# Diffusion: From Facebook to (Management) Fashion

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## Abstract

*Diffusion* refers to the spread of ideas and behaviors across a population. The field does not cohere around a central question whose solution would clarify fundamental issues. Instead, what we see is the constant and fruitful exploration of new social worlds, and the adaptation of research methods and theoretical concepts to capture central realities of these worlds. We begin by describing two lines of diffusion research whose core assumptions and analytic strategy are diametrically opposed: network models of online behavior and translation studies of organizational fashion. We then survey contemporary trends in organizational research that broaden the scope of diffusion studies, focusing, in particular, on the study of politically contested practices that pit the interests of organizations and elites against various stakeholders such as current and prior employees, customers, and the public at large.

In social science, *diffusion* refers to the spread of ideas and behaviors across a population. It forms a fundamental social process (Katz, 1999; Rogers, 1995; Strang & Soule, 1998) akin to choice and exchange. Diffusion is also widely researched, due not only to its intrinsic significance but also because it brings the investigator into contact with the cutting edge of social change.

In preparing to write this essay, we considered what sort of emerging trends best describe research on diffusion. What is presently known? Are there key discoveries that point the way forward? As we thought about these questions, it became apparent that the field's development path is breadth-first rather than depth-first. The field does not cohere around a central question whose solution would clarify fundamental issues. Instead, what we see is the constant and fruitful exploration of new social worlds, and the adaptation of research methods and theoretical concepts to capture central realities of these worlds.

We take the variety of perspectives and research strategies that are applied to the general idea of diffusion as a sign of health (though sometimes occasioning confusion and polemic). Andy Abbott's (2001) notion of the fractal

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nature of social science is applicable here. Approaches diverge on multiple correlated axes—analysis versus narrative, structure versus culture, realism versus construction. Our review capitalizes on this range of approaches to describe some significant lines of work, and to use these developments to illustrate the breadth of meaning attaching to "diffusion."

We begin by describing two lines of diffusion research whose core assumptions and analytic strategy are diametrically opposed: network models of online behavior and translation studies of organizational fashion. We then survey contemporary trends in organizational research that broaden the scope of diffusion studies, focusing, in particular, on the study of politically contested practices that pit the interests of organizations and elites against various stakeholders such as current and prior employees, customers, and the public at large.

## DIFFUSION ONLINE

One of the most striking developments in contemporary diffusion research is its application to the online world. The explosion of online activity—Facebook has over a billion active users today and more than six billion cell phones are in use—provides a rich setting for study of the spread of social behavior. This is particularly true owing to the arms-length character of the Web, which enables imitative and communicative practices that drive social influence from a distance. When actors flock to a website that their friends use, or add their voices to the tweets of a public celebrity who they follow, central diffusion mechanisms come immediately into play.

As a laboratory for network analysis, online behavior has salient advantages. Social relationships are often encoded in formal roles or communication links such as lists of friends or e-mail address books. Digital interactions are automatically recorded or can be recovered in a Web crawl. Adoption dates are time stamped. As a result of the ease of data acquisition as well as the enormous scale of the Internet, studies of online behavior can work with orders of magnitude larger adopter-network pools than are generally available in face-to-face or naturalistic diffusion settings. The opportunities furnished by the emergence of a complex electronically mediated social world has drawn the attention not only of social but of information and physical scientists, whose methodological know-how helps them pioneer this area.

One great promise of online diffusion studies, at least partially realized, is identification of fine-grained regularities in network diffusion. Work by Kleinberg and colleagues illustrates this ambition. Backstrom, Hutterlocher, Kleinberg, and Lan (2006) analyze community joining and growth using data from LiveJournal, a social network and blogging site, and DBLP, a computer science publication database. These sites provide extensive

data—for example, two snapshots of LiveJournal provide 17,076,344 data points on individuals who are treated as at risk of joining one of the site's communities and 14,488 cases where they actually do join. "Big data" allow the authors to estimate functional relationships such as the probability of joining a group as a product of ties to current group members. In both data sets, this function is smooth and sublinear, with each succeeding tie (self-declared friends in the case of LiveJournal, coauthors in DBLP) having a smaller impact until a plateau is reached. There is also a suggestion of superlinearity in the transition from one to two ties; the probability of joining if one has two friends is slightly more than twice as large as the probability of joining if one has one friend. Backstrom *et al*. (2006) go on to identify higher-order network conditions as well such as positive effects of network closure—individuals are quicker to join if their friends who are already members are tied to each other.

Big data allows basic contagion functions to be empirically estimated rather than postulated[1] (functional relationships). The scale of this sort of study permits empirical identification of functional relationships (event history models of diffusion, which are generally utilized with moderate Ns, assume that adoption curves are either linear or log-linear). We should note, however, that the precision associated with big data is no guarantee of empirical robustness in a broader sense. For example, while Backstrom *et al*. (2006) find that individuals are more likely to join groups where their friends form tightly knit cliques, Ugander, Backstrom, Marlow, and Kleinberg's (2012) companion analysis of Facebook observes that joining is more rapid when preexisting ties form multiple distinct social worlds. These discordant results point to the larger challenge, which is not only to develop precise within-sample estimates of network relationships but to locate regularities that apply to many contexts, either as invariant relations or as systematic patterns of variation.

A second strength of online research is the opportunity it affords to experimentally manipulate network structures and to examine multiple versions of the same process. For example, Centola (2010) randomly assigned subjects to different network topologies and then observed the subsequent spread of behavior. Diffusion was more rapid on the denser network where individuals were more likely to receive reinforcing signals from multiple network partners who had already joined, with the largest marginal effect occurring at the second influencer. (Note that network ties here refer to anonymous connections created by the researcher—individuals participating on the site were alerted when specific others had taken action but did not know these individuals personally.) In a study of the evaluation of popular music, Salganik and Watts (2008) construct "independent" and

1. Event history models of diffusion generally assume a linear or log-linear effect of the number of prior adoptions; threshold models postulate a step function.

"social influence" worlds that allow them to characterize the extent to which cultural choices are shaped by the expressed tastes of others. Both studies utilize experimentation to control for unobserved factors at the individual and dyad level, and to probe the structure of social influence. This comes at a price, however—experimental studies investigate socially anonymous worlds where communication is restricted to very limited behavioral signals.

## TRANSLATION AND MANAGEMENT FASHION

"Translation" approaches to organizational change/fashion lie at the opposite end of the analytic spectrum. Latour (1987) introduced the term in *Science in Action* as a way of stressing human agency. In the diffusion framework, he suggests, " … people do not do anything more to the objects, except pass them along, reproduce them, buy them, believe them. The result of such smooth borrowing is that there are simply more copies of the same object," whereas in translation, spread "is in the hands of people; each of these may act in many different ways, letting the token drop, or modifying it, or deflecting it, or betraying it, or adding to it, or appropriating it" (1987, p. 267).

Latour's usage is extended and applied in Czarniawska and Sevon's (1996) edited volume, *Translating Organizational Change*. The lead essay by Joerges and Czarniawska considers the way efforts at rational control routinely generate unexpected and unwanted consequences. They use the notion of translation to refer to the interrelationships of ideas, labels, programs, and behavior; the way ideas turn into action and action into ideas. For example, Sahlin-Andersson (1996) describes how science parks in Sweden were designed to replicate not successes but success stories: rationalized accounts that were purged of case-specific elements and turned into generalized prescriptions. Indeed, the consultants who advocated these parks knew little more than these stories, lacking personal experience with global exemplars such as Silicon Valley and often transitioning out of projects at early stages before the results had unfolded. Strang (2010) examines how managers tasked to benchmark "the world's greatest companies" defined peer groups consistent with their own firm's identity and combined site visits, contact with external experts, and their understanding of internal politics in developing schemes for organizational change.

The notion of translation speaks to a fundamental ambiguity in much diffusion research: what diffuses? In the quite elaborately constructed management domain, for example, the diffusion framework is applied unreflectively to phenomena as different as concepts, labels, tools, techniques, and practices [see Wittrock (2016) for attention to this issue]. Everett Rogers' (1995, p. 11) comprehensive review defines an innovation as "an idea, practice, or object," but does an idea move by the same rules and in the same way as an

object? Is there a one-to-one relationship between concepts and techniques or do they overlap in a messy, historically dependent fashion? Specification of the multiple types of diffusing entities and a richer conceptualization of their properties would be helpful in unpacking the structure of efforts at organizational change.

A main application of the translation metaphor is in studies of the evolution of organizational discourse. Edelman, Fuller, and Mara-Drita (2001) find that the meaning of "diversity" is broadened over time, as legal notions referring to specific statutory categories such as sex and race are recast by managers to include such things as economic background, personality, and thinking style. Abrahamson and Eisenmann (2008) provide evidence of drift toward "rational" management techniques accompanied by low levels of overlap between successive fashions that serve to differentiate new ideas from their more established rivals. Benders and van Veen (2001) and Heusinkveld (2014) argue that it is advantageous for management concepts to possess "interpretive viability": sufficient ambiguity and range of meaning that they are compatible with the tastes and goals of disparate organizational constituencies.

Work in the translational vein stresses the role of gurus, consultants, and professional experts who mediate between global discourse and local program adoption. Abrahamson (1996, p. 264) argues that "fashion setters sense incipient preferences guiding fashion demand" and "select those techniques they believe will satiate this demand." Clark (1995) proposes a dramaturgical perspective on organizational change that focuses on the rhetorical construction of threat. Strang, David, and Akhlaghpour (2014) develop a computational simulation of the diffusion of management techniques that demonstrates that competition between consultants leads to quicker turnover in popular techniques.

The two lines of research considered above—studies of the online world and managerial fashion—are grounded in fundamentally different images of social action. Online studies are behaviorist in assuming that actors influence each other by doing things (joining a website, downloading a song). They draw on models from physics and epidemiology that represent interdependencies within connected populations, and equate social structure with network topology. By contrast, translation models treat management fashion not as a cascade of undifferentiated adoptions but as a conversation where the key actors are not the adopters but the carriers who interpret and modify the "thing" that is spreading—which is not really a thing at all, but a negotiable label! Drawing on the sociology of knowledge, the notion of translation problematizes the "adoption events" that studies of the online world are based upon, replacing "behavior on a network" with language games.

## DIFFUSION OF ORGANIZATIONAL POLICY: FROM RATIONAL RITUALISM TO OPPORTUNISTIC RATIONALITY

Analyses of online behavior and managerial fashion constitute "pure types" that lie at the extremes of diffusion research. Most organizational research lies in between, adopting the network metaphor and modeling the timing of adoption while also taking cultural meanings and reinvention seriously. Neoinstitutional scholars, in particular, have demonstrated how various factors shape the way new practices emerge and diffuse within a population of organizations (Strang & Soule, 1998). While these studies are a mature branch of contemporary management research, they are also a locus of recent innovation and extension.

A central principle around which organizational diffusion research forms is the idea of competing pressures. On the one hand, organizations are motivated by technical (or "rational") concerns that lead them to adopt techniques, tools, and policies as a means of improving operating efficiency and/or financial performance. On the other hand, organizations like individuals inhabit a social world, where their actions are interpreted and evaluated by peers, exchange partners, clients, activists, and regulators; their responses influence the meaning as well as the rewards/costs of adoption and thus shape diffusion trajectories. It is common in organizational studies to focus on the tensions between technical and social factors, which may dominate different periods (early vs late adoption) or be differentially salient across heterogeneous populations.

In the first wave of organizational diffusion studies in the 1980s and 1990s, institutionalists developed a line of analysis that we describe as "rational ritualism." The empirical focus was on the spread of formal structures that make up the modern organization as well as institutionally prescribed practices (such as affirmative action in the United States) that aimed to use the organization to achieve larger social goals. The argument flowed from Meyer and Rowan's (1977) thesis that organizations are rationalized vehicles, that formal rationality is often at odds with substantive goals and practical activity, that organizations gain external resources and improved life chances by adopting legitimated structures despite the efficiency cost in narrow terms, and that these costs can be minimized by decoupling formal structures from everyday activity. Investigators working within this theoretical tradition sought to establish that diffusing practices had limited or ambiguous technical advantages but provided clear social/institutional benefits, especially as adoption within the population became widespread. Failure to adopt an institutionalized practice reduced an organization's standing in the eyes of audience members and jeopardized the organization's legal/regulatory status or its

ties to exchange partners/stakeholders. DiMaggio and Powell's (1983) seminal essay provided additional theoretical support for this approach by developing a sociologically sensitive version of bounded rationality, where actors sought to imitate exemplary models and by identifying organizational isomorphism as a significant outcome.

Much contemporary diffusion research involves a different, politically tinged institutional dynamic that can be described as "opportunistic rationality." Here, the diffusing quantities are policies that offer clear financial benefits to adopting organizations or the elites who run them. Adoption is not simple and straightforward, however, because these practices damage the interests of external audiences or affront their sensibilities. The locus of technical and social motives for these "contested practices" is thus reversed; adoption is technically advantageous from an internal perspective but socially disadvantageous (instead of being technically problematic but socially rewarding). The organization's problem becomes one of minimizing or finessing the social cost of adoption while continuing to reap its direct benefits. External actors shift from exchange partners who reward the organization for compliance with emergent norms to activists who seek to punish organizations that act in a narrowly or blatantly self-interested way.

Ahmadjian and Robinson's (2001) analysis of layoffs in Japan provides a great example. While massive corporate layoffs were often applauded in the United States as a sign of seriousness and commitment to shareholders, the Japanese tradition of permanent employment made corporate downsizing a problematic breach of trust. Corporations engaging in layoffs were pilloried for breaking the social contract with much attention to the damage done to workers. In Japan's prolonged downturn during the 1990s, however, the substantial cost to corporate reputation of engaging in layoffs had to be balanced against the firm's financial interest in cutting back. Ahmadjian and Robinson conceptualize the diffusion process that ensued as a matter of safety in numbers. Downsizing was less noticeable and less sanctioned if others were doing it as well. Organizational characteristics such as size and age that generally bear a positive relationship to the adoption of positively valued innovations were negatively related to the adoption of a negatively viewed practice, though this diminished over time as downsizing became more common and less noteworthy.

Briscoe and Murphy (2012) examine a parallel case: the effort by US corporations to curtail retirement benefits. Once again, financial incentives that threaten the firm's economic viability and at minimum stand to reduce its profitability provide a strong motive for action, but this is balanced by the likelihood of a negative response from past, current, and future retirees as well as the public at large. Briscoe and Murphy argue that organizations

finesse this opposition by adopting complex, opaque policies whose implications are unclear and which shift responsibility onto third parties. Once again, we see a reversal of an earlier line of argument that had linked rapid, successful diffusion to simplicity and clarity. Opacity becomes a virtue when the goal is to defuse opposition rather than enlist allies.

A third and final exemplar of opportunistic rationality is provided by Fiss, Kennedy, and Davis's (2012) analysis of the diffusion of golden parachutes. These developed in reaction to hostile takeovers, providing executives with multiple years of income, stock options, and other financial benefits in the case of a change in ownership. While golden parachutes were "legitimated" as a way of ensuring that top managers would not selfishly oppose takeovers that benefitted shareholders, few outside executive suites (and perhaps departments of economics) found this rationale compelling, and golden parachutes consistently elicited bad press and legal opposition from shareholders. Fiss *et al*. (2012) demonstrate that corporations were influenced by these pressures; executive benefits were less generous during periods of close media coverage and in companies that were often discussed in the media and thus highly visible. In general, however, outsider opposition was unsuccessful in undercutting golden parachutes, and the main effect of legal restrictions was to anchor executive benefits at the maximum allowable level.

Studies such as those of Briscoe and Murphy (2012) and Fiss *et al*. (2012) point to a shift in research strategy that often accompanies the turn to contested practices: greater attention to variation in the content of what is adopted. [See Ansari, Fiss, and Zajac (2010) for a general theoretical discussion of this issue.] Briscoe and Murphy are thus interested in the varying ways that firms sought to limit retirement costs; Fiss *et al*. in the specific provisions that made up executive benefit packages. Differences in adoption content have considerable significance when corporate actions are seen as opportunistic, as they represent distinct strategies for defusing opposition and/or variability in the strength of internal versus external pressures. Studies that treat adoption as ritualistic action are less concerned with the content of adopted practices as these are argued to be decoupled from behavioral outcomes in any case.

The study of contested organizational practices leads to an interest in corporate scandals, where hostile attention is strongly and publicly focused on particular offenders. Ahmadjian and Robinson's (2001) notion of "safety in numbers" gains force from the intense spotlight cast by the media cycle—few organizations gain notoriety for violating social norms, but those who do can be substantially damaged by the public fallout. Devers, Dewett, Mishina, and Belsito (2009) develop a general conceptualization of organizational stigma and the effects on leaders and members of losing status. Jonsson, Greve,

and Fujiwara-Greve (2009) show that a scandal leads to legitimacy loss not only for the organization involved but for its corporate cousins and peers in related markets. Pontikes, Negro, and Rao (2010) consider the contagiousness of spoiled identities, examining the downstream effects of the Red Scare as the colleagues of artists blacklisted as Communist sympathizers found themselves penalized as well.

The other set of actors whose agency is highlighted in the study of contested practices are the social movement activists. King and Soule (2007) document the impact of extrainstitutional protest on corporate stock prices. Briscoe, Gupta, and Anner (2015) find that name-and-shame tactics have particularly large effects on the peers of targeted firms. Weber, Rao, and Thomas (2009) develop a detailed analysis of the process by which antibiotech activism shapes corporate policy, from the breakdown of elite consensus to the enhanced uncertainty of investment in major biotech projects. Yue (2015) finds that collective action serves to push activists' commercial agendas, but this influence is limited when local communities are structured in a way that fail to give the movement cultural and relational support.

## SUMMARY

The lines of research reviewed here testify, we think, to the vibrancy and also the plasticity of diffusion studies. The field is broad rather than deep—there is great variety in methodology and conceptual approach but few discernable core problems whose solution would produce fundamental advances. Progress develops instead through the refinement of domain-specific streams of investigation. The strength of this approach is the quickness with which new social worlds come under the microscope, and the ability of researchers to match their models and methods to the empirical domains they study.

The contrast between the three research traditions thus exemplifies the "big tent" quality of diffusion research, not only in range of topic matter but in diversity of theoretical conception. Online studies treat the interdependence of surface behaviors such as joining a website or downloading a song, where one individual's action affects the probability that others will do the same thing. Studies of management fashion take issue with this notion of straightforward behavioral replication, contending that ideas rather than behaviors flow and that the translation between the two is at most a process of selective editing and often one of wholesale social construction.

The way research track the emergence of social worlds can also be seen in a more subtle way in quantitative studies of the diffusion of organizational policies, which stand between the online and fashion literatures in modeling adoption times within the epidemiological tradition but building

arguments on the cultural meanings that attach to diffusing practices. While stable methodologically over the last couple of decades, the shift emphasized here from conceptualizing the spread of new policies as rational ritualism to viewing it as opportunistic rationality constitutes a significant alteration of theoretical imagery. This change can be traced in part to ideational evolution within the academy, most notably the rise of a more robust political institutionalism. However, it reflects more importantly shifts in contemporary concerns about the role of the corporation in maintaining the social contract and the rise in economic inequality, concerns that social science is informed by and responds to.

Our best guess for the future direction of diffusion research is thus simple: wherever social change takes it!

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