

Chemicals, Companies, and Countries: The Concept of Diffusion in Management Research

Jennifer Whitson
McCombs School of Business
The University of Texas at Austin
2110 Speedway, Stop B6300
Austin, Texas, 78712

Klaus Weber
Kellogg School of Management
Northwestern University
2001 Sheridan Road
Evanston, IL 60208

Paul Hirsch
Kellogg School of Management
Northwestern University
2001 Sheridan Road
Evanston, IL 60208

Y. Sekou Bermiss
McCombs School of Business
The University of Texas at Austin
2110 Speedway, Stop B6300
Austin, Texas, 78712

Chemicals, Companies, and Countries: The Concept of Diffusion in Management Research

Abstract

In the field of organizational behavior, the term "diffusion" has come to be implicitly paired with the concept of innovation and a peculiar set of conceptual choices. We explore how this came about, and examine the evolution of the concept "diffusion" from its inception in the English language through its use in the natural and social sciences to its current meaning in organizational research. A sensemaking perspective on researchers' cognition helps us explain the changing meaning of the concept, and alerts researchers to the subtle but far-reaching effects of revisions in a field's conceptual language. Even though the field of organizational studies ostensibly treats diffusion as a neutral phenomenon, it implicitly narrates diffusion as a mechanical and positive process that should be welcomed and encouraged. The implications of this reframing become even more important with the increasing focus on innovation in recent diffusion studies. The diffusion of new products among consumers and the diffusion of market institutions around the world are things of a rather different nature and consequence, but treating them as implicitly equivalent "innovations" that "diffuse" naturalizes and hence legitimates them. We conclude by noting implications of our findings for exploring the evolution of meaning for other concepts, and their utilization in research on organizations.

Chemicals, Companies, and Countries: The Concept of Diffusion in Management Research

Studies of diffusion have become a canonical part of the conceptual and methodological toolkit of organizational researchers. Applications range from intra-organizational change to institutional processes and international management. The popularity of an associated vocabulary of adoption events, S-shaped diffusion curves, and contagion and influence channels suggests that diffusion studies constitute a recognized research genre, if not a paradigm. But diffusion is not simply an empirical phenomenon worth studying. It is a general conceptual approach that can be used to identify and understand a wide range of phenomena. It is this *concept* of diffusion that we examine in this paper, and the paradigmatic apparatus and biases that come with it. We suggest that the concept of diffusion as presently used in organizational and management research is closely associated with a ready-made package of methods, conceptual choices and valences, and that the coming together of this assembly can be understood as the result of historically situated sensemaking processes. We furthermore suggest that, if this process remains outside of the awareness of the field, future research risks being burdened with normative biases and unintended blind spots.

Pragmatic choices made during the scientific process can have unintended consequences on the meanings of particular concepts (Hirsch and Levin, 1999). Many terms' meanings in the field of management have so evolved since their first inception. The term "institutional" initially political in nature, became far more cultural in its meaning (Powell & DiMaggio, 1991). "Culture" originated in anthropology, where it was intended to encompass an entire society. However, in the field of management the term's purview shifted to engage single organizations (Martin, 1992). Even "organization," in its original incarnation, was a verb. It gradually became a noun encompassing a discrete unit and continues to evolve, e.g., from an organism-like entity

into a purely contractual construction (Williamson, 1996). The term "logic" may be just at the start of a shift in meaning, mutating from "rationality" to "institutionalized ways of thinking" (Lounsbury & Pollack, 2001; March, 1995; Thornton & Ocasio, 1999).

Such shifts in meaning carry the risk that important insights and peculiarities that are embedded in historically evolved concepts are forgotten by later generations of researchers. Of particular interest in this process is the translation across contexts: how features of the context in which a term originated are brought into another context and through path dependency lead to a focus on certain areas at the neglect of others. Re-constructing the resulting patterns and unexpected permutations in our discourse is a goal the field can profitably pursue.

In this article, we examine the development of the meaning of a prominent concept in organization studies, that of "diffusion." We show how diffusion took on an increasingly narrow and normatively positive meaning in its coupling with the concept of "innovation," and examine some of the potentially unanticipated consequences (Henisz, Zelner, & Guillén, 2005)(Henisz, Zelner, & Guillén, 2005)(Henisz, Zelner, & Guillén, 2005)(Henisz, Zelner, & Guillén, 2005)(Henisz, Zelner, & Guillén, 2005)(Henisz, Zelner, & Guillén, 2005)(Henisz, Zelner, & Guillén, 2005) arising from this change. We first present a descriptive history of the diffusion concept to contextualize its "plot." In this section, we provide a comparative analysis of the concept in the various academic fields that it entered over time: the natural sciences of the 19th century, the social sciences of the early 20th century, management research since the 1950s, and macro-organizational research since the 1990s. Our focus is on implicit narrative plots and connotations in these different settings. We next develop a sensemaking perspective to understand three key transition periods in this historical progression when meanings were temporarily fluid. We conclude by critically

exploring implications of diffusion's expansion in scope and alteration of meaning for other concepts that may undergo similar changes.

THE PLOT OF DIFFUSION

An important way in which concepts are rendered meaningful is through the construction of stories that embed ideas in the context of a narrative plot. A *plot* is a means through which events are put into a meaningful whole (Czarniawska-Joerges, 1997). It is composed of a set of subjects, objects, actions and events that are arranged within, and interpreted using, a structured narrative and institutional context (Czarniawska-Joerges, 1998; Fiol, 1990; Greimas, 1983). Plots convey tacit knowledge without directly verbalizing it by virtue of putting selective concepts in various suggestive relations to each other. Within the field of organizational behavior there is a well-known repertoire of plots – for example, "a new identity emerges," "a new technology is found," or "there is a change in the workforce" (Czarniawska-Joerges, 1999, p. 75). It is possible for dominant plots associated with a concept to change or develop over time – for example, the concept of "efficiency" was originally embedded in narratives of relative productivity in technical systems, but over time became a normatively positive metaphor central to managerialist and market narratives that legitimate far-reaching changes in employment arrangements, cultures, and governance systems (Erikson & Vallas, 1992; Hinings & Greenwood, 2002; Hirsch & Shanley, 1996; Rousseau, 1995).

In the case of stories which suggest topics for studies of diffusion in organizational research, there are innumerable plots that *could* be selected, including: diseases diffusing through populations, panics diffusing through crowds, the diffusion of Napster through college students, or the diffusion of cocaine use through a neighborhood. However, these are not the types of plots one sees in contemporary diffusion studies in this field. The once-neutral description of

something spreading through a given population has acquired a connotation that *positive things of any type naturally do and should diffuse unless otherwise prevented*.

The diffusion concept was used initially in the natural sciences, mainly chemistry, to describe the spontaneous process of molecules of one substance permeating a gas or liquid made up of another substance. The term was introduced first to the social sciences in the 1890s, and half a century later to the nascent field of management research. It appeared first, in the mid-1950s, in a series of studies of social influence headed by Paul Lazarsfeld at the Bureau of Applied Social Research (BASR) at Columbia University and was later popularized by Everett Rogers in his classic, *Diffusion of Innovations* (1962). Both Lazarsfeld and Rogers investigated the spread of new products, opinions, and practices designed by innovators in a population of users. The narrative imprints of the pragmatic interests and conceptual toolkits of these researchers and their studies' sponsors at such critical junctures shaped how diffusion was envisioned, and continues to be interpreted.

Within the academic field of management, diffusion research retains premises developed for studying chemical processes and the adoption of consumer products: An archetypical diffusion study looks, for example, at a large group of unitary actors that are exposed to ready-made practices, which they then either accept and use or reject. Neither the practices nor the adopting entities undergo further transformations as a consequence. The natural end point is an even penetration of the population unless barriers can be identified; and because of a continued association of diffusion with innovations, the practices involved are also often seen as novel and desirable. These conceptual choices translate well into statistical models for binary outcomes, making event history and network analysis attractive empirical methods that reinforce these conceptual choices.

After documenting the dominant "plots" of diffusion studies in different bodies of research, we develop and apply a sensemaking perspective (Weick, 1995) to understand the narratives that researchers constructed around diffusion as they translated the concept into their field, and the influence of language and social context on their research. Understanding the connotations of the diffusion concept and its historical genesis is not simply of interest to reflective organizational scholars. It also serves as a case study for the implications of meaning structures and potential biases in what gets studied, and for the nature of the historical processes through which research genres emerge. Our approach also provides an alternative to studies of scientific knowledge that attribute the evolution of conceptual approaches to their empirical success (Kuhn, 1962) or the simple transmission of information through researchers' networks (Collins, 1998; Uzzi & Shapiro, 2005). In contrast to critical discursive approaches that emphasize ideological biases (Derrida, 1980; Fairclough, 1989) sensemaking employs a pragmatist view of meaning and knowledge. It does not deny bias, interests, and political implications in research, but accounts for these as emergent from researchers' locally situated interests and phenomenologies.

In so tracing the plot of the diffusion concept, our contribution is three-fold. First, we bring to the fore neglected historical imprinting and translation processes in scholarly vocabularies. Second, we further unpack the impact and consequence of language and meaning making in everyday knowledge creation. And third, this study reflects on diffusion research in organization and management studies and more generally identifies directions for critically examining conceptual development within the field of management research.

HISTORICAL ARC OF "DIFFUSION" FROM MODERN CHEMISTRY TO CONTEMPORARY ORGANIZATION THEORY

The origin of the term "diffusion" lies in the Latin – "diffundere", to pour out. In English, its first known appearance in writing occurred in 1374¹, where it had become associated exclusively with vocalization, now meaning, "a copious outpouring of speech". As a scientific concept it entered the field of chemistry in the early 1800s, where it meant, "The permeation of a gas or liquid between the molecules of another fluid placed in contact with it; the spontaneous molecular mixing or interpenetration of two fluids without chemical combination" (Oxford English Dictionary). Its meaning in the field of chemistry has not changed, and is still found defined similarly in modern-day textbooks. This image of diffusion processes inspired analogous uses, for example, in the new fields of ecology in biology.

1870s to 1950s: "Diffusion" in the Social Sciences

As the concept of "diffusion" became increasingly used as an analogy for phenomena outside chemistry, it took on its more generic present-day meaning – that of "the action of spreading abroad; dispersion through a space or over a surface; wide and general distribution" (Oxford English Dictionary). It was with this connotation that the diffusion concept entered the social sciences, with its first reported use in the work of anthropologist E.B Tylor (1871) who noted: "How good a working analogy there really is between the diffusion of plants and animals and the diffusion of civilization comes well into view when one notices how far the same causes have produced both at once." In the following decades, anthropologists used extensive fieldwork to gather data on the diffusion of objects from one culture to another. Of similar influence was Gabriel Tarde's *Lois d'imitation* (Tarde, 1890, translated to English in 1903). Tarde theorized the social psychological basis of the imitation and diffusion of behaviors and beliefs and saw these processes as fundamental to a wide range of sociological questions and phenomena. The

¹ In Chaucer's play *Troilus and Criseyde*, "Nere it that I wilne as now tabregge diffusioun of speche, I coude almost a thousand olde stories thee alegge." (cf. Oxford English Dictionary).

diffusion concept thus spurred, in both anthropology and sociology, comprehensive models of basic social processes at the micro level that could be used to explain a variety of collective outcomes.

At the time, the influence of these ideas on economics and the yet-to-become-formalized field of management were minimal. Articles would make references to the "diffusion of taxes over the whole community" (Bastable, 1893), or comment upon, "the wide diffusion among employees of 99 per cent of the stock and dividends," (Taylor, 1928). In these cases, the meaning of the term "diffusion" was more synonymous with "distribution" - the action of dividing and dealing out or bestowing in portions among a number of recipients (Oxford English Dictionary). Even when the term was used more akin to contemporaneous use in the social sciences, as in, "the increased diffusion of statistical knowledge," (Giffen, 1892), the concept was not formally defined or measured.

The theories of social diffusion developed by 19th century sociologists and anthropologists could, by the very nature of their proposed generality be applied to a wide range of empirical phenomena (e.g., Pemberton, 1936). Of particular consequence were empirical studies in the field of rural sociology. Ryan and Gross (1943) examined the adoption of a new hybrid strain of corn by Iowa farmers from 1928 (when it was first made available) to 1941, by which time almost 100 percent of farmers used it. By counting and plotting adoption rates over time, they found a normally distributed curve of adoption events, corresponding to an S-shaped cumulative diffusion curve. They also found that farmers' decisions were strongly influenced by their neighbors, in line with Tarde's theory in anthropology. Their study – and especially their method, which was inspired by emerging statistical approaches to investigating plant diffusion in agriculture – prompted a wave of research on diffusion, much of it within the field of rural

sociology. Many of these studies were funded by agricultural extension services and seed companies that were interested in promoting modern techniques and products as part of the "agricultural revolution" of the time (Korsching, 2001).

1950s-1980s: The Marriage of "Diffusion" and "Innovation" in Management Research

It was through the tradition of quantitative research in rural sociology that scholars in the newly forming academic field of management learned about diffusion. An important forerunner of this research appeared in 1955, with Katz and Lazarsfeld's *Personal Influence*, with two other key books appearing shortly thereafter, Rogers's *Diffusion of Innovations* (1962) and Coleman, Katz and Menzel's *Medical Innovation* (1966). It is noteworthy that these works were published at a time when management scholars sought to more firmly establish management as a legitimate academic research field. *Administrative Science Quarterly* was founded in 1956 and the *Journal of the Academy of Management* in 1958.

The first landmark work, *Personal Influence*, was published by Katz and Lazarsfeld in 1955. Funded by a magazine publisher, it is now considered a key forerunner of diffusion studies in the field of management (Barton, 2001). *Personal Influence* is divided into two parts, the first a large literature review, the second a massive field study of the spread of opinions in rural Decatur, Illinois in the areas of food and household goods, motion picture selection, fashion changes, and public affairs (Jerabek, 2001). Both *Personal Influence* and *Medical Innovation* originated at the Bureau of Applied Social Research (BASR) at Columbia University. Under the direction of Paul Lazarsfeld, and later Robert Merton, the BASR was one of the first organizations at a major university to draw the majority of its funding from external sources, primarily business and government (Barton, 2001). This model, already common for research by agricultural extension services at Land Grant Universities since the early 20th century, was until

then highly unusual within the social sciences. From the beginning of the BASR, from around 1944 through the late sixties, almost all of its studies were funded by businesses (Barton, 2001). When receiving grant money from large companies to perform what later became known as market research, Lazarsfeld succeeded in conducting scientifically important research while also fulfilling the requirements of the grants. He used this money to fund colleagues, doctoral students, and his own research (Clark, 1994, 2001).

The most significant work directly concerned with diffusion, and the first to firmly combine the terms "diffusion" and "innovation", was the landmark *Diffusion of Innovations* by Everett Rogers (1962). Five editions later, this book is still the standard for illuminating the mechanisms behind the diffusion of innovations. While the first edition's early chapters are devoted to diffusion in general, it focused primarily on three case studies of innovations associated with modernization: the practice of water boiling in a Peruvian village, a home canning campaign in Georgia, and "the pill that failed." All three cases concerned the spread of practices that were clearly presented as innovative, progressive and 'good'; each focused on why new products or practices were (or failed to be) adopted by individuals. The beneficial nature of the innovation was assumed. Unaddressed was whether the innovation's diffusion would be easy to accomplish and beneficial for each adopter (and by whose standards it was considered beneficial), and why the diffusing practices should be termed innovations. Rogers answered (and closed off) this question, by defining diffusion as "the process by which an innovation spreads," (Rogers, 1962, p. 13).

Four years later, at the BASR, Katz, Coleman, and Menzel published another important study, *Medical Innovation* (1966). It analyzed the adoption of a new drug among doctors in several Midwestern and New England communities. This work expanded on the methods in

Personal Influence, while joining them with the term and framing of "innovations" that had been at the heart of Rogers's book.

The BASR studies of diffusion developed new methodology and new theoretical findings. At the same time, their enormous impact resulted in diffusion becoming closely associated with innovations and a correspondingly more prescriptive framing. What Katz and Lazarsfeld were being funded to do was an early form of market research. By virtue of this focus, their work examined diffusion in the context of things that would be presented as positive and progressive. The substantive and methodological origins of the research also treated respondents as individual agents that make dichotomous yes/no decisions about whether to adopt (i.e. buy, use) the focal object.

These three landmark publications came during the early years of modern organizational and management research, at a time when the boundaries of this field, as well as its research agenda and legitimacy, were still being established (Walsh, Weber, & Margolis, 2003). Diffusion research in the mold of the BASR studies proved an attractive template for research that was applied but also academically respectable. A search of the top management journals shows that prior to the publication of Rogers's *Diffusion of Innovations*, there were no articles with the term "diffusion" in the title or abstract. After 1963, a fast growing list employed the diffusion concept, and the vast majority cite Rogers in the context of studying organizational innovation. The connotation of diffusion as applying to positive and prescriptive practices, and the legitimacy of the positivist methodologies used by social researchers, were particularly appealing. They fit the identity project of a nascent discipline concerned with effective management and the industrial progress-focused discourse of the post-war years. Research about the diffusion of innovations in

various fields such as higher education (Clark, 1968) and political science (Walker, 1969) explicitly followed the conceptual definition detailed by Rogers and his colleagues.

The legacy of these early influences is by now enshrined in business schools' curricula, which routinely evoke diffusion concepts almost exclusively to understand and promote how good things, such as technological innovations or new products, spread among employees or customers. Diffusion and its mechanisms are taught in cases and texts, such as *Four Products: Predicting Diffusion* (Gourville, 2002), or *Business Innovation: The MTR's eInstant Bonus Project* (Farhoomand & Ho, 2002). The tacit association of "diffusion" with "innovations" and the positive connotation of this term in business settings are arguably unintended consequences of what BASR researchers happened to study, and the dominant influence of these studies during the foundational years of management research.

1990s-present: Organizational Diffusion Research at The Macro Level

The initial research on social diffusion that inspired early management researchers examined diffusion predominantly at the individual level. This micro lens relates both to the object of diffusion (a single product like a new drug), the unit of adoption, (predominantly individuals), and to social processes (with a focus on social psychological and decision processes). This emphasis fit well with management researchers' originally predominant concern with individual, interpersonal and intra-organizational outcomes (Walsh, et al., 2003).

The 1980s and 1990s, however saw an increasing interest in inter-organizational processes and organizational environments, corresponding to a shift towards an open-systems model of organizations (Scott, 1995). The growth of research on market and industry dynamics, institutional fields, alliances, and international management led diffusion researchers to increasingly substitute organizations (or even states) for individual actors, and complex sets of

practices for simple products or ideas. Examples of studies in this expanding arena include the diffusion of: corporate governance practices (Davis, 1991), human resource management practices (Gooderham, Nordhaug, & Ringdal, 1999), quality management standards (Guler, Guillen, & MacPherson, 2002), shareholder rights (Fiss & Zajac, 2004), and competitive advantage (Greve, 2009) among organizations, and civil service reforms (Tolbert & Zucker, 1983), decolonization (Strang, 1990), NGOs (Boli & Thomas, 1997) and financial market institutions (Polillo & Guillen, 2005; Weber, Davis, & Lounsbury, 2009) among federal and international states. Rogers's expanded definitions of "diffusion" and "innovation" in subsequent editions of his classic work tellingly illustrate the macro turn.

Insert Table 1 about here

As Table 1 shows, the first edition of *Diffusion of Innovations* (Rogers, 1962) defined "innovation" as an "idea perceived as new *by the individual*" (italics added), and "diffusion" merely as, "the process by which an innovation spreads." By the third edition of the book, in 1983, the definition of diffusion refers to any member of a social system, and innovations are redefined as something perceived as new by any *unit of adoption*.

As a result of this shifting level of analysis, and aided by the rapid advance of computing power for quantitative analysis and the availability of digital data at a large scale, diffusion research has also come to emphasize more structural forms of analysis over a direct examination of the social psychological processes of influence and decision-making that were central to early research on individuals (see Abrahamson & Rosenkopf, 1997; Davis, Yoo, & Baker, 2003; Strang, 1993, as well as Aral, Muchnik & Sundrarajan, 2009, for a recent example of more

formal models). Much of this research still evokes mechanisms established in earlier diffusion research at more micro levels, such as identity, proximity and homophily effects, but often extrapolates them to organizational actors and the diffusion of complex behaviors. Another recent stream of research uses extremely large data sets to examine patterns of diffusion across a variety of "scale free" networks and identify generic "social laws" that are independent of social mechanisms and locales (Barabási, 2003), suggesting what some have termed "the coming age of computational social science" (Lazer, et al., 2009; and related Epstein, 2006).

Several assumptions of earlier research – such as the implicit positive association between diffusion and progressive innovations, and the notion of actors and objects as unitary, remain. Yet if the actors are no longer people, but organizations, governments, and societies, the complexities of internal decision-making in these bodies may go unnoticed. Similarly, when adoption decisions pertain not to a product or simple idea, but a set of practices, skills, and norms, the basic model of diffusion may be an over-simplification (Westphal, Gulati, & Shortell, 1997). Lastly, the positive connotation associated with innovations and innovative practices is often uncritically retained (Abrahamson, 1991), even though complex programs adopted by pluralistic collectives may be inherently ambivalent. Table 2 summarizes the use of "diffusion" in the fields and eras discussed above.

Insert Table 2 about here

The story of the path of the diffusion concept from chemistry into contemporary management and organizational research is thus one of adaptation to the research interests of different times and places, but also one of the remarkable stability of central aspects of a

conceptual and methodological apparatus established in earlier periods. As an important concept in management and organization theory, the contemporary study of diffusion rests on sediments that include several layers of intellectual history. In this section, we outlined the main layers, with the translation of the concept across disciplinary boundaries and distinct social contexts of research. We now turn to a more detailed analysis of the sensemaking processes that occurred during the evolution of the diffusion concept, specifically at critical junctures when initial decisions were made that later became perpetuated. We argue that the actions of researchers at these consequential points in time can be best understood as pragmatic formulations that made sense of their local environments.

A SENSEMAKING PERSPECTIVE ON HISTORICAL CONCEPT FORMATION

In this section, we develop a historical sedimentation model of concept formation, based on a pragmatist model of knowledge (e.g., Joas, 1993). Hence, while the previous section offered a largely static comparison of the differences between eras and fields, we now attempt a more detailed analysis of the transition points. Our main argument is that the observed changes can be fruitfully seen as the result of sensemaking processes by scholars at the time. The interpretations developed at those critical junctures for pragmatic, and to some extent idiosyncratic, reasons were then carried forward in relatively routine and un-reflexive fashion once the sources of disruption subsided.

The basic model, as outlined in Figure 1, consists of alternating periods of relative stability and "unsettled times" (Swidler, 1986). Unsettled periods are times of ferment, when practices and meanings are uncertain, contested, and redefined. In contrast to positivist models of scientific revolutions (e.g., Kuhn, 1962) the instability in unsettled times is not triggered by disconfirming empirical evidence internal to a line of inquiry, but by disruptions in the social and

cultural context of a field of scholarship. Disruptions trigger researchers' collective sensemaking processes in an effort to find pragmatic responses to the challenges and opportunities posed by their changing environment. Such pragmatic sensemaking efforts have greater influence on collective understanding during these periods than in periods of stability.

Insert Figure 1 about here

The relative openness of unsettled periods to exploration and conceptual innovation thus can be seen as opportunities for the imprinting of new understandings and concepts in a scholarly community at a time when ideas are in flux, similar to organizational or cultural imprinting (Johnson, 2007; Stinchcombe, 1965). Settled periods prompt less deliberation and active sensemaking, and in the absence of experienced disruptions, the result of routine sensemaking is also likely to affirm, refine, and canonize initial imprints. Subsequent unsettled periods add layers of understanding and practice to concepts. We emphasize layering rather than replacement and rejection, because the pragmatic nature of sensemaking favors the habitual retention of prior understandings. The result is a process of knowledge formation in scholarly fields that creates concepts as multi-layered sediments of scholarly sensemaking during unsettled times (Foucault, 1972).

Concept Formation as Sensemaking

Sensemaking "involves the ongoing retrospective development of plausible images that rationalize what people are doing" (Weick, Sutcliffe, & Obstfeld, 2005: 409). The process ontology of sensemaking models is indebted to phenomenological and pragmatist social thought, in particular to James (1890), Bergson (1903/1946), Dewey (1925/1958) and Schütz

(1932/1967). Sensemaking as a knowledge process is triggered by interruptions to the ongoing flow of experience – the occurrence of something new or otherwise unexpected prompts efforts to restore the ability to act on the world with confidence. Weick (1995) identifies several common conditions that prompt sensemaking behavior such as uncertainty, ambiguity, novelty, and the framing of issues as problems. Any of these occasions for sensemaking makes action and its expected consequences more uncertain. Such disruptions are overcome through a social process of enacting plausible construals of reality, retrospectively evaluating and selecting among these enactments based on their pragmatic utility, and retaining those selected through habituation (e.g., Weick, et al., 2005: 414).

The substance of sensemaking are what Weick (1995) terms "minimal sensible structures" – frames or schemas that link specific perceptual cues to appropriate practices in a reliable way. Minimal sensible structures are the cultural devices for sensemaking. They encapsulate perceptual filters (i.e. what becomes *senseable*), cognitive schemas (i.e. what becomes seen as reasonable or *sensible*), and conventions of practice (i.e. the appropriate responses to environmental cues). Such micro-structures often arise from typifying and theorizing observable exemplars that then become foundational or archetypal anchors of the structures.

Minimal sensible structures can take different forms, including ideologies, labels and stories. We suggest that in the context of scholarly fields, *scientific concepts*, such as diffusion, can be analyzed as minimal sensible structures that are primary devices for making sense of the practice and objects of research. A concept like diffusion guides what phenomena can be observed and researched with conventional practices of inquiry, what is seen as legitimate normal theory, and what practices should be applied to analyze the social world. The

understanding of a concept is often anchored by prototypical early examples, such as, in the present case, Rogers's studies of the diffusion of innovation. A concept encapsulates a web of associations and connotations, such as a positive or negative valence, association with scientific identities and contrasts to alternative concepts (for example, diffusion vs. translation).

Our analysis is concerned with how concepts, the substance of scholarly sensemaking, come about and change, and what the consequences are of their evolution. Sensemaking research suggests that concept formation is driven by the following common set of processes (Weick, 1995), which differ from alternative processes of concept formation such as ideology driven theorization, political struggle and settlement, or positivistic models of scientific progress:

- Sensemaking is grounded in identity construction: A key tenet of the sensemaking perspective is that those involved in the formation of concepts are themselves self-conscious and the process of concept formation is strongly self-referential. Scholars construct concepts not only to explain phenomena in the social world but also to maintain, advance, or restore a consistent and positive self-image. Hence, researchers are more likely to engage in sensemaking when their scholarly identities, or a concept's definition, are uncertain or threatened (for example in emergent fields). In such settings, they are more likely to see and emphasize ideas and practices that fit their existing identity or that of high status others. For example, management researchers may prefer to frame organizational innovation as central to diffusion and also seek to imitate high status academic disciplines. Following Rogers's linkage of the terms, and Lazarsfeld's linkage of diffusion to "good" products, the utilization of the concept became restricted to these usages.

- Evaluation and selection is driven by pragmatic plausibility: The success of a scholarly concept, and the phenomena and practices associated with it, is driven less by how accurately it represents a social reality, and more by how plausible it is in light of pre-existing knowledge and normative commitments. This is simply because research at its mundane day-to-day level is a pragmatic activity where the need to "act" – to come to conclusions, to produce studies, and to advance professional projects – makes perfection and radical redirections unlikely. The primacy of problematic and local search in organizational contexts described by Cyert & March (1963) or Joas (1993) also applies to academic researchers. Hence, one would expect that in the formation and transformation of concepts like diffusion, scholars are reluctant to radically break from the past and instead draw on familiar ideas.
- Sensemaking is retrospective in nature: Drawing on the phenomenological insight that we can only attend to and reflect on what has already occurred, a sensemaking perspective suggests that concept formation is largely driven by observed examples that come to be seen as archetypes or common types of a phenomenon as well as the scientific apparatus of theory and method to be applied to them. Retrospect simplifies and tightens the relationships between different dimensions of the scientific concept. For example, pairings of phenomena and methods, or theories and methods, become conventions even though their combination in a pioneering contribution may have been driven by convenience or accident rather than by logical necessity.
- Sensemaking is focused on and by extracted cues: As in path dependence, seemingly subtle cues, like word choices or empirical contexts, can have unexpectedly large consequences on the concept in question (Hirsch & Gillespie, 2001). This is because

language and contextual cues trigger connotations and associations that can easily become incorporated in the broader concept. In this instance, the initial association of diffusion studies with 'innovations' rather than 'changes' or 'deviance' evokes certain images of diffusion processes.

- Local social contexts situate the sensemaking process: Sensemaking, and hence concept formation, does not occur in a social vacuum. The process and those engaged in it, are embedded in concurrent discourses and in local milieus that cue ideas and provide identities (Weber & Glynn, 2006). For example, early social scientists in 19th century Europe were embedded in debates over the material and social conditions of industrialization, discourses of progress, and the context of the emerging research university, while their counterparts in the middle of the 20th century were surrounded by scientific progress, economic growth and recovery, and increases in support for research. These cultural surroundings were compatible with the shift in sensemaking about diffusion from a neutral descriptive term to its increased association with the adoption of new advancements. These common processes shaped scholarly sensemaking, and hence the concept of diffusion as well as the practice of diffusion research, at three critical junctures: The entry of the concept into the newly forming social sciences in the late 19th century, the rise of management and organizational research in the 1950s and 1960s, and the shift towards applying diffusion to the statistical study of inter-organizational and scale-free processes since the 1990s. Table 3 summarizes key aspects the diffusion concept that emerged at these transition points.

Insert Table 3 about here

The Mechanics of the Social: The Diffusion Concept in the Early Social Sciences (1880-1910)

The emergence of the modern empirical social sciences can be seen as part of a broader shift towards scientific knowledge and rationality in the late 1800s. The turn from humanist and enlightenment-oriented modes of knowledge and towards scientific inquiry is perhaps most visible in the rapid expansion of the university-based sciences and the growing status of scientific evidence as authoritative knowledge (Meyer & Jepperson, 2000; Schofer & Meyer, 2005). It is in this context that early social scientists, such as Gabriel Tarde and Edward Tyler, sought to establish the study of social behavior as a similarly respectable academic pursuit. Since the nature and intellectual foundations of the new studies of social behavior were very much unsettled and open, the ways in which these early scholars made sense of their subject matter and their professional context had a lasting impact.

By drawing on analogies between chemical and social processes, early theorists imported a mechanical vision of social processes that is based on assumptions of unitary and interchangeable agents and unidirectional conflict-free processes of dissemination and imitation. This is evident, for example, in the writings of Tyler, where the diffusion of culture has an air of inevitable progression towards higher orders of civilization. The sensemaking of early social scientists was profoundly influenced by the social and academic context of the time in two important ways.

First, the concurrent discourse of the scientific and industrial revolution, as well as colonialism, provided perceptual cues to what a scientific study of social life may look like, and also offered an important legitimating standard against which the worth and plausibility of new

concepts and theories could be judged. The natural sciences offered archetypes and models of inquiry for the emerging field of social sciences. Just as natural scientists could search for generally applicable laws of nature, social scientists could discover "laws of societies" rather than developing normative or highly contingent accounts of historical events – for example, the positivist tradition within sociology (as championed by Comte (1865)), argued that authentic knowledge of the social world can only be gained through continuous scientific quantitative testing. The discourse of scientific rationality further made salient analytic and mechanical modes of analysis, in which aggregate phenomena are understood by breaking them into constituent units, instead of developing holistic or essentialist explanations. The fields of physics and chemistry are prime examples, in which complex substances and processes were found to be derivative of the interaction between elementary units such as particles and molecules.

The legitimation pressure was especially salient for the establishment of social science departments in universities, an important project for establishing paid positions and scholarly communities for sociological and anthropological researchers. One may think of Émile Durkheim's struggle to establish sociology as an academic discipline in France, or Franz Boas's efforts to create the first anthropology department and program in the United States at Columbia. But beyond professional pressures, the normative status of the scientific inquiry also made some explanations simply appear more plausible than others. For example, theories and constructs that were amenable to empirical study through observation would have greater practical utility than others that rested on unobservable or spiritual factors, because they were more resonant with the notion of scientific method. A good example is the empiricism that Franz Boas brought to cultural anthropology as an academic discipline despite his broader reservations against physics as a model for social science.

Second, the environment of the late 19th century gave rise to valued scholarly identities that influenced sensemaking through the goals and self-images that individual social scientists aspired to. Specifically, scholars of social dynamics increasingly saw themselves as *scientists*, a new identity that departed from humanistic concerns with values, human virtue, and morality, and prized objectivity, natural laws and evidence. For example, one of the earliest organization theorists, Frederick Taylor (1911), focused explicitly on how the application of scientific principles could be applied to better understand how to maximally improve the productivity of individuals within an organization setting. He "aspired to replace the arbitrary and capricious activities of managers with analytical, scientific procedures" (Scott & Davis, 2007: 42). As citizens of the European and North American societies of the late 19th century, scholars were also embedded in the discourse of social and technological progress that rationalized the industrial revolution and colonialism. As scholars in the emergent social sciences made sense of their phenomena of interest, professional field, and own identity, they were more likely to employ ideas and accept assumptions that were compatible with contemporary ideas, such as the inherent superiority of some social practices and Darwinian notions of evolution, where the prevalence of particular practices can be interpreted as the result of natural selection against inferior alternatives.

Together with the basic metaphorical import of diffusion from chemistry, scholars thus also imported additional assumptions and modes of inquiry from the natural sciences that specified how diffusion should be studied in societies. These assumptions served the pragmatic identity projects of social scientists and were in line with the scholarly discourse of bona fide scientific disciplines and the political views of the time. The concept of diffusion as applied to social behavior retained aspects that derive from its origin in chemistry and evolutionary theory,

but which are not unproblematic in the social world. Diffusion provides a mechanistic account of social behavior based on three conceptual building blocks: Social agents are treated as the elementary units that make up social collectives (and they are hence presumed to be unitary and interchangeable); the object that diffuses is similarly elementary (and hence replicable and immutable in the course of diffusion); and the process of diffusion follows a uni-directional path in which evolutionarily superior objects spread, based on mechanisms such as imitation (Tarde, 1890) or simple exposure to superior objects or practices (Tylor, 1871).

By the time the new social science disciplines had been firmly established in the 1940s and the early imprinting window during their ferment closed, these elements had become generally accepted as simply part of the concept of diffusion, rather than subject to debate or variation. There is substantial evidence of this in the field of rural sociology, where the first large scale studies of diffusion were published. In her study of the diffusion of knowledge in scientific communities, Crane (1972) found empirical evidence that papers published in the first decade within the field of rural sociology (1940-1950) greatly determined what types of research questions would be asked by researchers in the field almost twenty years later when the field was immensely more popular. And while studies of diffusion did not dominate any of the academic disciplines in question, the concept of "diffusion" offered one well-defined idea that could be used in more general theories of societies and an approach to empirical study distinct from alternative epistemologies.

Progress and Innovation: Diffusion in Management Research (1950-1965)

With the concept of diffusion well established in sociology and anthropology, it also became available to a new set of researchers involved in establishing the behavioral study of management and commerce as an academic discipline. This formative effort took place in the

1950s and 1960s, and is evidenced by the creation of research journals in management, marketing, and related areas. Researchers in this burgeoning field were often looking for established research approaches of relevance to management and business issues. Many of the foundational research methods and ideological paradigms within organizational theory, for example, were drawn from the field of engineering. Mechanical engineering, in particular, intricately shaped management research in the early 20th century, as academics in this area sought to apply the same methods on social and organizational issues that engineers had been using to analyze the behavior of materials (Shenhav, 1995).

Neither Lazarsfeld nor Rogers were management researchers. However, their applied research programs proved highly influential for management researchers of the time, providing models of academically rigorous yet practically relevant research about commerce. Despite their superficial differences – Lazarsfeld an Austrian immigrant, Rogers growing up on a farm in Iowa – the two researchers shared important characteristics: a keen interest in social influence and the role of mass communication on individual decision-making (both contributed to the foundations of communication studies as a field), a deep commitment to applied research in the context of economic, social and technological development (working with private research grants, public health and agricultural extension agencies), and a grounding of their contributions in statistically informed empiricism (both were trained in statistics and known as methodologists). Their scholarly identities as well as their approach to the study of diffusion processes strongly resonated with researchers in an applied field concerned with commercial organizations.

As a consequence of the influence of Lazarsfeld and Rogers's work, many management researchers came to understand the concept of diffusion primarily through their unique perspectives. Instead of seeking to become fully-fledged anthropologists or social theorists,

management researchers pragmatically focused on contemporary research with the greatest affinity to their own sensemaking needs. While Lazarsfeld and Rogers's work retained the basic conception of diffusion prevalent in the social sciences at the time, it also presented a more particular and perhaps narrower lens, one shaped by Lazarsfeld and Rogers's own professional identities, research interests, and social and intellectual contexts. The version of "diffusion" imported into management research in the 1960s therefore added specific connotations, emphases and practices that were largely shaped by this early imprinting.

An unintended side effect of the BASR model was that it fostered, within social scientists of this time period, a "nonconscious ideology"—a set of beliefs that are implicitly accepted because alternative ideologies are not cognitively available (Bem & Bem, 1970) – regarding diffusion. As a result, the diffusion processes studied were always of objects framed as positive, and with an ultimately prescriptive goal. The funders of the BASR's studies wanted their products to diffuse, or if they weren't, to discover the problem so diffusion could resume. While none of these researchers assumed that diffusion was automatically good, and their research did not make that explicit assertion, the choice of studies created a connotation that what diffuses is generally positive and rational – a connotation that connected well with the foundation of diffusion research in the social sciences in studies of progress and evolution. Rogers's work was similarly focused on how diffusion led to beneficial changes. His work also cemented the association of "diffusion" with "innovations" in the field of management, as well as the methodological approaches conventionally used for studying diffusion. That what diffuses are innovations rather than simply changes or deviant practices is of course an implicit framing that signals a normatively positive valuation of new programs, fads, fashions, and frameworks (Kimberly, 1987).

The pragmatic identity project of early management researchers was to straddle the legitimating demands of university-based academics as well as those of business practitioners as students and funders of business departments. Academic peers were suspicious of management departments' origin in a "trade school" tradition, while management practitioners and business school funders questioned the value of "ivory tower" research without practical value (Gordon & Howell, 1959) . The methodologically rigorous applied research approach of studies of the diffusion of commercial practices and products offered a plausible compromise, compatible with prior commitments to applied studies of commerce. Such choices were also favored by a broader discourse in the postwar years that emphasized industrial progress, rationality and objectivity, methodological individualism, individual choice behavior, and distrust against research critical of the capitalist system. Studying the diffusion of negative practices as a common occurrence in a capitalist society, the diffusion of decline, or top-down planning instead of peer to peer influence simply did not occur to or appeal to many management researchers in the 1960s. The template provided by the BASR and Rogers did not prompt such questions either, and as these studies became archetypes of diffusion research, the highly contextual and pragmatic choices for studying diffusion by researchers like Lazarsfeld and Rogers became retrospectively re-constructed as natural components of diffusion research.

The result of these additions to the existing diffusion framework in the social sciences was a concept of diffusion in management studies that retained the earlier emphasis on social mechanics, but also added associations and practices, especially the selective focus on positive innovations, decentralized influence processes, and the use of statistical concepts to account for individual choice behavior. This template of diffusion studies of commercial products and practices among individual agents became part of a durable and influential diffusion concept in

management research until the 1980s, contributing to the rise of technology and innovation research as a subfield of management and the creation of a corresponding division at the Academy of Management.

Loss of Scale and Context: Macro Diffusion in the Age of Data Abundance (1990 – 2010)

During the relatively settled time between 1960 and the 1980s, diffusion research in management grew along with the expansion of the academic field, producing a growing set of applications of especially Rogers's work as well as a set of methodological and theoretical refinements. However, we suggest that the confluence of two changes has created renewed uncertainties and a transition point that is likely to add yet another layer of meaning to the concept of diffusion as it is used by management researchers. The first change is a shift in the focus of organization theory since the 1980s towards inter-organizational levels of analysis, in the form of, for example, institutional theory, network research, and studies of regional and industry innovation systems. The second change is the increasing availability of computer power and large scale digital data that enables the use of empirical methods well beyond the moderate sized samples of survey and archival data used in classical diffusion work.

While organizational and management research was traditionally anchored on the analysis of intra-organizational processes, beginning in the late 1970s and early 1980s, researchers have increasingly pursued research at inter-organizational and field levels. This shift may have been prompted by an increasing realization that behavior and effectiveness in organizations is often contingent on external environments (Aldrich & Pfeffer, 1976) as well as by a desire to speak to broader social and economic questions traditionally addressed by other disciplines (Stern & Barley, 1996)². This shift has gone hand in hand with a re-construction of

² One could argue that micro-OB research has at the same time become more strongly anchored in individual level psychology, for analogous reasons.

scholarly identities (e.g., as organizational rather than administrative or management researchers) and a replacement of theoretical and phenomenal points of interest (e.g., from the workings of bureaucracy to population dynamics).

The concept of diffusion still proved useful, but had to be transposed from individual to organizational units of analysis. The approach taken in much of this macro research on diffusion has been to simply apply the existing framework analogously from individual to organizational actors. Instead of the diffusion of objects among groups of people, these recent studies have examined the spread of complex practices such as policies among populations of organizations (Davis, 1991; Fiss & Zajac, 2004; O'Neill, Pouders, & Buchholtz, 1998). The solution of applying models of individual behavior analogously to an organization is widespread and hence a natural solution. An implicit assumption in this move is of course that the decision-making unit and scale does not matter, or at least that organizational units of analysis do not introduce fundamentally new dynamics. The "scale free" notion of diffusion dynamics, and especially of network diffusion, means that studies of the diffusion of policies and institutions across countries yield similar results, and are as explainable with the existing framework, as classic studies of the diffusion of personal choices (Henisz, et al., 2005).

The second shift in the past two decades has been a growing abundance of digital data produced by organizations and other members of their social ecosystem, and the ability to process it at a reasonable scale and cost. This has not only allowed the replication of findings from diffusion models across a variety of settings, but also the use of a new set of analytic approaches that range from event history and network analyses in the 1990s to optimization approaches and network simulation models since then. The result is a view of diffusion as "content-less" and "scale free." The basic model of diffusion and many of the basic parameter

standards, can be applied to small-scale and large-scale processes and at any level of analysis. The combined effect of these changes is a further de-contextualization of diffusion processes into a very generic social dynamic. In fact, some researchers have already predicted that diffusion (construed in such a way) follows quasi-natural patterns that can be examined across a large array of settings (Barabási, 2003).

In this section we have utilized the historical evolution of diffusion research in the social science and management fields as evidence for how sensemaking processes impact concept formation (Weick, 1995). We discussed how retrospective sensemaking, pragmatic plausibility, identity construction, the focus on extracted cues, and the role of local institutional context all independently affected how the diffusion concept was formulated and used within the social sciences. Overall, we argue that the evolution of concepts such as diffusion is driven by pragmatics of researchers' sensemaking within their institutional context. Moreover, at critical junctures throughout the evolution of a concept, the layers of previous conceptual imprints perpetuate the pragmatic choices made by researchers of the time which often result in large-scale implications and unintended consequences for the broader academic field. We now turn to the implications of this process, both for diffusion studies and for the field of management.

IMPLICATIONS FOR DIFFUSION STUDIES: UNINTENDED CONSEQUENCES

When we examine research from a sensemaking perspective, we explore how words and concepts evolve and are enacted in an ongoing cycle. Because each succeeding wave of theory builds on what has come before, and no frame or cue is without a particular area of focus and corresponding lack of attention, this sedimentation of intellectual history by its very nature may create normative biases and conceptual blind spots. These are rarely deliberate, and may be inevitable. Rather than rail against them, we suggest that it is better to be aware of these biases

and blind spots, openly acknowledge them, and account for them in one's research. By taking a sensemaking perspective of concepts in the field of management, we can become mindful of the contexts in which our research is growing and evolving, foregrounding historical imprinting processes that had been previously overlooked. We now turn to four specific implications this process of intellectual sedimentation has created for the field of diffusion research: the generally dichotomous measurement of diffusion, the implicit valence of diffusion, the linking of authority to diffusion, and the increasing size of the object being diffused.

Focus on Adoption

First, the paradigm's origin in market research on the adoption of commercial products or services left it with a binary viewpoint. A single consumer could either purchase or not purchase a product; individual agents either adopted or rejected new practices. This binary quality left the research well-suited to incorporate budding forms of statistical analysis (event history and network analyses in particular), further boosting its analytical power and leaving it well-placed within the literature as a whole. However, this framing and the associated statistical tools did not lend themselves to complex adopters, or varied cases of adoption. When potential adopters are not unified individuals but rather organizations, states, or governments, it is possible for the target to be adopted by only a proportion of the adopter. It is also possible, when the diffusing target is a form of management, an educational program, or a political or economic system, for it to be partially adopted, reinterpreted, or adopted on the surface while being decoupled from tangible implementation (Hirsch & Bermiss, 2009).

A practice or system entrepreneurially altered by adopters may be overlooked or undercounted in the research. Conversely, when a practice or system's diffusion is backed by a powerful or central entity, it can be beneficial for actors who do not wish to adopt to *appear* as if

they had (e.g., Hirsch & Rao, 2003), meaning that for cases in which the target being adopted is complex or difficult to accurately measure, it is likely that many proxy measures of adoption will in fact be inflated. Furthermore, overlooking how adopters alter or dismantle diffusing practices and systems leaves a potentially rich vein of phenomena – that of the evolution of practices diffused through networks – neglected.

Focus on Authority

The second aspect of diffusion studies influenced by its historical progression through the sciences is that it shares some of the same blind spots with other marketing research, which tends to view diffusers as agentic and adopters as passive (McMaster & Wastell, 2005). This association with agency, progress, power, and positivity influence what is studied, how it is studied, and what is considered a "success story". Diffusers are often those considered central or powerful in the context being studied – concurrently, the diffusion of a practice or object is not generally studied before it is given the imprimatur of validity by their adoption of it. This increases the likelihood that people won't think of something as diffusing or diffusable until it is backed by an entity contextually in power. The process through which some developments are labeled innovations and others not impacts their likelihood of being chosen as a potential referent in a diffusion study; objects not selected may be just as important as those which are adopted (Abrahamson, 1991). Objects or projects may be disproportionately selected if organizationally sponsored. For example, the style of dress of inner city youth is often said to be a source of inspiration for fashion designers; yet this source is seldom noted as the originator when the "new style" diffuses (Bourdieu, 1989). Rather, when credit is attributed, it goes to the marketing firm (e.g., Levi Strauss), retailer (e.g., Gap), or designer (e.g., Calvin Klein). Furthermore, when powerful social actors disapprove of a new idea, it may lose its connection with the discourse of

innovation, and rather be assigned a pejorative name, such as "folk remedy," "ideology," or "unproven gadget." There may ensue a struggle over labeling the idea or object, delaying its diffusion or potential studies of its adoption when it spreads (Faulkner, 2003; Kennedy, 2005).

An interesting additional example is the observation by Rogers (1995) on diffusion research about farm products. While he found and reviewed studies of the diffusion of new hybrid corn, he noted an absence of research on the diffusion of non-organizationally sponsored organic farm products, which he provided with examples from his own experience. Rogers further criticized this imbalance, adding the example of rap music as an "illegitimate" innovation whose diffusion has, thereby, been understudied. A comparison of whether such successful but "illegitimate" innovations diffuse differently than comparable innovations with more "respectable" organizational sponsorship would be an interesting study for further research. Rogers seems to have become aware of this unbalance, and several of his most recent example cases (1995), deal with the diffusion of "illegitimate" objects – such as organic farming, the internet, and rap music, all of which could be construed as innovations not legitimated by the dominant powers – supported with his own experience rather than any studies published in the field, is commendable. Such unplumbed areas of research are ripe for discovery. It is likely that illegitimate innovations are diffused in a very different manner than legitimate innovations backed by the dominant system (Carberry & King, 2012; Sanders & Tuschke, 2007).

Furthermore, the very nature of what can be studied – i.e., successfully diffused objects – leaves the research with a bias for what "sticks". This focuses work on targets considered successfully diffused, which, paired with the implicit idea of innovations that often accompanies it, leaves the research entangled with implications of successful progress, rather than, say, colonialist attempts to reproduce producer/consumer relationships in other countries (McMaster

& Wastell, 2005). The narrative of the research – "successful" or "unsuccessful" diffusion – does not leave room for innovations that are not adopted, for potential adopters successfully defending themselves from outside intervention, or for the diffusers themselves to be changed or improved by the process, to be success stories.

Focus on the Positive

Once the concept of innovations was associated with that of diffusion, it became easier to assume that all objects diffusing are innovative, thereby according a tacitly positive value-orientation to them and increasing without warrant their legitimacy. This ties in with the idea above, that often the target diffusing is backed or condoned by a powerful entity, which in itself is often enough to bestow a positive imprimatur on the object as well. Even the diffusion of the poison pill (Davis, 1991), while it carries negative connotations, was not only condoned but in fact encouraged and considered quite advantageous by powerful executives.

The normative implications of the positive valence of innovations finds a ready-made and agreeable narrative in the larger culture. For example, when American firms created genetically engineered food, they followed a taken-for-granted assumption that these new products would diffuse and be globally welcomed as legitimate scientific innovations. These biotech companies followed the heuristic – "innovative = good product and automatic diffusion." They presumed the positive value of their products and anticipated a positive reception and widespread adoption. It failed, however, for these assumptions were rejected by nations which were unwilling to accord legitimacy to bioengineered food products they deemed unhealthy. The global market rejected the normative presumption that these new products should diffuse and be adopted because their organizational sponsors represented them as scientific innovations. In addition to the European Union's rejection of the "improved" seeds, much of the Asian market also

prevented the successful diffusion of bioengineered rice by refusing to import or purchase it. These misplaced assumptions resulted in substantial financial losses to the organizations seeking to frame and diffuse their new products as legitimate innovations. Furthermore, the positive framing of diffusion means that when an item is not adopted, the "failure" is implicitly grounded in the non-adopters, and not the system of diffusion or item diffusing (Havens, 1975).

Another example of a product promoted as a positive innovation that did not diffuse as expected occurred when infant formula was exported to third world countries which lacked the necessary infrastructure for it to be successful (McGrath & Zell, 2001). A few scholars have recently pointed out that diffusion might *not* be supported by potential adopters, and might *not* be beneficial or innovative in nature (Henisz, et al., 2005). Rogers, in an interview, offered a quote illustrative of this phenomenon, "Sometimes diffusion has helped to cause the problems, which leads to another round of problems where it's usually more difficult trying to get people to undo what they were earlier told to do..." (McGrath & Zell, 2001). In his memoir, Rogers even acknowledged personal experience with the phenomenon, related to the innovative (and breathtakingly expensive) self-propelled combines Iowa farmers purchased in the 1970s, which both allowed much vaster areas to be farmed while simultaneously creating pressures for all farmers to purchase combines and expand the size of their farms. Many purchased these combines with credit, and went bankrupt during the Farm Crisis of the early 1980s – this innovation ended up forcing tens of thousands of farmers out of farming (Rogers, 2008).

Focus on Expansion of Scale

Those who study diffusion across individuals and those who study it across world-systems are using a framework which treats these entities as fungible, legitimated by using the terms "innovation" and "diffusion." The empirics of diffusion studies had been well thought-

through and validated for the phenomenon they were initially intended to describe and predict – that of the diffusion of innovations from person to person. But these empirics have been forced to shift in order to accommodate these larger stages across which these larger scale innovations must move. As well, studies have begun to look at the diffusion of objects in an inherently different manner from the original idea of an "innovation", while retaining the legitimated framework of the diffusion of innovations in order to study these objects. The most nebulous object examined in early diffusion studies was "news", or "opinion" – for example, the knowledge of a certain event, or the liking of a particular product. While somewhat troublesome to pin down, these things were still passing from person to person on an individual level. More recent studies have examined the diffusion of markets, governmental systems, and other objects diffusing across a much larger milieu (e.g., Meyer, Boli, Thomas, & Ramirez, 1997; Strang & Macy, 2001).

Thus, when examining markets or other government-sponsored programs diffusing across the world through the lens of diffusion studies, our perceptions are altered by that very lens. The programs and markets are treated tacitly as innovations, and thus as good things which should spread. Yet while the diffuser of an object may see, or have framed, that object as an innovation, the potential adopter may not agree. It is possible for a country to have expended serious effort to ensure that it is not forced to adopt these markets or programs, or that once it has adopted them they will not succeed (Hirsch & Rao, 2003; Scott, 1990). Obviously these countries see markets not as innovations that will benefit them but at something detrimental that must be avoided.

The increasing size of the "innovation" focused on by diffusion studies has moved the stage across which the object diffusing is studied into the area of worldwide systems – diffusion between countries and continents. This trend, combined with the pairing of the terms "diffusion"

and "innovations" in the field of management, has resulted in an unexpected phenomenon.

Diffusion studies that have entered into the political arena do so with a prescriptive bent that is increasingly beneficial to whosoever manages to frame what they wish to diffuse as innovational. These actors are also often those with the most power.

SUMMARY AND IMPLICATIONS FOR THE FIELD OF MANAGEMENT

Diffusion studies often carry the implicit assumption that what is diffusing is innovative, and therefore positive. This creates a dangerously prescriptive subtext that does not allow for varied or conflicting views of the value of the object being diffused. Obscured, too, are the influences that cause something to be labeled an innovation in the first place. Diffusion studies also bear the mark of their inception in the assumptions they make about the uniformity and singularity of both agents adopting and objects or practices diffusing. This causes the true complexities of adoption – the way in which practices and programs are often modified, misunderstood, or only partially adopted – to go overlooked.

In this paper, we have detailed the way the plot associated with the concept of diffusion influences the discourse of research, from what problems are considered appropriate topics for study, to the empirical methods and assumptions used in examining those topics. We began by noting that biases in the plot of a concept can influence what gets studied and how, and that these biases can be explained by the contexts from which concepts have been introduced into the field, influenced by the historical process through which research genres come about. We next elaborated the key historical contexts the concept moved through that led to the current ready-made package of methods, conceptual choices and valences associated with it today. We used these contexts to understand the historically situated choices that were made, driven by researchers' pragmatic concerns, that brought the concept to its current form. When we examine

research from this perspective, we explore how words and concepts evolve and are enacted in an ongoing cycle.

This approach to research streams in the management literature has value far beyond its application to diffusion studies. It has the potential to provide a solid grounding for future analyses of the plots followed by additional concepts and the sensemaking behind them. A field with multiple paradigms, which allows variety within each paradigm, benefits from an increased scope and the potential for greater innovation. It is less likely for a multi-paradigm field to become divorced from the contexts it studies. While an individual approach or study may suffer from a particular blind spot, or a predilection for a particular bias, a multiplicity of approaches leaves the larger field inoculated and stronger. Researchers are left aware of more possibilities in their field.

Takeaways from this study fall into two broad areas – the field level and the level of individual scholarship. At the field level, we suggest a multiplicity of approaches is beneficial, that a thousand flowers be allowed to bloom. We favor a multi-paradigm field. A certain amount of effort to formalize paradigms and create clear boundaries and expectations within each is required for the health of the field – however, we feel it is possible to invest too much time and effort in this endeavor. Absolute success in this goal reduces the field to a hegemonic paradigm in which all research suffers from the same biases and reproduces the same blindspots. Greater engagement between subgroups in the field would aid in cross-pollination of ideas, critical evaluation of blind spots that would otherwise go uncommented upon, and the potential for innovative pairings. A broad vocabulary of methods and concepts should be fostered. Just as biological diversity strengthens an ecosystem, a diversity of methods and concepts strengthens the field. With a multiplicity of approaches, the field will be well-equipped with a subset of

researchers situated to take advantage of any new opportunities or technologies that arise. It will also be able to self-correct before its biases grow out of control.

D'Andrade's (1995) concept of "agenda hopping" offers an avenue for exploration. Agenda hopping occurs when a number of practitioners defect to another agenda while not attempting to reinterpret old work into the new agenda (as in a Kuhnian paradigm shift), but rather simply begin to engage with an entirely new set of problems. While agenda hopping can be marked by unnecessary attacks on the old agenda, it may be possible for the two camps to co-exist peacefully, and perhaps provide cross-pollination that would aid them both.

A second set of takeaways applies to individual scholars. It is important to make ourselves aware of the contexts in which we form and perform our research, for only in this way can we become aware of how they influence how we make sense of our theories, methods, and analyses. If we understand how our own ideas have been influenced by the contexts in which we work and the tools which we use, the door is opened for innovative approaches that explore areas previously undiscovered, or considered undiscoverable. Weick (1996) suggests that we must drop our tools, and the authors agree. By regularly engaging with new theoretical, analytical, and empirical tools, we prevent ourselves from entrenching within a limited viewpoint. It would also be valuable to discuss the tradeoffs offered between research that aspires to high reliability (e.g., error corrections, a tight connection between theory, construct, and measurements) and that which aspires to high innovativeness. Similar to the tradeoffs between exploration and exploitation, the benefits that each variety of research offers should not only be acknowledged, but also incorporated into the way we as researchers assess the work we review.

TABLE 1
The Changing Definition of Diffusion in Rogers's *The Diffusion of Innovations*

Edition	Diffusion is the process by which...	An innovation is...
1 st (1962)	An innovation spreads	An idea perceived as new <i>by the individual</i>
2 nd (1971)	Innovations spread to the <i>members of a social system</i>	An idea, practice, or object perceived as new <i>by an individual</i>
3 rd (1983) on...	An innovation is communicated through certain channels over time among the <i>members of a social system</i>	An idea, practice, or object that is perceived as new <i>by an individual or other unit of adoption</i>

TABLE 2
The Diffusion Concept in Different Academic Disciplines

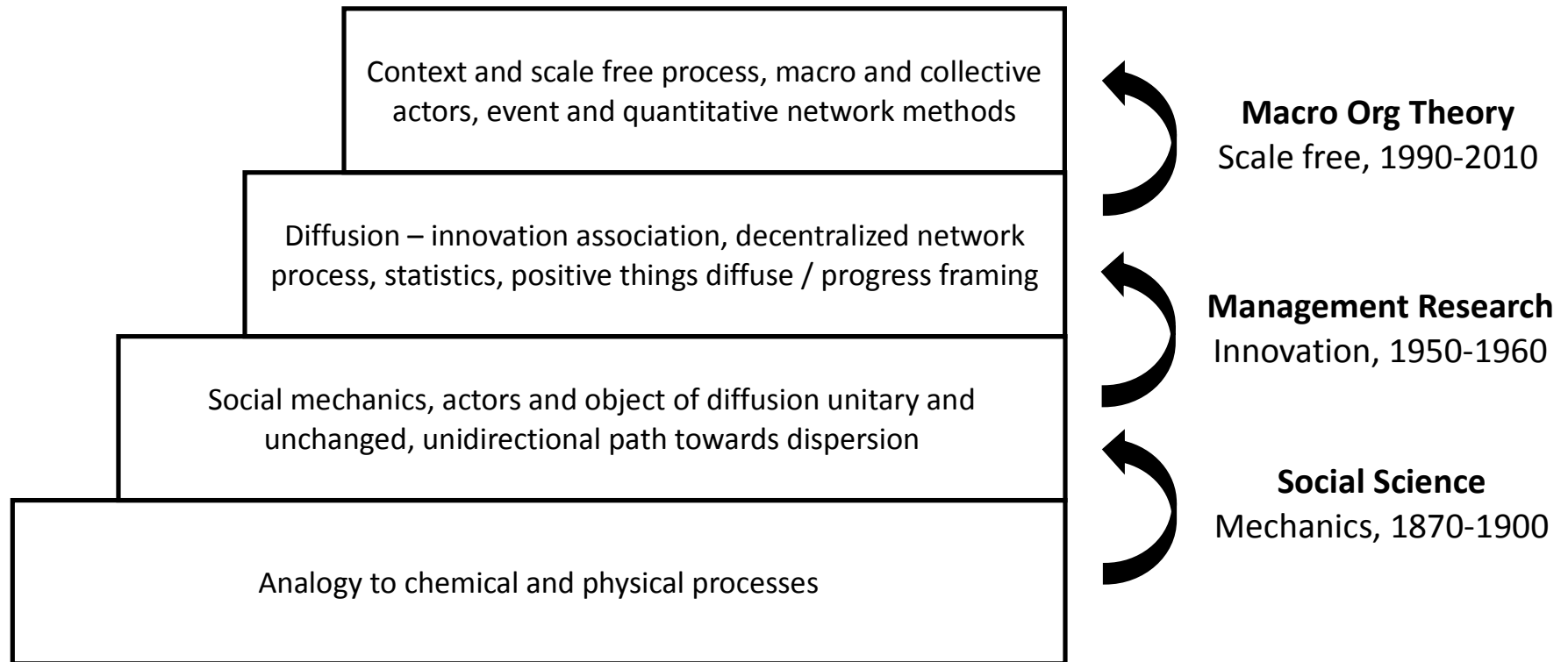
	Natural Sciences/ Chemistry	Cultural Anthropology	Sociology (Social Psychology)	Communication and Management	Macro Organizational Theory
Pioneers	Graham (1831) Fick (1855)	Tylor (1871)	Tarde (1890)	BASR (1955, 1966) Rogers (1962)	David Strang (1990, 1992)
Key Contributors	Thomas Graham (England), Adolf Fick (Germany)	E. B. Tylor (England), Franz Boas (Germany, US)	Gabriel Tarde (France), Ryan and Gross (Iowa)	Lazersfeld (New York), Everett Rogers (Iowa)	Emerging
Units / Actors	Particles	Societies	Individuals	Individuals	Organizations, Political systems
Systems	Fluids, Gases	History	Societies	Communities, Industries	Industries, Fields
Objects of Diffusion	Particles	Culture	Ideas, Practices	Products, Innovations	Complex Practices, Any
Process	Random movement driven by concentration and thermal energy	Physical movement (trade, migration) leads to cultural evolution	Local imitation leads to collective agreement and homogeneity	Adoption of commercial objects due to social influence	Adoption of any practice due to network or broadcast influence
Archetypical Study	Mixing of gases or fluids; dialysis of colloids	Ethnographic studies of cultural evolution	Observational and survey studies of practices	Statistical survey analysis of successful products	Event studies, S- curve patterns, network analysis

TABLE 3
Key Dimensions of the Diffusion Concept Over Time

	Natural Sciences/ Chemistry	Anthropology and Sociology	Management and Commerce	Macro Organization Theory
Timeframe (Layers)	1830-1870	1870 - 1960	1950-1990	1990-
Valence of Diffusion	Neutral	Ambivalent	Positive	Positive
Archetype Study	Movement of a fluid from area of higher to lower concentration	The spread of cultural objects via trade	The spread of new products among customers	The spread of innovations among organizations
Implicit Contrast to the Diffusion Concept	Pre-modern alchemy (vs. secular analytic)	Static culture, central powers (vs. organic change)	Broadcasting (vs. decentralized networks)	Containment and isolation (vs. spread)
Identity Project of Researchers	Establish sciences	Scientific social sciences	Applied management research	Scientific organization research
Discursive Context	Rationality, empirical method	Social progress and evolution, empirics	Industrial progress, statistics	Entrepreneurship, emergence, big data
Social Context	Modernity	Industrialization, Colonialism	Private funding and research	Information technology, Marketization

FIGURE 1
Layers of the diffusion concept and periods of sensemaking transitions

“Diffusion” In Contemporary Organization Theory



References

- Abrahamson, E. (1991). Managerial Fads and Fashions: The Diffusion and Rejection of Innovations. *The Academy of Management Review*, 16, 586-612.
- Abrahamson, E., & Rosenkopf, L. (1997). Social network effects on the extent of innovation diffusion: A computer simulation. *Organization Science*, 8, 289-309.
- Aldrich, H. E., & Pfeffer, J. (1976). Environments of Organizations. *Annual Review of Sociology*, 2, 79-105.
- Aral, S., Muchnik, L., & Sundararajan, A. (2009). Distinguishing influence-based contagion from homophily-driven diffusion in dynamic networks. *Proceedings of the National Academy of Sciences*, 106, 21544-21549.
- Barabási, A.-L. (2003). *Linked : how everything is connected to everything else and what it means for business, science, and everyday life*. New York: Plume.
- Barton, A. H. (2001). Paul Lazarsfeld as institutional inventor. *International Journal of Public Opinion Research*, 13, 245-269.
- Bastable, C. F. (1893). The Taxation of Ground Rents. *The Economic Journal*, 3, 255-163.
- Bem, S. L., & Bem, D. J. (1970). Case study of a nonconscious ideology: Training the woman to know her place. In D. J. Bem (Ed.), *Beliefs, attitudes, and human affairs* (pp. 89-99). Belmont, California: Brooks/Cole Publishing Company.
- Bergson, H. (1903/1946). The introduction to metaphysics. In *The creative mind*. Potowa, NJ: Littlefield, Adams & Co.
- Boli, J., & Thomas, G. M. (1997). World culture in the world polity: A century of international non-governmental organization. *American Sociological Review*, 62, 171-190.
- Bourdieu, P. (1989). Social Space and Symbolic Power. *Sociological Theory*, 7, 14-25.
- Carberry, E. J., & King, B. G. (2012). Defensive Practice Adoption in the Face of Organizational Stigma: Impression Management and the Diffusion of Stock Option Expensing. *Journal of Management Studies*, 49, 1137-1167.
- Clark, T. N. (1968). Institutionalization of Innovations in Higher Education: Four Models. *Administrative Science Quarterly*, 13, 1-25.
- Clark, T. N. (1994). Clientelism and the university: Was Columbia sociology a machine? In *Paul Lazarsfeld Conference*. Paris, France.
- Clark, T. N. (2001). The construction of post-industrial society: An unannounced paradigm shift. In *Paul Lazarsfeld Centennial Celebration and Conference*. Columbia University.
- Coleman, J. S., Katz, E., Menzel, H., & Columbia University. Bureau of Applied Social Research. (1966). *Medical innovation; a diffusion study*. Indianapolis: Bobbs-Merrill Co.
- Collins, R. (1998). *The Sociology of Philosophies: A Theory of Global Intellectual Change*. Cambridge: Harvard University Press.
- Comte, A. (1865). *A general view of positivism* (Vol. 2nd): Kessinger Publishers.
- Crane, D. (1972). *The invisible colleges*. Chicago: University of Chicago Press.
- Cyert, R. M., & March, J. G. (1963). *A Behavioral Theory of the Firm*. Englewood Cliffs, N.J: Prentice-Hall.
- Czarniawska-Joerges, B. (1997). *Narrating the organization : dramas of institutional identity*. Chicago: University of Chicago Press.
- Czarniawska-Joerges, B. (1998). *A narrative approach in organization studies*. Thousand Oaks, Calif.: Sage Publications.

- Czarniawska-Joerges, B. (1999). *Writing management : organization theory as a literary genre*. New York: Oxford University Press.
- D'Andrade, R. G. (1995). *The development of cognitive anthropology*. New York: Cambridge University Press.
- Davis, G. F. (1991). Agents without principles? the spread of the poison pill through the intercorporate network. *Administrative Science Quarterly*, 36, 583-613.
- Davis, G. F., Yoo, M., & Baker, W. E. (2003). The small world of the American corporate elite, 1982-2001. *Strategic organization*, 1, 301-326.
- Derrida, J. (1980). *Writing and difference* Chicago: University of Chicago Press.
- Dewey, J. (1925/1958). *Experience and nature*. New York: Dover Publications.
- Epstein, J. M. (2006). Remarks on the foundations of agent-based generative social science. *Handbook of computational economics*, 2, 1585-1604.
- Erikson, K., & Vallas, S. (1992). *The Nature of Work: Sociological Perspectives*. New Haven: Yale University Press.
- Fairclough, N. (1989). *Language and power*. New York: Longman.
- Farhoomand, A. F., & Ho, P. (2002). *Business innovation: The MTR's eInstant bonus project*: Harvard Business School.
- Faulkner, R. R. (2003). *Music on Demand*. Newark, NJ: Transaction Publishers.
- Fiol, M. C. (1990). Narrative semiotics: theory, procedure and illustration. In A. S. Huff (Ed.), *Mapping strategic thought* (pp. 377-402). New York: Wiley.
- Fiss, P. C., & Zajac, E. J. (2004). The Diffusion of Ideas Over Contested Terrain: The (Non)adoption of a Shareholder Value Orientation among German Firms. *Administrative Science Quarterly*, 49, 501-534.
- Foucault, M. (1972). *The archaeology of knowledge* (1st American ed.). New York: Pantheon Books.
- Giffen, R. (1892). On International Statistical Comparisons. *The Economic Journal*, 2, 209-238.
- Gooderham, P. N., Nordhaug, O., & Ringdal, K. (1999). Institutional and rational determinants of organizational practices: Human resource management in European firms. *Administrative Science Quarterly*, 44, 507-531.
- Gordon, R. A., & Howell, J. E. (1959). *Higher Education for Business*. New York: Columbia University Press.
- Gourville, J. (2002). *Four products: Predicting Diffusion*: Harvard Business School.
- Greimas, A. J. (1983). *Structural semantics : an attempt at a method*. Lincoln: University of Nebraska Press.
- Greve, H. R. (2009). Bigger and Safer: The Diffusion of Competitive Advantage. *Strategic Management Journal*, 30, 1-23.
- Guler, I., Guillen, M. F., & MacPherson, J. M. (2002). Global competition, institutions, and the diffusion of organizational practices: The international spread of ISO 9000 quality certificates. *Administrative Science Quarterly*, 47, 207-232.
- Havens, A. E. (1975). Diffusion of new seed varieties and its consequences: A Colombian case. In R. E. Dumett & L. J. Brainard (Eds.), *Problems of Rural Development: Case Studies and Multidisciplinary Perspective* (Vol. 29, pp. 94-111). Leiden: E. J. Brill.
- Henisz, W. J., Zelner, B. A., & Guillén, M. F. (2005). The Worldwide Diffusion of Market-Oriented Infrastructure Reform, 1977-1999. *American Sociological Review*, 70, 871-897.
- Hinings, C. R., & Greenwood, R. (2002). Disconnects and consequences in organization theory. *Administrative Science Quarterly*, 47, 411-421.

- Hirsch, P., & Bermiss, Y. S. (2009). Institutional "dirty" work: Preserving institutions through strategic decoupling. In T. Lawrence, R. Suddaby & B. Leca (Eds.), *Institutional Work: Actors and Agency in Institutional Studies of Organization* (pp. 262-283). Cambridge: Cambridge University Press.
- Hirsch, P., & Shanley, M. (1996). The Rhetoric of 'Boundaryless': Or How the Newly Empowered Managerial Class Bought Into Its Own Marginalization. In M. Arthur & D. Rousseau (Eds.), *Boundaryless Careers: Employment in the New Organizational Era* (pp. 218-233). New York: Oxford University Press.
- Hirsch, P. M., & Gillespie, J. J. (2001). Unpacking path dependence: Differential valuations accorded history across disciplines. In R. Garud & P. Karnoe (Eds.), *Path dependence and creation* (pp. 69-90): Lawrence Earlbaum Associates.
- Hirsch, P. M., & Rao, H. (2003). The Schweik syndrome: The narrative power of resistance by agreement. In B. Czarniawska-Joerges & P. Gagliardi (Eds.), *Narratives we organize by* (pp. 275). Philadelphia, PA: John Benjamins Pub Co.
- James, W. (1890). *The principles of psychology* (Vol. 1, 2). New York: Dover.
- Jerabek, H. (2001). Paul Lazarsfeld - The founder of modern empirical sociology: A research biography. *International Journal of Public Opinion Research*, 13, 229-244.
- Joas, H. (1993). *Pragmatism and social theory*. Chicago: University of Chicago Press.
- Johnson, V. (2007). What is organizational imprinting? Cultural entrepreneurship in the founding of the Paris Opera. *American Journal of Sociology*, 113, 97-127.
- Katz, E., & Lazarsfeld, P. F. (1955). *Personal influence; the part played by people in the flow of mass communications*. Glencoe, IL: Free Press.
- Kennedy, M. (2005). Behind the one-way mirror: Refraction in the construction of product market categories. *Poetics*, 33, 201-226.
- Kimberly, J. R. (1987). Organizational and contextual influences on the diffusion of technological innovation. In J. M. Pennings & A. Buitendam (Eds.), *New technology as organizational innovation : the development and diffusion of microelectronics* (pp. 237-260). Cambridge, MA: Ballinger Pub. Co.
- Korsching, P. F. (2001). Diffusion research in the 1990s and beyond. In F. C. Fliegel & P. F. Korsching (Eds.), *Diffusion research in rural sociology: The record and prospects for its future* (pp. 105-134). Middleton, WI: Social Ecology Press.
- Kuhn, T. S. (1962). *The structure of scientific revolutions*. Chicago: University of Chicago Press.
- Lazer, D., Pentland, A., Adamic, L., Aral, S., Barabasi, A. L., Brewer, D., Christakis, N., Contractor, N., Fowler, J., Gutmann, M., Jebara, T., King, G., Macy, M., Roy, D., & Van Alstyne, M. (2009). Computational Social Science. *Science*, 323, 721-723.
- Lounsbury, M., & Pollack, S. (2001). Institutionalizing civic engagement: Shifting logics and the cultural repackaging of service-learning in US higher education. *Organization Dynamics*, 8, 319-339.
- March, J. G. (1995). *A primer on decision making*. New York: The Free Press.
- Martin, J. (1992). *Cultures in organizations : three perspectives*. New York: Oxford University Press.
- McGrath, C., & Zell, D. (2001). The future of innovation diffusion research and its implications for management - A conversation with Everett Rogers. *Journal of Management Inquiry*, 10, 386-391.
- McMaster, T., & Wastell, D. (2005). Diffusion—or delusion? Challenging an IS research tradition. *Information Technology & People*, 18, 383-404.

- Meyer, J. W., Boli, J., Thomas, G. M., & Ramirez, F. O. (1997). World society and the nation-state. *American Journal of Sociology*, 103, 144-181.
- Meyer, J. W., & Jepperson, R. L. (2000). The "actors" of modern society: The cultural construction of social agency. *Sociological Theory*, 18, 100-120.
- O'Neill, H. M., Pouder, R. W., & Buchholtz, A. K. (1998). Patterns in the Diffusion of Strategies across Organizations: Insights from the Innovation Diffusion Literature. *The Academy of Management Review*, 23, 98-114.
- Oxford English Dictionary. "diffusion, n.": Oxford University Press.
- Pemberton, H. E. (1936). The Curve of Culture Diffusion Rate. *American Sociological Review*, 1, 547-556.
- Polillo, S., & Guillen, M. F. (2005). Globalization pressures and the state: The worldwide spread of central bank independence. *American Journal of Sociology*, 110, 1764-1802.
- Powell, W. W., & DiMaggio, P. (1991). *The new institutionalism in organizational analysis*. Chicago: University of Chicago Press.
- Rogers, E. M. (1962). *Diffusion of innovations*. New York: Free Press of Glencoe.
- Rogers, E. M. (1983). *Diffusion of innovations* (3rd ed.). New York: Free Press.
- Rogers, E. M. (1995). *Diffusion of innovations* (4th ed.). New York: Free Press.
- Rogers, E. M. (2008). *The fourteenth paw : growing up on an Iowa farm in the 1930s*. Singapore: Asian Media Information and Communication Centre.
- Rogers, E. M., & Shoemaker, F. F. (1971). *Communication of innovations : a cross-cultural approach* (2nd ed.). New York: The Free Press.
- Rousseau, D. M. (1995). *Psychological Contract in Organizations*. Newbury Park: Sage.
- Ryan, B., & Gross, N. C. (1943). The diffusion of hybrid seed corn in two Iowa communities. *Rural Sociology*, 8, 15-24.
- Sanders, W. G., & Tuschke, A. (2007). The Adoption Of Institutionally Contested Organizational Practices: The Emergence Of Stock Option Pay In Germany. *Academy of Management Journal*, 50, 33-56.
- Schofer, E., & Meyer, J. W. (2005). The worldwide expansion of higher education in the twentieth century. *American Sociological Review*, 70, 898-920.
- Schutz, A. (1932/1967). *The phenomenology of the social world*. Evanston, IL: Northwestern University Press.
- Scott, J. C. (1990). *Domination and the arts of resistance : hidden transcripts*. New Haven: Yale University Press.
- Scott, W. R. (1995). *Institutions and organizations*. Thousand Oaks: SAGE.
- Scott, W. R., & Davis, G. F. (2007). *Organizations and organizing : rational, natural, and open system perspectives* (1st ed.). Upper Saddle River, N.J.: Pearson Prentice Hall.
- Shenhav, Y. (1995). From Chaos to Systems: The Engineering Foundations of Organization Theory, 1879-1932. *Administrative Science Quarterly*, 40, 557-585.
- Stern, R. N., & Barley, S. R. (1996). Organizations and Social Systems: Organization Theory's Neglected Mandate. *Administrative Science Quarterly*, 41, 17.
- Stinchcombe, A. L. (1965). Social structure and organizations. In J. G. March (Ed.), *In Handbook of Organizations* (pp. 142-193). Chicago: Rand McNally.
- Strang, D. (1990). From Dependency to Sovereignty: An Event History Analysis of Decolonization 1870-1987. *American Sociological Review*, 55, 846-860.
- Strang, D. (1993). *The new institutionalism as a form of structural analysis*. Ithaca: Cornell University.

- Strang, D., & Macy, M. W. (2001). In Search of Excellence: Fads, Success Stories, and Adaptive Emulation. *American Journal of Sociology*, 107, 147-182.
- Swidler, A. (1986). Culture in Action - Symbols and Strategies. *American Sociological Review*, 51, 273-286.
- Tarde, G. (1890). *Les lois de L'imitation: étude sociologique*. Paris: Félix Alcan.
- Taylor, F. W. (1911). *The principles of scientific management*. New York: Harper.
- Taylor, P. S. (1928). The Leighton Co-operative Industries. *The Journal of Political Economy*, 36, 212-228.
- Thornton, P. H., & Ocasio, W. (1999). Institutional logics and the historical contingency of power in organizations: Executive succession in the higher education publishing industry, 1958-1990. *American Journal of Sociology*, 105, 801-843.
- Tolbert, P. S., & Zucker, L. G. (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.
- Tylor, E. B. (1871). *Primitive culture: researches into the development of mythology, philosophy, religion, art, and custom*. London: J. Murray.
- Uzzi, B., & Shapiro, J. (2005). Collaboration and creativity: The small world problem. *American Journal of Sociology*, 111, 447-504.
- Walker, J. L. (1969). The Diffusion of Innovations among the American States. *The American Political Science Review*, 63, 880-899.
- Walsh, J. P., Weber, K., & Margolis, J. D. (2003). Social issues and management: Our lost cause found. *Journal of Management*, 29, 859-881.
- Weber, K., Davis, G. F., & Lounsbury, M. (2009). Policy as Myth and Ceremony? The Global Spread of Stock Exchanges, 1980-2005. *Academy of Management Journal*, 52, 1319-1347.
- Weber, K., & Glynn, M. A. (2006). Making sense with institutions: Context, thought and action in Karl Weick's theory. *Organization Studies*, 27, 1639-1660.
- Weick, K. E. (1995). *Sensemaking in organizations*. Thousand Oaks: Sage Publications.
- Weick, K. E. (1996). Drop your tools: An allegory for organizational studies. *Administrative Science Quarterly*, 41, 301-313.
- Weick, K. E., Sutcliffe, K. M., & Obstfeld, D. (2005). Organizing and the process of sensemaking. *Organization Science*, 16, 409-421.
- Westphal, J. D., Gulati, R., & Shortell, S. M. (1997). Customization or Conformity? An Institutional and Network Perspective on the Content and Consequences of TQM Adoption. *Administrative Science Quarterly*, 42, 366-394.
- Williamson, O. E. (1996). *The mechanisms of governance*. New York: Oxford University Press.