and Pinch, 1987: 5), the social constructivist thinking is often criticized because of its lack of generalizability (Russell, 1986; Podolny and Stuart, 1995; Bijker, 1993). In order to derive more generalizeable theory and predictions about the diffusion process of discontinuous technologies, therefore, I examine the structural positions of incumbent firms, one of the important factors that can influence organizational dynamics (Russell, 1986), and how these structural positions may or may not affect the adoption process of discontinuous technologies.

Status and Market Identity Literature

Importance of Status and Market Identity

From the social constructivist perspective of technologies, the dynamics among incumbent firms in shaping new technologies become critical in understanding the social

construction of discontinuous technologies, because this line of research emphasizes the importance of interpretative flexibility, the possibility of interpreting new technologies differently by various social groups (Bijker, Hughes, and Pinch, 1987). Tushman and Rosenkopf (1992: 322) also argued that "dominant designs emerge not from a technical logic, but from a negotiated logic … [A] social logic drives technical progress as suppliers, customers, or governments react to the uncertainty and inefficiencies" associated with discontinuous technologies differently. When taking different social groups into account, the relations among social groups inherently becomes important to consider as "it is [the] structural location that largely determines their relationship to each technology with [which] they conceive or which confronts them" (Russell, 1986: 335). The structural location of an organization indicates the status and market identity[2] of the organization, which will be explored in detail below. Status and market identity, therefore, may have significant impacts on the diffusion of technologies, in this case, that of discontinuous technologies. Similarly, Podolny and Stuart (1995) examined the effects of status on patent performance in the semiconductor industry and argued that the "technologies sponsored by high-status actors … appear as superior *ex post* despite the fact that they may not have been superior *ex ante*" (1233). However, they did not specify why organizations with different status levels have different motivations for adopting new technologies, nor did they examine the overall adoption process.

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[2] Organizational identity traditionally is regarded as the features of an organization that its internal members believe are "central, distinctive, and enduring" to the organization itself (Albert and Whetten, 1985; Dutton and Dukerich, 1991; Glynn, 2000). However, the external perceptions of organizational identity have started to gain academic attention (Hannan, Pólos, and Carroll, 2007; Zuckerman, 1999; 2000; Jensen and Kim, 2008) and I focus on this second stream of research when referring to the market identity of the organization.

Before examining the effects of status and market identity on the diffusion

process of a new technology in greater detail, I define the status and market identity of an

organization first. The status of the organization is defined as its position in a social

system (Linton, 1936; Merton, 1957; Gould, 2002), which implies the distinction

between the horizontal and the vertical dimensions of the social system as shown in

Figure 1 (Sorokin, 1959; Blau, 1977; Jensen, Kim, and Kim, 2010). The horizontal

dimension provides nominal distinctions of organizations, dividing the properties or

features of a class of products and their producers into different dimensions and values on

these dimensions (Murphy, 2004). For example, newspaper in print, television station,

radio broadcaster, and digital media are examples of horizontal product categories in the

media industry, as shown in Figure 1B (Neuman, 2010). Organizations are then placed

vertically depending on a ranking within the horizontal product category (vertical

dimension) and the criterion for the ranking could be size, quality, or something else,

which is context-specific. Investment banks, for example, tend to be ranked depending on

market share (Jensen, 2003; Podolny, 1993). Based on the position, external audiences

tend to perceive that organizations with higher-status levels offer better quality products

and services as status often functions as a signal of quality (Podolny, 1993; Jensen, 2003).

INSERT FIGURES 1 and 2 ABOUT HERE

Each position, however, is more than an indicator of perceived quality, because it

encompasses a market identity, which is defined by a membership in the social or product

category that codifies the expectations to the occupants of that particular position (Jensen

and Kim, 2008). As cognitive interfaces between producers and external audiences, market identities facilitate and hinder the activities of identity carriers and shape the expectations of external audiences (Hannan, Pólos, and Carroll, 2007; March, 1994; Jensen and Kim, 2008). For producers, that is, the identity carriers, market identities prescribe a range of acceptable activities, which are not merely limited to quality indicators, and for external audiences, market identities are used to compare and evaluate producers and their products in the same or similar positions. Audiences can also sanction the identities carriers if the carriers do not meet their expectations. As shown in Figure 1B, a newspaper has a different market identity depending on its position, whether it is a high- or low-status newspaper, identified by the intersection of print-media (horizontal dimension) and award-winning experience (vertical dimension). Its activities then are facilitated or hindered by the market identity. A high-status newspaper seldom publishes articles that look like yellow or tabloid journalism.[3] It also hardly uses a tabloid format, which in itself is not associated with quality, but external audiences tend to identify this type of format with yellow or tabloid journalism (Campbell, 2003).

The distinction between the horizontal and the vertical dimension is important because it emphasizes both the integration of social systems across different statuses and the differentiation of market identities, that is, behavioral expectations throughout the social system. The integration and differentiation of social systems occur because organizations occupying different vertical positions can occupy the same horizontal position and organizations in different horizontal product categories can also share the

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[3] Yellow journalism indicates a type of journalism, which merely focuses on financial profitability (Campbell, 2003; Jones, 2009). It is also referred to as tabloid journalism, as this type of newspapers tends to employ a tabloid format. The yellow press cares in general less about journalist objectivity if it can sell more newspapers.

same vertical position, as shown in Figure 2. Although two organizations are located in two different vertical positions in the social system and therefore are ranked differently in terms of key status characteristics, for example, they are ranked on overlapping status characteristics because they belong to the same horizontal category. The media industry, for example, is divided into different horizontal product categories such as newspapers, television stations, magazine publishers, and radio broadcasters (Neuman, 2010). Organizations in each media type are ranked within the category based on their perceived quality on different product attributes: some of which are unique to a particular product category such as video quality for television stations, whereas others are shared across different product categories such as objective or professional journalism based on accurate, objective, relevant, and fair reporting (Schudson, 1978; Bogart, 2004; Kovach and Rosenstiel, 2007). It is the intersection of these two dimensions that determines audiences' expectations, which are the market identity of the focal organization in the particular position.

Advantages of Occupying a High-Status Position

Based on these definitions of status and market identity, many scholars have identified several advantages of occupying a high-status position, including its higher performance, better associations, and more levels of agency. Before presenting the advantages of status, it is important to note that previous literature in this line of research does not explicitly mention market identity when referring to the advantages of the status of an organization. Occupying a particular position, however, has been naturally associated with a set of norms, that is, a certain market identity, which "represents shared

beliefs about legitimate behavior for an organization" in that particular position (Tripsas, 2009: 441). Status and market identity, in other words, can be regarded as two sides of the same coin. From now on, whenever I mention the status of an organization, I am referring to both status and market identity of an organization as a combination, that is, the position in the social system and a set of expectations around that position.

First of all, previous studies in status literature identify that since status tends to function as signals of unobserved quality (Podolny, 1993); therefore, high-status firms often lower their costs or increase their price, resulting in higher profits when the quality of a product is controlled for (Podolny, 1993; 1994; Benjamin and Podolny, 1999; Stuart, 2000; Wade, O'Reilly, and Pollock, 2006). To the extent that status partially stems from affiliations, high-status firms, for example, are more attractive transaction partners, because transactions with high-status firms increase partners' levels of status (Podolny, 1993). Potential market partners, therefore, are willing to work with high-status companies even at a lower price: High-status investment banks can offer a given-quality bond at a lower cost to investors because they can have lower transaction costs of underwriting per spread (Podolny, 1993).[4] Second, another broad array of work highlights how status can facilitate the formation of dyadic relationships (Podolny, 1994; Gulati and Gargiulo, 1999; Rosenkopf and Padula, 2008). Specifically, in environments where it is difficult to evaluate the quality of potential partners *ex ante*, organizations tend to engage in transactions with high-status partners as an approach to resolve environmental uncertainty. Finally, status also grants high-status firms a certain form of agency in which high-status organizations can act with freedom or less pressure of

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[4] The spread means the fee that an investment bank earns for its underwriting activities (Podolny, 1993).

complying with the existing category expectations or norms (Stuart, 1998; Jensen, 2008; Guler, 2007).

In particular, the agency advantage of status is directly related to the effects of status on the diffusion process of a new innovation. Previous literature has identified that high-status organizations lead the diffusion of a legitimate innovation, whereas low-status actors initiate an illegitimate innovation (Menzel, 1960; Rogers, 2003; Davis and Greve, 1997). Since external audiences regard high-status actors as a full-fledged member of the given social category, a deviation from the norms does not seriously question their membership or their market identity, thus, high-status actors are granted agency to conform less to conventional behaviors. Guler (2007) reported that high-status firms can terminate ties more easily than their low-status counterparts as high-status organizations can act relatively independently of social pressures. Her analysis in the venture capital market showed that high-status venture capitals had a higher hazard of terminating their decision to invest whenever the investment seemed less promising. The ability to deviate does not, in itself, motivate high-status actors to deviate. For example, the opportunity costs of losing their high-status positions can be significantly high, thus they may become reluctant to deviate from the conventions although they can (Jensen, 2011). On the other hand, low-status organizations have relative freedom to defy, because external audiences often do not perceive them as a member of the social category, thus, external audiences care little about the behaviors of low-status organizations (Phillips and Zuckerman, 2001). If any practice, even an illegitimate one, has economical potential, then, low-status actors tend to adopt it; they do not have much to lose from adopting even illegitimate ones.

According to this line of research, it is middle-status organizations that are the most passive ones to adopt innovations because middle-status organizations tend to face the strongest conformity pressures to follow the existing category norms and expectations (Dittes and Kelly, 1956; Blau, 1960; Phillips and Zuckerman, 2001; Rogers, 2003). Middle-status organizations tend to worry about disconforming to the existing category norms and expectations because they tend not to be considered by external audiences as full-fledged members. Middle-status organizations, therefore, often focus on obtaining and maintaining secure membership in the social category. By disconforming to the existing norms and expectations, they may lose the opportunity to move up the status hierarchy or may even risk losing their positions as a legitimate player. These strongest conformity pressures make them least likely to take the risk of adopting a new innovation first, which can potentially tarnish their membership. Phillips and Zuckerman (2001) showed both in the law-firm and the investment-bank settings that the level of conformity was the highest for middle-status firms: middle-status law firms were less likely to announce a practice in family law compared to low- and high-status law firms and analysts at middle-status investment banks were less likely to publish a negative sell order than those working for low- or high-status banks. Therefore, the diffusion of innovations, including that of new technologies, is traditionally thought to be least likely to occur at the middle level of the status hierarchy.

Status/Market Identity and Discontinuous Technology

The diffusion process and the social construction process of discontinuous technologies from the status perspective, however, are largely unknown. Can incumbent

firms be active participants of the diffusion of discontinuous technologies? If they can, what are the roles of status and market identity in the diffusion process of discontinuous technologies? Do middle-status organizations, traditionally regarded as the most passive, respond to discontinuous technologies differently? Jensen (2011) found that in some cases, middle-status organizations can be the most innovative: since the opportunity cost of deviation and the legitimizing power for a new innovation increased simultaneously with status, middle-status film actors and actresses in Denmark were most likely to participate in the legitimizing process of an illegitimate form of movie genre, sex-comedy. The case of discontinuous technologies is different, however. Since discontinuous technologies possess inherent uncertainty (Anderson and Tushman, 1990; MacKenzi, 1996), external audiences have not yet established what to expect from discontinuous technologies and their adopters, and participants in this process may attempt to shape the discontinuous technologies in a way that is beneficial for them by choosing and implementing different adoption forms. Furthermore, what are the effects of status and market identity on the nature of the new horizontal category associated with the discontinuous technology? Discontinuous technology is one of the main determinants of the creation of a new horizontal product category (Hannan and Freeman 1989), and external audiences tend to form their expectations of this new group, that is, the new market identity, based on adoption performance (Ruef, 2000; Murphy, 2004). As a consequence, different adoption behaviors and adoption performances, depending on different-status levels, may affect the social construction process, which will be the focus of my dissertation.

In conclusion, although previous literature on discontinuous technologies and their diffusion processes has enhanced our comprehension of the success of technological innovations and the evolutionary aspect of technical change, it has paid less attention to the social construction process of discontinuous technologies and how different incumbent firms respond to discontinuous technologies differently. In contrast, the social constructivist perspective of technologies highlights the process of how technologies are constructed and the interpretative flexibility of technologies, which may help us appreciate the social construction process of discontinuous technologies. Based on the importance of status and market identity in the construction process, which are defined as a location in a social system and as behavioral expectations to the occupants of that specific position, respectively, previous literature has also studied the effects of status on the diffusion of innovations. Finally, I raised a few questions related to the effects of status/market identity on the diffusion of discontinuous technologies, which previous literature has not fully addressed. In the next sections, I first examine the empirical context of my study, the U.S. daily newspaper industry. Then, I develop theoretical arguments that extend current thinking about the diffusion of discontinuous technologies and apply the arguments of the social constructivist perspective of technologies to examine the importance of status and market identity in the adoption of discontinuous technologies from the incumbent firm perspective. I specifically develop hypotheses to show that the status and consequent market identity of an organization affects the adoption behaviors and adoption consequences of the organization, which in turn affects the meaning of the discontinuous technology, in other words, its new market identity.

CHAPTER THREE.   NEWSPAPERS-IN-PRINT AND DIGITAL MEDIA

Before presenting my arguments on the effects of status and market identity on discontinuous technology diffusion and consequent performance, I introduce the empirical setting of my dissertation, the U.S. daily newspapers from 1993 to 2009 after the emergence of digital media, an electronic edition of newspapers on the web.

The U.S. daily newspaper industry is an optimal area to examine the diffusion process of a discontinuous technology and the adoption performances of a discontinuous technology among incumbent firms. First, digital-publishing technology is a discontinuous from print-publishing technology (Boczkowski, 2005; Gilbert, 2003; 2006). Digital media indeed has distinctive characteristics from print media: digital media is not only a new way of delivering news, but also changes the overall newsroom practices and businesses, including their customers, advertisers and readers (Foust, 2009; Peng, Tham, and Xiaoming, 1999; Pavlik, 2008). Second, there exists substantive variation in ways of publishing news on the web (Boczkowski, 2005); therefore, it is an appropriate setting to examine the different adoption forms. In addition, the status hierarchy of the newspaper industry is relatively easily observable through journalism awards, especially the Pulitzer Prizes (which will be discussed in greater detail below), based on professional journalism, including "honesty, accuracy and fairness, values that govern the way news is gathered and the way it is presented" (Pulitzer, 2010: 2). Getting journalism awards is regarded as

a signal of high-quality journalism and awardees are not necessarily large newspapers (Harris Jr., 2007), indicating that status and size are distinguishable in this industry. Finally, the Internet Archive, a website containing the archived web pages, makes it possible to examine the adoption process in greater detail (Barley, 1986; Podolny and Stuart, 1995): the archived versions of newspapers' websites, reasonable representations of their daily interactions, can be accessed on a daily basis.

U.S. Daily Newspaper Industry

Daily Newspapers and Their History

A daily newspaper is the business of "producing and disseminating information [daily] about contemporary affairs of general public interest and importance" in print (Schudson, 2003: 11). The business of newspapers is unique since newspapers are in manufacturing and service markets simultaneously (Picard and Brody, 1997): Daily newspapers create contents, including editorial news and advertising spaces, manufacture copies regularly, sell physical copies to readers and provide a service –access to readers—to advertisers through advertising spaces. As a result, financial resources for newspapers come from two different sources, revenue from copy sales and revenue from advertising sales. In particular, U.S. daily newspapers, on average, rely on about eighty percent of their revenue from advertising sales and are among the most dependent upon revenue from advertising around the world (Project for Excellence in Journalism [PEJ], 2010). Specifically, circulation sales for the U.S. daily newspapers reached a plateau of

$10 billion in 1997, which has not changed much since then (Newspaper Association of America [NAA], 2011). Advertising revenue is largely composed of three types of advertising revenue, that is, retail and national advertising revenues (display advertising) and classified advertising revenue (Picard and Brody, 1997). Retail advertising revenue has provided the largest proportion of total advertising revenue for the U.S. daily newspapers. In 2010, for example, retail advertising revenue was approximately $12.9 billion, about fifty percent of the total advertising revenue of daily newspapers in the U.S. (NAA, 2011). Classified advertising decreased most dramatically from its peak, forty-one percent of the total ad revenue in 1998 to twenty-two percent in 2010, primarily because of the emergence of free online classified competitors, such as Craigslist (Meyer, 2009; Seamans and Zhu, 2011; NAA, 2011). National advertising revenue has provided about fifteen percent of total ad revenue since 1970 (NAA, 2011).

There were 1,556 daily newspapers in the U.S. in 1993 and the number continued to fall, reaching 1,387 in 2009 (PEJ, 2010). In terms of firm size, most daily newspapers in the U.S. are small local newspapers with circulations of less than 25,000 and primarily focus on local reporting and local or classified advertising (Mogel, 2000; Thompson, 1989). There are also a few national newspapers (such as the *New York Times*, the *Wall Street Journal*, or *USA Today*), regional newspapers (*Boston Globe*, *Des Moines Register*, or *Dallas Morning News*), and some local newspapers (*Pensacola News Journal* in Florida or *Wichita Eagle* in Kansas), which tend to serve readers beyond the boundaries of their own local markets (Mogel, 2000; Picard and Brody, 1997). It is important to note that small and large newspapers differ from each other not only in terms of their scope of news reporting, but also in terms of the overall operations, including business model,

ownership structure, and cost structure (Picard and Brody, 1997: Thompson, 1989).

Small local newspapers, for example, tend to obtain about fifty percent of their

advertising revenue from local or classified advertising, whereas large newspapers tend to

rely much more on national or retail advertising (Picard and Brody, 1997; Thompson,

1989). The largest newspaper by circulation used to be *USA Today*, a national daily

newspaper, with about 2 million issues until 2008, but, the *Wall Street Journal*, another

nation-wide daily (business) newspaper, overtook the first place in 2009 and has retained

the top spot since then.

Newspapers date back to the early sixteenth century when papers containing news

and information began to be published regularly in Europe (Picard and Brody, 1997).

Newspapers were introduced to the U.S. in the late sixteenth century and were first used

as personal communication vehicles for social and political purposes of the elite. With the

introduction of new technologies, such as new machinery in printing or telegraphy,

newspapers started to reach broad audiences and two types of journalism –journalism as

entertaining and journalism as information—became prevalent, especially in the late

nineteenth century (Schudson, 1978). Journalism as entertaining focused on telling stories

to reach broader audiences, at many times, based on sensationalism. In contrast,

journalism as information concentrated on reporting factual information, which tends to

be considered as better-quality journalism than journalism as entertaining, and helped in

establishing the objectivity standards of modern U.S. journalism. The difference in

perceived quality between two types of journalism was indeed pervasive, as the *New York

Times*, a representative of journalism as information, has become "a badge of

respectability" (Schudson, 1978: 117). The practices and techniques of journalism as

entertaining–such as the usage of sensational headlines or photos and extensive focus on gossip about celebrities, however, have been widespread even now. As mentioned above, daily newspapers in the U.S. economically depend on circulation and advertising revenues and one of the easiest ways to attract broad audiences is writing a story about what readers want to read (Schudson 1978; Campbell, 2003; Jones, 2009).

Professional Journalism and the Pulitzer Prize

Around the time of World War I, the consequences of the subjectivity of reporting and the pervasiveness of journalism as entertaining rather than journalism as the pursuit of truth reached its saturation point and journalists and scholars started to seriously consider the ideal of objectivity or professional journalism (Schudson, 1978). It is important to note, however, that objective journalism, indicating "integrity, fairness, balance, accuracy, [and] comprehensiveness" (Bogart, 2004: 4), is less about the objectivity of journalistic outputs in the ultimate sense, but more about the objectivity of the journalistic process (Jones, 2009). Reporters and editors, for example, are also bound by cultural biases as human beings, so, they cannot take an absolutely objective stand in their works. They nevertheless consider their work seriously and strive to be objective by applying scientific, thorough, and rigorous methods (Jones, 2009; Zelizer, 2004; Kovach and Rosenstiel, 2007). The focus on the journalistic process in this definition is why objective journalism also refers to professional journalism: In order to pursue the ideal of objectivity, reporters and editors should be professionals, possessing a more serious educational background and expert knowledge (Lippmann and Merz, 1920). When endowing the Columbia Journalism School, Joseph Pulitzer, the former publisher of the

St. Louis Post-Dispatch and the founder of the Pulitzer Prize, also stated that he believed in education "to begin a movement that will raise journalism to the rank of a learned profession, growing in the respect of the community as other professions far less important to the public interest have grown" (Schudson, 1978:153).

With the raised interest in objective and professional journalism, how to assess and which principles consist of journalistic excellence also have received increased attention (Merrill, 1968; Bogart, 2004; Gladney, 1996; Kim and Meyer, 2005). In particular, "peer judgments of excellence or achievement," as in many other creative or art industries, have become one of the most commonly used measurements and standards of quality in journalism, and among many journalistic awards by peer judgments, the Pulitzer Prize has been unquestionably the most prestigious award in the newspaper industry (Bogart, 2004). Since its establishment in 1917 by Joseph Pulitzer, the Pulitzer Prize in journalism has been an annual award for achievements in the U.S. text-based journalism and has been regarded as the highest honor a newspaper can receive (Mogel, 2000; Bogart, 2004; Harris Jr., 2007). Each year, newspapers apply for a Pulitzer Prize in one of the fourteen categories, including public service, investigative reporting, or feature photography, then, juries of well-established journalists, editors, and scholars are appointed in each category to submit three nominations to the Pulitzer Board. Based on these nominations by the juries and the board's own judgments, one newspaper (or occasionally a group of news organizations) is named as a recipient or nominee of the Pulitzer Prize in each category (Pulitzer, 2010).[5] As of 2011, there are 138 daily

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[5] The Pulitzer board claims to pay particular attention to maintain the independence of the selecting process of the Prizes (Harris Jr., 2007). *Los Angeles Times* media critic David Shaw agreed that "although some prizes are still won (or lost) for reasons other than

newspapers, among currently operating daily newspapers in the U.S., which have won the

Pulitzer Prize at least once in their histories.

The top four newspapers, according to the number of the Pulitzer Prizes obtained,

are indeed the four newspapers that are generally regarded as "in a class of their own" or

"the elite newspapers" in terms of high-quality journalism in the newspaper industry –the

New York Times, the *Washington Post*, the *Los Angeles Times*, and the *Wall Street*

Journal (Jones, 2009:10, 15). Undoubtedly, the two best known examples of the Pulitzer

Prizes in journalism, the media coverage of the Pentagon Papers–reports by the U.S.

department of defense about the U.S.'s top-secret involvement in Vietnam, and the

Watergate scandal–a political scandal about burglary in which the U.S. President was

involved, were conducted by two of the top four, the *New York Times* and the

Washington Post, respectively, in the early seventies (Harris Jr., 2007). The *Los Angeles*

Times also has become well-known for its journalistic commitment, especially during the

tenure of its fourth publisher Otis Chandler, who intensively invested in the newsroom

practices (Jones, 2009). The *Wall Street Journal*, a national business daily newspaper,

might be considered to have a more conservative political or business perspective

compared to the other three newspapers, but, its editorial integrity and journalistic

excellence have been generally well-respected (Mogel, 2000).[6] As of 2011, the *New York*

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journalistic merit –sentiment, tradition, geography, luck—no one man (or group of men) dominates the Pulitzer board today. Voting blocs shift constantly, depending on the issues involved in any particular award or procedural question" (Harris Jr., 2007: 38).
[6] External audiences, including newspaper reader, journalists, and media critics, have started to question its editorial integrity and journalistic excellence since the News Corporation, led by Rupert Murdoch who is generally known as the father of tabloid journalism, purchased Dow Jones, the publisher of the *Wall Street Journal* in 2007 (Economist, 2007; Siklos and Sorkin, 2007). Mr. Murdoch promised that WSJ's newsroom would remain independent from other News Corp.'s tabloid newspapers

Times had been awarded the Pulitzer Prizes 106 times, which is about three times higher than each number of awards received by the other three, the *Washington Post*, the *Los Angeles Times*, and the *Wall Street Journal*.

As winning the Pulitzer Prizes is a measurement of how the journalistic quality is evaluated by colleagues (Bogart, 2004), the number of the Pulitzer Prizes can be regarded as a signal of a ranking in terms of perceived journalistic excellence. In particular, there are several indicators that stakeholders, including readers, advertisers, journalists, and newspaper publishers, care about the number, especially the cumulative number of the Pulitzer Prizes that a newspaper has ever been awarded. Since winning a Pulitzer Prize is rare for most newspapers, whether a newspaper has ever been awarded a Pulitzer Prize, and if it has, then how many times it has received them in its whole history become more relevant to most newspapers, readers, and advertisers (Alexander, 2010). Moreover, award-winning newspapers are not affected by the defections of the reporters of the winning articles because entries and awardees are basically news organizations and winning a Pulitzer is regarded more as a collective achievement of the newspaper rather than an individual honor of the journalists (Harris Jr., 2007; Bogart, 2004). External audiences also consider award-wining newspapers differently from non-awardees. Readers tend to increase their confidence in the awardees of the Pulitzer Prizes (Alexander, 2010). The Audit Bureau of Circulation (ABC), the most credible U.S. circulation-auditing organization also typically does not report the circulation data of small newspapers having a circulation of fewer than 10,000. Small Pulitzer-winning

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(Crovitz, 2007). Media critics, however, do not fully believe his words, because he had made and broken similar promises in the past. As a result, the WSJ's number of Pulitzer Prizes and nominations has dropped significantly after the merge with News Corporation (Sherman, 2010).

newspapers, however, such as the *Emporia Gazette* in Kansas, which won the Pulitzer in the early 20s, are still covered by the ABC.

Performance in the Newspaper Industry

No matter whether newspapers pursue journalistic excellence or they try to attract broader audiences based on entertaining articles, performance in this industry tends to be operationalized by readership. And the most commonly used indicator of readership in communication studies is print circulation, because it is audited and publically available for all newspapers (Bogart, 2004; Meyer, 2009). It is difficult to obtain financial data of newspapers, in general. Although most U.S. newspapers become members of media chains and some of these media conglomerates are publicly traded (Baker, 2007; Hirsch and Thompson, 1994), even publicly-traded media companies usually do not provide the newspaper-level financial data. In addition, maximizing profits or revenues is not always the business goal for newspapers as newspapers sometimes sacrifice financial profits to follow their journalistic ambition (Meyer, 2009). Therefore, circulation that is positively related to both circulation and advertising revenues, is the most widely-used proxy of performance in the newspaper industry. Circulation, however, can also be used as an indicator of resources or firm size. This could cause an empirical problem in statistical analyses because circulation is used both as performance and size. Given the data limitation and divergent business goals, change in circulation is also alternatively used as an indicator of performance (Meyer and Kim, 2003; Meyer, 2009): The ability to improve on or minimize the decline from a reference point in time can indicate firm performance (cf. Greve, 1998).

Based on two different types of journalism to attract more readership, there are largely two basic methods to increase circulation in the newspaper industry –either through publishing high-quality news articles, which are in general associated with higher readership (but not necessarily), or reporting articles that readers want to read (Meyer, 2009). The advocates of objective and professional journalism argue and strive to show empirically that journalistic excellence is positively associated with readership (Lacy and Fico, 1991; Cole, 1995; Meyer, 2009), whereas other newspapers concentrate on a more direct way by following the techniques or practices of journalism as entertaining. A few newspapers strive to create a more subtle dimension to increase circulation, but the U.S. daily newspaper market has generally been bifurcated into two dimensions, quality and entertaining. For example, *USA Today*, a national daily newspaper, is one of the largest newspapers by circulation (E&P, 2010). Unlike most large newspapers, which were founded more than a hundred years ago, this newspaper was founded in the early 1980s and has never received the Pulitzer Prize (the newspaper was named as a finalist once in 1988). Given the disadvantage of latecomers and a lack of perceived journalistic quality by peers, *USA Today* instead focused on convenience of reading rather than on journalistic quality (O'Reilly and Tushman, 2004): *USA Today* publishes short and easy-to-read articles that readers can easily access. *USA Today*, however, constantly applies for the Pulitzer Prize, which indicates that this newspaper also cares about quality-journalism, which is represented by the Pulitzer Prizes.

Digital Media by U.S. Daily Newspapers-In-Print

Emergence and Diffusion of Digital Media

Although there have been several technological innovations in the newspaper industry, including the advents of telegraphy, photography, and videotex, newspaper practices, business models, and the stratification of the market based on objective and professional journalism and journalism as entertaining have not changed much since the nineteenth century (Pavlik, 2008; Fenton, 2010). U.S. daily newspapers, for example, actively explored the possibility of videotex in the 1980s (Boczkowski, 2004; 2005). Videotex is one of the non-print delivery methods that newspapers focused on, especially from the late 1970s to the early 1980s and provided simple interactive contents or print-version news electronically to users with "a dedicated terminal, a television set equipped with a special decoder, or a personal computer with a modem" (Boczkowski, 2004: 258). The *Columbus Dispatch* in Ohio was the first newspaper to adopt videotex in 1980 (Boczkowski, 2005) and newspaper media conglomerates, such as Knight-Ridder Newspapers, the Hearst Corporation, and the Times Mirror Company spearheaded the popularity of videotex (Radolf, 1982; Boczkowski, 2005). Videotex experiments, however, did not achieve their full potential and failed to change the overall newspaper industry, which is illustrated by "Videotex … is like the grand piano on the porch—it's nice, but how do you get it into the house" (Fitzgerald, 1984:36)? Newspapers in print have remained as the main delivery method and newspapers primarily concentrate on how to increase their print circulation either through high-quality or entertaining articles.

The U.S. newspaper industry, however, has been undergoing a dramatic

transformation since the emergence of digital media, the electronic version of news

publishing on the web (Gilbert, 2006; Pavlik, 2008; Boczkowski, 2005). In a broad sense,

digital media refers to "the systems of public communication, the systems of content

production and distribution, and networked-based technologies that support and shape

them" (Pavlik, 2008: 9), and in my dissertation, I specifically focus on digital media as

publishing the electronic version of news by daily newspapers that is accessible through

the World Wide Web (Li, 2006).[7] Introduced by the World Wide Web in 1993, digital

media was quickly diffused to most newspapers in the U.S. (Dotinga, 1999). The *News*

and Observer in North Carolina, the *San Francisco Examiner* and *Chronicle* and the *San*

Jose Mercury News in California were among the first to launch their own websites in

late 1993 (Li, 2006) and prestigious newspapers, such as the *New York Times*, the

Washington Post, the *Los Angeles Times*, and the *Wall Street Journal*, followed the trend

in early 1996. The number of newspapers-in-print that launched their own websites

reached the critical point of fifty percent in late 1997 (Dotinga, 1999). Although there

exists a variation in terms of adoption timing, most daily newspapers participated in

digital media by 2000, as shown in Figure 3 (Boczkowski, 2005).

INSERT FIGURE 3 ABOUT HERE

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[7] In the very early stage of digital media, some newspapers delivered text-only content electronically through online services such as Prodigy or America Online (Boczkowski, 2005; Li, 2006). However, I only focus on digital media accessible through the World Wide Web, because a graphic web browser allows newspapers to realize the distinctive characteristics of digital media, which will be discussed in detail below.

Distinctive Characteristics of Digital Media

The novel and unique characteristics of digital media compared to print media have been well-studied by scholars in communication studies, which in general consist of immediacy, multimedia capability, limitless space, low cost, and interactivity (Foust, 2009; Peng, Tham, and Xiaoming, 1999; Gilbert, 2006; Pavlik, 2008; Li, 2006). First of all, digital media enables newspapers and readers to publish and access the most up-to-date news (immediacy): There is no lag time for publishing news on the web, because digital media does not need printing or physical distribution. Moreover, there in effect exist no spatial and temporal limitations on the web (limitless space): news articles are not technically constrained by space and temporal limits as most articles in print are. Of course, this possibility of unlimited space does not mean that news articles on the web are necessarily longer than articles in print. Third, since digital media does not require physical printing and distribution, the overall set-up and maintenance costs of digital media can be much lower than those of print media (low cost). Fourth, newspapers can provide not only text-based news, but also sound-, animation-, and video-based news on the web (multimedia capability): newspapers can provide more comprehensive news through applying different types of media on the web. Finally and most distinctively, digital media allows newspaper readers to actively participate in news creation processes, which is called interactivity, and I focus on this interactive aspect in greater detail.

Interactivity refers to bi- or multi-directional communication between sources and recipients, which indicates in the newspaper setting that newspapers and newspaper readers communicate to each other easily (Pavlik, 1997; Zeng and Li, 2006). Interactivity is obviously one of the key features of digital media since traditional mass media, such as

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television stations, newspapers, and radio broadcasters tend to offer a one-way

communication from sources to recipients only, which is described as "the mundane

character of receptive activity" from the receiver perspective (Thompson, 1995:35;

Schultz, 1999; Zeng and Li, 2006). Digital media, a newspaper on the web, in contrast,

creates unprecedented opportunities both for newspapers and readers in terms of

interactivity. On a newspaper website, for example, newspaper readers can more easily

communicate with newspapers and other newspaper readers by taking part in online

forums on the website, emailing letters to editors or reporters directly, and even

publishing readers' own stories and photos on the web (Ha and James, 1998; Liu, 2003;

Zeng and Li, 2006). Newspapers can also adopt all these interactive features depending

on their demands for interactivity. Interactivity, however, involves some concerns,

especially for newspapers, such as quality control or cost (Chung, 2007): it becomes

more difficult to control the flow and quality of contents if more readers participate in

communication processes, and maintenance costs could be substantial and constant.

Discontinuity of Digital Media and New Business Models for Print-Based Newspapers

Based on the novel and unique features of digital media, scholars argue that

digital-publishing technology is discontinuous from print-publishing technology

(Boczkowski 2005; Gilbert 2005, 2006).[8] As examined above, for example, the novel and

unique characteristics of digital media allow newspapers to offer products with

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[8] Technically, digital media in itself is not a discontinuous 'technology' from print media. Digital-publishing technology is a discontinuous technology from print-publishing technology. Digital media and print media, however, are primarily distinguishable from each other by the employed technology to deliver news. In my dissertation, therefore, I use digital media and digital-publishing technology interchangeably as a discontinuous technology from print media or print-publishing technology.

distinctive features, such as interactivity or multimedia capability, and these features were almost impossible to be offered by applying print-based technologies. Furthermore, digital media is not only a new medium of delivering news, but it also changes overall newsroom practices, audiences, contents, and newspaper markets (Pavlik, 2008; Gilbert 2005, 2006; Boczkowski, 2010; Peng, Tham, and Xiaoming, 1999). The leading advertisers of each media, for example, are very different: the main advertiser for print media is a large company, like department stores or retail stores, whereas digital media is preferred by local advertisers (Gilbert, 2003). Reporters also need very different skills to publish multimedia-based news or to facilitate and control the readers' intensified interactions (Fahmy, 2008; Gilbert, 2006; Chung, 2007). The interactive aspect of digital media also makes the boundary between newspapers and readers more blurred, threatening the identity of newspapers as sole news producers, since it has become much easier for readers to participate in the news creation process.

The differences between the business models of print- and digital-media have received particular attention (Anderson, 2009; Doctor, 2010; Kaye and Quinn, 2010). First, the (potential) sources of revenues for digital media appear to decrease compared to the two-sided markets of traditional newspapers with both circulation and advertising sales (Seamans and Zhu, 2011). Many people expect free contents on the web (Anderson, 2009) and in turn, newspapers have faced difficulties of charging a price for online readership. In addition, classified revenue has decreased dramatically since 2000, because of the free online classified competitors, led by Craigslist (Meyer, 2009; Freese, 2011). Digital media, however, also creates opportunities for newspapers to broaden their readership, especially based on its low-cost characteristic. The production and

distribution costs for digital media, for example, are about five to ten percent of the total

costs, whereas those costs compose of more than twenty-five percent of the total costs for

print media (Doctor, 2010; Snedeker, 2007). Given the uncertainty related to digital

media, especially, how to earn money, newspapers-in-print tend to experiment with

different business models. A few newspapers focus on duplicating the previous business

model in the new environment, subscription revenue from online readership and

advertising revenue from online advertising.[9] Most other newspapers on the web offer

free online subscription and focus on advertising revenue (Anderson, 2009). In order to

increase advertising sales, some newspapers have begun offering extra services, such as

providing a free website or blog space, and by offering this type of service, newspapers

attempt to change their identity from news creators to facilitators (Boczkowski, 2005).

Although digital media, which is discontinuous from print media, has proliferated

among newspapers in print, the dominant form of digital media has not been fully

established, as Li (2006: 3) stated that "the new medium is still under development both

in its function to serve the public and its use of advanced technology." Some newspapers

regarded the website merely as another medium of delivering news and deployed almost

unchanged print-version contents on the web (Boczkowski, 2005): Newspapers on the

web look the same as newspapers in print from this angle. Other newspapers engaged in

the creation of new contents and formats for digital media by emphasizing the distinctive

features of digital media (Boczkowski, 2005): the website of the *San Jose Mercury News*

in California, for example, was known for its emphasis on interactivity during its early

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[9] The *Wall Street Journal* has been one of the very few newspapers that have been
successful in charging for online-readership, but other newspapers, including the *New
York Times*, start to reconsider this option recently (Anderson, 2009; Peters, 2011).

days (Cochran, 1995). Since there are *several*, not one, novel and unique characteristics of digital media, newspapers nevertheless can choose to emphasize varied aspects of digital media in terms of creating new contents or formats for their own websites, such as focusing on user-authored content or multimedia capability.[10] Confronting various examples of different websites of newspapers, such as a website which looks like the print version, or websites emphasizing different characteristics of digital media, external audiences have not fully established what to expect from digital media, what exactly distinguishes digital media from print media, or even whether digital media and print media are different from each other at all.

The lack of a dominant design for digital media, an emerging electronic platform of publishing news on the web, has caused both opportunities and challenges to newspapers in print (Meyer, 2009; Jones, 2009; Li, 2006; Pavlik, 2008). As a new platform with lower set-up and maintenance costs, digital media enables newspapers to publish news very cheaply, thus, generating new opportunities to expand readership, especially for small newspapers (Foust, 2009). Digital media, however, has also accelerated the decline in print-based newspaper readership and the consequent drop in print-advertising revenue, without suggesting a new financially viable business model (Pavlik, 2008; Doctor, 2010; Jones, 2009). Most newspapers have been undergoing severe cutbacks and layoffs and some of them, including the *Christian Science Monitor* in Massachusetts and the *Ann Arbor News* and *Detroit News* in Michigan, ceased

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[10] Empirically, there exist variances with respect to the formats of their websites, but the contents tend to look more similar to each other on the web than in print (Boczkowski, 2004; 2010). Boczkowski (2010) showed that news articles on the web tend to be more similar than news articles in print, as digital media makes it easier and more necessary for newspapers to monitor what other newspapers are reporting.

publishing a print edition and went web-only (McChesney and Nichols, 2010). Many

media experts worry that, unless newspapers come up with a financially viable way of

dealing with digital media soon, society could lose a reliable source of information and

an important watchdog of government and business, both of which are basic foundations

of democracy (Jones, 2009; Meyer, 2009; Madigan, 2007).

In order to understand why different newspapers respond differently to digital

media, which has created both opportunities and threats for the newspaper industry, I

examine the effects of status on the differences in adoption behaviors and consequent

performances of digital media in the next chapters. Specifically, why did newspers

launch their websites at different points in time and why did they choose to develop

different forms of websites with the emphases on various aspects of digital media? Did

middle-status newspapers adopt digital media differently from other-status-level

newspapers? Finally, what have been the consequences of different adopting behaviors of

digital media? These questions are left underexplored and I will address these questions

in my dissertation.

The Focus of My Dissertation—Large Daily Newspapers

Before I present my theoretical arguments, I limit the boundary of my research

interest primarily to large newspapers-in-print. First of all, online-only newspapers are

excluded from the study because I am interested in the adoption behaviors and adoption

consequences of incumbent firms with respect to the discontinuous technology, digital

media. Furthermore, I focus on large daily newspapers, including national, regional, and

some local newspapers. As previously mentioned, although there are about fifteen-

hundred daily newspapers in the U.S., most daily newspapers are small local newspapers that primarily concentrate on local reporting and local/classified advertising (PEJ, 2010; Picard and Brody, 1997). Their business models, operations, and newsroom practices tend to be different from larger daily newspapers (Picard and Brody, 1997). Small local newspapers, for example, are more likely to be family-owned and this type of newspapers tend to show idiosyncratic responses to new innovations, such as digital media (Mogel, 2000; Baker, 2007; Barr, 2009). Large newspapers, on the contrary, tend to show similarity in their newsroom practices, business models, and formats (Mogel, 2000; Picard and Brody, 1997). Furthermore, "on the national level, the most prestigious awards are unquestionably the Pulitzer Prizes" (Bogart, 2004: 45), and there are some empirical evidences that the Pulitzer Prize awardees or nominees also tend to be similar in terms of reporting practices compared to non-awardees (Hansen, 1990).

In order to obtain a comprehensive empirical sample of the U.S. large daily newspapers, which have similar journalistic ambition, business models, and formats and reach broader audiences, I sampled all the top 100 largest newspapers by circulation and the largest newspapers in the states during the period of 1993 to 2009. To capture high-quality newspapers that do not meet the size criterion, I also included all the newspapers that have ever been awarded or nominated by the Pulitzer Prizes in journalism, producing a base sample of 207 print-based newspapers. The sample includes both small-but-Pulitzer-Prize-winning newspapers, such as the *Register Pajaronian* in California, or the *Xenia Daily Gazette* in Ohio with circulations of less than 10,000, and large newspapers, such as the *New York Times*, the *Wall Street Journal*, and *USA Today* with circulations of more than 1.5 million.

In sum, I described the U.S. daily newspaper industry, the research setting of my dissertation in this chapter. U.S. daily newspapers have been undergoing a dramatic transformation since the emergence of digital media, the web-based version of news publishing by print-newspapers. Digital media, as a discontinuous technology from a print media, has the potential to both shape and be co-opted by the established newspaper status hierarchy, which can be operationalized by the number of the Pulitzer Prizes the newspaper has ever been awarded. In the next two chapters, I focus on this process and discuss how newspapers adopted the discontinuous technology, digital media, differently, and what the adoption consequences have been, depending on their adoption choices.

CHAPTER FOUR. STATUS AND ADOPTION BEHAVIORS

OF DISCONTINUOUS TECHNOLOGY

In the next two chapters, I examine two theoretically important aspects of the diffusion of discontinuous technologies, that is, when and how organizations adopt discontinuous technologies and what the adoption consequences are. In this chapter, I examine how organizations respond to a discontinuous technology differently by their statuses and market identities and in the next chapter, I study how the differences in adoption behaviors, based on the differences in the positions in the status hierarchy, affect the adoption consequences of discontinuous technologies.

First, in this chapter, I examine why different organizations adopt a discontinuous technology at different points in time and choose different forms of implementing the new technology, such as developing more or less interactive websites in the newspaper industry. I argue that middle-status organizations are mostly motivated to differentiate themselves from high- or low-status firms by being the first to experiment with the discontinuous technology and by developing adoption forms that emphasize that the new technology is different from the existing technology. In contrast, high- and low-status organizations have less incentive to take the risk of the new technology first. In particular, based on their abundant resources, high-status organizations can observe instead the attempts of the first-middle-status organizations then follow them quickly if their

experiments look promising. In addition, when high- and low-status organizations

develop different types of adoption form, they try to emphasize that the new technology

is not very different from the existing technology.

Theory and Hypotheses

Stratified Market by Status

In order to understand how status and market identity affect the adoption

motivations and behaviors of the same discontinuous technology, it is necessary to

discuss markets as social structures and how they function in a stable environment. White

(1981b: 517) suggested that markets should be understood as "social structures among

specific cliques of firms … who evolve roles from observations of each other's behavior

[in the same clique]" and, as a result, firms tend to be casted into "distinct and ordered

niches" (Leifer, 1985: 443). In other words, organizations in markets are stratified into

different social positions based on perceived quality (White, 1981a) and tend to have

different roles and market niches granted to each position (White 1981a; 1981b; Leifer,

1985). For example, a clique of brand medication companies and another group of

generic drug manufacturers occupy different market niches and are granted different roles

–the former as innovators and the latter as followers (Oster, 2000). Similarly, the roles

and market niches of mass-production brewing companies and small specialty brewers in

the U.S. beer brewing industry are clearly distinguishable and the roles and market niche

granted to each group are not easily penetrated by the other group (Carroll and

Swaminathan, 2000). This image of markets is tightly associated with literature on the role of status in markets, which mainly focuses on the ordered positions in markets by perceived quality.

As defined in Chapter Two, the status of an organization refer to its (ranked) position in a social system (Linton, 1936; Merton, 1957; Gould, 2002), which can be simplified as the intersection of horizontal and vertical dimensions of the social system as shown in Figure 1A (Sorokin, 1959; Blau, 1977; Jensen, Kim, and Kim, 2010). The horizontal dimension of the system provides nominal distinctions of organizations and the vertical dimension arrays organizations based on a ranking within the horizontal product category. In the auto manufacturing industry, for example, there are also several product categories, such as, passenger-cars, trucks, and minivans and these auto-manufacturers are ranked within their own product category based on their perceived quality on different product attributes, which are context-specific: some attributes are unique to a particular product category, such as the load factor for trucks, whereas others are common to various product categories such as reliability and safety. In many cases, however, the criterion of a ranking can be operationalized by a simple measure, such as market share in the investment banking industry (Jensen, 2003). Another example is the U.S. print-newspaper industry. For most newspapers, winning a journalism award is "a once-in-a-career rarity," whereas for a few, "it is commonplace" (Alexander, 2010) and the cumulative number of journalism awards, especially, that of Pulitzer Prizes as examined in the previous chapter, can be used as a vertical dimension to define the position of a high- or low-status newspaper, as shown in Figure 1B.

The status of the organization is important because the structural position encompasses a market identity and the market identity influences its activities (Jensen, Kim, and Kim, 2010). The market identity of the organization refers to the categorical or schematic representations of its status or its position in the social system (Jensen and Kim, 2008). As cognitive interfaces between firms and external audiences, market identity coordinates and controls the activities of identity carriers and shapes the expectations of external audiences (Hannan, Pólos, and, Carroll, 2007; March, 1994). Distinctive activities from different-status organizations are expected, because different market roles are expected from the occupants of different positions. For example, high-status newspapers, occupying the intersection of print-media (horizontal dimension) and winning many awards (vertical dimension) as in Figure 1B, are expected to present integrity, fairness, balance, accuracy, and comprehensiveness, that is, journalistic excellence (high-status newspaper's market identity), whereas external audiences do not expect quality journalism from low-status newspapers (Jones, 2009). It is important to note that market identity stems from both product categories and the same vertical positions across different product categories. For example, newspapers share some characteristics, such as publishing articles regularly, but, good journalism, no matter whether it is a newspaper or television station also shares some characteristics across different product categories that are not shared within the product category across vertical positions, as shown in Figure 2. It is the intersection of these two dimensions that determines audiences' expectations, which is the market identity of the focal firm.

Two aspects of status and market identity need to be emphasized, before presenting my theoretical arguments. First, quality is tightly associated with status and

market identity as status tends to function as a signal of quality (Podolny, 2005; Jensen, Kim, and Kim, 2010). By occupying a particular position in a market, a firm is expected to produce a product of a particular quality as positions are constructed by perceived quality: high-status auto manufacturers are expected to produce high-quality vehicles. However, it does not necessarily indicate that high-status auto firms always present good-quality cars and low-status firms cannot do so: there exists a loose positive relationship between status and quality, even if two concepts are theoretically different (Podolny, 1993; Jensen, 2003). Therefore, firms in the market are ordered not by objective quality, but by quality expectations, which are consistent with what White (1981a) mentioned as perceived quality in his market model. Second, among several advantages of occupying a high-status position (see Chapter Two or Jensen, Kim, and Kim, 2010 for review), high-status organizations receive greater attention for a given-task performance (Merton, 1968). This disproportional attention to high-status firms, that is, their visibility, also indicates that external audiences tend to establish and reinforce the overall expectations of firms in the market (of a particular product category) disproportionally based on the activities of high-status organizations (Lakoff , 1987; Murphy, 2004). Although newspaper-readers are aware of journalism as entertaining[11] and sometimes enjoy reading it, for example, they generally expect a newspaper to publish accurate, fair, and comprehensive news, the journalistic aim of elite newspapers (Schudson, 1978).

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[11] As described in Chapter Three, journalism as entertaining focuses on financial profitability and newspapers following the techniques of this type of journalism tend to care less about journalistic objectivity if they can sell more newspapers (Schudson, 1978; Jones, 2009). This type of journalism is also called tabloid journalism or yellow journalism (Campbell, 2003; Jones, 2009).

Status and Business Opportunities

The image of markets as social structures ordered by perceived quality leads to new insights about how firms respond to new business opportunities depending on their status levels. As reviewed in the previous chapter, it has been well-documented that firms adopt an innovation if it improves their internal functioning or if it maintains or increases their legitimacy (Tolbert and Zucker, 1983; Rogers, 2003; Rosenberg, 1982). First-movers are not the exceptions; they also care about both economical and social gains of the new innovations (Kennedy and Fiss, 2009; Rogers, 2003), which are closely linked to previous literature on the effects of status on the diffusion of innovations. It has been argued that either high- or low-status firms can be the first movers as high-status organizations often originate the diffusion of normative innovations, whereas low-status firms tend to initiate counter-normative innovations (Menzel, 1960; Phillips and Zuckerman, 2001; Rogers, 2003). This finding can be restated that when considering a new business opportunity, high-status firms are concerned about both economical benefits and social acceptability of the new opportunities, because audiences pay attention to their activities as the visibility of their high-status positions indicates, and high-status firms hardly want to undermine the social system, from which their current positional advantages stem. In contrast, low-status organizations primarily focus on potential economical benefits of the new opportunities and if any practice, even a socially unacceptable one, has a potential, low-status organizations tend to adopt it, because audiences care less about their activities and low-status firms have little to lose from adopting illegitimate practices.

According to this line of research, middle-status organizations are unlikely to be the first to adopt any new innovation. Middle-status firms tend to face the strongest conformity pressures not to deviate from the overall expectations and norms of firms in the market (Dittes and Kelly, 1956; Blau, 1960; Phillips and Zuckerman, 2001), which often prevent them from initiating the diffusion of any innovations. Of course, all firms generally need to meet the overall expectations of firms in the market in order to claim a membership in the market as "any candidate who wishes to gain recognition as a player will feel pressure to conform to audience expectations concerning such an action" (Phillips and Zuckerman, 2001: 385). As indicated earlier, however, the overall expectations of firms in the market tend to be established around the activities of high-status organizations because of their visibility; therefore, high-status organizations already have a secure membership in the market because of their representativeness of that market. Although low-status organizations cannot perfectly follow the overall expectations of firms in the market, in any case, audiences care little about their activities, because of their low-status positions. Therefore, high- and low-status firms can be relatively free from these conformity pressures (for different reasons). In contrast, middle-status organizations need to follow the expectations and norms most strictly in order to obtain and maintain the membership in the market. Although middle-status organizations also have economical and social need to look for new business opportunities as any other firms, they, therefore, are unlikely to be the first to do so in a stable environment since they tend to confront the strongest pressures to conform to the overall expectations of firms in the market.

Discontinuous Technology and New Opportunity for Middle-Status Firms

The diffusion of discontinuous technologies may create a different condition for organizations with different-status levels from a stable market. As previous literature has identified, incumbent firms tend to be reluctant to adopt discontinuous technologies first, since discontinuous technologies can potentially render incumbent firms' current bases of resources and skills obsolete (Reinganum, 1982; Tushman and Anderson, 1986; Henderson, 1993; Christensen and Rosenbloom, 1995). Adopting discontinuous technologies, in other words, can be economically very risky and the social acceptability is also uncertain, making the adoption of discontinuous technologies disadvantageous for incumbent firms. Therefore, incumbent firms, on average, are unlikely to be the first to adopt discontinuous technologies.

The uncertainty related to discontinuous technologies, however, also means that external audiences have not fully understood what to expect from discontinuous technologies. The basic assumption of conformity pressures is that audiences have fully-established expectations of firms in the market in question: newspaper readers, for example, expect a print newspaper to report national, international, local or other news in print with a certain layout from the objective and professional perspective (Jones, 2009). The discontinuous technology, however, draws on a fundamentally new set of knowledge bases and routines from the current knowledge bases or routines (Tushman and Anderson, 1986), which indicates that the new technology is not only novel to the organizations in action, but also to external audiences. Audiences, therefore, have not fully established what to expect from the new discontinuous technology and also from the group of organizations who adopt this new technology (Ansari, Fiss, and Zajac, 2010). When

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digital media was first introduced, for example, readers did not fully agree on what to expect from this novel medium and organizations in this field (Li, 2006; Pavlik, 1997). Some wanted on-demand or customized news, some expected online media to provide multimedia news, some looked forward to actively interacting with others through this new medium, and yet others did not have any expectations at all, which is why newspapers' going online was described as "an adventure" (Pavlik, 1997: 30). Therefore, in the new field created by the discontinuous technology, conformity pressures have not been put into effect yet.

I argue that these nascent conformity pressures, with respect to the discontinuous technology, positively affect the adoption possibility of discontinuous technologies by middle-status organizations. Unlike other incumbent firms, middle-status firms may perceive this new technology as an opportunity. The market stratification based on the status hierarchy indicates that high- and low-status firms tend to have distinct market spaces for themselves (White, 1981b; Podolny, 1994; Porter, 1980). Middle-status organizations, however, tend to confront the most intense competition because of their positions in the system: by being located at the middle level of the status hierarchy, middle-status organizations tend to face competition not only from other middle-status organizations, but also from high- and low-status organizations to a lesser extent (Haveman, 1993; Porter, 1980). Middle-status firms then find themselves in a particular situation, where they can potentially benefit most from innovations, to the extent the innovations can provide them an avenue for the upward mobility in the status hierarchy or help them create their own market where they can be the market leader. As previously mentioned, their activities, however, tend to be constrained by the strongest conformity

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pressures, which, in general, tend to prevent them from being the first to adopt a new technology. For middle-status organizations, the discontinuous technology with nascent conformity pressures is one of the very few viable opportunities to increase their business opportunities that they can do so without directly confronting any fully-established conformity pressures. Middle-status organizations, therefore, perceive the new technology as one of the few opportunities to gain and actively search for such opportunities.

In contrast, as previous literature argues (Schumpeter, 1942; Anderson and Tushman, 1990), high- and low-status organizations (incumbent firms) tend to be reluctant to be the first adopters of discontinuous technologies. First of all, they have less incentive to take the risk of adopting a not-yet fully realized technology, which can potentially render their existing resources and skills obsolete. Many discontinuous technologies often fail to achieve their full potential (Podolny, 2005; MacKenzi, 1996; Anderson and Tushman, 1990) and if the technologies realize the potential, then the technologies may create a completely new social system where incumbent firms tend to face the difficulty of finding their own positions (Tushman and Anderson, 1986; Utterback, 1996). Furthermore, as middle-status conformity literature identifies (Menzel, 1960; Phillips and Zuckerman, 2001), high- and low-status organizations often have more freedom to act differently from conformity pressures, therefore, a business opportunity created by discontinuous technologies is not the only opportunity for them. As a result, high- and low-status organizations tend to focus less on discontinuous technologies compared to middle-status firms. Finally, discontinuous technologies do not immediately change their business conditions, as it generally takes some time to achieve their potential

(Gilbert, 2003), and organizations also tend to continue their current activities in the current market niche if performance does not change dramatically (Cyert and March, 1963; Simon, 1957).

Specifically, it is important to emphasize the adoption motivation of discontinuous technology by high-status organizations. Although high-status organizations often have abundant resources to adopt the discontinuous technology most effectively because of positional advantages, they may perceive this discontinuous technology particularly as a potential threat of losing their current advantageous social positions as the discontinuous technology can inherently change the current social system (Schumpeter, 1942; Tushman and Anderson, 1986; Utterback, 1996). Moreover, these abundant resources and skills of high-status organizations also enable them to wait and see the behaviors of the first-middle-status organizations, before investing in any new technology (Conner, 1988, Mitchell, 1989). If the new technology looks promising, high-status firms can invest their abundant resources in the discontinuous technology to quickly catch up with the first movers. Therefore, the perception difference of discontinuous technologies between middle- and high/low-status organizations is noticeable: middle-status organizations perceive the new technology as an opportunity for gain whereas high/low-status organizations as a threat of loss because of different statuses and market identities (Kennedy and Fiss, 2009; Gilbert, 2005). Middle-status organizations, unlike other incumbent firms, tend to focus on adopting a discontinuous technology, as this is one of their few opportunities to increase their business without directly confronting the strongest conformity pressures.

Different adoption motivations to the same discontinuous technology also explain why print-based newspapers adopted the discontinuous technology, digital media, at different time points. Middle-status newspapers strive to open up new business opportunities by being the first to experiment with the new technology. Through this fast adoption, they can increase business opportunities without directly confronting any conformity pressures. Middle-status newspapers, therefore, are most likely to launch their websites first. In contrast, high-status newspapers cautiously observe the attempts of the middle-status newspapers before investing their time and resources into digital media (Conner, 1988). When other newspapers' endeavors look promising, that is, threatening to their high-status positions, but not having fully achieved potential as yet, high-status newspapers may launch their websites to catch up with the first movers. They have abundant resources gained from their high-status positions in the current market (Podolny, 2005), enabling them to quickly catch up with the first-middle-status firms. Lastly, low-status newspapers tend to, but do not necessarily, have fewer financial and other resources to successfully launch their own websites (Lowrey, 2003). Moreover, low-status newspapers were particularly uncertain how to appropriate digital media in order to increase their circulations in their own markets, that is, journalism as entertaining, decreasing the adoption motivation of digital media (Peng, Tham, and Xiaoming, 1999). In sum, in the diffusion of digital media, middle-status newspapers are likely to be the first to adopt the discontinuous technology, which leads to my first hypothesis:

>*H1: Middle-status newspapers are likely to launch their websites earlier than high- and low-status newspapers.*

Status and Implementation of Discontinuous Technology

Different perceptions towards the same technology also affect organizations'

choices with regard to the various ways of implementing the new technology. Although

some practices, such as, executive incentive plans, can be implemented without

significant modification, many diffusing practices can vary in form (Bijker, Hughes, and

Pinch, 1987; Westphal, Gulati, and Shortell, 1997). Specifically, since many innovations,

including discontinuous technologies, are multi-faceted and have the potential to be

interpreted differently, variation in implementation exists and organizations can, for

example, focus on various dimensions of even identical technologies. Hughes (1983:2)

examined electronic power systems from 1880 to 1920, in various counties, and found

"variations in resources, traditions, political arrangements, and economic practices from

one society to another and from one time to another." When adopting total quality

management practices (TQM), U.S. hospitals could also choose one of the standard TQM

approaches, which focused on different aspects of TQM programs (Westphal, Gulati, and

Shortell, 1997). For example, one approach emphasized the training process, whereas

another approach concentrated on process heuristics. Organizations could even customize

these approaches, or develop their own approach if none of the standardized approaches

suited their need. Therefore, how to define a new technology and its main dimensions

remain open to interpretation even with the *ex ante* identification of several dimensions

of the new technology.

The variation in adoption form or implementation method and the uncertainty

about institutional standards increase organizational discretion in responding to

discontinuous technologies (Goodrick and Salancik, 1996; Purdy and Gray, 2009; Ansari,

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Fiss, and Zajac, 2010). Organizations can choose not to follow a prototypical practice (if it exists) and concentrate on a specific dimension of the new technology, which fulfills their need the most, as "the characteristics of diffusing practices interact with the characteristics of adopters" (Ansari, Fiss, and Zajac, 2010:73). As describe in Chapter Three, it has been well-documented, for example, since digital media's inception, that new digital media had the distinct aforementioned characteristics, such as interactivity, immediacy, multimedia capability, limitless space, and low cost (Gilbert, 2005; 2006; Foust, 2009; Peng, Tham, and Xiaoming, 1999). However, since there had been no industry-wide dominant form of digital media, each newspaper exerted its discretion and chose to focus on certain dimensions of the new technology. It then developed its own form of web sites. In other words, one newspaper company could interpret that interactive features should be the most important consideration in digital media implementation, whereas another print-media company might concentrate on producing multimedia news on its website. This variation in implementation links to my theoretical argument, which will be presented in detail below, that the status and concurrent market identity of an organization affect choices among the emphases on different dimensions of discontinuous technologies in the implementation process.

As discussed above, middle-status firms perceive the discontinuous technology as an opportunity to differentiate themselves without directly confronting conformity pressures whereas high/low-status firms perceive this new technology as a threat to lose their current bases of resources and skills. It is, therefore, more beneficial for middle-status organizations to emphasize the novel aspect of the new technology and to implement the new technology in a very different way from the current market. Through

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this new interpretation, middle-status organizations can be relatively free from conformity pressures in the current market and can take advantage of the new technology first, if such an advantage actually exists. In contrast, it is more advantageous for high/low-status organizations to interpret the new technology as an incrementally developed one and implement the new technology in a way as similarly as possible to the current market. In particular, for high-status organizations, this attempt of emphasizing the similar aspect of the new technology means an easier transfer of their high-status advantages to the new market. Status has a positive effect on transferability across different markets when the market logics of a targeted market are similar to those of the market from which entrants come (Podolny and Scott Morton, 1999; Jensen, 2003). Therefore, middle-status firms strive to segregate the current market and the new field created by the discontinuous technology as much as possible whereas other organizations, especially high-status organizations, seek to blend the potential boundary between the two (Hannan and Freeman, 1989).

Different emphases on various aspects of the discontinuous technology in implementation, in effect, are associated with the incumbent's efforts to shape the new technology in a way that is beneficial to their own groups (Bijker, Hughes, and Pinch, 1987; Hughes, 1983). Specifically, the social constructivist perspective of technologies regards technologies as social objects, instead of technical objects, and concentrates on the social construction process of these objects through interactions among participants, as reviewed in Chapter Two (Berger and Luckmann, 1966; Bijker, Hughes, and Pinch, 1987). I argue similarly that discontinuous technologies can also be socially constructed through social interactions, especially during diffusion processes, because any

discontinuous technology involves deep uncertainty when it is first introduced (Anderson and Tushman, 1990; MacKenzi, 1996). As a new set of knowledge and routines, different social groups can interpret discontinuous technologies in different ways, based on their own past technologies and experiences, which opens up the possibilities of discontinuous technologies' being shaped in various ways. In an extreme case, the new technology could have been regarded as a discontinuous one, *ex ante*, but it can turn out to be continuous, *ex post,* because of incumbent firms' active intervention. According to my arguments, middle-status firms try to construct the meaning of the new technology differently from the existing technology, which means that they emphasize the discontinuity aspect of the new technology. In contrast, by highlighting the similar aspect of the new technology, high/low-status organizations strive to shape a potentially discontinuous one as a less discontinuous one.

The adoption motivation logic can be applied to the print-media industry when the industry confronted the discontinuous technology, digital media. The new technology was not just another delivery system on the web: merely launching a website does not mean digital media. Reporters, for example, need to acquire a new set of multimedia skills and to be accustomed to updating news much more frequently (Boczkowski, 2005). Most importantly, among distinct dimensions of digital media, the interactive aspect was the most challenging part to print-based newspapers (Thompson, 1995; Schultz, 1999; Zeng and Li, 2006). Since their inception, newspapers have been news-producers whereas readers have been consumers: indeed, a newspaper "institutes a structured break between the production of symbolic forms and their reception… the capacity of recipients to intervene in or contribute to the process of production is strictly circumscribed"

(Thompson, 1995: 29). Interactivity, however, indicates that the previously passive recipients can also be news-creators. Having an interactive website, therefore, would be implementing the new technology in a completely different way from what used to be done in the print media industry. In contrast, multimedia capability is another important new aspect of digital media (Boczkowski, 2004). Newspapers, which used to report text-only news, can report sound-, animation-, or video-based news on the web. Unlike interactivity, however, multimedia capability is not the most distinctive feature of digital media since television and radio stations have provided this kind of news and learning how to use multimedia articles does not shake the core concept of what newspapers are doing.

As mentioned previously, digital media has several distinctive characteristics, but previous studies in digital media have identified that there existed variations in the way newspapers adopted the new technology in terms of two characteristics, interactivity and multimedia capability (Boczkowski, 2004). I focus on these two dimensions and argue that middle-status newspapers, which tend to emphasize the distinctive features of the new technology, focus on developing websites with more interactive features. Furthermore, since newspapers tend to have a limited and definite amount of resources and attention (March and Simon, 1958; Ocasio, 1997), middle-status newspapers that focus on the interactivity in their implementation of the new technology consequently tend to care less about multimedia capability, another important aspect of the new technology, which leads to the next two hypotheses.

H2a: Middle-status newspapers are likely to develop websites with more

interactive features than high- and low-status newspapers.

H2b: Middle-status newspapers are likely to develop websites with less

multimedia capability than high- and low-status newspapers.

Method

Sample

As described in Chapter Three, my sample includes 207 daily newspapers in print in the U.S. In particular, the sample for the adoption behaviors of newspapers includes daily newspapers from the period of 1993 to 2007. For the adoption-timing hypothesis, I focus on the period from 1993, the year when the first newspaper in my sample launched its website, to 2002, the last year when the last newspaper in the sample launched its website, in order to examine when each newspaper adopted the new technology, digital media. To test the first hypothesis of the website launch timing, the *Editor and Publisher International Yearbook*, a U.S. daily newspaper directory published annually, was used to obtain the website launch date. The *Yearbook* provides the website address of each newspaper, if it has one, enabling access to the website launch date on a yearly basis. Based on this source, I obtained the yearly website launch dates of 195 newspapers.

However, it took several years for digital media to become a significant player in the market. In the early stage, newspaper readers were reluctant to change their daily cultural consumption (Chan and Goldthorpe, 2007) and newspapers often used their

websites to provide simple contact information (Li, 2006). Newspapers started to actively

use their websites around 2000 and previous studies show that there existed a significant

variation in the format of news on the web (Boczkowski, 2005). Therefore, I concentrate

on the period of 2001 to 2007 to examine the set of the second hypotheses, the effect of

status on variation in website components. To test these hypotheses about adoption form,

I examine the web pages of the sampled newspaper companies from 2001 to 2007 that

were derived from the Internet Archive, a website containing the archived web pages,

including those of the U.S. daily newspapers. Front-page websites of the newspapers per

quarter for each of the seven years specified from 2001 to 2007 were collected and 166

newspapers among the sample were available for the current study. The final sample for

website contents, therefore, included 1,108 observations (unit of analysis is a firm-year)

of 166 newspapers.

Dependent Variables and Independent Variable

The dependent variables are the year in which a newspaper adopted the

discontinuous technology, the Internet, and the indices of interactivity and multimedia

capability (*Interactivity* and *Multimedia*). For the website launch analyses, the year in

which a newspaper company launched its website was coded as a "1"; the variable was

coded as "0" until such an adoption had been made. By following the event history

analysis model with one event (Box-Steffensmeier and Jones, 2004), newspapers that

launched their websites in a given year were dropped from the analyses in subsequent

years. For the website content analyses, the interactivity and multimedia variables were

measured by applying a coding schema to a front-page website of a newspaper (refer to

Appendix). The indexes for both variables were created based on several studies (Lowrey, 2003; Zeng and Li, 2006; McMillan, 1998; Kiernan and Levy, 1999). However, I emphasized the visibility of the items from the front page since I only focused on the front pages of homepages while other subsequent pages were excluded from the current study. Newspaper front-pages contain the most important information and most attractive elements (Foust 2009); therefore, a front page is an appropriate unit to measure the company's strategic emphasis on different dimensions of digital media. I tried to collect the front pages of every newspaper in my sample per quarter from 2001 to 2007 (four front pages per year) and summed the components contributing to interactivity or multimedia capability to obtain the index of interactivity or multimedia capability. The interactivity (multimedia) index score had a total of 36 points (16 points) and a higher interactivity (multimedia) index indicates a more interactive website (a website with more multimedia capability).

The main independent variable is the cumulative number of the Pulitzer Prizes a newspaper has ever been awarded. Every year, the Pulitzer board announces winners and other nominated finalists in one of the fourteen categories (Harris Jr., 2007). As mentioned in Chapter Three, the Pulitzer Prize in journalism is an annual award for achievements in U.S. text-based journalism. Winning a Pulitzer has been regarded as the highest honor a newspaper can receive and being named as one of a few finalists also has been highly respected (Harris Jr., 2007). Winning the Pulitzer Prizes or being nominated as a finalist is an indicator of how the quality is evaluated by external audiences (in this case, colleagues), and is not a direct indicator of quality (Bogart, 2004); therefore, it can be an appropriate measure of a ranking based on perceived quality. Specifically, as

described in Chapter Three, newspapers tend to care more about the cumulative number of times a newspaper has received or been nominated as a finalist, rather than about the number of awards or nominations in a particular period of time. Considering its decreasing effect of size, the skewed distribution, and the difference between awards and nominations, I therefore took the natural logarithm of the sum of the cumulative number of the Pulitzer awards and the half weighted number of times a newspaper has been named as a finalist as shown in the equation below (*Pulitzer [ln]*).[12]

$$Pulitzer\ [ln]_{it} = ln\ (\ number\ of\ Pulitzer\ Prizes_{it} + 0.5 \times number\ of\ nominations_{it}\ )$$

Control Variables: Website Launch Analyses

I use a number of control variables to control for alternative explanations for the website launch hypothesis. At the online news production level, I controlled whether a newspaper used other alternative delivery methods to the Internet. Some newspapers chose to have a text-based electronic presence with a major national online service, such as America Online, Prodigy, or Compuserve (*Online Service*). Based on the data provided by the *Editor and Publisher International Yearbook*, I coded the variable as a "1" if the company provided an electronic service with an online service provider. Audiotex, a voice information system over a telephone, was also commonly used by many newspapers to deliver their news in a different way from the print method. Therefore, I coded a dummy variable to indicate whether a newspaper operates an audiotex service (*Audiotex*).

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[12] I also used the number of the Pulitzer Prizes only and the sum of awards and nominations (without weights) for sensitivity checks and the results do not change substantially. The results are available upon request.

At the newspaper company level, previous literature has identified that newspaper size affects newspaper operation, including new technology adoption and implementation (Schultz, 1999; Chan-Olmsted and Park, 2000; Zeng and Li, 2006). Although digital media is characterized with low set-up and maintenance costs, small newspapers may still have insufficient resources to launch their own websites. Therefore, I measured the size of a newspaper company by the natural logarithm of the annual average circulation of the newspaper (*Average Circulation [ln]*). Since daily newspapers can be published in the morning, in the evening, on Saturday, on Sunday or any combination of these, average daily circulation is calculated as a way to measure its size using a uniform method (Meyer, 2009).

$$Average\ Circulation = \frac{(Morning\ or\ Evening\ \times 5) + Saturday + Sunday}{Number\ of\ Issues\ Per\ Week}$$

Furthermore, I control for firm performance because financially constrained newspapers may be reluctant (or more willing) to adopt the new technology. As discussed in Chapter Three, average circulation, which is used for firm size, is also the most commonly used indicator of performance in communication studies (Bogart, 2004; Meyer, 2009). It is indeed difficult to get another measure of performance, such as the profit data of newspapers, in general. Forty percent of the newspapers in my sample are members of publicly traded parent companies, but, these media companies tend not to provide the newspaper-level financial data. As an alternative measure of performance, change in circulation (mostly declines recently) is commonly used (Meyer and Kim, 2003). Therefore, I controlled for financial performance of the previous year, defined by the change in average circulation divided by the previous-year average circulation (*Average Circulation Change*). The regional scope of coverage is considered as another important

factor influencing the adoption behavior (Zeng and Li, 2006), thus I created a dummy

variable, which was coded as a "1" if a newspaper was published for nationwide

distribution (*National Newspaper*). There are four national newspapers in the sample, the

Christian Science Monitor, the *Investor's Business Daily*, *USA Today*, and the *Wall*

Street Journal, according to the categorization of the *Editor and Publisher International*

Yearbook. I also controlled for two Spanish newspapers: *La Opinión* and *El Nuevo*

Herald (*Spanish Newspaper*).

Finally, the broader environments in which a newspaper is located may affect its

tendency to adopt the new technology differently. First, I controlled for parent companies

of newspapers because some of them are renowned or notorious for adopting a new

technology (*Knight Ridder*, *Hearst Corporation*, *Landmark Communications* and *Gannett*

Company). For example, the Hearst Corporation, a parent company of the *Houston*

Chronicle, or Knight-Ridder Newspapers, a parent company of the *Miami Herald* and the

San Jose Mercury News in the 1990s, had actively participated in developing electronic

publishing methods such as videotex (Boczkowski, 2005). In order to capture the

audience's readiness to adopt the new technology, I also measured the proportion of

highly-educated audiences in a given county where a newspaper is located. The

proportion denotes the percent of the population holding a bachelor's degree or more

education in a given county (*County High Education Rate*), which is believed to roughly

capture the Internet penetration rate in the county (Yi, 2008). The annual county-level

data was used from the U.S. Census Bureau from 1990 and 2000 and matched to the

newspaper that primarily represents the county. I also measured the number of other

competitors in the same county that have launched websites (*County Competitor Adoption*).

Control Variables: Website Content Analyses

Similarly to the website-launch analyses, I use a number of different control variables to control for alternative explanations for the website-content analyses. At the online-news-production level, newspapers need a new set of skills in order to operate interactive or multimedia features. Therefore, their experience on the web and the strength of the technical staff can also affect their tendency to employ interactive or multimedia features (Zeng and Li, 2006; Boczkowski, 2004). Based on the website launch date data obtained from the *Editor and Publisher International Yearbook*, the length of web presence on a yearly basis was calculated (*Web Presence Length*). To capture the strength of the online staff, organizational information of whether a newspaper has an online-committed division and the number of managerial roles under this division provided by the *Yearbook* were used (*Online Newsroom* and *Online Newsroom Size*). Interestingly, investment in the newsroom, measured by the number of roles under the online-newsroom division, is generally used as a rough indicator of quality (Rosenstiel and Mitchell, 2004). I created another dummy variable, which was coded "1" if a newspaper launched its own website before 1996, the year most of the high-status newspapers started to present their news on the web (*Innovator*), because the first movers could have different characteristics from other second or late movers in terms of adopting a new technology and implementing it. The audiotex variable was also

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included in this model in order to capture the effects of alternative technology on website

interactivity or multimedia capability (*Audiotex*).

At the newspaper company level, I included the same three control variables I

used for the website launch analyses: average circulation, average circulation change and

national newspaper variables (*Average Circulation [ln]*, *Average Circulation Change* and

National Newspapers). The political inclination of a newspaper was also included to

control for any systemic difference in a new technology adoption behavior with respect to

political preference (*Political Inclination*). At the parent company level, it has also been

well-documented that media ownership affects newspaper contents, including the website

development policy (Bagdikian, 2000; Beam, 1993; Lacy, Shaver, and St. Cyr, 1996;

Smolkin, 2007; Goldfarb, 2004). Therefore, I controlled for the effects of media

ownership by coding a dummy variable for different types of parent companies, that is,

whether a newspaper is a member of a larger media chain, whether the parent company is

publicly traded, and if it is, whether the parent company has a dual-class stock structure,

which is often used to protect non-market based objectives, such as journalistic ambition

(Smolkin, 2006) (*Media Conglomerate*, *Public Parent Company*, and *Dual-Stock

Structure*). In addition, two parent companies, Knight-Ridder Newspapers and Advance

Publications, operate the same website templates for all of their newspapers, so, I

controlled for the members of these two parent companies (*Knight-Ridder* and *Advance*).

I controlled for the size of each local market (*County Population [ln]*), because the main

markets for most of the newspapers in the sample are their own local markets and it has

been well-documented that local market size affects newspaper performance or activities

(Meyer, 2009). Finally, to control for competition, I created a dummy variable, which

was coded "1" if there are more than one daily-newspaper in the same county (*County Competitor*).

Annually updated *Editor and Publisher International Yearbook* data from 1993 to 2003 for the website launch analyses and from 2000 to 2007 for the website content analyses were used to measure all the control variables. The average circulation lagged one year behind and Table 1 contains summary statistics and bivariate correlations.

INSERT TABLE 1 AROUND HERE

Statistical Analyses

I use the parametric event-history model to analyze the launch date of websites with time-varying covariates (Cleves et al., 2008; Kalbfleisch and Prentice, 2002; Box-Steffensmeier and Jones, 2004). I split the event history of all the newspapers into one-year spells with year 1 beginning in 1994 and ending with year 10 in 2003. In the analyses, each year starts in October, in a year before the given year, and ends in September in the given year, following the ABC's definition of a year. For example, year 1 (1994) indicates from October 1993 to September 1994. The hazard rate of launching a website initially increased with time but then decreased, because some newspapers persisted to adopt the electronic version of publishing news (Li, 2006). Therefore, the baseline hazard follows a log-logistic distribution. For the website content analyses, the negative binomial regression model is applied, because the dependent variables are count variables and both of them have high variances compared to the means as shown in Table

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1 (Hilbe, 2007). I also use the random-effect models as the data has a panel form, although applying the fixed-effect models also do not change the statistical results substantially.

Results

Table 2 presents the results of the event history analyses of the website launch date and Table 3 and Table 4 show the results of the negative binomial regression analyses of the interactivity and multimedia variables. All of the models were also estimated without the *New York Times* because of this paper's unique social position in the U.S. newspaper industry.

Results for Website Launch Analyses

Table 2 presents general support for Hypothesis 1, which stated that middle-status newspapers tend to launch their websites faster than high- or low-status newspapers. Model 1 in Table 2 provides a baseline model containing all the control variables for the event history analyses of website adoption times, showing that the existence of an online service and the size of a newspaper negatively affect the adoption time: a newspaper company with an online service and a large newspaper tend to launch a website faster than others. Various parent companies also have significantly different effects on adoption times, indicating that parent companies have different tendencies to adopt the discontinuous technology. Interestingly, the website launch by competitors in the same

county, positively marginally affects the adoption time. Late adopters might choose not to launch their websites to differentiate themselves from competing newspapers that already have had websites, which mirrors the previous finding (Lowrey, 2003). Models 2 and 3 in Table 2 add the main independent variable and the square term, respectively, and the results strongly support H1. The result shows that a newspaper with two Pulitzer Prizes (or four nominations) often launches its website first. The control variables also have similar effects on adoption timing even if I include the main independent variables as shown in Models 2 and 3. In Model 4, I exclude the *New York Times* from the estimation, and the result still shows that middle-status newspapers tend to launch the websites faster than other newspapers, although the first term becomes marginally significant. If I exclude a few national-wide newspapers in Model 5, the result becomes non-significant, although the direction of the U-shaped relationship remains the same.

INSERT TABLE 2 AROUND HERE

Results for Website Launch Analyses

Table 3 also offers strong support for Hypothesis 2a, which predicted that middle-status newspapers are likely to present websites with the most interactive features. Model 1 in Table 3 provides a baseline model with control variables only and it shows that the length of web presence and the size of the newspaper positively affect the level of interactivity on its website: the longer a newspaper offers news on the web or the larger the newspaper is, the higher the interactivity of its website. Moreover, the existence of an

online-committed division has a negative effect; commitment to digital media does not necessarily mean commitment to interactivity since digital media has the several aforementioned dimensions.[13] In addition, first movers are less likely to have interactive websites, which mirrors the findings of previous studies. In the early stage, innovators may experience a disadvantage because of the lack of available technology (Sundar, 2000; Zeng and Li, 2006). If a parent company has a dual-class stock structure, in other words, if the media chain is claimed to be committed to journalistic ambition, then the newspaper is likely to develop a website with fewer interactive features. Finally, a member of Advance Publications develops a more interactive website, whereas a member of Knight-Ridder Newspapers develops a less interactive website.

Models 2 and 3 in Table 3 provide strong support for H2a. Model 2 adds the independent variable and Model 3, the square term. Model 3 indicates that the cumulative number of awards has a curvilinear relationship with the level of website interactivity: newspapers with four Pulitzer Prizes (or eight nominations) are likely to have the most interactive websites. Among the control variables, the length of web presence still has a positive effect, while the existence of online newsroom, being an innovator, and dual-class stock-structure have negative effects on interactivity. A newspaper that has direct competitors in the same county is also likely to develop a website with fewer interactive features. Once the effect of the Pulitzer Prize is controlled for, the size of a newspaper

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[13] For example, one of the largest parent companies, Knight-Ridder Newspapers, formally separated the New Media division from other divisions around 2000, but it paid less attention to developing interactive websites during the period from 2001 to 2007 (Gilbert, 2006). The significance of this negative relationship indeed disappeared when newspapers from this parent company were excluded from the analysis as in Model 5 in Table 3.

does not significantly affect the level of interactivity on its website. Model 4 replicates Model 3 without the *New York Times* and the result still supports the hypothesis.

INSERT TABLE 3 AROUND HERE

As robustness checks, I conduct two more analyses. First, although most parent companies allow their newspapers to develop their own websites, two parent companies, Knight-Ridder Newspapers and Advance Publications, operate the same website templates for all of their newspapers, as mentioned previously. Therefore, Model 5 in Table 3 excludes the newspapers from these two media chains and the effects of the cumulative number of the Pulitzer awards become more significant. Second, in Model 6, I exclude national-wide newspapers, such as the *New York Times*, the *Wall Street Journal*, the *Los Angeles Times* or *Christian Science Monitor*, because some may argue that national-wide newspapers and other local newspapers occupy different types of markets. As a result, local newspapers with their own markets might not compete directly with other local newspapers in different regions and care less about what other local newspapers are doing. Model 6 without national-wide newspapers, still shows that the inverted U-shaped relationship is significant: Local newspapers still react to the same discontinuous technology differently depending on their status levels, which means that local newspapers are concerned about their status levels even when they are not directly competing with other local newspapers.

INSERT TABLE 4 AROUND HERE

Table 4, however, does not provide support for Hypothesis 2b, which argued that

middle-status newspapers tend to focus less on another aspect of the discontinuous

technology. I replicate Model 1 to Model 6 in Table 3 with a different dependent variable,

the index of multimedia capability in Models 1 to 6 in Table 4 to estimate H2b. The

results show that the number of the Pulitzer Prizes and the quadratic term do not have

significant effects on presenting multimedia-enriched websites. In other words,

newspapers tend not to consider the development of multimedia capability differently by

their status. The results can be interpreted that it is only the distinctive feature of the new

technology that matters differently for organizations with different-status levels. Middle-

status newspapers focus more on the distinctive aspect of the new technology than other

organizations, since this aspect helps them move up the status hierarchy or become

another leader in the new market. Other factors might not matter much with respect to

status, and as a result, there tends to exist no effect of status on developing websites that

focus on these other factors, such as multimedia capability. Among control variables, the

length of web presence has a positive effect on multimedia capability and firm size plays

a more important role in multimedia capability as more financial resources are needed to

develop multimedia-related reporting skills (Peng, Tham, and Xiaoming, 1999).

Moreover, first movers also tend to suffer from the lack of available multimedia-related

technologies. Interestingly, if a parent media chain has a dual-class stock structure, a

newspaper is also less likely to focus on the multimedia capability when presenting its

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news on the web. Media conglomerates with dual-class stock tend to claim that they apply this type of stock structure for non-pecuniary benefits, that is, journalistic excellence (DeAngelo and DeAngelo, 1985) and the data shows that a member of this type of media chains often becomes reluctant to adopt any innovation, either interactivity or multimedia capability, which do not strictly follow general newspaper newsroom practices. Finally, the existence of the competitors in the same county also have a negative effect on developing websites with more multimedia capability, as they may want to differentiate their websites from the other competitors.

In sum, in this chapter, I examined that middle-status organizations tend to be the first among incumbent firms to adopt a discontinuous technology and tend to emphasize the distinctive aspect of the discontinuous technology in the implementation process. The empirical analyses largely support H1 and H2a by showing that there exist the U-shaped relationship between the number of the Pulitzer Prizes and the website launch time and the inverted U-shaped relationship between the number of the prizes and the level of interactivity on the web. However, H2b, which predicted that middle-status newspapers tend to focus less on another aspect of the discontinuous technology (because of their main focus on interactivity), is not supported. The results suggest that status and market identity matter only with respect to the distinctive aspect of the new technology. Based on these findings that middle-status organizations tend to be the most innovative in the adoption of a discontinuous technology, I then examine how the differences in adoption behaviors affect the adoption performance of discontinuous technologies in the next chapter.

CHAPTER FIVE. STATUS AND ADOPTION CONSEQUENCES
OF DISCONTINUOUS TECHNOLOGY

As previously mentioned, my dissertation examines two theoretically and

practically important aspects of the adoption of discontinuous technologies by incumbent

firms. The discussion so far has centered on the effects of status and market identity on

adoption behaviors, including adoption timing and implementation of discontinuous

technologies, by focusing on how middle-status organizations are different from other

high- and low-status organizations. Now, I concentrate on these differences in adoption

timing and adoption form, and study how the differences affect the adoption performance

at the status-group level and individual firm level.

Specifically, in this chapter, I examine the consequent effects of different

adoption timings and implementation methods on status-group-level performance and

individual-firm-level performance. First, the variations in adoption timing and adoption

form at the status-group level are examined. I argue that high-status organizations tend to

adopt discontinuous technologies at the most similar time points and in the most similar

forms, creating the lowest variations of their behaviors at the status-group level. High-

status firms often pay special attention to the behaviors of other high-status organizations

and tend to follow their behaviors quickly, especially under uncertainty, as in the case of

the introduction of discontinuous technologies. In contrast, low-status firms often imitate

a more diverse set of organizations compared to high-status organizations, and also tend to be less constrained by conformity pressures than middle-status organizations, creating the highest variations at the status-group level in terms of adoption timing and adoption form. Second, I argue that high-status organizations are likely to have the best adoption performance of the discontinuous technology. Unlike middle-status organizations, high-status organizations can avoid the uncertainty related to the discontinuous technology more successfully by not being the first adopters. Furthermore, high-status organizations can exploit their current set of resources by deemphasizing the distinctive features of the discontinuous technology to the existing technologies, whereas middle-status organizations need to build a new set of skills to emphasize the distinct features of the discontinuous technology.

Theory and Hypotheses

Discontinuous Technology and Category Creation

Before presenting my hypotheses about the adoption consequences of discontinuous technologies, I examine the role of discontinuous technologies in terms of category creation first, since the adoption performance have positive impacts on category creation, the final interest of my dissertation (Ruef, 2000; McKendrick and Carroll, 2001). Discontinuous technology has been identified as one of the main determinants of the creation of a product category (Hannan and Freeman, 1989; Anderson and Tushman, 1990; McKendrick and Carroll, 2001). The product category is a cognitive schema or

structured representation that divides the properties or features of a class of products and their producers into different dimensions and values on these dimensions (Murphy, 2004: 47; Lounsbury and Rao, 2004). The novel and unique technical characteristics of discontinuous technologies create differences for new product categories over other product categories by establishing boundaries around similar kinds of organizations (Hannan and Freeman, 1989; Dahlin and Behrens, 2005). Tushman and Anderson (1986), for example, stated that discontinuous technologies, especially competence-destroying product discontinuity, open up new product classes, such as diesel locomotives from steam locomotives and CT scanners from x-rays. Print-based newspapers also became a member of the new category, digital media, by offering news on the web with distinctive characteristics, such as interactivity, multimedia capability, and immediacy (Pavlik, 2008; Boczkowski, 2005). All of these features were almost impossible to be offered by using the old print-media related technology, creating the distinctive characteristics of the new product category, digital media.

An important factor to consider with respect to the newly created category is that external audiences have not yet fully established what to expect from the new product category and the group of organizations in the category before a dominant design for the new category emerges. As examined in Chapter Two, the dominant design of any product class, as the industry-wide agreement on core subsystems and their linking mechanisms of the product, defines how the product in question and its producers are "supposed to look and operate in the minds of" external audiences (Utterback, 1996: 25; Tushman and Murmann, 2003; Anderson and Tushman, 1990). The absence of the industry-wide dominant design for the new technology, therefore, indicates that the market identity of

producers, which adopted the discontinuous technology, has not been fully established and participants in the process can experiment with several options for potential market identities, depending on their own adoption motivations of the discontinuous technology. Print-based newspapers, as mentioned above, became a member of the new product category, digital media, by offering their news on the web, but external audiences have not fully understood how digital media is supposed to look and operate (Pavlik, 2008; Boczkowski, 2005). Newspapers, as a result, are in the ferment period and experiment with different forms of websites, which emphasized different aspects of the discontinuous technology, such as interactivity, multimedia capability, or immediacy.

The next natural question then is which adoption forms tends to become the dominant design for the discontinuous technology, defining the new category. The antecedents of the dominant design have not been explicitly studied in discontinuous technology literature (Tushman and Murmann, 2003; Utterback, 1996), but, it has been generally presumed that the dominant design is "only known in retrospect" (Anderson and Tushman, 1990: 614; Tushman and Murmann, 2003; Abernathy and Utterback, 1978). One exception is the attention paid to the number and the adoption performance of different adoption behaviors. In particular, the adoption consequences of different adoption behaviors have been identified to increase the legitimacy of the new technology (Carroll and Hannan, 2000; Ruef, 2000). Indeed, the dominant design is empirically defined as "when a single variant accounts for over 50 percent of new product sales or installation" (Tushman and Murmann, 2003: 328), meaning that the (best) adoption performance may have a significant impact on the emergence of the dominant design and consequent category creation. In the late 1930s, for example, one of the passenger

airplane manufacturers, Douglas, introduced an airplane model with distinctive features and many economical benefits. This model soon became the industry leader of the passenger industry as other firms quickly imitated its own model and in turn, Douglas' model emerged as the dominant design of the passenger industry (Tushman and Murmann, 2003). Hence, the adoption and implementation of discontinuous technologies mean the process of category creation and the adoption performance becomes one of the important factors to consider when understanding the potential outcome of this category creation process (Ruef, 2000; McKendrick and Carroll, 2001).

Uncertainty Created by Discontinuous Technologies and Imitative Behaviors

Based on the importance of the adoption performance of discontinuous technologies in terms of category creation, I focus on what the adoption consequences of different adoption behaviors with respect to discontinuous technologies are. First, I examine the adoption performance of a discontinuous technology at the status-group level, that is, how status and market identity affect the variances in adoption timing and adoption form at the status-group level. Discontinuous technologies, as discussed above, encompass a fundamentally different set of knowledge bases, routines, and capabilities from the current dominant technologies and markets. Discontinuous technologies, therefore, create uncertainty at the industry level, which is external to individual firms and shared within the industry (Beckman, Haunschild, and Phillips, 2004). As uncertainty at the industry level usually cannot be controlled by an individual firm, organizations under uncertainty strive to find solutions from outside of the organizations and first observe what other members in the same industry are doing (DiMaggio and Powell, 1983;

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Beckman, Haunschild, and Phillips, 2004). Indeed, scholars in many fields have shown that actors under uncertainty tend to systematically monitor the actions of other actors in the same field and imitate their actions if their attempts look advantageous (DiMaggio and Powell, 1983; Festinger, 1954; Haunschild and Miner, 1997; Greve, 1995; Rogers, 2003). When a discontinuous technology is first introduced in any industry, then, imitation becomes one of the main mechanisms for incumbent firms to resolve uncertainty, created by the new technology.

When imitation is prevalent because of discontinuous technologies, to whom to pay attention becomes another important question. Previous literature on diffusion has identified two candidates that organizations tend to imitate –similar organizations or high-status organizations (Gould, 2002; Haveman, 1993; Lieberman and Asaba, 2006; Burt, 1987). The first candidate of the imitatee is the organization that is similar to the focal organization in terms of structure, strategy, size, resources, or constraints (Haveman, 1993; Greve, 1995; Simon and Lieberman, 2010). Specifically, organizations facing uncertainty pay keen attention to those that are located in similar positions in the social system, in other words, those with similar-status levels (Gould, 2002; Labianca et al., 2001; Abrahamson and Rosenkopf, 1993; Haunschild and Miner, 1997). Organizations with similar- or the same-status levels often share similar resources: high-status organizations share similar customers, potential employees with high quality, or analysts who tend to cover similar-status organizations together (Peteraf and Shanley, 1997). The same-status organizations also confront similar constraints: middle-status organizations face the strongest conformity pressures, as examined previously (Phillips and Zuckerman, 2001). The actions of similar-status organizations, therefore, provide the most vivid and

direct potential solutions to the focal organization's situation under uncertainty (Burt, 1987). Organizations facing discontinuous technologies, therefore, may be interested in knowing how other organizations with similar-status levels are reacting to it and tend to imitate their actions if necessary.

The second candidate of the imitatee is a high-status organization (Haveman, 1993; Haunschild and Miner, 1997; Lieberman and Asaba, 2006; Still and Strang, 2009). The behaviors of high-status organizations serve as role models for other organizations, because of the visibility of their high-status positions in the social system. Moreover, high-status firms and their actions are influential to the process of legitimacy, that is, the process of being accepted as a member of a certain category (Suchman, 1995). The legitimacy level of any innovation, including discontinuous technology, thus, is positively and disproportionally associated with whether or not high-status organizations adopted that new innovation (Rao, Monin, and Durand, 2003; Davis and Greve, 1997; Barreto and Baden-Fuller, 2006). The actions of high-status organizations, hence, become another good reference point for organizations under uncertainty and they tend to adopt organizational practices that have been adopted by high-status organizations (Haveman, 1993). For example, the high-status corporation's adoptions of a new governmental practice, such as the poison pill, had a positive effect on its diffusion (Davis and Greve, 1997). Similarly, high-status chefs in the French restaurant industry had a positive impact on the institutional change from classical cuisine to nouvelle cuisine (Rao, Monin, and Durand, 2003): high-status positions of early defectors conferred legitimacy on the identity movement from classical cuisine to nouvelle cuisine, encouraging more chefs to abandon the rules of classical cuisine to embrace nouvelle cuisine.

Status and Variance in Adoption Timing and Form

Based on two mimetic processes –imitation of similar-status organizations and imitation of high-status organizations, I argue that there exist status-group-level differences in their variances in the adoption timing and adoption form of a discontinuous technology. First, in terms of adoption timing, high-status organizations tend to adopt the discontinuous technology at the most similar points in time with other high-status organizations, because they "respond to two mimetic pressures acting in concert" (Haveman, 1993: 600). High-status organizations pay attention to the actions of other similar-high-status organizations when they are uncertain about whether or not to experiment with discontinuous technologies as "high-status firms will engage in intense scrutiny of one another" (Peteraf and Shanley, 1997: 175). As a result, if one high-status organization adopts the discontinuous technology, then other high-status organizations follow their high-status peer quickly, producing the low variance in adoption timing as a group. Although digital media had been available for a while since the introduction of the World Wide Web in late 1993 (Dotinga, 1999), for example, the high-status newspapers –the *New York Times*, the *Los Angeles Times*, the *Washington Post*, and the *Wall Street Journal*, which are perceived as being "in a class of their own" or "the elite newspapers" in the U.S. daily newspaper industry (Jones, 2009: 10, 15), launched their own websites in the same year, in early 1996. The variance in adoption timing, therefore, is the lowest for high-status organizations.

Middle- and low-status organizations are also affected by two mimetic processes –similar organizations and high-status organizations, when they decide whether or not to adopt the new technology. However, since those two pressures do not act in concert for

middle- and low-status organizations, the variances in their adoption timing are higher than that of high-status organizations. More importantly, middle- and low-status organizations face different levels of conformity pressures and in turn, they may have different variances in adoption timing from each other. First, middle-status organizations tend to be the first to experiment with discontinuous technologies as argued in Chapter Four, because they have the strongest need for innovation without violating conformity pressures. Discontinuous technologies relax the conformity pressures on them since conformity pressures for the new technologies have not yet been established. Of course, the perception of gain does not mean that every middle-status organization adopts the discontinuous technology quickly. Some middle-status organizations might have idiosyncratic constraints or motivations not to adopt it faster than other organizations. Once all the other high-status organizations adopt the discontinuous technology, however, these other middle-status firms are no longer free from conformity pressures. By adopting the discontinuous technology, high-status organizations have legitimized the discontinuous technology (Rao, Monin, and Durand, 2003; Davis and Greve, 1997) and the conformity pressures related to this new technology become activated.

In contrast, low-status organizations usually have fewer resources to invest in the new technology in order to be its first adopter, but they tend to be freer from conformity pressures than middle-status organizations (Phillips and Zuckerman, 2001). As examined in the previous chapter, low-status organizations may feel the need for adopting discontinuous technologies to a lesser degree than middle-status firms because they tend to be more reluctant to adopt discontinuous technologies. Furthermore, low-status organizations tend to have fewer opportunities to access resources than middle-status

organizations, because they are not often regarded as a member of the category by external audiences, that is, resource providers (Hannan, Pólos, and, Carroll, 2007). This means that it is likely that low-status organizations are slower than middle-status organizations in adoption timing. For example, low-status newspapers, in general (but not necessarily), are small and they often lack necessary resources, such as online dedicated staff or multimedia reporting and media skills, to launch their own websites successfully (Lowrey, 2003). Nevertheless, as middle-status conformity literature argues, low-status organizations are less likely to be sanctioned by not following conformity pressures than middle-status organizations. For example, some low-status, but not small newspapers, such as the *Los Angeles Daily News*, the second-largest circulating daily newspapers in Los Angeles, California, persisted in launching their own websites for several years, even after their neighbor high-status newspaper, such as the *Los Angeles Times*, launched its website. In sum, the variance of adoption timing is the highest for low-status organizations.

The same logic may be applied to the variance in adoption form at the status-group level. High-status organizations have strong incentive to maintain the status-quo since their high-status positional benefits stem from the current social system (Podolny, 2005). I argued that by deemphasizing the distinctive features of the new technology in implementation, high-status organizations tend to attempt to maintain the status quo. By engaging in the deemphasizing actions *together as a group,* high-status firms can reinforce their attempt of preserving the status quo (Lieberman and Asaba, 2006). High-status organizations, therefore, are likely not only to adopt the new technology at the most similar time points, but also to implement the technology in a coherent way,

especially by deemphasizing the distinctive features of the new technology.[14] In contrast, since low- and middle-status firms tend to experience positional disadvantages against high-status organizations in the current market and they have less incentive to maintain the status quo than high-status organizations do, low- and middle-status firms tend to act less coherently as a group than high-status organizations. Furthermore, because of the stronger conformity pressures on middle-status firms, middle-status firms tend to pay more attention to high-status organizations than low-status firms, thereby decreasing the variance in adoption form at the status-group level compared to that of low-status organizations. Hence, high-status firms, as a group, tend to implement the new technology in the most coherent way that deemphasizes the distinctive characteristics of the new technology, whereas low-status firms tend to respond to the new technology in the most diverse way.

INSERT FIGURE 4 ABOUT HERE

These arguments suggest that the variances in the adoption timing and adoption form of discontinuous technologies for low-status organizations are higher than those for middle-status organizations, which are, in turn, higher than those for high-status organizations as shown in Figure 4. In the empirical setting of my dissertation, the U.S.

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[14] Of course, similar actions regarding the distinctive aspects of the discontinuous technology do not mean that all of the high-status organizations may focus on exactly the same features in the implementation process. In the daily newspaper industry, the websites of high-status newspapers indeed highlight different aspects of digital media. The *Wall Street Journal*, unlike other high-status newspapers, for example, is one of the very few newspapers that have been successful for charging for web access (Anderson, 2009).

daily newspaper industry, there also exist the variances in the adoption timing and adoption form of the discontinuous technology, digital media, for print-based newspapers with different status levels. As examined above, high-status newspapers as a group tended to launch their websites at the most similar points in time and often developed websites that look the most similar to other high-status organizations, especially, with respect to the distinctive aspect of the new technology. In contrast, a group of low-status newspapers often showed more variances in terms of website launch date and developing components of their websites. Therefore, my next hypotheses are:

H3a: The variance in the adoption rate of digital media for high-status

newspapers is lower than that of any other newspapers.

H3b: The variance in the adoption form of digital media for high-status

newspapers is lower than that of any other newspapers.

H4a: The variance in the adoption rate of digital media for low-status

newspapers is higher than that of any other newspapers.

H4b: The variance in the adoption form of digital media for low-status

newspapers is higher than that of any other newspapers.

Adoption of Discontinuous Technology and Firm Performance

The discussion so far has been centered on how status and market identity affect discontinuous technology adoption timing, adoption form, and group-level variance in adoption timing and adoption form. In this section, I examine how status influences the

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adoption performance of discontinuous technologies at the individual firm level.
Specifically, I focus on three different types of firm performance–performance in the
existing market, performance in the new market created by a discontinuous technology,
and combined performance in both markets. The introduction of discontinuous
technologies does not indicate the sudden performance change in the current market
(Gilbert, 2003). It often takes time for discontinuous technologies to replace existing
technologies even if discontinuous technologies achieve their potential. In the newspaper
industry, digital media was introduced over fifteen years ago, but, the market for print-
based newspapers is still significantly large with the total circulation of more than 45
million a day in the U.S. in 2011 (NAA, 2011). Media critics even have contradicting
predictions about the future of newspapers in print (Jones, 2009; Rosenberg, 2009; Meyer,
2009). Some argue that print-based newspapers will extinguish in a decade (Dawson,
2010), while others predict that print- and online-based media will co-exist (Meyer, 2009;
Jones, 2009). Therefore, it is critical to examine firm performance not only in the new
market created by the discontinuous technology, but also in the existing market in order
to understand the adoption performance of discontinuous technologies by incumbent
firms.

Based on different types of performance, I argue that middle-status organizations
are likely to experience the lowest performance, with respect to all three types of
performance, because of their distinctive adoption behaviors regarding discontinuous
technologies. In the previous chapter, I argued that middle-status firms tend to be the first
to adopt a discontinuous technology in order to capture its potential first. By being the
first-movers, however, these middle-status organizations also confront the uncertainty

related to the discontinuous technology the most (Lieberman and Montgomery, 1988). Not all discontinuous technologies achieve their potential as discontinuous technologies per se and the adoption process of these technologies inherently possess deep uncertainty (MacKenzi, 1996; Anderson and Tushman, 1990). Moreover, first movers might miss the best opportunities because of technological and market uncertainty when the technology is first introduced (Lieberman and Montgomery, 1988; 1998). Although web publication has become popular in the U.S. daily newspaper industry, for example, other technical alternatives, such as videotex, teletex, or audiotex, which had been introduced before digital media, turned out to be financially unsuccessful (Boczkowski, 2005), meaning that digital media also could have been unsuccessful. The first-mover newspapers also tend to have less effective websites as the best available techniques were not available when they launched their websites (Sundar, 2000; Zeng and Li, 2006). In conclusion, the introduction of a discontinuous technology makes the first-mover disadvantages more salient, and the middle-status organizations, therefore, tend to be outperformed by other groups, in the new market by being the first to adopt the discontinuous technology.

Since middle-status adopters tend to emphasize the distinctive characteristics of the discontinuous technologies in implementation, they also need to develop a new set of resources and skills for this emphasis. Organizational changes often produce "a liability of newness" (Hannan and Freeman, 1984: 160), and middle-status organizations, thus, tend to suffer the liability of newness by developing this new set of resources and skills. As examined in Chapter Three, for example, interactivity means the change in the role of newspapers in the news creation process (Boczkowski, 2005): Newspapers are no longer the sole producers of daily news, but they become the facilitators of news creation by

readers (Schultz, 1999; Chung, 2007). Hence, reporters and editors need to be retrained in order to handle and control the flow and quality of reader-created contents, which are very different from what they are accustomed to, that is, news reporting. Previous studies in first-mover disadvantage literature have indeed identified that first-movers tend to be outperformed by followers in the new market, to the extent that the followers have better resources or capabilities (Lieberman and Montgomery, 1998). I approach the disadvantage of middle-status organizations from a slightly different angle and argue that this disadvantage is not only an ordering effect. By focusing on the distinctive aspect of the discontinuous technologies and creating a new set of skills, middle-status organizations also put themselves into a relatively disadvantageous place compared to high-status followers that focus on the exploitation of their current resources and capabilities. Investment in the new set of skills also indicates that the middle-status firms might experience disadvantage in the current market, too, given the limited amount of resources or attention any firm can possess.

In contrast, a high-status position functions as a mechanism underlying the second mover advantages for the occupants of that position. First of all, the products and services of high-status organizations tend to be trusted mostly under uncertainty (Podolny, 1993; 2005): there is, on average, "an *ex post* positive correlation between an actor's status and the acknowledged importance of that actor's innovation" (Podolny and Stuart, 1995). This advantage means that high-status organizations in general outperform other incumbent firms, including low-status organizations with similar adoption behaviors. More importantly, I argued that high-status organizations are not one of the earliest to adopt the technology and tend to deemphasize the distinctive characteristics of the new

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technology. These differences in adoption behaviors of discontinuous technologies help high-status organizations have best adoption performance, in both markets. First, high-status organizations can avoid the uncertainty related to discontinuous technologies more successfully than the first-middle-status organizations by not being the first adopters of the discontinuous technology (Lieberman and Montgomery, 1988; 1998). Since high-status organizations have abundant resources from their high-status positions to catch up with the first-movers when their attempts look promising, high-status firms, therefore, can observe the behaviors of other organizations first, before more actively participating in the new market created by the new technology (Conner, 1988; Mitchell, 1989). Hoppe (2000) similarly argued that the uncertainty about the profitability of any innovation makes the second-mover advantages more salient; therefore, high-status adopters can modify their adoption decisions based on the knowledge of the (potential) profitability of the first-movers.

Furthermore, high-status organizations tend to have more resources and capabilities to more successfully adopt the new technology than any other organizations. Interestingly, among the abundant resources and skills of high-status organizations, one of the most important resources in this implementation process of the discontinuous technology is ironically their organizational inertia. Organizational inertia is generally regarded as one of the main reasons why firms often fail to change, such as adopting a new potentially beneficial technology (Hannan and Freeman, 1984). By emphasizing the similar aspects of the discontinuous technology in implementation, however, high-status firms attempt to create a situation where their organizational inertia can be, in effect, beneficial. If the discontinuous technology becomes less discontinuous as they try to do

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so, high-status organizations can exploit their existing resources and skills in the new market created by the discontinuous technology and fix the technological trajectory of the discontinuous technology around their old resources (Mitchell, 1989). Indeed, many studies in status literature argue that to the extent the logics of the new market are similar to those of the existing market, high-status organizations can transfer their high-status positional benefits from the existing market to the new market (Podolny and Scott Morton, 1999; Jensen, 2003). By emphasizing the similar aspects of the new technology, high-status organizations attempt to make the logics of the new market created by the discontinuous technology similar to those in the existing market. High-status organizations, therefore, often have better performance in the new market without sacrificing a significant amount of resources to recreate the new set of skills, which also helps them to have better performance in the current market.

In total, I argue that middle-status organizations may have the worst performance, not only in the new market created by the new technology, but also in the existing market, which also results in the worst combined performance. In contrast, high-status organizations may experience better performance in both markets than any other organizations. Therefore, in the newspaper industry, middle-status newspapers may have the worst print-, online-, and combined-readership, whereas high-status newspapers may have the best readership in all three types of markets. However, it is important to note that I argue that middle-status (high-status) newspapers tend to experience the worst (best) adoption performance of the discontinuous technology, not because of their structural positions per se, but because of their first (second) adoption and their emphasis (de-emphasis) on interactivity. Then, empirically, I am more interested in whether the length

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of web presence or the level of interactivity, not the level of status, may have positive or negative impacts on firm performance. In the U.S. daily newspaper industry, therefore, newspapers that have been present on the web or that have developed websites with more interactive features may have the worst print, online, and combined readership. Based on these arguments, I suggest the following hypotheses:

> *H5a: Newspapers that have been present on the web longer have lower print-based readership than any other newspapers.*
>
> *H5b: Newspapers that have developed websites with more interactive features have lower print-based readership than any other newspapers.*
>
> *H6a: Newspapers that have been present on the web longer have lower online-based readership than any other newspapers.*
>
> *H6b: Newspapers that have developed websites with more interactive features have lower online-based readership than any other newspapers.*
>
> *H7a: Newspapers that have been present on the web longer have lower combined-based readership than any other newspapers.*
>
> *H7b: Newspapers that have developed websites with more interactive features have lower combined-based readership than any other newspapers.*

Method

Sample

My sample for the adoption consequences of the discontinuous technology, digital media, includes 207 daily print-based newspapers in the U.S. as described in Chapter Three. First, for the variance arguments, I focus on the period of 1993 to 2003 and the period of 2001 and 2007, respectively, as I did for the adoption behavior arguments in Chapter Four. I use the same sources, the *Editor and Publisher International Yearbook* and the Internet Archive to capture the website launch date on a yearly basis and the average interactivity level of newspapers' websites. For the last set of the hypotheses, I focus on the period of 2007 to 2009, which will be described in detail below. The data source was obtained from Audience-FAX, a U.S. daily newspaper audience-reporting initiative by the Audit Bureau of Circulation (ABC), the most credible U.S. circulation-auditing organization. Audience-Fax has provided a semi-annual measure of newspaper readership, that is, a combined measure of print and online readership since 2007. The detailed offline and online readership information of about 100 newspapers is available and I aggregated the semi-annual data into annual data points to match to other annual measures.

Specifically, the period of 2007 to 2009 helps to understand the differences in adoption performance theoretically and practically, because newspapers have concentrated on both print and digital media during this time frame. Digital media was believed to enable newspapers to publish news very cheaply, thus, generating unprecedented opportunities to expand readership. However, digital media also has

accelerated the decline in print-based newspaper readership, without suggesting a new

financially viable business model for digital media (Jones, 2009). Most newspapers have

been undergoing severe cutbacks and layoffs and some of them even ceased publishing a

print edition and went web-only. Specifically, the dramatic transformation in the

newspaper industry has been accelerated since the sudden economic recession in 2008,

triggered by the collapse of the financial institutions. Seventy to eighty percent of a

newspaper's revenue comes from advertising revenue (Blaser et al., 2007) and the sudden

drop in advertising revenue after the economic recession has intensified newspapers'

response to digital media. Furthermore, the Pulitzer Prize, the indicator of status in the

newspaper industry, has accepted online-journalism in entries since 2007 (Gissler and

Farmer, 2006), meaning that digital media has been regarded as a legitimate player in the

field. Finally, Audience-FAX has reported print, online, and net-combined readership

data since 2007. Several other sources may have published online traffic data before 2007,

but Audience-FAX is one of the most comprehensive sources that cover more

newspapers' websites in a coherent way (Perry, 2009). In conclusion, I focus on the

period of 2007 to 2009 to examine the consequences of different adoption behaviors of

digital media.

Dependent Variables and Independent Variable

There are four dependent variables to measure the adoption consequences of the

discontinuous technology, digital media, for print-based newspapers. The dependent

variable for the variance in adoption timing analyses is the duration of website launch on

a yearly basis (*Year Duration*). I measured how long it took for a newspaper to launch its

website from a starting reference point on a yearly basis. The reference point for the duration calculation is when the first journalism site on the web was launched at the University of Florida in year 1994, October 1993 (Carlson, 2005). As in Chapter Four, a year starts in October, in a year before the given year, and ends in September in the given year, following the ABC's definition of a year. For example, if a newspaper launched its website in August, 1996, the value of the year duration variable is three years. For the dependent variables for the adoption-form variance analyses, I employed the interactivity variable used in the previous analyses (refer to Appendix). Every year from 2001 to 2007, I obtained the average index of interactivity of four front pages per year (collected per quarter), having an annual total of 9 points. Then, I summed the average index of interactivity for five successive years to create the next dependent variable, the level of five-year interactivity (*Five-year interactivity*).[15] The first year in which this five-year interactivity dependent variable is available was 2006, based on the average levels of interactivity from the period of 2001 to 2005 and I obtained four five-year interactivity measures from 2006 to 2009.

Second, for the dependent variables for adoption performance, I measured three different types of newspaper performance, which are print-based readership, online-based readership, and the combined measure of print- and online-based readership. In order to measure print-based readership, I used the print circulation from 2007 and 2009 in the same way as stated in Chapter Four. For the online readership and combined readership measurements, I employed online readership and net-combined audience data from

[15] For the sensitivity tests, I also used different windows of time (two, three, and seven years). The statistical results did not change substantially with other measures, therefore, I did not report the results in my dissertation.

Audience-FAX. According to the definition of performance by Audience-FAX, online

readership means the number of audiences that visited the website of a newspaper during

the past 30 days and this number is inferred from telephone interviews of audiences in the

designated market area (DMA) of the newspaper. The designated market area (DMA) is a

standardized television viewing area (ABC, 2011). Each newspaper, which is audited by

the ABC, is assigned to one DMA, that is, the geography for readership, and its online-

readership is defined with respect to its own DMA. Similarly, the net-combined audience

refers to the number of audiences within the DMA that read newspapers in print or

visited the website during the past 30 days without duplication. For all three types of

performance measures, I took the natural logarithm of each performance variable because

of its decreasing effect of size and the skewed distribution (*Print Circulation [ln]*, *Online*

Readership [ln], and *Combined Readership [ln]*).

The main independent variable for the variance arguments is a status-group

measure (*Status Group*). I divided the sample into three different status-groups by the

cumulative number of the Pulitzer Prizes or nominations (*Status Group*: low-status group,

no Pulitzer Prizes; middle-status group, more than or equal to one Pulitzer to less than or

equal to three Pulitzer prizes; high-status group; more than three Pulitzer Prizes or

equivalent nominations).[16] For the adoption timing arguments, I split the sample based on

the number of the prizes or nominations obtained through 1994 and for the adoption form

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[16] I arbitrarily divided the sample into three groups with similar sizes (82, 84, and 41
newspapers in low-, middle-, and high-status group, respectively). Even if I divide the
sample into more realistic, but more unbalanced groups (low-status group: no Pulitzer
Prizes, middle-status group: more than or equal to one and fewer than ten Pulitzer Prizes,
and high-status group: more than or equal to ten Pulitzer Prizes), the results remain
largely unchanged. Please refer to the equation on page 71 for the calculation of the
cumulative number of the Pulitzer Prizes and nominations.

arguments, on that of the prizes through 2001.[17] The main independent variables for

adoption performance are the length of web presence and the level of interactivity of a

newspaper's website (*Web Presence Length* and *Five-Year Interactivity*). I argue that

middle-status newspapers tend to have worse adoption performance because of the first-

mover disadvantages and the development of a new set of skills and resources. In order to

capture these effects, I measured the length of web presence on a yearly basis and the

level of a website's interactivity during the previous five years.[18]

Control Variables: Performance Analyses

For the variance arguments, I do not need control variables, because I examine the

variances (in adoption timing or adoption form) by status group only. For the

performance arguments, I use a number of variables to control for alternative

explanations for the performance hypotheses. At the newspaper level, I controlled

whether a newspaper has a separate online newsroom in its organizational structure to

capture the potential effects of different emphases on print- or online-based performance

(*Online Newsroom*). Also, I controlled whether a newspaper used other alternative

delivery methods to the Internet or print. Audiotex, a voice information system over a

telephone, was commonly used by many newspapers to deliver their news even during

the period of 2007 and 2009. I coded a dummy variable to indicate whether a newspaper

operates an audiotex service in the given year (*Audiotex*). I also included the price of a

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[17] A very few newspapers changed their status-group membership during the period of
interest. Excluding those newspapers or changing their memberships also did not have
impacts on the overall statistical analyses.

[18] Note that the dependent variables in the previous analyses served as independent
variables in the current analysis.

newspaper and the advertising rate (*Issue Price* and *Ad Rate*). Daily newspapers can be published in weekdays, on Saturday, on Sunday or any combination of these, and different issues generally have different retail prices and advertising rates. I thus calculated both the average price for one issue and the average rate for advertising, using the same formula I employed for the average circulation (Meyer, 2009).

$$Average\ Price\ or\ Rate = \frac{(Morning\ or\ Evening \times 5 + Saturday + Sunday)}{Number\ of\ Issues\ Per\ Week}$$

Finally, most of the newspapers are suffering a significant circulation drop, especially after the sudden economic recession in 2008 (Jones, 2009). However, there are a few newspapers that have shown a financial growth during this difficult period (E&P, 2010). Therefore, I also included a dummy variable, coded as a "1" if a newspaper experienced at least a five percent increase in its circulation in the previous year to control for any impact of the positive performance in the previous year on this-year firm performance (*Positive Previous Circulation*).

The broader environments, in which a newspaper is located, including its parent company or geography, may also affect its adoption performance of digital media. First, I controlled for two characteristics of its parent company, because whether the newspaper is a member of a larger media chain or whether that media conglomerate has a dual-class stock structure may have different impacts on adoption performance (*Media Conglomerate* and *Dual-Stock Structure*). Regarding different consumption behaviors of newspaper depending on readers' age or education level (Mindich, 2005), I also measured the proportion of the young generation and that of highly-educated audiences in the newspaper's county. The young generation is comprised of the population between 18 to 34 years old and the highly-educated population is defined as those possessing a

bachelor's degree or more education in the given county (*County Young Generation Rate* and *County High Education Rate*). The annual county-level data from 2007 to 2009 was obtained from the American Community Survey (ACS) of the U.S. Census Bureau and was matched to each newspaper that primarily represents the county (ACS, 2011). Finally, I also measured the population size of the county since the size of the primary market tends to have a significant effect on newspaper performance (Meyer, 2009) (*County Population*).

Annually updated *Editor and Publisher International Yearbook* data and ACS date from 2007 to 2009 for the performance analyses were used to measure all the control variables. Table 5 contains summary statistics and bivariate correlations.

INSERT TABLE 5 AROUND HERE

Statistical Analyses

I apply two different types of statistical analyses. For the variance arguments, I use the homogeneity of variance test (Levene, 1960; Brown and Forsythe, 1974; Markowski and Markowski, 1990), and for the performance arguments. I use the regression model to panel data (Baum, 2006; StatCorp, 2005). First, for the variance arguments, the distributions of dependent variables, especially that of adoption duration, tend to have fat-tailed and skewed distributions. In order to estimate the equality of variances, I therefore applied the Levene's test, which is known to be robust under non-normality (Markowski and Markowski, 1990). For the sensitivity check, I applied the

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Brown-Forsythe test, which did not change the results substantially, and will not be reported in my dissertation. Second, for the performance arguments, since the sample is a panel data with the observations of 156 newspapers during three years from 2007 to 2009, I estimate fixed-effects models, focusing on testing within-firm variation over time (Judge et al., 1982). I also included a year dummy to control for year-fixed effects.

Results

Figures 5 and 6 present the variances in adoption timing and adoption form depending on different status-groups. Table 6 to Table 8 show the results of the fixed-effect panel regression analyses of three performance dependent variables, print circulation, online readership, and net-combined readership, respectively. As in the analyses in the previous chapter, all of the models were also estimated without the *New York Times* because of this paper's unique social position in the U.S. newspaper industry.

Results for Variance Analyses

First, in Figure 5, I examine whether the variances of adoption timing differ significantly by status group, which provides support for Hypothesis 3a only that predicted that high-status organizations as a group tend to adopt the new technology at the most similar points in time. As shown in Figure 5 and as the Levene's test indicates (Levene's $F_{(3, 203)} = 7.42$, p value < 0.001), the variances for different status groups on a yearly basis are not statistically equal. Specifically, Figure 5 shows that the variance of

yearly-website-launch date for high-status newspapers (ones with more than three Pulitzer Prizes in 1994) is indeed lower than that of any other status group. The overall standard deviation of yearly adoption timing is 1.56, whereas the standard deviation for high-status organizations is 0.89. If I compare the variance for high-status organizations with that for the remaining members, I can also reject the null hypothesis that the variance for other groups is not larger than the variance for high-status organizations (Levene's $F_{(1, 204)} = 12.17$, p value < 0.001), which strongly support H3a. However, unlike Hypothesis 4a, which predicted that the variance for low-status newspapers is larger than that of any other groups, the variance for middle-status organizations (with one to three Pulitzer Prizes), not that for low-status organizations, is larger than that for any other group (Levene's $F_{(1, 204)} = 6.35$, p value < 0.01). Excluding the *New York Times* from any analysis does not change the results significantly.

INSERT FIGURE 5 AROUND HERE

Figure 6 presents the variances of the level of interactivity on a newspaper's website during the previous five years by status group in order to examine Hypotheses 3b and 4b, which examine the group-level variance in terms of adoption form. I examine the variance differences of the interactivity levels of newspapers' websites for four years, from 2006 to 2009, and the first two analyses in 2006 and 2007 indicate that I cannot reject the null hypothesis that the variances are equal (Levene's $F_{(2, 160)} = 0.87$, p value $= 0.43$ and Levene's $F_{(2, 158)} = 1.22$, p value $= 0.30$, respectively). However, the Levene's tests for 2008 and 2009 show that the variances for different groups is

statistically not equal (Levene's F (2, 159) = 2.68, p value = 0.07 and Levene's F (2, 162)

= 4.45, p value = 0.01, respectively). Furthermore, as is visible in Figure 6, the variances

for high-status organizations appear to be larger than those for other status-groups. The

Levene's tests for all the years confirm that the variance of interactivity level for the

high-status newspaper group is (marginally) larger than that for the middle-status group

(Levene's F (1, 107) = 1.79, Levene's F (1, 107) = 2.49, Levene's F (1, 107) = 4.90, and

Levene's F (1, 109) = 4.94, p values =0.09, 0.06, 0.02, and 0.01 respectively). In contrast,

the variances for the middle- and low-status groups are not statistically different. The

results for both the variances in adoption timing and adoption form in general do not

represent what I predicted previously in H3b and H4b, and in effect, the results show the

opposite direction for H3b. These results will be discussed in greater detail in Chapter Six.

INSERT FIGURE 6 AROUND HERE

Results for Performance Analyses

Table 6 presents the effects of adoption behaviors of digital media on print

circulation, the performance in the current market and offers overall support for

Hypotheses 5a and 5b, which predicted that middle-status organizations have worse

performance than other organizations because of the first-mover disadvantage and their

emphasis on the new aspect of the new technology. Model 1 in Table 6 provides a

baseline model only with control variables and the result presents that if a newspaper

experienced a positive performance (of a five-percent or more increase in circulation) in

the previous year, its circulation increases by nineteen percent. An increase in the price of a newspaper and an increase in the population holding a bachelor degree or more education marginally reduce circulation by seven percent and by seventy percent, respectively. Model 2 adds the number of the Pulitzer Prizes, whose effect is not statistically significant. Model 3 also includes the square term of the Pulitzer variable, and raises the possibility of non-monotonic status effects on print circulation. Although the first term is not statistically significant, the inverted U-shaped relationship indicates that being nominated for the Pulitzer Prize for the first time may increase circulation, but an increase in the cumulative number other than the first nomination has a negative impact on print circulation.

I add the two independent variables, the web experience and five-year interactivity variables separately in Models 4 and 5 in Table 6, as I argued in H5a and H5b. The results provide strong support for H5a and H5b, as each variable has a negative impact on print circulation, reducing it by 4.5 percent and 0.5 percent, respectively. In Model 6 in Table 6, I include both variables, and the length of web presence only has a significant impact on print circulation, once the level of interactivity is controlled for. The results can be interpreted that with respect to the performance in the current market, the length of the operation in the new market created by the discontinuous technology may have a more negative impact than what type of websites to develop. Excluding the *New York Times* does not change the results as in Model 7.

INSERT TABLE 6 AROUND HERE

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Table 7 presents the results of the online readership analyses, providing partial support for Hypothesis 6b only, which stated the negative effect of interactivity on online-readership. Model 1 in Table 7 includes only the control variables and the result shows that if a newspaper becomes a member of a media chain, then its online readership increases by thirty percent. In addition, if the proportion of the young population increases in the county where the newspaper is located, then online readership decreases accordingly and this finding mirrors previous studies that the young generation tends to read newspapers less (Mindich, 2005). In Models 2 and 3, I add the Pulitzer variable and its square terms, and the results show that adding the Pulitzer variable only has a significant impact on online readership. Winning more prizes has a positive impact on online readership by forty seven percent. Digital journalism is argued to be better-fit to quick and light news (Jones, 2009), thereby decreasing the reliability of news articles further. As it becomes more difficult to evaluate the quality of newspaper articles prior to news consumption, people start to rely more on the status of an organization (Podolny, 1993), which can explain the positive effect of the status of a newspaper on online readership.

In Models 4 and 5 in Table 7, the web experience and five-year interactivity variables are included, respectively, and the results show that only the length of web presence increases online readership by nine percent, providing an opposite prediction for H6a. The result indicates that there are some advantages of entering into the new market earlier at least with respect to the adoption performance in the new market. Developing a more interactive website does not increase online readership and if I include both variables as in Model 6, developing an interactive website has a negative impact on

online readership, marginally, once the length of web presence is controlled for. This result provides partial support form H6b and also mirrors previous studies (Chung, 2007), since it becomes more difficult to control for the quality of reader-created contents when more people participate in the interaction, therefore decreasing online traffic.[19]

INSERT TABLE 7 AROUND HERE

Finally, Table 8 presents the effects on net-combined readership, the unduplicated number of people who read a newspaper in print or visited the website, and the table offers strong support for Hypotheses 7a and 7b, which argued the negative effect of web presence and interactivity on combined-readership. Model 1 in Table 8, the base model, shows that an increase in the price of a newspaper marginally increases net-combined readership by six percent. An increase in the number of the county population and an increase in the proportion of highly-educated people in the county have opposite effects on net-combined readership. In Models 2 and 3, I add the Pulitzer variable and its square term, and the results indicate that any increase in the number of the Pulitzer Prizes a newspaper received during the three-year period does not have any statistically significant impact on net-combined readership. As shown in Models 4 and 5, however, the length of web presence and interactivity level have negative effects on net-combined readership, providing strong support for H7a and H7b. If both variables are included in the analysis, only the level of interactivity reduces net-combined readership, marginally:

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[19] The online readership and net-combined data for the *New York Times* was not available for the current study, therefore, there are no separate models estimating the effects of all variables without the *New York Times*.

the more interactive websites a newspaper had in the previous five years, the fewer

audiences it has in the current year.

INSERT TABLE 8 AROUND HERE

It is important to note, before presenting the discussion section, that the inclusion

of either the length of web presence or the interactivity variable drops the significances of

the status effect on print circulation or online readership in all the Models in Tables 6 and

7. Specifically, in Table 7, which examines the effects on online readership, the effects of

the number of the Pulitzer Prizes become non-significant, once I included either the web

experience or the interactivity variable. It can be argued that the effects of the number of

the prizes on online readership are primarily because they have been experiencing the

first-mover disadvantages or they have developed websites with interactive features.

In sum, I argued that there exist status-group-level variance differences in terms

of adoption timing and adoption form, but, the results support H3a, only one of the four

hypotheses that argues that the high-status group tends to adopt the discontinuous

technology at the most similar time points. The performance hypotheses, from H5a to

H7b, however, are supported overall. Organizations that tended to be the first adopter and

have developed websites with more interactive features are likely to have negative

adoption performance. In the next chapter, I discuss these general findings, especially, the

unexpected results of the variance arguments.

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CHAPTER SIX.   DISCUSSION

The Importance of Status and Market Identity
in Adoption Behaviors of Discontinuous Technology

In Chapter Four, there is overall strong support for the arguments that the number of the prizes, that is, the status and market identity of a newspaper, affects the adoption behaviors of the discontinuous technology, digital media, in the U.S. daily newspaper industry. I argued that middle-status newspapers can be the most innovative in terms of adoption timing and adoption form, by being the first to adopt the new technology and by emphasizing its distinctive feature, interactivity. In contrast, high- and low-status newspapers are unlikely to be the first movers and focus on deemphasizing interactivity in implementation. As the results in Table 2 indicate, middle-status organizations indeed tended to launch their website faster than other organizations on a yearly basis. Of course, the yearly data is a coarse measure of adoption timing. In order to obtain more fine-grained data, I collected the website launch data on a monthly basis. I derived more detailed information about the website launch date from the NewsBank database, a database that contains archived articles for about 200 newspapers since 1993, or newspapers' own websites: Newspapers often reported the launch of their own websites

in their own articles or in the history section of their website. Based on these sources, I

obtained the website launch dates of 97 newspapers on a monthly basis.

I then estimated the same adoption-timing analyses with the monthly launch date

data. Month 1 begins in October, 1993 when the first journalism site on the web was

launched at the University of Florida (Carlson, 2005) and it ends with Month 111 in

December, 2002. The results of the monthly analyses in Table 9 provide strong support

for H1 again. The results in Models 2 and 3 indeed show that middle-status newspapers

with three Pulitzer Prizes (or six nominations) are most likely to launch their own website

first. If the *New York Times* is excluded from the analysis as in Model 4 in Table 9, the

significance of the curvilinear relationship becomes statistically stronger. The directions

of the other control variables remain the same for the monthly analyses, but the

significances of some variables change. For example, the proportion of highly-educated

audiences in the county has a significantly negative impact on adoption time in Models 3

to 5 in Table 9: the higher the education level of the population in a given county, the

faster a newspaper in that county launches its website. As a robustness check, I also

estimated the model without a national-level newspaper in Model 5. A few newspapers in

the sample, such as the *New York Times*, the *Wall Street Journal*, the *Los Angeles Times*

or *Christian Science Monitor*, reach far beyond their local markets, whereas most of the

other daily newspapers focus on their own markets. One might argue that local

newspapers do not compete directly with other local newspapers in different regions;

therefore, they need not care about the national-level awards or competitors in other local

markets. I excluded these national-wide newspapers, and unlike the yearly analyses, the

U-shaped relationship is still statistically significant, providing strong support for H1.

INSERT TABLE 9 AROUND HERE

The results in Table 3 also indicate that middle-status organizations tended to have the most interactive websites, as I predicted in H2a. I conducted the random-effect negative binomial regression model, as the dependent variable is a count variable and the data is a panel data from 2001 to 2007. As a robustness check, I also estimated the fixed-effect negative binomial regression model for H2a in Table 10. The results in this table still support my arguments that middle-status newspapers with four Pulitzer Prizes or eight nominations tend to develop websites with more interactive features. The effects of control variables also largely remain the same: for example, the longer a newspaper has offered digital media or the larger the newspaper is, the higher the level of interactivity on its website. Excluding a member of the two parent companies, Knight-Ridder Newspapers and Advance Publications, or a national-wide newspaper from the analysis also does not change the inverted-U-shaped relationship between the number of the prizes and the level of interactivity. In sum, the results presented in Tables 2 and 3 and the robustness checks in Tables 9 and 10 indeed provide strong support for H1 and H2a that middle-status organizations are likely to be the most innovative with respect to adoption timing and adoption form of the discontinuous technology.

INSERT TABLE 10 AROUND HERE

The Effects of Status and Market Identity

on Adoption Performance of Discontinuous Technology

In Chapter Five, I examined the effects of status and market identity on adoption performance and the results support my arguments of adoption performance only at the individual-firm level (not at the status-group level). I argued that high-status firms are more likely to have better performance, because they have high-status positional advantages. In effect, it is middle-status organizations that suffer most in terms of print- or online-readership. Since they adopted the new technology first, they tend to absorb the uncertainty related to it to a greater degree. Also, as middle-status organizations often emphasize the distinct features of the new technology, they need to build a new set of skills and resources to implement it. The results presented in Table 6 to Table 8 lend overall support to these arguments. Since I conducted the fixed-effect panel regression models, however, I could examine the within-firm variation only. For example, I am interested in how the status of an organization affects the adoption performance, but, during the three-year period from 2007 to 2009, the number of the Pulitzer Prizes did not change for the majority of the newspapers: Winning a Pulitzer Prize is a once-in-a-carrier experience for most newspapers. In order to understand the between- and overall-firm estimations of the suggested effects, I also conducted the random-effect panel models with the same control variables.

Among three types of performance, I only present the random-effect panel model on net-combined readership in Table 11. The results indicate that in general a newspaper with more Pulitzer Prizes, a newspaper with a higher advertising rate, and/or a newspaper

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located in a more populated county tend to have an increase in net-combined readership.

The five-year interactivity level or length of web presence also has a negative impact on

net-combined readership, as predicted in H7a and H7b, and if I include both variables,

only an increase of the interactivity level of a newspaper's website during the past-five

years reduces net-combined readership by 0.4 percent. In other words, a newspaper that

has developed a website with more interactive features tends to have fewer audiences that

read its copy or visited its website during the past thirty days, thus providing strong

support for H7b. It could also be argued that the level of interactivity matters more than

the length of web presence in terms of net-combined readership. However, if I conduct a

Hausman test to check whether the random-effect model is appropriate for my data

(Baum, 2006; StataCorp, 2005), the results show that I can reject the null hypothesis that

the random-effect estimator is consistent at any conventional significance level. I

therefore focus on the fixed-effect analyses, which support my arguments: organizations,

which tend to launch the website faster than other organizations and focus on developing

the interactive websites, tend to have negative performance.

INSERT TABLE 11 AROUND HERE

As presented in Chapter Five, the variance homogeneity tests, however, do not

support my hypotheses of the group-level variance differences of adoption behaviors.

Although the variance of adoption timing for the high-status organization group is the

lowest, as I predicted in H3a, the other results are different from the hypotheses. The

variance of adoption timing is the largest for the middle-status firm group, not for the

low-status firm group, and the variance of adoption form is the highest for the high-status firm group, not for the low-status firm group. Before presenting my interpretations of these unexpected results, I estimated the variance analyses of adoption timing on a monthly basis in order to conduct a more nuanced analysis of the variance arguments.

I compared the adoption timing of 97 newspapers, whose website launch dates were available on a monthly basis. I used the same sources, the NewsBank and newspapers' websites to collect the monthly website launch date. As for the year duration variable, the reference point for the duration calculation is when the first journalism site on the web was launched in October 1993 (Carlson, 2005). Figure 7 shows the variances of adoption timing on a monthly basis by status group, and the pattern looks similar to Figure 5. However, unlike the yearly adoption timing analyses, the Levene's test indicates that the variances for different status groups on a monthly basis are not statistically equal (Levene's $F(2, 94) = 0.26$, $p = 0.39$). Although it is possible that the yearly data might exaggerate the variances of the adoption timing by status group, I think it is more likely that there exist the systematic differences between the newspapers from which I obtained monthly data and those from which I could not obtain data. Indeed, the data shows that the mean of yearly adoption duration for the newspapers without a monthly data is statistically larger than that for the newspapers with a monthly launch date ($t = 3.41$, df $= 204$, $p < 0.001$). The monthly data, thus, tend to be biased toward early adopters, thereby possibly decreasing the statistical significance of the tests.

INSERT FIGURE 7 AROUND HERE

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The overall findings of the variance arguments suggest that high-status organizations indeed tend to adopt the discontinuous technologies at the most similar points in time, supporting H3a and reflecting previous studies (Peteraf and Shanley, 1997; Haveman, 1993). It is, however, difficult to argue that there also exists the significant variance difference of adoption timing between middle- and low-status groups. At least the yearly data show that the variance for middle-status organizations tend to be the highest (statistically significantly) and the lack of conformity pressures related to the new technology could be one reason why middle-status organizations show more diverse adoption-timing reactions. Middle-status organizations tend to confront the strongest conformity pressures in general, which makes them accustomed to merely following the norms (Murphy, 2004). When these conformity pressures are not very active because of the new technology, middle-status organizations might be confused regarding what to do compared to other organizations (Lakoff, 1987). The majority of middle-status organizations would actively pursue the new business opportunity created by the new technology as I predicted. A few reaming middle-status firms could become more persistent in adopting the discontinuous technology, creating the low mean and high variance of adoption timing at the middle-status-group level.

Furthermore, I predicted that the patterns of the variances of adoption timing and adoption form would not be different: low-status organizations as a group would show the most diverse reactions to discontinuous technologies. The results, however, indicate that the logic behind adoption timing and adoption form could be opposite. Unlike what I predicted, the variance of adoption form is the highest for the high-status group. One explanation for these results would be that unlike deciding when to adopt the

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discontinuous technology, when organizations decide how to adopt the new technology, conformity pressures (probably not perfect ones) related to the new technology may have become activated already. Then, high- and low-status organizations tend to be granted more agency than middle-status organizations, as middle-status conformity literature indicates (Dittes and Kelly 1956; Phillips and Zuckerman 2001). Of course, without the emergence of a dominant design, external audiences or participants are not perfectly certain how the new products should look and operate. However, even the imperfect ones could affect the conforming behaviors of middle-status organizations in that they need to follow others' behaviors. Moreover, compared to low-status organizations, high-status organizations tend to be more motivated to differentiate themselves to spearhead the trajectory of the new technology in order to maintain their high-status positions. Then, high-status organizations might experiment with diverse options, once the adoption of the discontinuous technology is given. As a result, high-status organizations tend to come up with more diverse solutions of how to implement the new technology, while middle- or low-status organizations tend to focus more on what other organizations, probably organizations that are similar, are doing. Then the variance of adoption form for high-status organizations could be the highest.

Limitations and Policy Implications

Although the results largely support the major portion of my theory and hypotheses, this dissertation has some limitations that must be addressed in future

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research. A first potential limitation of this study is that by focusing on middle-status organizations' behaviors, I left the differences between high- and low-status organizations' responses to the discontinuous technology relatively unexplored. Theoretically and empirically, I examined how middle-status organizations are different from others and why they tend to have worse adoption performance. Low-status organizations, however, may also have distinctive reasons to react to discontinuous technologies differently. Future empirical research should examine the low-status organizations' behaviors in greater detail to shed light on the effects of the discontinuous technology on the overall social system, including high-, middle-, and low-status organizations and the potentially interesting dynamics between members within the systems. One possibility would be a sequential adoption of the discontinuous technology by middle-, high-, and low-status organizations. The refined operationalization of the statistical modeling will enhance the understanding of the potentially sequential adoption process. In addition, since the U.S. daily newspaper industry is right in the middle of the transformation process, there would be unexpected events that could affect the adoption process of digital media. Keen examination of the industry for a greater number of years will help increase the significance of my dissertation.

A final potential limitation would be the generalizability of my arguments. As I argued in Chapter Three, the U.S. daily newspaper industry is an optimal setting to study the effects of status and market identity on adoption behaviors and consequences of discontinuous technologies. Indeed, one can argue that the newspaper industry is very unique, which calls into question the generalizability of my empirical findings. The status of an organization, for example, is easily distinguishable from firm size through

journalistic awards, and newspapers sacrifice financial performance occasionally for their journalistic ambition (Meyer, 2009). Newspapers are also uniquely situated in two markets simultaneously, in both the manufacturing market and the service-providing market (Picard and Brody, 1997). However, I am currently concerned less about generalizability in my dissertation, because I focus first on developing theoretical arguments of how middle-status organizations adopt discontinuous technologies and what the adoption consequences could be. Furthermore, there is some empirical evidence that my theoretical arguments could be applied in other industries. When the computer was first introduced, for example, managers in the insurance industry tended to shape the computer technology differently depending on their positions (Kahl and Bingham, 2010). High-status managers tried to construct the new technology similar to the then-existing technology, the mechanic abacus technology, whereas middle-level managers strived to shape the new technology differently from the abacus technology, reflecting my theoretical arguments in a different industry from my empirical setting.

Finally, my dissertation may suggest some practical implications to the U.S. daily newspaper industry, which has been undergoing a dramatic change after the emergence of digital media. There exists an industry-wide fear that the newspaper industry, which is a reliable source of information and an important watchdog of government and business, may collapse (Meyer, 2009; Jones, 2009; Madigan, 2007; McChesney and Nichols, 2010). However, my dissertation, especially the adoption performance argument, suggests differently that newspapers in print could successfully transfer into the new field created by the discontinuous technology. According to my arguments, at least, high-status newspapers are likely to survive this transformation process, which means that it is not

'urgently' necessary to subsidize newspapers, especially those high-status newspapers, as some media critics advocate (Kamiya, 2009; Schizer, 2011). My dissertation also suggests that it would be better for newspapers to focus on what newspapers are good at, than too extensively experimenting with the new technology. High-status organizations tend to have better performance because they concentrate on what they are good at: successful newspapers tend to publish their news on the web as they publish news in print.

CHAPTER SEVEN.   CONCLUSION

This study focuses on the role of status and market identity in the diffusion process of discontinuous technologies and specifically asks how status and market identity affect the adoption behaviors of discontinuous technologies and the implementation process. Furthermore, I examine the results of different adoption behaviors in order to understand the social construction process of discontinuous technologies. Middle-status organizations perceive the discontinuous technology as an opportunity for gain, whereas high/low-status organizations as a threat to loss. Hence, middle-status organizations tend to adopt the new technology first, whereas high/low-status organizations tend to be the followers. I also emphasize that the inherent uncertainty of the discontinuous technology creates variations in implementation forms and theorize how different adoption motivations influence choices among different implementing forms: middle-status organizations emphasize the distinct features of the new technology, whereas high/low-status organizations deemphasize these distinctive features. In terms of performance, high-status organizations can avoid the uncertainty related to the discontinuous technology more successfully by not being the first adopters unlike middle-status organizations. Furthermore, high-status organizations can exploit their current set of resources by highlighting the similar features of the new technology, whereas middle-status organizations need to build a new set of skills to emphasize its

distinct features. As a result, I argue that high-status organizations are likely to have better adoption performance and in turn, the new technologies tend to be constructed around the previous technology.

My dissertation makes several important contributions to research on the diffusion of innovations, research on the social constructivist perspective of technologies, research on strategic groups, and research on the role of status in markets. First, my dissertation contributes to research on innovation diffusion. It suggests that depending on the consequences of the different attempts, external audiences may establish a set of different expectations, which is the new market identity for the new product category triggered by the discontinuous technology. If the high-status organizations' offer (the similar market identity from the previous one) prevails in the markets, the new technology would be considered as competence-enhancing (Tushman and Anderson, 1986). If the middle-status organization's offer (the distinct one from the previous one) attracts more audiences, then the discontinuous technology would be regarded as competence-destroying. The hypotheses of adoption performance indicate that high-status organizations are more likely to be successful in adopting the discontinuous technology, meaning that competence-enhancing technology is more common than competence-destroying technology. This is consistent with previous findings that competence-enhancing technology occurs more frequently than competence-destroying technology (Tushman and Anderson, 1986). The study suggests, therefore, that it is difficult to pre-determine the nature of any discontinuous technology before considering all the implementing processes, including the interactions between participants with different

status levels and external audiences, as the social constructivist perspective of technologies suggests (Bijker, Hughes, and Pinch, 1987).

Second, my dissertation also contributes to research on the social constructivist perspective of technologies. Although the social constructivist thinking enriches our understanding of the construction process of different technologies, this line of research also confronts its own shortcomings (Russell, 1986; Podolny and Stuart, 1995; Bijker, 1993). By focusing on the "thick description" of the social context in which the technology has been constructed, for example, the social constructivist perspective tends to suffer from the lack of generalizable theory (Russell, 1986; Podolny and Stuart, 1995). By concentrating on middle-status conformity pressure literature and discontinuous technology literature, I derived generalizable hypotheses of the adoption behaviors with respect to discontinuous technologies by status and market identity and predicted the potential outcomes of these different adoption behaviors. In the newspaper industry, for example, many new technologies in this field with potential for radical change have been appropriated by the most powerful institutions "operating within dominant technological and socio-political paradigms (Fenton, 2010: 13). Many studies in technology literature also show that powerful incumbent firms tend to have better performance with respect to diversification or entry into a new market (Haveman, 1992; Mitchell, 1989), which may also be applied to the case of discontinuous technologies. Furthermore, I examined the archived websites of newspapers, without sampling data based on the outcomes: I was technically able to study not only successful technology implementations of digital media, but also potentially unsuccessful ones.

Third, my dissertation links literature on strategic groups and literature on status in markets. Strategic groups are defined as "groups of firms, where each group consists of firms following similar strategies in terms of the key decision variable" in an industry (Porter, 1979: 215) and two generic positions in markets –low-cost and differentiation positions, have been the focus of academic attention (Porter, 1980; Dess and Davis, 1984).[20] My research suggests that high-status organizations often occupy the differentiation/premium market niche whereas low-status organizations tend to belong to the low-cost market niche. Since markets can be sorted into various positions by perceived quality, high-status organizations, which are expected to produce high-quality products, tend to occupy the differentiation/premium market niche. Low-status firms often cannot produce high-quality products as high-status firms do, and audiences do not expect them to do so. However, they can focus on lowering costs, which makes them belong to the low-cost market niche. Therefore, high- or low-status organizations often have clear market niches and focus on their own niches. It is middle-status firms that tend to be caught by a double-trap. They do not have a clearly defined market niche, which puts them into a "stuck-in-the-middle" situation (Porter, 1980:41). However, at the same time, they cannot freely change the stuck-in-the-middle condition even with the unlikely assumption that they have abundant resources, because they also face the strongest conformity pressures.

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[20] Firms, which occupy the differentiation position, focus on external audiences who value uniqueness or quality and strive to create the industry-wide perception of being unique. On the contrary, organizations in the low-cost position concentrate on audiences who prefer lower costs given a certain-level quality and try to lower the overall costs through tight cost control (Porter, 1980).

Fourth, this study contributes to research on the role of status in markets and middle-status conformity. I emphasized that discontinuous technologies are used as a mechanism to relax conformity pressures, especially those on middle-status organizations. I theorize how middle-status firms, a group of organizations traditionally viewed in organizational theory and strategy to be the least innovative and most conforming, can be the most innovative in terms of adoption timing and the implementation of discontinuous technologies. Previous studies in this line focus on how conformity pressures prevent middle-status organizations from differentiating themselves in terms of social and psychological dimensions (Dittes and Kelley, 1956; Phillips and Zuckerman, 2001). However, it was middle-status chefs who initiated nouvelle cuisine in the French gastronomy industry, which is very distinct from traditional French cuisine (Rao, Monin, and Durand, 2005). My study explains why young, but not peripheral chefs, "who had to climb up the ladder of stardom and acquire sociopolitical legitimacy," (Rao, Monin, and Durand, 2005: 974; Rao, 2009) were the first to initiate the new movements and why they emphasized the distinctive dimensions of new cuisine from classical cuisine because they wanted to differentiate nouvelle cuisine from the previous dominant cuisine without violating currently existing conformity pressures.

Finally, my dissertation contributes to research on innovation and research on social category together by theorizing how a category maintains its 'stickiness' characteristic even with the introduction of a discontinuous technology. I argued that a new product (horizontal) category is likely to be a reproduction of the previous category only with a few changes, because of the high-status positional advantages and middle-status disadvantages. As discussed above, high-status organizations tend to deemphasize

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the dissimilar dimension of the new technology, which is more likely to be trusted by external audiences. Therefore, it can be inferred that high-status organizations tend to persist in the same vertical positions in the new category, whereas middle-status organizations are likely to fail to do so in the new category. Without active intervention from external forces, therefore, high-status organizations tend to persist in their social positions even with the emergence of a new category: newspapers tend to publish their news on the web similarly as they used to publish their news in print.

In conclusion, this study makes important contributions to research on the adoption of a discontinuous technology and its consequences from the status and market identity perspective. I suggest that middle- and high/low-status organizations perceive the discontinuous technology differently, which also influences adoption timing and choices among different ways of implementing it. Moreover, I examine the results of different adoption behaviors of organizations with various- status levels, which affects the meaning of the new technology. In other words, my dissertation shows that market identities can either facilitate organizations' movements beyond 'traditional' boundaries or constrain their movements within boundaries: positions in the social system and market identities around the positions lead to differences in the perceptions of the same new technology, which result in different reactions and performances to the discontinuous technology and the emergence of the new market identity related to this new technology.

TABLE 1
Summary Statistics and Bivariate Correlations

	Mean	STD	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	11)	12)	13)	14)	15)	16)	17)	18)	19)	20)
Website Launch																						
1) Pulitzer [ln]	0.80	0.83	1.00																			
2) Square of Pulitzer [ln]	1.34	2.63	0.92	1.00																		
3) Online Service	0.32	0.47	0.25	0.25	1.00																	
4) Audiotex	0.52	0.50	0.15	0.15	0.16	1.00																
5) Average Circulation [ln]	11.39	1.13	0.49	0.54	0.29	0.38	1.00															
6) Average Circulation Change	-0.01	0.04	-0.15	-0.12	-0.06	-0.01	0.00	1.00														
7) National Newspaper	0.02	0.13	0.10	0.12	0.13	-0.06	0.14	0.08	1.00													
8) Spanish Newspaper	0.02	0.16	-0.11	-0.08	0.02	0.04	0.01	0.06	-0.02	1.00												
9) Knight Ridder Newspapers	0.08	0.28	0.09	0.09	0.04	-0.07	0.11	-0.09	-0.04	0.29	1.00											
10) Advance Publications	0.06	0.25	-0.11	-0.09	-0.09	0.01	0.13	-0.06	-0.03	-0.04	-0.08	1.00										
11) Gannett Company	0.17	0.37	-0.11	-0.09	-0.13	-0.14	-0.05	0.03	0.01	-0.07	-0.13	-0.12	1.00									
12) Hearst Corporation	0.02	0.14	-0.05	-0.04	-0.03	0.09	0.11	-0.02	-0.02	-0.02	-0.04	-0.04	-0.06	1.00								
13) Landmark Communications	0.01	0.09	0.00	-0.02	0.09	0.05	0.00	0.01	-0.01	-0.02	-0.03	-0.02	-0.04	-0.01	1.00							
14) County Competitor Adoption	0.06	0.37	-0.08	-0.03	0.12	0.03	0.05	0.04	-0.02	0.49	0.06	-0.03	-0.06	0.00	-0.02	1.00						
15) County High Education Rate	0.22	0.06	0.23	0.27	0.16	0.10	0.37	-0.02	0.19	-0.03	-0.01	-0.10	-0.03	0.13	-0.02	0.02	1.00					
Website Content																						
1) Interactivity	8.74	5.24	1.00																			
2) Multimedia Usage	4.75	5.04	0.41	1.00																		
3) Pulitzer [ln]	1.06	0.96	0.12	0.16	1.00																	
4) Square of Pulitzer [ln]	2.03	3.35	0.04	0.16	0.93	1.00																
5) Web Presence Length	8.74	2.40	0.31	0.55	0.14	0.12	1.00															
6) Online Newsroom	0.87	0.33	0.02	0.10	0.08	0.07	0.05	1.00														
7) Online Newsroom Size	2.38	1.79	0.05	0.15	0.29	0.25	0.06	0.51	1.00													
8) Innovator	0.24	0.43	0.03	0.07	0.10	0.05	0.33	0.08	0.21	1.00												
9) Audiotex	0.37	0.48	0.01	0.04	-0.03	-0.02	0.00	0.14	0.20	0.13	1.00											
10) Average Circulation [ln]	11.64	1.02	0.11	0.20	0.56	0.58	0.17	0.29	0.44	0.18	0.07	1.00										
11) Average Circulation Change	-0.02	0.04	-0.10	-0.13	-0.12	-0.09	-0.17	0.04	-0.01	0.07	0.05	0.01	1.00									
12) National Newspaper	0.03	0.20	-0.04	0.03	0.32	0.45	0.02	-0.13	-0.05	-0.09	-0.07	0.25	-0.04	1.00								
13) Political Inclination	0.08	0.26	0.06	0.03	-0.02	-0.03	0.05	0.04	0.08	-0.05	-0.12	0.05	0.00	-0.05	1.00							
14) Media Conglomerate	0.85	0.35	0.08	-0.01	0.10	0.07	-0.01	-0.05	-0.03	0.04	0.08	0.02	0.00	-0.11	-0.02	1.00						
15) Public Parent Company	0.41	0.49	0.03	0.00	0.10	0.10	0.00	-0.05	-0.03	-0.06	0.04	0.05	0.06	0.01	-0.04	0.35	1.00					
16) Dual-Stock Structure	0.24	0.43	0.02	0.05	0.06	0.07	0.06	0.01	0.01	-0.01	0.05	-0.02	0.04	0.06	0.06	0.23	0.68	1.00				
17) Advance Publications	0.08	0.26	0.12	-0.12	-0.06	-0.07	-0.05	0.01	-0.05	0.01	0.09	0.08	0.01	-0.05	0.01	0.12	-0.24	-0.16	1.00			
18) Knight-Ridder Newspapers	0.10	0.29	-0.06	-0.16	0.15	0.13	-0.02	-0.16	-0.12	-0.02	-0.07	0.08	-0.01	-0.05	-0.09	0.14	0.39	-0.18	-0.09	1.00		
19) County Population [ln]	13.16	1.13	0.04	0.16	0.37	0.39	0.10	0.25	0.41	0.12	-0.05	0.75	-0.05	0.23	0.03	-0.05	-0.06	-0.10	-0.02	0.03	1.00	
20) County Competitor	0.21	0.41	-0.13	-0.06	0.34	0.39	0.02	0.06	0.08	-0.07	-0.16	0.30	-0.07	0.31	-0.03	-0.09	-0.09	-0.07	-0.11	0.00	0.49	1.00

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TABLE 2
Event History Analyses of Yearly Adoption Time

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Pulitzer [ln]		0.029	-0.124**	-0.128*	-0.098
		(0.032)	(0.060)	(0.070)	(0.078)
Square of Pulitzer [ln]			0.052***	0.054**	0.037
			(0.017)	(0.022)	(0.027)
Online Service	-0.216***	-0.217***	-0.222***	-0.223***	-0.221***
	(0.053)	(0.053)	(0.052)	(0.052)	(0.053)
Audiotex	-0.046	-0.044	-0.031	-0.030	-0.040
	(0.053)	(0.053)	(0.054)	(0.054)	(0.055)
Average Circulation [ln]	-0.111***	-0.126***	-0.140***	-0.141***	-0.132***
	(0.030)	(0.037)	(0.035)	(0.037)	(0.041)
Average Circulation Change	-0.263	-0.191	-0.239	-0.234	-0.236
	(0.551)	(0.555)	(0.533)	(0.535)	(0.576)
National Newspaper	0.039	0.039	0.051	0.049	
	(0.155)	(0.147)	(0.120)	(0.118)	
Spanish Newspaper	0.321	0.334	0.328	0.332	0.319
	(0.291)	(0.315)	(0.322)	(0.330)	(0.325)
Knight Ridder Newspapers	-0.058	-0.064	-0.052	-0.052	-0.045
	(0.070)	(0.072)	(0.071)	(0.071)	(0.072)
Advance Publications	0.084	0.105	0.121	0.122	0.112
	(0.097)	(0.097)	(0.094)	(0.095)	(0.097)
Gannett Company	0.225**	0.228**	0.223**	0.223**	0.243**
	(0.104)	(0.101)	(0.104)	(0.103)	(0.109)
Hearst Corporation	-0.168	-0.148	-0.152	-0.153	-0.151
	(0.150)	(0.168)	(0.131)	(0.131)	(0.133)
Landmark Communications	-0.703***	-0.703***	-0.661***	-0.660***	-0.666***
	(0.271)	(0.272)	(0.239)	(0.238)	(0.242)
County Competitor Adoption	0.157*	0.159*	0.144	0.142	0.150
	(0.086)	(0.093)	(0.091)	(0.095)	(0.093)
County High Education Rate	-0.171	-0.192	-0.227	-0.215	-0.279
	(0.500)	(0.502)	(0.469)	(0.490)	(0.504)
Constant	2.587***	2.748***	2.961***	2.969***	2.874***
	(0.320)	(0.395)	(0.395)	(0.403)	(0.448)
National Geography	Included	Included	Included	Included	Excluded
New York Times	Included	Included	Included	Excluded	Excluded
Observations	656	655	655	652	636

Models 1 to 5 are discrete time (yearly) log-logistic models. There were 195 firms; 193 failure events occurred. Robust standard errors are shown in parentheses.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

TABLE 3
Random-Effect Results of Negative Binomial Regression on Interactivity

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Pulitzer [ln]		0.087*	0.368***	0.384***	0.463***	0.327***
		(0.048)	(0.100)	(0.109)	(0.113)	(0.113)
Square of Pulitzer [ln]			-0.098***	-0.105***	-0.118***	-0.081**
			(0.031)	(0.036)	(0.034)	(0.037)
Web Presence Length	0.088***	0.086***	0.087***	0.088***	0.090***	0.087***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Online Newsroom	-0.204**	-0.193**	-0.182**	-0.180**	-0.121	-0.159*
	(0.083)	(0.082)	(0.083)	(0.083)	(0.103)	(0.085)
Online Newsroom Size	0.020	0.016	0.016	0.014	0.026	0.010
	(0.016)	(0.016)	(0.016)	(0.016)	(0.017)	(0.017)
Innovator	-0.165*	-0.168*	-0.186**	-0.185**	-0.184*	-0.186**
	(0.090)	(0.089)	(0.088)	(0.088)	(0.099)	(0.088)
Audiotex	-0.005	-0.001	0.009	0.007	0.031	0.008
	(0.062)	(0.061)	(0.061)	(0.061)	(0.068)	(0.061)
Average Circulation [ln]	0.116**	0.067	0.097	0.098	0.080	0.092
	(0.056)	(0.062)	(0.062)	(0.062)	(0.066)	(0.064)
Average Circulation Change	-0.367	-0.331	-0.289	-0.300	-0.262	-0.427
	(0.324)	(0.325)	(0.328)	(0.328)	(0.359)	(0.342)
National Newspaper	-0.148	-0.211	0.024	0.004	0.090	
	(0.187)	(0.188)	(0.200)	(0.201)	(0.215)	
Political Inclination	0.059	0.067	0.045	0.044	0.062	0.047
	(0.143)	(0.141)	(0.140)	(0.140)	(0.152)	(0.140)
Media Conglomerate	0.131	0.108	0.106	0.105	0.100	0.133
	(0.099)	(0.099)	(0.098)	(0.098)	(0.101)	(0.100)
Public Parent Company	0.192	0.213*	0.225*	0.226*	0.173	0.213*
	(0.119)	(0.118)	(0.117)	(0.118)	(0.125)	(0.121)
Dual-Stock Structure	-0.219*	-0.242**	-0.245**	-0.250**	-0.169	-0.249**
	(0.118)	(0.117)	(0.116)	(0.117)	(0.124)	(0.122)
Advance Publications	0.307**	0.335**	0.329**	0.328**		0.316**
	(0.146)	(0.145)	(0.143)	(0.144)		(0.144)
Knight-Ridder Newspapers	-0.576***	-0.603***	-0.602***	-0.602***		-0.599***
	(0.128)	(0.128)	(0.127)	(0.128)		(0.131)
County Population [ln]	-0.018	-0.001	-0.012	-0.010	-0.020	0.000
	(0.054)	(0.054)	(0.053)	(0.054)	(0.057)	(0.056)
County Competitor	-0.176*	-0.211**	-0.171	-0.171	-0.200*	-0.195*
	(0.105)	(0.106)	(0.106)	(0.106)	(0.120)	(0.106)
Constant	-1.143	-0.877	-1.206	-1.297*	-1.128	-1.383*
	(0.726)	(0.737)	(0.739)	(0.761)	(0.791)	(0.769)
Advance Pulications & Knight Ridder	Included	Included	Included	Included	Excluded	Included
National Geography	Included	Included	Included	Included	Included	Excluded
New York Times	Included	Included	Included	Excluded	Included	Excluded
Number of observations	1108	1108	1108	1102	918	1077
Number of groups	166	166	166	165	154	161
Log likelihood	-3095.52	-3093.92	-3088.90	-3074.93	-2551.83	-3007.01
Δ (−2 * log likelihood)		3.21*	13.24***	12.47***	16.72***	9.29***

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

TABLE 4
Results of Negative Binomial Regression on Multimedia Usage

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Pulitzer [ln]		0.085	-0.041	0.001	-0.052	0.043
		(0.055)	(0.117)	(0.128)	(0.127)	(0.135)
Square of Pulitzer [ln]			0.041	0.025	0.039	0.005
			(0.034)	(0.039)	(0.037)	(0.043)
Web Presence Length	0.374***	0.370***	0.369***	0.371***	0.359***	0.371***
	(0.015)	(0.015)	(0.015)	(0.015)	(0.016)	(0.016)
Online Newsroom	-0.014	0.005	-0.008	-0.002	0.035	-0.100
	(0.140)	(0.140)	(0.139)	(0.140)	(0.161)	(0.143)
Online Newsroom Size	0.011	0.003	0.004	-0.000	0.010	0.005
	(0.025)	(0.026)	(0.026)	(0.026)	(0.027)	(0.027)
Innovator	-0.590***	-0.583***	-0.573***	-0.570***	-0.603***	-0.569***
	(0.101)	(0.100)	(0.100)	(0.100)	(0.109)	(0.100)
Audiotex	0.145*	0.150*	0.142*	0.134	0.116	0.142*
	(0.085)	(0.084)	(0.084)	(0.085)	(0.091)	(0.085)
Average Circulation [ln]	0.243***	0.186**	0.172**	0.173**	0.186**	0.149*
	(0.070)	(0.078)	(0.079)	(0.079)	(0.083)	(0.082)
Average Circulation Change	0.310	0.376	0.340	0.307	0.922	0.202
	(0.670)	(0.675)	(0.673)	(0.675)	(0.690)	(0.708)
National Newspaper	-0.158	-0.220	-0.329	-0.358	-0.286	
	(0.200)	(0.203)	(0.223)	(0.230)	(0.233)	
Political Inclination	-0.029	-0.012	-0.004	-0.004	-0.041	-0.009
	(0.151)	(0.150)	(0.149)	(0.149)	(0.160)	(0.149)
Media Conglomerate	0.059	0.029	0.030	0.028	0.040	-0.037
	(0.120)	(0.120)	(0.120)	(0.120)	(0.123)	(0.122)
Public Parent Company	0.198	0.225	0.232	0.236	0.200	0.245
	(0.148)	(0.147)	(0.147)	(0.147)	(0.152)	(0.150)
Dual-Stock Structure	-0.265*	-0.298**	-0.307**	-0.322**	-0.255*	-0.324**
	(0.150)	(0.150)	(0.150)	(0.151)	(0.155)	(0.155)
Advance Publications	-0.618***	-0.596***	-0.583***	-0.591***		-0.575***
	(0.180)	(0.179)	(0.178)	(0.179)		(0.179)
Knight-Ridder Newspapers	-1.042***	-1.078***	-1.079***	-1.086***		-1.091***
	(0.192)	(0.192)	(0.191)	(0.192)		(0.194)
County Population [ln]	0.136**	0.155**	0.161**	0.167***	0.156**	0.191***
	(0.062)	(0.063)	(0.063)	(0.063)	(0.066)	(0.067)
County Competitor	-0.547***	-0.585***	-0.609***	-0.610***	-0.638***	-0.582***
	(0.122)	(0.123)	(0.125)	(0.125)	(0.132)	(0.125)
Constant	-10.079***	-9.692***	-9.542***	-10.263***	-9.515***	-10.211***
	(1.195)	(1.212)	(1.208)	(1.380)	(1.231)	(1.388)
Knight Ridder & Advance Pulications	Included	Included	Included	Included	Excluded	Included
National Coverage	Included	Included	Included	Included	Included	Excluded
New York Times	Included	Included	Included	Excluded	Included	Excluded
Number of observations	1108	1108	1108	1102	918	1077
Number of groups	166	166	166	165	154	161
Log likelihood	-2400.68	-2399.51	-2398.78	-2382.23	-2084.05	-2333.97
Δ (−2 * log likelihood)		2.34	3.78	2.24	2.43	1.02

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

TABLE 5
Summary Statistics and Bivariate Correlations

Print Readership

	Mean	STD	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	11)	12)	13)	14)	15)
1) Print Circulation [ln]	11.59	0.94	1.00														
2) Pulitzer [ln]	1.15	1.01	0.59	1.00													
3) Square of Pulitzer [ln]	2.35	3.74	0.62	0.93	1.00												
4) Web Presence Length	12.79	1.47	0.21	0.19	0.14	1.00											
5) Five-Year Interactivity	12.26	5.23	0.08	0.10	0.01	0.18	1.00										
6) Online Newsroom	0.82	0.38	0.31	0.17	0.17	0.03	0.00	1.00									
7) Audiotex	0.34	0.47	0.05	-0.03	-0.01	0.03	0.00	0.07	1.00								
8) Issue Price	0.68	0.18	0.24	0.24	0.35	0.07	0.00	-0.09	-0.01	1.00							
9) Ad Price [ln]	5.17	0.96	0.85	0.60	0.59	0.15	0.03	0.24	0.03	0.22	1.00						
10) Positive Previous Circulation	0.02	0.14	0.10	-0.01	0.03	0.09	0.10	0.02	-0.03	-0.01	0.06	1.00					
11) Media Conglomerate	0.85	0.35	-0.04	0.09	0.06	-0.08	0.03	-0.04	0.09	-0.08	-0.05	0.01	1.00				
12) Dual-Stock Structure	0.29	0.45	-0.03	0.07	0.06	0.04	0.00	-0.03	0.01	0.04	-0.02	-0.09	0.26	1.00			
13) County Population [ln]	13.28	1.04	0.68	0.40	0.41	0.06	-0.05	0.20	-0.09	0.14	0.72	0.05	-0.10	-0.15	1.00		
14) County Young Generation Rate	0.24	0.04	0.06	0.14	0.13	0.16	0.04	-0.04	-0.04	0.27	0.10	-0.03	-0.02	0.14	-0.02	1.00	
15) County High Education Rate	0.31	0.09	0.39	0.29	0.31	0.04	-0.10	0.06	0.01	0.22	0.41	0.02	-0.08	-0.05	0.28	0.29	1.00

Online Readership

	Mean	STD	1)	2)	3)	4)	5)	6)	7)	8)	9)	10)	11)	12)	13)	14)	15)
1) Online Circulation [ln]	12.48	0.77	1.00														
2) Pulitzer [ln]	1.42	1.07	0.70	1.00													
3) Square of Pulitzer [ln]	3.15	3.84	0.67	0.94	1.00												
4) Web Presence Length	13.06	1.39	0.26	0.19	0.12	1.00											
5) Five-Year Interactivity	13.23	5.52	0.04	0.10	-0.01	0.16	1.00										
6) Online Newsroom	0.85	0.35	0.24	0.18	0.20	0.03	0.02	1.00									
7) Audiotex	0.33	0.47	-0.02	-0.03	-0.05	0.04	-0.03	0.00	1.00								
8) Issue Price	0.66	0.14	0.19	0.08	0.11	0.05	0.12	-0.10	-0.11	1.00							
9) Ad Price [ln]	5.56	0.68	0.80	0.66	0.62	0.13	0.07	0.25	-0.03	0.14	1.00						
10) Positive Previous Circulation	0.03	0.17	-0.04	-0.07	-0.01	0.06	0.00	0.07	-0.07	-0.04	0.00	1.00					
11) Media Conglomerate	0.89	0.32	0.03	0.13	0.09	-0.08	-0.01	-0.11	0.17	-0.05	0.00	0.06	1.00				
12) Dual-Stock Structure	0.29	0.45	-0.07	0.06	0.05	-0.02	0.01	-0.14	-0.09	0.07	0.07	-0.11	0.23	1.00			
13) County Population [ln]	13.62	0.84	0.67	0.44	0.45	0.08	-0.10	0.20	-0.19	0.15	0.61	-0.04	-0.07	-0.06	1.00		
14) County Young Generation Rate	0.24	0.03	0.34	0.18	0.16	0.26	0.03	0.05	-0.10	0.33	0.20	-0.04	-0.02	0.12	0.12	1.00	
15) County High Education Rate	0.31	0.08	0.29	0.17	0.11	0.01	-0.06	-0.08	0.04	0.04	0.24	0.00	-0.13	-0.11	0.12	0.22	1.00

TABLE 5 (continued)
Summary Statistics and Bivariate Correlations

Print Readership	Mean	STD	1)	2)	3)	4)	5)	6)	7)	8)	10)	11)	12)	13)	14)	15)	16)
1) Print Circulation [ln]	13.56	0.70	1.00														
2) Pulitzer [ln]	1.47	1.08	0.74	1.00													
3) Square of Pulitzer [ln]	3.33	3.92	0.73	0.94	1.00												
4) Web Presence Length	13.13	1.30	0.10	0.17	0.10	1.00											
5) Five-Year Interactivity	13.52	5.44	-0.11	0.05	-0.06	0.16	1.00										
6) Online Newsroom	0.87	0.34	0.24	0.18	0.19	-0.01	0.00	1.00									
7) Audiotex	0.33	0.47	-0.05	-0.01	-0.05	0.04	-0.02	-0.03	1.00								
8) Issue Price	0.67	0.14	0.12	0.06	0.09	0.05	0.09	-0.11	-0.11	1.00							
10) Ad Price [ln]	5.61	0.66	0.85	0.67	0.62	0.07	0.01	0.21	-0.02	0.09	1.00						
11) Positive Previous Circulation	0.03	0.16	0.02	-0.05	0.00	0.05	0.05	0.06	-0.12	-0.05	-0.01	1.00					
12) Media Conglomerate	0.88	0.33	-0.03	0.13	0.10	-0.08	0.02	-0.10	0.18	-0.03	0.02	0.06	1.00				
13) Dual-Stock Structure	0.30	0.46	-0.08	0.06	0.04	-0.03	-0.02	-0.20	-0.07	0.06	0.07	-0.11	0.24	1.00			
14) County Population [ln]	13.65	0.84	0.69	0.43	0.45	0.06	-0.16	0.21	-0.16	0.11	0.60	-0.02	-0.07	-0.06	1.00		
15) County Young Generation Rate	0.24	0.03	0.18	0.14	0.12	0.22	0.03	0.01	-0.09	0.37	0.12	-0.03	-0.02	0.10	0.05	1.00	
16) County High Education Rate	0.31	0.08	0.31	0.19	0.13	0.06	-0.03	-0.03	0.08	0.06	0.30	0.01	-0.16	-0.10	0.10	0.24	1.00

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TABLE 6
Fixed-Effect Panel Regression Model on Print Readership

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Pulitzer [ln]		-0.039	0.050	0.084	0.050	0.083	0.099
		(0.060)	(0.078)	(0.074)	(0.077)	(0.074)	(0.075)
Square of Pulitzer [ln]			-0.088*	-0.074	-0.081	-0.073	-0.092*
			(0.050)	(0.048)	(0.050)	(0.048)	(0.049)
Web Presence Length				-0.045***		-0.043***	-0.043***
				(0.008)		(0.008)	(0.008)
Five-Year Interactivity					-0.005**	-0.001	-0.001
					(0.002)	(0.002)	(0.002)
Online Newsroom	0.029	0.029	0.032*	0.024	0.035*	0.026	0.025
	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)	(0.018)
Audiotex	0.005	0.005	0.006	0.017	0.005	0.016	0.015
	(0.048)	(0.048)	(0.048)	(0.046)	(0.048)	(0.046)	(0.046)
Issue Price	-0.075*	-0.074*	-0.057	-0.023	-0.053	-0.024	-0.045
	(0.039)	(0.039)	(0.040)	(0.038)	(0.040)	(0.038)	(0.041)
Ad Rate [ln]	-0.011	-0.011	-0.011	0.026	0.001	0.028	0.028
	(0.059)	(0.059)	(0.059)	(0.056)	(0.059)	(0.056)	(0.056)
Positive Previous Circulation	0.200***	0.200***	0.201***	0.205***	0.205***	0.206***	0.206***
	(0.030)	(0.030)	(0.030)	(0.028)	(0.029)	(0.028)	(0.028)
Media Conglomerate	-0.013	-0.019	-0.055	-0.035	-0.054	-0.035	-0.046
	(0.083)	(0.084)	(0.086)	(0.082)	(0.085)	(0.082)	(0.082)
Dual-Stock Structure	0.050	0.049	0.053	0.052	0.036	0.048	0.049
	(0.083)	(0.083)	(0.083)	(0.079)	(0.083)	(0.079)	(0.079)
County Population [ln]	-0.151	-0.152	-0.141	0.093	-0.125	0.087	0.103
	(0.203)	(0.203)	(0.202)	(0.197)	(0.201)	(0.197)	(0.197)
County Young Generation Rate	0.422	0.399	0.476	0.337	0.457	0.338	0.344
	(0.385)	(0.387)	(0.388)	(0.369)	(0.384)	(0.369)	(0.370)
County High Education Rate	-0.698*	-0.704*	-0.681*	-0.499	-0.628*	-0.493	-0.528
	(0.361)	(0.361)	(0.360)	(0.344)	(0.358)	(0.344)	(0.345)
Constant	13.817***	13.887***	13.837***	10.953***	13.596***	11.015***	10.831***
	(2.692)	(2.697)	(2.687)	(2.602)	(2.664)	(2.606)	(2.606)
New York Times	Included	Included	Included	Included	Included	Included	Excluded
Number of observations	456	456	456	456	456	456	453
Number of groups	156	156	156	156	156	156	155
R-squared	0.552	0.552	0.557	0.602	0.567	0.603	0.605

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

TABLE 7
Fixed-Effect Panel Regression Model on Online Readership

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Pulitzer [ln]		0.471**	0.406	0.253	0.450**	0.280
		(0.205)	(0.312)	(0.190)	(0.208)	(0.189)
Square of Pulitzer [ln]			0.027			
			(0.099)			
Web Presence Length				0.087***		0.099***
				(0.015)		(0.017)
Five-Year Interactivity					0.003	-0.007*
					(0.004)	(0.004)
Online Newsroom	0.006	0.005	0.003	0.016	0.005	0.019
	(0.042)	(0.041)	(0.042)	(0.037)	(0.041)	(0.037)
Audiotex	0.065	0.062	0.062	0.075	0.057	0.090
	(0.126)	(0.124)	(0.125)	(0.113)	(0.125)	(0.112)
Issue Price	0.115	0.089	0.088	0.040	0.087	0.040
	(0.088)	(0.088)	(0.088)	(0.080)	(0.088)	(0.080)
Ad Rate [ln]	0.011	0.001	0.001	0.009	-0.003	0.021
	(0.099)	(0.098)	(0.098)	(0.089)	(0.098)	(0.088)
Positive Previous Circulation	-0.054	-0.059	-0.060	-0.063	-0.060	-0.062
	(0.053)	(0.052)	(0.052)	(0.047)	(0.052)	(0.047)
Media Conglomerate	0.303**	0.378***	0.383***	0.333***	0.376***	0.334***
	(0.124)	(0.126)	(0.128)	(0.115)	(0.127)	(0.114)
Dual-Stock Structure	-0.143	-0.138	-0.139	-0.135	-0.128	-0.161
	(0.124)	(0.122)	(0.123)	(0.111)	(0.123)	(0.111)
County Population [ln]	0.823	0.889	0.895	0.124	0.845	0.137
	(0.605)	(0.597)	(0.599)	(0.557)	(0.602)	(0.553)
County Young Generation Rate	-2.568***	-2.549***	-2.575***	-2.057***	-2.530***	-2.041***
	(0.828)	(0.816)	(0.824)	(0.745)	(0.818)	(0.739)
County High Education Rate	1.280	1.414	1.395	1.226	1.403	1.231
	(0.915)	(0.904)	(0.909)	(0.819)	(0.906)	(0.814)
Constant	1.025	-0.581	-0.641	8.998	0.031	8.656
	(8.152)	(8.065)	(8.094)	(7.498)	(8.137)	(7.449)
New York Times	Included	Included	Included	Included	Included	Included
Number of observations	247	247	247	247	247	247
Number of groups	90	90	90	90	90	90
R-squared	0.555	0.571	0.571	0.650	0.572	0.657

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

TABLE 8
Fixed-Effect Panel Regression Model on Net-Combined Readership

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Pulitzer [ln]		-0.085	-0.108			
		(0.083)	(0.127)			
Square of Pulitzer [ln]			0.009			
			(0.040)			
Web Presence Length				-0.014**		-0.008
				(0.007)		(0.008)
Five-Year Interactivity					-0.004**	-0.003*
					(0.002)	(0.002)
Online Newsroom	0.024	0.024	0.023	0.022	0.022	0.022
	(0.019)	(0.019)	(0.019)	(0.018)	(0.018)	(0.018)
Audiotex	-0.024	-0.024	-0.023	-0.026	-0.015	-0.018
	(0.051)	(0.051)	(0.051)	(0.050)	(0.050)	(0.050)
Issue Price	0.060*	0.064*	0.064*	0.070*	0.064*	0.069*
	(0.036)	(0.036)	(0.036)	(0.036)	(0.035)	(0.036)
Ad Rate [ln]	0.024	0.026	0.026	0.021	0.030	0.027
	(0.040)	(0.040)	(0.040)	(0.040)	(0.039)	(0.039)
Positive Previous Circulation	-0.015	-0.014	-0.014	-0.016	-0.014	-0.015
	(0.024)	(0.024)	(0.024)	(0.023)	(0.023)	(0.023)
Media Conglomerate	0.012	-0.002	-0.001	0.018	0.011	0.015
	(0.057)	(0.058)	(0.059)	(0.056)	(0.056)	(0.056)
Dual-Stock Structure	-0.051	-0.052	-0.052	-0.051	-0.067	-0.064
	(0.050)	(0.050)	(0.050)	(0.049)	(0.049)	(0.049)
County Population [ln]	0.542**	0.533**	0.536**	0.664**	0.630**	0.683***
	(0.253)	(0.254)	(0.255)	(0.258)	(0.251)	(0.256)
County Young Generation Rate	-0.505	-0.507	-0.515	-0.555	-0.528	-0.552
	(0.346)	(0.346)	(0.349)	(0.343)	(0.340)	(0.341)
County High Education Rate	-1.055***	-1.088***	-1.096***	-1.058***	-1.090***	-1.084***
	(0.398)	(0.399)	(0.402)	(0.393)	(0.391)	(0.391)
Constant	6.429*	6.687*	6.656*	4.964	5.274	4.658
	(3.417)	(3.426)	(3.441)	(3.458)	(3.386)	(3.434)
New York Times	Included	Included	Included	Included	Included	Included
Number of observations	230	230	230	230	230	230
Number of groups	89	89	89	89	89	89
R-squared	0.174	0.181	0.181	0.199	0.211	0.218

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

TABLE 9
Event History Analyses of Monthly Adoption Time

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Pulitzer [ln]		0.032	-0.263**	-0.300***	-0.321***
		(0.080)	(0.103)	(0.107)	(0.115)
Square of Pulitzer [ln]			0.089***	0.104***	0.093**
			(0.023)	(0.028)	(0.041)
Online Service	-0.326***	-0.332***	-0.347***	-0.349***	-0.341***
	(0.097)	(0.101)	(0.094)	(0.095)	(0.094)
Audiotex	-0.022	-0.026	0.002	0.008	-0.047
	(0.094)	(0.094)	(0.080)	(0.082)	(0.090)
Average Circulation [ln]	-0.030	-0.058	-0.050	-0.057	0.008
	(0.056)	(0.100)	(0.080)	(0.082)	(0.075)
Average Circulation Change	-0.754	-0.742	-0.599	-0.545	-0.447
	(1.359)	(1.386)	(1.230)	(1.234)	(1.155)
National Newspaper	-0.015	0.027	0.008	-0.027	
	(0.944)	(0.786)	(0.910)	(0.778)	
Spanish Newspaper	0.451	0.460	0.349	0.368	0.387
	(0.481)	(0.556)	(0.349)	(0.405)	(0.410)
Knight Ridder Newspapers	-0.129	-0.144	-0.095	-0.096	-0.068
	(0.115)	(0.132)	(0.121)	(0.122)	(0.118)
Advance Publications	-0.015	-0.004	0.019	0.032	-0.001
	(0.116)	(0.123)	(0.113)	(0.115)	(0.118)
Gannett Company	0.403*	0.405*	0.503**	0.520**	0.765***
	(0.222)	(0.212)	(0.226)	(0.220)	(0.206)
Hearst Corporation	-0.335	-0.299	-0.369	-0.375	-0.413*
	(0.383)	(0.439)	(0.308)	(0.306)	(0.245)
Landmark Communications	-0.857***	-0.861***	-0.762***	-0.746***	-0.730***
	(0.088)	(0.088)	(0.095)	(0.095)	(0.109)
County Competitor Adoption	0.167	0.169	0.164	0.152	0.149
	(0.151)	(0.173)	(0.104)	(0.121)	(0.120)
County High Education Rate	-1.379	-1.406	-1.757**	-1.612*	-1.939**
	(0.993)	(0.990)	(0.824)	(0.870)	(0.897)
Constant	4.274***	4.599***	4.688***	4.740***	4.102***
	(0.547)	(1.060)	(0.923)	(0.929)	(0.850)
National Geography	Included	Included	Included	Included	Excluded
New York Times	Included	Included	Included	Excluded	Excluded
Observations	281	281	281	278	268

Models 1 to 5 are discrete time (monthly) log-logistic models. There were 93 firms; 92 failure events occurred. Robust standard errors are shown in parentheses.

*** p<0.01, ** p<0.05, * p<0.1

TABLE 10
Fixed-Effect Results of Negative Binomial Regression on Interactivity

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Pulitzer [ln]		0.277**	0.883***	0.847***	1.273***	0.818***
		(0.138)	(0.320)	(0.289)	(0.368)	(0.296)
Square of Pulitzer [ln]			-0.255**	-0.248**	-0.278**	-0.225**
			(0.120)	(0.110)	(0.114)	(0.113)
Web Presence Length	0.088***	0.082***	0.087***	0.088***	0.096***	0.086***
	(0.008)	(0.009)	(0.009)	(0.009)	(0.012)	(0.009)
Online Newsroom	-0.228**	-0.220**	-0.216**	-0.215**	-0.035	-0.206**
	(0.102)	(0.102)	(0.103)	(0.102)	(0.162)	(0.102)
Online Newsroom Size	0.030	0.028	0.033*	0.032*	0.044**	0.027
	(0.019)	(0.019)	(0.019)	(0.019)	(0.020)	(0.019)
Innovator	0.107	0.095	0.080	0.099	0.351	0.127
	(0.441)	(0.426)	(0.418)	(0.422)	(0.543)	(0.434)
Average Circulation [ln]	0.313*	0.231	0.267	0.273	0.401	0.264
	(0.166)	(0.178)	(0.183)	(0.179)	(0.249)	(0.187)
Average Circulation Change	-0.220	-0.159	-0.164	-0.210	-0.033	-0.374
	(0.348)	(0.353)	(0.352)	(0.357)	(0.405)	(0.372)
National Newspaper	0.253	0.072	2.515	0.191	1.491	
	(1.320)	(1.539)	(13.095)	(1.224)	(34.383)	
Media Conglomerate	0.105	0.090	0.078	0.076	0.046	0.078
	(0.169)	(0.165)	(0.165)	(0.165)	(0.201)	(0.166)
Public Parent Company	0.149	0.166	0.217	0.220	0.144	0.234
	(0.182)	(0.178)	(0.180)	(0.183)	(0.257)	(0.191)
Dual-Stock Structure	-0.290*	-0.315*	-0.381**	-0.381**	-0.146	-0.404**
	(0.164)	(0.162)	(0.165)	(0.167)	(0.197)	(0.184)
Advance Publications	14.655	14.127	13.487	13.700		13.385
	(1,429.727)	(759.321)	(445.744)	(496.774)		(412.916)
Knight-Ridder Newspapers	-0.721***	-0.741***	-0.787***	-0.784***		-0.800***
	(0.171)	(0.168)	(0.170)	(0.172)		(0.183)
County Population [ln]	0.140	0.163	0.159	0.151	-0.223	0.168
	(0.171)	(0.172)	(0.179)	(0.174)	(0.257)	(0.179)
County Competitor	0.328	0.429*	0.411*	0.401*	3.577	0.418*
	(0.236)	(0.244)	(0.242)	(0.241)	(10.626)	(0.244)
Constant	-5.573***	-5.177***	-5.759***	-5.712***	-3.094	-5.827***
	(1.730)	(1.738)	(1.777)	(1.769)	(2.599)	(1.796)
Advance Pulications & Knight Ridder	Included	Included	Included	Included	Excluded	Included
National Geography	Included	Included	Included	Included	Included	Excluded
New York Times	Included	Included	Included	Excluded	Included	Excluded
Number of observations	1,099	1,099	1,099	1,093	892	1,068
Number of groups	164	164	164	163	135	159
Log likelihood	-2307.40	-2305.36	-2302.03	-2292.50	-1846.37	-2242.11
Δ (−2 * log likelihood)		4.08**	10.74***	9.39***	16.20***	8.79**

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

TABLE 11
Random-Effect Panel Regression Model on Net-Combined Readership

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Pulitzer [ln]		0.252***	0.125	0.260***	0.259***	0.262***
		(0.036)	(0.080)	(0.036)	(0.035)	(0.036)
Square of Pulitzer [ln]			0.041*			
			(0.023)			
Five-Year Interactivity				-0.016**		-0.009
				(0.008)		(0.008)
Web Presence Length					-0.005***	-0.004**
					(0.002)	(0.002)
Online Newsroom	0.034	0.035*	0.031	0.035*	0.035*	0.035*
	(0.021)	(0.020)	(0.021)	(0.020)	(0.020)	(0.020)
Audiotex	-0.008	-0.010	-0.008	-0.012	-0.006	-0.007
	(0.050)	(0.046)	(0.046)	(0.046)	(0.046)	(0.046)
Issue Price	0.059	0.050	0.048	0.063	0.058	0.064
	(0.041)	(0.040)	(0.040)	(0.040)	(0.040)	(0.040)
Ad Rate [ln]	0.201***	0.155***	0.158***	0.147***	0.160***	0.155***
	(0.041)	(0.040)	(0.040)	(0.039)	(0.039)	(0.039)
Positive Previous Circulation	-0.019	-0.019	-0.020	-0.019	-0.017	-0.017
	(0.027)	(0.027)	(0.027)	(0.026)	(0.026)	(0.026)
Media Conglomerate	0.032	0.037	0.037	0.042	0.038	0.040
	(0.059)	(0.056)	(0.056)	(0.055)	(0.055)	(0.055)
Dual-Stock Structure	-0.048	-0.057	-0.058	-0.056	-0.070	-0.067
	(0.050)	(0.046)	(0.046)	(0.046)	(0.046)	(0.046)
County Population [ln]	0.490***	0.378***	0.365***	0.382***	0.369***	0.372***
	(0.053)	(0.047)	(0.047)	(0.047)	(0.047)	(0.047)
County Young Generation Rate	-0.543	-0.510	-0.546	-0.551	-0.536	-0.553
	(0.387)	(0.370)	(0.371)	(0.366)	(0.364)	(0.364)
County High Education Rate	-0.027	0.033	0.071	0.051	0.022	0.035
	(0.361)	(0.332)	(0.330)	(0.330)	(0.327)	(0.327)
Constant	5.788***	7.193***	7.409***	7.360***	7.351***	7.416***
	(0.671)	(0.605)	(0.608)	(0.610)	(0.599)	(0.604)
New York Times	Included	Included	Included	Included	Included	Included
Number of observations	230	230	230	230	230	230
Number of groups	89	89	89	89	89	89
R-squared						

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

FIGURE 1

Status as Social Position and Corresponding Market Identity

A) Status-Market Identity Framework

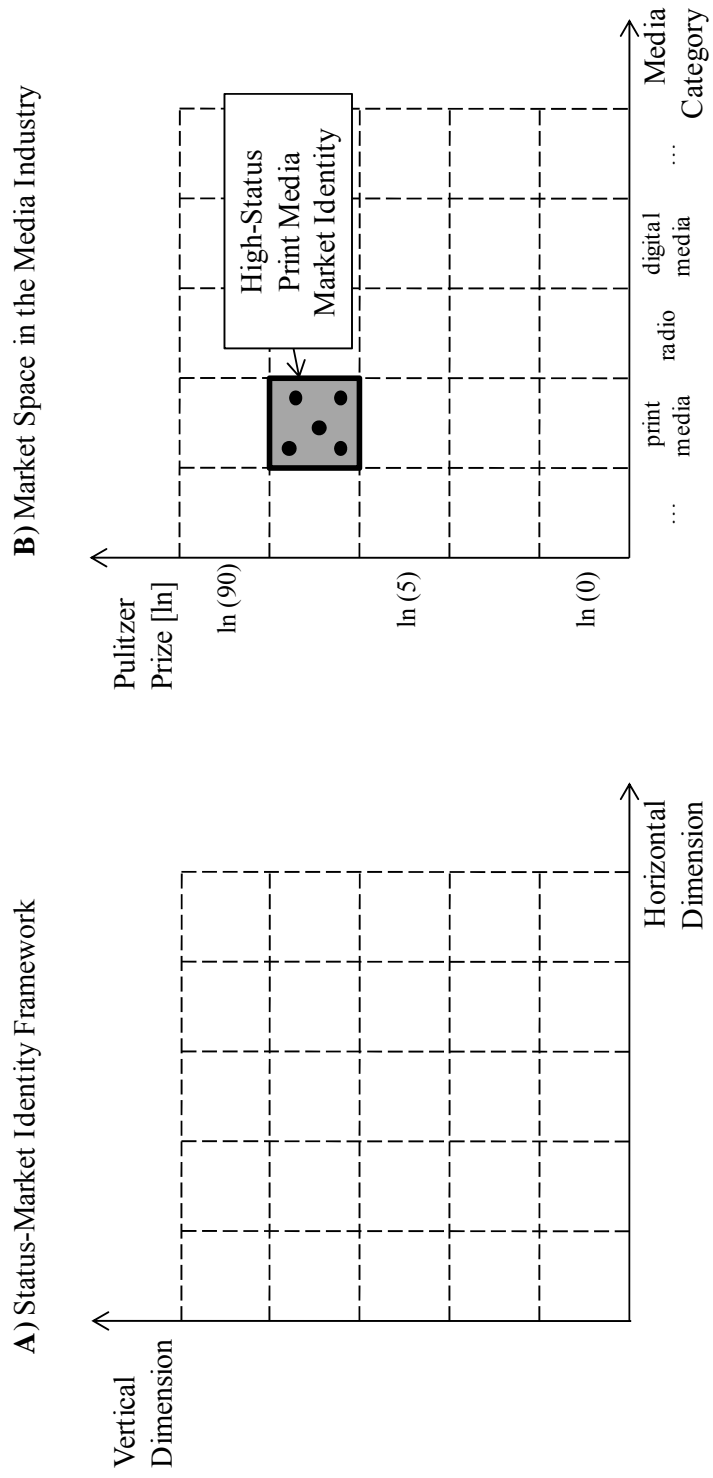**B**) Market Space in the Media Industry

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FIGURE 2

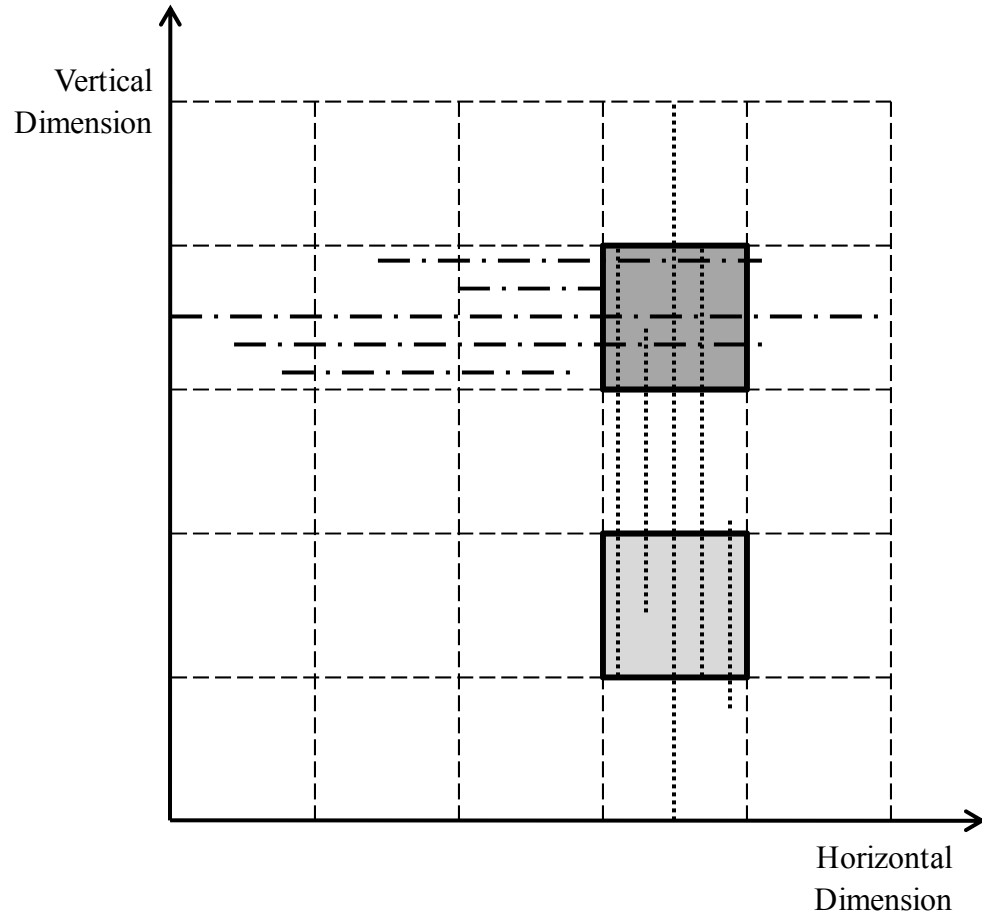Overlapping Characteristics of Different Positions

FIGURE 3
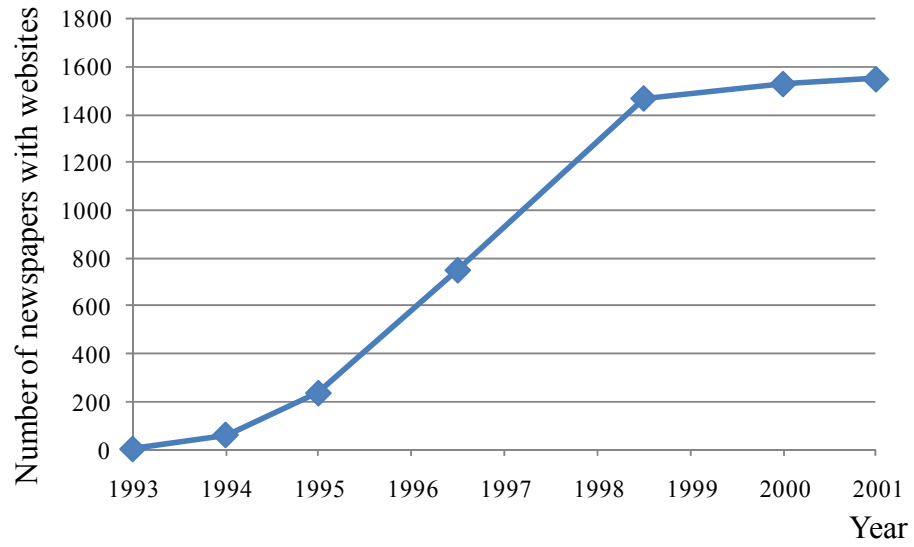
Diffusion of Digital Media in the U.S.

FIGURE 4

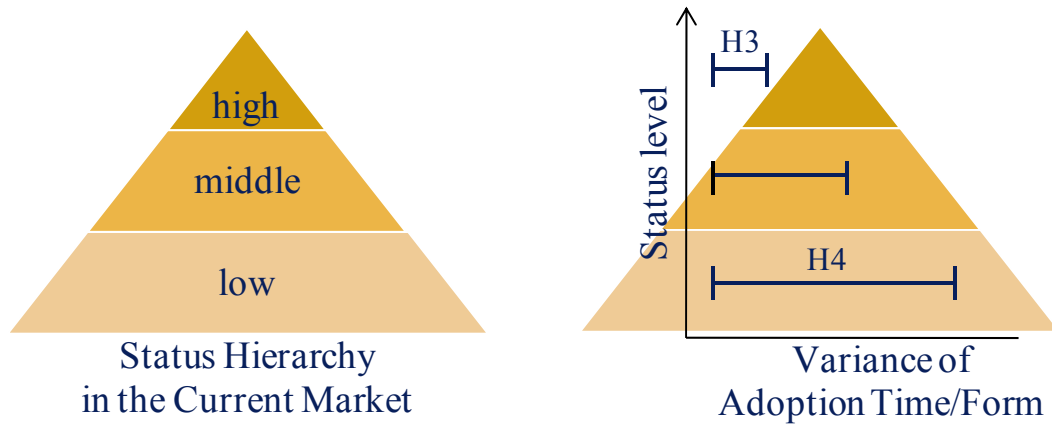Status and Adoption Timing/Form of Discontinuous Technology

FIGURE 5

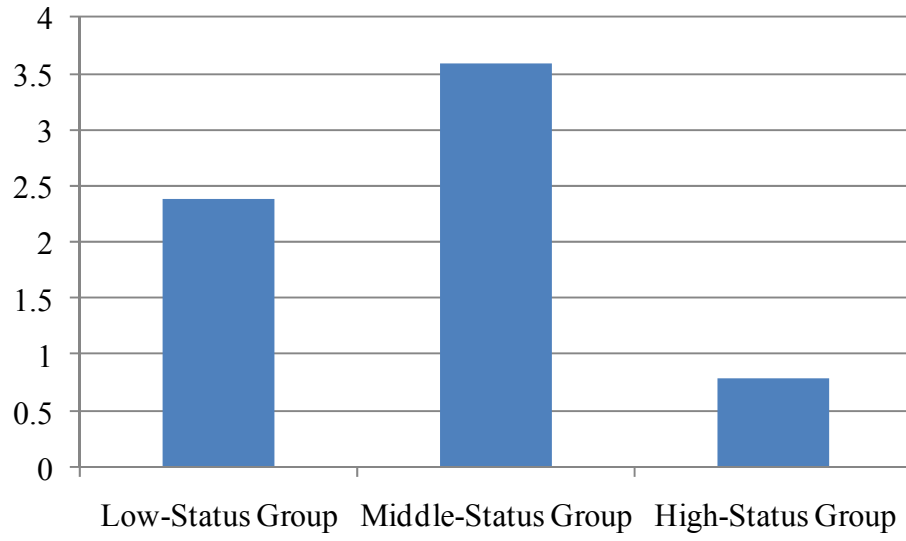Variance of Yearly Adoption Time by Status Group

FIGURE 6
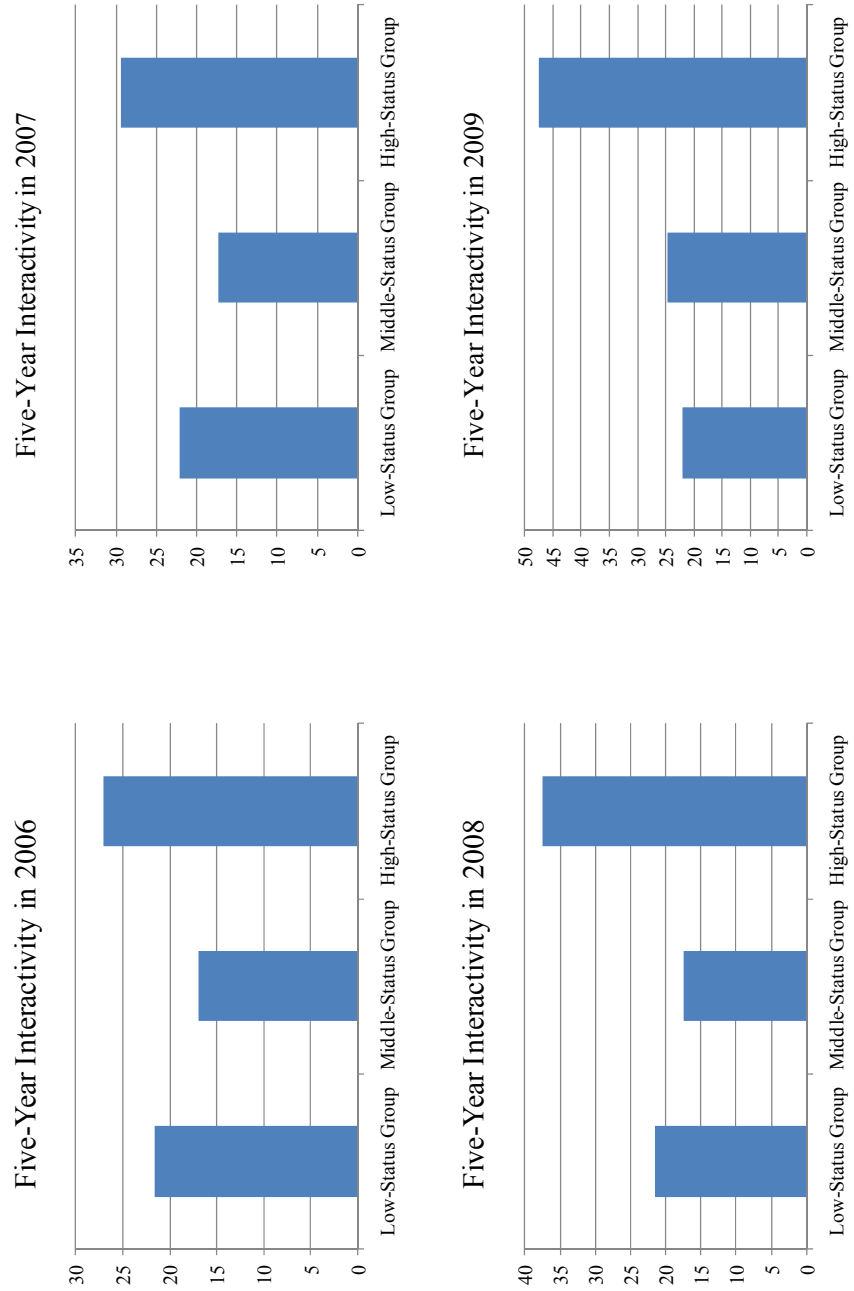
Variance of Website Interactivity Level by Status Group

Five-Year Interactivity in 2006

Five-Year Interactivity in 2007

Five-Year Interactivity in 2008
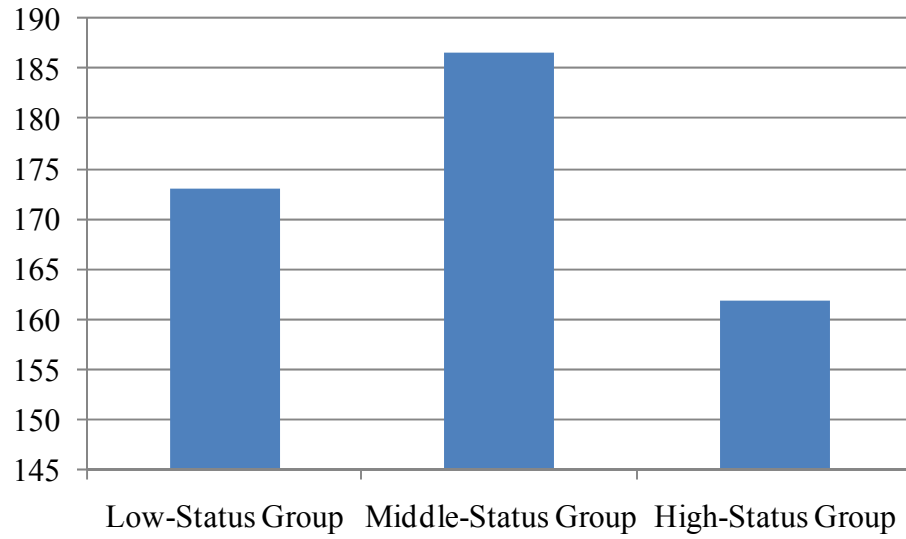
Five-Year Interactivity in 2009

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FIGURE 7

Variance of Monthly Adoption Time by Status Group

APPENDIX

Coding Scheme

1. Interactivity (9pts for each front page)
   a. Comment visibility (1pts): Are comments on articles (if exist) visible from the front page - comments (##), most commented articles, or post a comment.
   b. Forum (1pt): Does the front page have a direct link to a forum (e.g. discussion, debate, message boards) site?
   c. Forum visibility (1pt): Are forum issues visible from the front page?
   d. User generated article (1pt): Are user generated articles or sections (e.g. letters to the editors or news tip section) visible from the front page?
   e. Picture sharing (1pt): Can readers share their pictures on the web? (e.g. send us your own photos, reader submitted photos…)
   f. Chat (1pt): Does the front page have a direct link to a chat room?
   g. Reader polls (1pt): Does the front page have a spot that allows a reader to vote for a certain question?
   h. Reader publishing (2pts): Does the site have a section where readers can publish their own articles without the approval of newspaper staffs (e.g. reader blog, self-publishing section)?

2. Multimedia (4pts for each front page)
   a. Multimedia (1pt): Does the front page have a direct link to a multimedia (video, interactive or audio, or any combination of them) section?
   b. Multimedia visibility (1pt): Is any article (the title of the article) from the multimedia section visible from the front page?
   c. Podcast (1pt): Does the front page a direct link to a podcast or any audio-focused section?
   d. Video visibility (1pt for a direct watch): How can videos be watched? 0: no video, 1: direct link to another page, 2: could be directly watched on the front page

REFERENCES

Audit Bureau of Circulations (ABC)
2011   "Audit services: Circulation." Arlington Heights, IL: Audit Bureau of Circulations.
Abernathy, W. J., and J. M. Utterback
1978   "Patterns of industrial innovation." Technology Review, 80: 40-47.
Abrahamson, E., and L. Rosenkopf
1993   "Institutional and competitive bandwagons: Using mathematical modeling as a tool to explore innovation diffusion." Academy of Management Review, 18: 487-517.
American Community Survey (ACS)
2010   "American Community Survey." The American Community Survey, January 11, 2011 ed.: U.S. Census Bureau.
Ahuja, G., and C. M. Lampert
2001   "Entrepreneurship in the large corporation: a longitudinal study of how established firms create breakthrough inventions." Strategic Management Journal, 22: 521-543.
Ahuja, G., C. M. Lampert, and V. Tandon
2008   "Chapter 1: moving beyond Schumpeter: Management research on the determinants of technological innovation." Academy of Management Annals, 2: 1 - 98.
Albert, S., and D. A. Whetten
1985   "Organizational identity." Research in Organizational Behavior, 7: 263-295.
Alexander, A.
2010   "Four more Pulitzers - but does it matter?" Washington Post, April 18.
Anderson, C.
2009   Free: the Future of a Radical Price. New York, NY: Hyperion.
Anderson, P., and M. L. Tushman
1990   "Technological discontinuities and dominant designs: A cyclical model of technological change." Administrative Science Quarterly, 35: 604-633.
Ansari, S. M., P. C. Fiss, and E. J. Zajac
2010   "Made to fit: How practices vary as they diffuse." Academy of Management Review, 35: 67-92.
Bagdikian, B. H.
2000   The Media Monopoly. Boston, MA: Beacon Press.
Baker, C. E.
2007   Media Concentration and Democracy: Why Ownership Matters. New York, NY: Cambridge University Press.
Barley, S. R.
1986   "Technology as an occasion for structuring: Evidence from observations of ct scanners and the social order of radiology departments." Administrative Science Quarterly, 31: 78-108.
Barr, M.
2009   "Amish newspaper does well without going online." Ann Arbor News, August 23: A15.

Barreto, I., and C. Baden-Fuller
2006   "To conform or to perform? Mimetic behavior, legitimacy-based groups and performance consequences." Journal of Management Studies, 43: 1559-1581.

Baum, C. F.
2006   An Introduction to Modern Econometrics Using Stata. College Station, TX: A Stata Press Publication.

Beam, R. A.
1993   "The impact of group ownership variables on organizational professionalism at daily newspapers." Journalism Quarterly, 70: 907-918.

Beckman, C. M., P. R. Haunschild, and D. J. Phillips
2004   "Friends or strangers? Firm-specific uncertainty, market uncertainty, and network partner selection." Organization Science, 15: 259-275.

Benjamin, B. A., and J. M. Podolny
1999   "Status, quality, and social order in the California wine industry." Administrative Science Quarterly, 44: 563-589.

Berger, P. L., and T. Luckmann
1967   The Social Construction of Reality; A Treatise in the Sociology of Knowledge. Garden City, NY: Doubleday.

Bijker, W. E.
1993   "Do not despair: There is life after constructivism." Science, Technology, & Human Values, 18: 113-138.

Bijker, W. E., T. P. Hughes, and T. J. Pinch
1987   The Social Construction of Technological Systems: New Directions in the Sociology and History of Technology. Cambridge, MA: MIT Press.

Bijker, W. E., and J. Law
1992   Shaping Technology/Building Society: Studies in Sociotechnical Change. Cambridge, MA: MIT Press.

Facts, Figures and Logic: An NAA Resource for Circulation Performance Standards
2007   "Facts, Figures and Logic: An NAA Resource for Circulation Performance Standards." Arlington, VA: Newspaper Association of America.

Blau, P. M.
1960   "Patterns of deviation in work groups." Sociometry, 23: 245-261.
1977   "A macrosociological theory of social structure." American Journal of Sociology, 83: 26-54.

Boczkowski, P. J.
2004   "The processes of adopting multimedia and interactivity in three online newsrooms." Journal of Communication, 54: 197-213.
2005   Digitizing the News. Cambridge, MA: The MIT Press.
2010   News at Work: Imitation in an Age of Information Abundance. Chicago, IL: University Of Chicago Press.

Bogart, L.
2004   "Reflections on content quality in newspapers." Newspaper Research Journal, 25: 40-53.

Box-Steffensmeier, J. M., and B. S. Jones
2004   Event History Modeling: A Guide for Social Scientists. Cambridge ; New York: Cambridge University Press.

Bright, A. A.
1949   The Electric-Lamp Industry: Technological Change and Economic Development from 1800 to 1947. New York, NY: Macmillan.

Brown, M. B., and A. B. Forsythe
1974   "Robust tests for the equality of variances." Journal of the American Statistical Association, 69: 364-367.

Burt, R. S.
1987   "Social contagion and innovation: Cohesion versus structural equivalence." American Journal of Sociology, 92: 1287-1335.
Campbell, W. J.
2003   Yellow Journalism: Puncturing the Myths, Defining the Legacies. Westport, CT: Praeger Publishers.
Carlson, D.
2005   "Online timeline: Changing News." Nieman Reports, 59: 45(20).

Carroll, G. R., and M. T. Hannan
2000   The Demography of Corporations and Industries. Princeton, New Jersey: Princeton University Press.
Carroll, G. R., and A. Swaminathan
2000   "Why the microbrewery movement? Organizational dynamics of resource partitioning in the U.S. brewing industry." American Journal of Sociology, 106: 715-762.
Chan-Olmsted, S. M., and J. S. Park
2000   "From on-air to online world: Examining the content and structures of broadcast TV stations' Web sites." Journalism & Mass Communication Quarterly, 77: 321-339.
Chan, T. W., and J. H. Goldthorpe
2007   "Class and status: The conceptual distinction and its empirical relevance." American Sociological Review, 72: 512-532.
Christensen, C. M., and R. S. Rosenbloom
1995   "Explaining the attacker's advantage: Technological paradigms, organizational dynamics, and the value network." Research Policy, 24: 233-257.
Chung, D. S.
2007   "Profits and Perils." Convergence: The Journal of Research into New Media Technologies, 13: 43-61.
Cleves, M. A., W. W. Gould, R. G. Gutierrez, and Y. U. Marchenko
2008   An Introduction to Survival Analysis Using Stata. College Station, TX: Stata Press.
Cochran, W.
1995   "Searching for right mixture: On-line newspapers seek own identities to compete with ink-stained brethren." Quill, 83: 36-39.
Cole, K. V.
1995   Newspaper Quality and Circulation:A Case Study. Columbia, MO: University of Missouri.
Conner, K. R.
1988   "Strategies for product cannibalism." Strategic Management Journal, 9: 9-26.
Cooper, A. C., and D. Schendel
1976   "Strategic responses to technological threats." Business Horizons, 19: 61-69.
Crovitz, L. G.
2007   "A Report to Our Readers." The Wall Street Journal, August 1: A14
Cyert, R. M., and J. G. March
1963   A Behavioral Theory of the Firm. Englewood Cliffs, NJ: Prentice-Hall.
Dahlin, K. B., and D. M. Behrens
2005   "When is an invention really radical?: Defining and measuring technological radicalness." Research Policy, 34: 717-737.
Damanpour, F., and J. Daniel Wischnevsky
2006   "Research on innovation in organizations: Distinguishing innovation-generating from innovation-adopting organizations." Journal of Engineering and Technology Management, 23: 269-291.

Davis, G. F., and H. R. Greve
1997   "Corporate elite networks and governance changes in the 1980s." American Journal of
        Sociology, 103: 1-37.
Dawson, R.
2010   "Newspaper extinction timeline." San Francisco, CA: Future Exploration Network.
DeAngelo, H., and L. DeAngelo
1985   "Managerial ownership of voting rights : A study of public corporations with dual classes
        of common stock." Journal of Financial Economics, 14: 33-69.
Dess, G. G., and P. S. Davis
1984   "Porter's generic strategies as determinants of strategic group membership and
        organizational performance." Academy of Management Journal, 27: 467-488.
DiMaggio, P. J., and W. W. Powell
1983   "The iron cage revisited: institutional isomorphism and collective rationality in
        organizational fields." American Sociological Review, 48: 147-160.
Dittes, J. E., and H. H. Kelley
1956   "Effects of different conditions of acceptance upon conformity to group norms." Journal
        of Abnormal and Social Psychology, 53: 100-107.
Doctor, K.
2010   Newsonomics: Twelve New Trends That Will Shape the News You Get. New York, NY:
        St. Martin's Press.
Dosi, G.
1982   "Technological paradigms and technological trajectories: A suggested interpretation of
        the determinants and directions of technical change." Research Policy, 11: 147-162.
Dotinga, R.
1999   "The great pretenders." Editor & Publisher: Mediainfo.com, 18-22
Dutton, J. E., and J. M. Dukerich
1991   "Keeping an eye on the mirror: Image and identity in organizational adaptation."
        Academy of Management Journal, 34: 517-554.
E&P
2010   Editor & Publisher International Year Book. New York, NY: Editor & Publisher Co.
Economist
2007   "Why Murdoch wants the WSJ." The Economist, May 3:
Eggers, J. P., and S. Kaplan
2008   "Cognition and renewal: Comparing CEO and organizational effects on incumbent
        adaptation to technical change." Organization Science: orsc.1080.0401.
Fahmy, S.
2008   "How online journalists rank importance of news skills." Newspaper Research Journal,
        29: 23-39.
Fenton, N.
2010   New Media, Old News. Thousand Oaks, CA: SAGE Publications.
Festinger, L.
1954   "A theory of social comparison processes." Human Relations, 7: 117-140.
Fitzgerald, M.
1984   "Videotex verdict: Still unclear." Editor & Publisher, May 19: 36, 38
Foust, J. C.
2009   Online Journalism: Principles and Practices of news for the Web. Scottsdale, Arizona:
        Holcomb Hathaway.
Freeman, J., and M. T. Hannan
1983   "Niche width and the dynamics of organizational populations." American Journal of
        Sociology, 88: 1116-1145.

Freese, S. M.
2011   Craigslist: Company and Its Founder. San Francisco, CA: Essential Library.
Gilbert, C. G.
2003   "The disruption opportunity." MIT Sloan Management Review, 44: 27(26).
2005   "Unbundling the structure of inertia: Resource versus routine rigidity." Academy of Management Journal, 48: 741-763.
2006   "Change in the presence of residual fit: Can competing frames coexist?" Organization Science, 17: 150-167.
Gissler, S., and M. A. Farmer
2006   "Pulitzer board widens range of online journalism in entries." The Pulitzer Prizes Press Release. New York, NY: The Pulitzer Prizes.
Gladney, G. A.
1996   "How editors and readers rank and rate the importance of eighteen traditional standards of newspaper excellence." Journalism & Mass Communication Quarterly, 73: 319-331.
Glynn, M. A.
2000   "When cymbals become symbols: Conflict over organizational identity within a symphony orchestra." Organization Science, 11: 285-298.
Goldfarb, A.
2004   "Concentration in advertising-supported online markets: an empirical approach." Economics of Innovation and New Technology, 13: 581 - 594.
Goodrick, E., and G. R. Salancik
1996   "Organizational discretion in responding to institutional practices: Hospitals and cesarean births." Administrative Science Quarterly, 41: 1-28.
Gould, R. V.
2002   "The origins of status hierarchies: A formal theory and empirical test." American Journal of Sociology, 107: 1143-1178.
Greve, H. R.
1995   "Jumping ship: The diffusion of strategy abandonment." Administrative Science Quarterly, 40: 444-473.
1998   "Performance, aspirations, and risky organizational change." Administrative Science Quarterly, 43: 58-86.
Gulati, R., and M. Gargiulo
1999   "Where do interorganizational networks come from?" American Journal of Sociology, 104: 1439-1438.
Guler, I.
2007   "Throwing good money after bad? Political and institutional influences on sequential decision making in the venture capital industry." Administrative Science Quarterly, 52: 248-285.
Ha, L., and E. L. James
1998   "Interactivity reexamined: A baseline analysis of early business Web sites." Journal of Broadcasting & Electronic Media, 42: 456.
Hannan, M. T., and J. Freeman
1984   "Structural inertia and organizational change." American Sociological Review, 49: 149-164.
1989   Organizational Ecology. Cambridge, MA: Harvard University Press.
Hannan, M. T., L. Pólos, and G. R. Carroll
2007   Logics of organization theory: Audiences, codes, and ecologies. Princeton, NJ: Princeton University Press.
Hansen, K. A.
1990   "Information richness and newspaper Pulitzer Prizes." Journalism Quarterly, 67: 930-935.

Harris, R., Jr.
2007   Pulitzer's Gold: Behind the Prize for Public Service Journalism. Columbia, MO: University of Missouri Press.

Haunschild, P. R., and A. S. Miner
1997   "Modes of interorganizational imitation: The effects of outcome salience and uncertainty." Administrative Science Quarterly, 42: 472-500.

Haveman, H. A.
1992   "Between a rock and a hard place: Organizational change and performance under conditions of fundamental environmental transformation." Administrative Science Quarterly, 37: 48-75.
1993   "Follow the leader: Mimetic isomorphism and entry into new markets." Administrative Science Quarterly, 38: 593-627.

Henderson, R. M.
1993   "Underinvestment and incompetence as responses to radical innovation: Evidence from the photolithographic alignment equipment industry." RAND Journal of Economics, 24: 248-270.

Henderson, R. M., and K. B. Clark
1990   "Architectural innovation: The reconfiguration of existing product technologies and the failure of established firms." Administrative Science Quarterly, 35: 9-30.

Hilbe, J. M.
2007   Negative Binomial Regression. New York, NY: Cambridge University Press.

Hindman, M.
2009   The Myth of Digital Democracy. Princeton, NJ: Princeton University Press.

Hirsch, P. M., and T. A. Thompson
1994   "The stock market as audience: The impact of public ownership on newspapers." In J. S. Ettema, and D. C. Whitney (eds.), Audiencemaking: How the Media Create the Audience. Thousand Oaks, CA: Sage Publications.

Hughes, T. P.
1983   Networks of Power: Electrification in Western Society, 1880-1930. Baltimore, MD: Johns Hopkins University Press.

Jensen, M.
2003   "The role of network resources in market entry: Commercial banks' entry into investment banking, 1991-1997." Administrative Science Quarterly, 48: 466-497.
2008   "The use of relational discrimination to manage market entry: When do social status and structural holes work against you?" Academy of Management Journal, 51: 723-743.
2011   "Legitimizing illegitimacy: How creating market identity legitimizes illegitimate products." In G. Hsu, et al. (eds.), Research in the Sociology of Organizations: Categories in Markets. London, UK: Emerald Group Publishing Limited.

Jensen, M., and B. K. Kim
2008   "Great, Madame Butterfly again! How robust market identity shapes opera repertoires." Ann Arbor, MI: University of Michigan.

Jensen, M., B. K. Kim, and H. Kim
2010   "The importance of status in markets: A market identity perspective." In J. L. Pearce (ed.), Status, Organization and Management. Cambridge, UK: Cambridge University Press.

Jones, A. S.
2009   Losing the News: The Future of the News That Feeds Democracy. New York, NY: Oxford University Press.

Jones, J. C.
1984   America's icemen: an illustrative history of the United States natural ice industry, 1665-1925. Humble, TX: Jobeco Books.

Judge, G. G., R. C. Hill, W. E. Griffiths, H. Lutkepohl, and T.-C. Lee
1982   The Theory and Practice of Econometrics. New York, NY: John Wiley & Sons, Incorporated.

Kahl, S., and C. B. Bingham
2010   "The process of schema development: How the insurance industry conceptualized the computer, 1945 - 1975." Chicago, IL: University of Chicago.

Kalbfleisch, J. D., and R. L. Prentice
2002   The Statistical Analysis of Failure Time Data. Hoboken, NJ: J. Wiley.

Kamiya, G.
2009   "The death of the news." Salon, Feb 17:

Kaye, J., and S. Quinn
2010   Funding Journalism in the Digital Age: Business Models, Strategies, Issues and Trends. New York, NY: Peter Lang.

Kennedy, M. T., and P. C. Fiss
2009   "Institutionalization, framing, and diffusion: The logic of TQM adoption and implementation decisions among us hospitals." Academy of Management Journal, 52: 897-918.

Kiernan, V., and M. R. Levy
1999   "Competition among broadcast-related Web sites." Journal of Broadcasting & Electronic Media, 43: 271.

King, A. A., and C. L. Tucci
2002   "Incumbent entry into new market niches: The role of experience and managerial choice in the creation of dynamic capabilities." Management Science, 48: 171-186.

Kovach, B., and T. Rosenstiel
2007   The Elements of Journalism: What Newspeople Should Know and the Public Should Expect. New York, NY: Crown Publishers.

Labianca, G., J. F. Fairbank, J. B. Thomas, D. A. Gioia, and E. E. Umphress
2001   "Emulation in Academia: Balancing Structure and Identity." Organization Science, 12: 312-330.

Lacy, S., and F. Fico
1991   "The link between newspaper content quality & circulation." Newspaper Research Journal, 12: 46-57.

Lacy, S., M. A. Shaver, and C. St. Cyr
1996   "The effects of public ownership and newspaper competitions on the financial performance of newspaper corporations." Journalism & Mass Communication Quarterly, 73: 332-341.

Lakoff, G.
1987   Women, Fire, and Dangerous Things: What Categories Reveal about the Mind. Chicago, IL: University of Chicago Press.

Layton, E. T.
1977   "Conditions of technological development." In I. Spiegel-Rösing, and D. J. d. S. Price (eds.), Science, Technology and Society: A Cross-Disciplinary Perspective: 197-222. London, UK: Sage Publications.

Leifer, E. M.
1985   "Markets as mechanisms: Using a role structure." Social Forces, 64: 442-472.

Leonard-Barton, D.
1992   "Core capabilities and core rigidities: A paradox in managing new product development." Strategic Management Journal, 13: 111-125.

Levene, H.
1960   "Robust tests for equality of variances." In I. Olkin, et al. (eds.), Contributions to Probability and Statistics: Essays in Honor of Harold Hotelling: 278-292. Menlo Park, CA: Stanford University Press.

Li, X.
2006   Internet Newspapers: The Making of a Mainstream Medium. Mahwah, NJ: Lawrence Erlbaum Associates.

Lieberman, M. B., and S. Asaba
2006   "Why do firms imitate each other?" Academy of Management Review, 31: 366-385.

Lieberman, M. B., and D. B. Montgomery
1988   "First-mover advantages." Strategic Management Journal, 9: 41-58.
1998   "First-mover (dis)advantages: Retrospective and link with the resource-based view." Strategic Management Journal, 19: 1111-1125.

Linton, R.
1936   The Study of Man; An Introduction. London, UK: New York, D. Appleton-Century Company, Incorporated.

Lippmann, W., and C. Merz
1920   "A test of the news." The New Republic, 1-42

Liu, Y.
2003   "Developing a scale to measure the interactivity of websites." Journal of Advertising Research, 43: 207-216.

Lounsbury, M., and H. Rao
2004   "Sources of durability and change in market classifications: A study of the reconstitution of product categories in the American mutual fund industry, 1944-1985." Social Forces, 82: 969-999.

Lowrey, W.
2003   "What influences small newspapers to decide to publish online news?" Newspaper Research Journal, 24: 83-90.

MacKenzie, D. A.
1996   Knowing Machines: Essays on Technical Change. Cambridge, MA: MIT Press.

MacKenzie, D. A., and J. Wajcman
1999   The Social Shaping of Technology. Philadelphia, PA: Open University Press.

Madigan, C. M.
2007   30: The Collapse of the Great American Newspaper. Blue Ridge Summit, PA: Ivan R. Dee.

Mansfield, E.
1961   "Technical change and the rate of imitation." Econometrica, 29: 741-766.

March, J. G.
1994   A Primer on Decision Making: How Decisions Happen. New York, NY: The Free Press.

March, J. G., and H. A. Simon
1958   Organizations. New York, NY: Wiley.

Markowski, C. A., and E. P. Markowski
1990   "Conditions for the effectiveness of a preliminary test of variance." American Statistician, 44: 322-326.

Marx, K.
1887   Capital. London, UK: S. Sonnenschein, Lowrey, & Co.
1936   The Poverty of Philosophy. New York: International publishers.

McChesney, R. W., and J. Nichols
2010   The Death and Life of American Journalism: The Media Revolution That Will Begin the World Again. Philadelphia, PA: Nation Books.

McKendrick, D. G., and G. R. Carroll
2001   "On the genesis of organizational forms: Evidence from the market for disk arrays."
        Organization Science, 12: 661-682.
McMillan, S. J.
1998   "Who pays for content? Funding in interactive media." Journal of Computer-Mediated
        Communication, 4.
Menzel, H.
1960   "Innovation, integration, and marginality: A survey of physicians." American
        Sociological Review, 25: 704-713.
Merrill, J. C.
1968   The Elite Press: Great Newspapers of the World. New York, NY: Pitman Publishing
        Corp.
Merton, R. K.
1957   Social Theory and Social Structure. Glencoe, Ill.: Free Press.
1968   "The Matthew effect in science." Science, 159: 56-63.
Methe, D., A. Swaminathan, and W. Mitchell
1996   "The underemphasized role of established firms as the sources of major innovations."
        Industrial and Corporate Change, 5: 1181-1203.
Meyer, P.
2009   The Vanishing Newspaper: Saving Journalism in the Information Age, 2nd ed. Columbia,
        MO: University of Missouri Press.
Meyer, P., and M. Kim
2003   " Above-average staff size helps newspapers retain circulation." Newspaper Research
        Journal, 24: 76-82.
Mindich, D. T. Z.
2005   Tuned Out: Why Americans under 40 Don't Follow the News. New York: Oxford
        University Press.
Mitchell, W.
1989   "Whether and when? Probability and timing of incumbents' entry into emerging industrial
        subfields." Administrative Science Quarterly, 34: 208-230.
Mizruchi, M. S., and L. C. Fein
1999   "The social construction of organizational knowledge: A study of the uses of coercive,
        mimetic, and normative isomorphism." Administrative Science Quarterly, 44: 653-683.
Mogel, L.
2000   The Newspaper: Everything You Need to Know to Make It in the Newspaper Business.
        Sewickley, PA: GATFPress.
Murphy, G. L.
2004   The Big Book of Concepts. Cambridge, MA: The MIT Press.
Trends & Numbers
2011   "Trends & Numbers."
Nelson, R. R.
1995   "Recent evolutionary theorizing about economic change." Journal of Economic Literature,
        33: 48-90.
Neuman, W. R.
2010   Media, Technology, and Society: Theories of Media Evolution. Ann Arbor: MI:
        University of Michigan Press.
O'Reilly, C. A., III, and M. L. Tushman
2004   "The ambidextrous organization." Harvard Business Review, 82: 74-81.
Ocasio, W.
1997   "Towards an attention-based view of the firm." Strategic Management Journal, 18: 187-
        206.

Oster, S. M.
2000   "Is there a future in diversity? The view from economics and sociology." In J. A. C. Baum, and F. Dobbin (eds.), Economics Meets Sociology in Strategic Management: 351-357. Stamford, CT: Emerald Group Publishing Limited.

Pavlik, J. V.
1997   "The future of online journalism: Bonanza or black hole?" Columbia Journalism Review, 36: 30-36.
2008   Media in the Digital Age. New York: Columbia University Press.

Project for Excellence in Journalism (PEJ)
2010   "The State of the News Media 2010: An annual report on American journalism   ". Washington, DC: Journalism.org.

Peng, F. Y., N. I. Tham, and H. Xiaoming
1999   "Trends in online newspapers: A look at the US web." Newspaper Research Journal, 20: 52-63.

Perry, B.
2009   "Uncovering the discrepancies in unique measurement data generated by panel and census-based online measurement techniques." Audit Bureau of Circulations: A Point of View, Updated ed. Schaumburg, IL: Audit Bureau of Circulations.

Peteraf, M., and M. Shanley
1997   "Getting to know you: A theory of strategic group identity." Strategic Management Journal, 18: 165-186.

Peters, J. W.
2011   "The Times announces digital subscription plan." The New York Times, March 17.

Phillips, D. J., and E. W. Zuckerman
2001   "Middle-status conformity: Theoretical restatement and empirical demonstration in two markets." American Journal of Sociology, 107: 379-429.

Picard, R. G., and J. Brody
1997   The Newspaper Publishing Industry. Boston, MA: Pearson Education.

Pinch, T. J., and W. E. Bijker
1984   "The social construction of facts and artefacts: Or how the sociology of science and the sociology of technology might benefit each other." Social Studies of Science, 14: 399-441.

Podolny, J. M.
1993   "A status-based model of market competition." American Journal of Sociology, 98: 829-872.
1994   "Market uncertainty and the social character of economic exchange." Administrative Science Quarterly, 39: 458-483.
2005   Status Signals: A Sociological Study of Market Competition. Princeton: Princeton University Press.

Podolny, J. M., and F. M. Scott Morton
1999   "Social status, entry and predation: The case of British shipping cartels 1879-1929." Journal of Industrial Economics, 47: 41-67.

Podolny, J. M., and T. E. Stuart
1995   "A role-based ecology of technological change." American Journal of Sociology, 100: 1224-1260.

Porter, M. E.
1979   "The structure within industries and companies' performance." Review of Economics and Statistics, 61: 214-227.
1980   Competitive Strategy: Techniques for Analyzing Industries and Competitors. New York: Free Press.

Pulitzer
2010   "Journalism Guidelines." The Pulitzer Prizes.
Purdy, J. M., and B. Gray
2009   "Conflicting logics, mechanisms of diffusion, and multilevel dynamics in emerging institutional fields." Academy of Management Journal: 355-380: Academy of Management.
Radolf, A.
1982   "New videotex association seeks conciliatory role." Editor & Publisher, August 14: 19
Rao, H.
2009   Market Rebels: How Activists Make or Break Radical Innovations. Princeton: Princeton University Press.
Rao, H., P. Monin, and R. Durand
2003   "Institutional change in Toque Ville: Nouvelle cuisine as an identity movement in French gastronomy." American Journal of Sociology, 108: 795-843.
2005   "Border crossing: bricolage and the erosion of categorical boundaries in French gastronomy." American Sociological Review, 70: 968-991.
Reinganum, J. F.
1983   "Uncertain innovation and the persistence of monopoly." American Economic Review, 73: 741-748.
Rogers, E. M.
2003   Diffusion of Innovations. New York: Free Press.
Rosenberg, N.
1972   "Factors affecting the diffusion of technology." Explorations in Economic History, 10: 3-33.
1982   Inside the Black Box: Technology and Economics. Cambridge [Cambridgeshire]: Cambridge University Press.
Rosenberg, S.
2009   Say Everything: How Blogging Began, What It's Becoming, and Why It Matters. New York, NY: Crown.
Rosenkopf, L., and G. Padula
2008   "Investigating the microstructure of network evolution: Alliance formation in the mobile communications industry." Organization Science, 19: 669-687.
Rosenstiel, T., and A. Mitchell
2004   "The impact of investing in newsroom resources." Newspaper Research Journal, 25: 84-97.
Ruef, M.
2000   "The emergence of organizational forms: A community ecology approach." American Journal of Sociology, 106: 658-714.
Russell, S.
1986   "The social construction of artefacts: A response to Pinch and Bijker." Social Studies of Science, 16: 331-346.
Schizer, D. M.
2011   "Subsidizing the press." Journal of Legal Analysis, 3: 1-63.
Schudson, M.
1978   Discovering the News: A Social History of American Newspapers. New York: Basic Books.
2003   The Sociology of News: Norton.
Schultz, T.
1999   "Interactive options in online journalism: A content analysis of 100 U.S. newspapers." Journal of Computer-Mediated Communication, 5.

Schumpeter, J. A.
1934   The Theory of Economic Development; An Inquiry Into Profits, Capital, Credit, Interest, and the Business Cycle. Cambridge, MA: Harvard University Press.
1942   Capitalism, socialism, and Democracy. New York, NY: Harper & Brothers.
Seamans, R., and F. Zhu
2011   "Technology shocks in multi-sided markets: The impact of Craigslist on local newspapers." SSRN eLibrary.
Sherman, G.
2010   "Rattled Journal Staff Renew Pursuit of Pulitzers." New York Magazine, May 3.
Siklos, R., and A. R. Sorkin
2007   "Murdoch on owning the Wall Street Journal." The New York Times, May 4.
Simon, D. H., and M. B. Lieberman
2010   "Internal and external influences on adoption decisions in multi-unit firms: the moderating effect of experience." Strategic Organization, 8: 132-154.
Simon, H. A.
1957   Administrative Behavior; A Study of Decision-Making Processes in Administrative Organization. New York: Macmillan.
Snedeker, L.
2007   "The emerging online-only local paper: More are launching in response to print cutbacks." Media Life, September 12.
Sorokin, P. A.
1959   Social and Cultural Mobility. Glencoe, IL: Free Press.
StataCorp
2005   Stata Statistical Software: Release 9. College Station, TX: StataCorp LP.
Still, M. C., and D. Strang
2009   "Who does an elite organization emulate?" Administrative Science Quarterly, 54: 58-89.
Stuart, T. E.
1998   "Network positions and propensities to collaborate: An investigation of strategic alliance formation in a high-technology industry." Administrative Science Quarterly, 43: 668-698.
2000   "Interorganizational alliances and the performance of firms: A study of growth and innovation rates in a high-technology industry." Strategic Management Journal, 21: 791-811.
Suchman, M. C.
1995   "Managing legitimacy: strategic and institutional approaches." Academy of Management Review, 20: 571-610.
Sundar, S. S.
2000   "Multimedia effects on processing and perception of online news: A study of picture, audio, and video downloads." Journalism & Mass Communication Quarterly, 77: 480-499.
Thompson, J. B.
1995   The Media and Modernity: A Social Theory of the Media. Cambridge, UK: Polity Press.
Thompson, R. S.
1989   "Circulation versus advertiser appeal in the newspaper industry: An empirical investigation." The Journal of Industrial Economics, 37: 259-271.
Tolbert, P. S., and L. G. Zucker
1983   "Institutional sources of change in the formal structure of organizations: The diffusion of civil service reform, 1880-1935." Administrative Science Quarterly, 28: 22-39.
Tripsas, M.
1997   "Unraveling the process of creative destruction: Complementary assets and incumbent survival in the typesetter industry " Strategic Management Journal, 18: 119-142.

2009   "Technology, identity, and inertia through the lens of "the digital photography
        company"." Organization Science, 20: 441-460.
Tushman, M. L., and P. Anderson
1986   "Technological discontinuities and organizational environments." Administrative Science
        Quarterly, 31: 439-465.
Tushman, M. L., and P. Murmann
2003   "Dominant designs, technology cycles, and organizational outcomes." In R. Garud, et al.
        (eds.), Managing in the Modular Age: Architectures, Networks, and Organizations.
        Malden, MA: Blackwell Publishers Ltd.
Tushman, M. L., and R. R. Nelson
1990   "Introduction: Technology, organizations, and innovation." Administrative Science
        Quarterly, 35: 1-8.
Tushman, M. L., and L. Rosenkopf
1992   "Organizational determinants of technological change: Towards a sociology of
        technological evolution." Research in Organizational Behavior, 14: 311-347.
Utterback, J. M.
1996   Mastering the Dynamics of Innovation. Boston, MA: Harvard Business School Press.
Wade, J. B., C. A. O'Reilly, III, and T. G. Pollock
2006   "Overpaid CEOs and underpaid managers: Fairness and executive compensation."
        Organization Science, 17: 527-544.
Wejnert, B.
2002   "Integrating models of diffusion of innovations: A conceptual framework." Annual
        Review of Sociology, 28: 297-326.
Westphal, J. D., R. Gulati, and S. M. Shortell
1997   "Customization or conformity? An institutional and network perspective on the content
        and consequences of TQM adoption." Administrative Science Quarterly, 42: 366-394.
White, H. C.
1981a   "Production markets as induced role structures." Sociological Methodology, 12: 1-57.
1981b   "Where do markets come from?" American Journal of Sociology, 87: 517-547.
Wu, B., Z. Wan, and D. A. Levinthal
2011   "Complementary assets as pipes and prisms: Innovation incentives and trajectory
        choices." SSRN eLibrary.
Yi, Z.
2008   "Internet use patterns in the United States." Chinese Librarianship: an International
        Electronic Journal, 25: URL: http://www.iclc.us/cliej/cl25yi.htm.
Zelizer, B.
2004   Taking Journalism Seriously: News and the Academy. Thousand Oaks, Calif.: Sage.
Zeng, Q., and X. Li
2006   "Factors influencing interactivity of Internet newspapers: A content analysis of 106 US
        Newspapers' Web sites." In X. Li (ed.), Internet Newspapers: The making of mainstream
        medium: 139-158. Mahwah, NJ: Lawrence Erlbaum Associates.
Zuckerman, E. W.
1999   "The categorical imperative: Securities analysts and the illegitimacy discount." American
        Journal of Sociology, 104: 1398-1438.
2000   "Focusing the corporate product: Securities analysts and de-diversification."
        Administrative Science Quarterly, 45: 591-619.