

Ch. 18 in Handbook of the Sociology of Work and Employment. Stephen Edgell, Heidi Gottfried, and Edward Granter (eds.) Sage, forthcoming (2015).

FROM BUREAUCRACY TO NETWORKS

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Abstract

The principles of corporate organization and management are undergoing major upheaval, especially in knowledge-focused enterprises struggling to manage fluidity, multiple projects and accountabilities, and "on-demand" networks of relations. The consistent driver is an attempt to overcome the limitations of bureaucratic organization: restriction of communication channels, inward focus, rigidity of rules, lack of cross-unit cooperation, and other well-documented weaknesses. We are in a period in which the paradigmatic "big picture" is not clear. Academic research lags behind practice: the understanding of adaptive teams is growing but still weak, and most studies still focus on individual jobs or on small, stable teams within clear hierarchies.

There are at least three major images of what the future organization might look like: 1) Maximal decentralization, with high individual autonomy and a stronger role for market mechanisms. 2) Cooperative mutualism, with local production and exchange; 3) Collaborative networks, with flexible teams in complex relations of alliance and partnership. Whatever route is taken, it is clear that work already looks very different from the model described by organization scholars a few decades ago.

Keywords:

Project teams, flexibility, post-bureaucratic organization, star systems, autonomous teams, high-performance work systems

Relevant disciplines

Sociology of work, human resource management, organizational behavior

Introduction

Over the past few decades the business literature has reflected a general disenchantment with the principles of bureaucracy. Much of it portrays an upheaval in the principles of work organization, especially in knowledge-focused enterprises struggling to manage fluidity, multiple projects and accountabilities, and “on-demand” networks of relations.

Academic research has had a hard time assessing these claims. Attempts to put numbers on changes at work run into major obstacles: terminology is inconsistent, rhetoric and practice often diverge, and surveys have low response rates. Qualitative observation, meanwhile, is out of favor in many journals, and generalizability is very difficult to judge in a rapidly-changing environment. Certainly the more dramatic statements, such as “the age of the hierarchy is over” (Houghton, 1989), go well beyond reality; on the other hand, there is strong evidence from studies of mainstream corporations of enormous ferment, with internal innovation, conflict, and a range of anti-bureaucratic experiments that were unknown a half century ago.

For these and other reasons, an argument may be made for the use of general systems theory as developed by historical sociologists like Max Weber and Talcott Parsons, and used by management theorists like Alfred Chandler (1977) and Peter Drucker (1946). Such approaches strive for an integrated view of values, structures, and motivations, relying more on systematic reflection on qualitative data than on quantitative induction (Adler, 2009). Combined with and observational studies of teamwork in corporations, they give many reasons to believe that the practitioner criticisms of bureaucratic organization have a solid foundation.

Bureaucracy and its critique

The rationale behind the firm was developed in Max Weber’s theory of bureaucracy a century ago (1924: 650–678) and became central to private corporations with the innovations of Alfred Sloan and Pierre DuPont in the 1920s. It was linked to the emergence of mass production and strategies of scale and scope; those companies that best mastered the new arts of management – essentially bureaucratic leadership – dominated the mid-century period (Chandler, 1977).

Corporations exist, as Coase (1937) first showed, because markets do not enable enough consistency of communication and coordination to manage large projects. A car can’t be built merely by exchanging parts in markets: the inefficiencies would be intolerable. It needs a whole system of stable processes and interfaces, with reliable means of giving orders and confidence they will be followed. Bureaucracy fulfilled those functions by breaking the overall goal into discrete pieces with clear hierarchies of authority and accountability, so that hundreds or thousands of people, each pursuing one segment, would nevertheless come up with a coherent product. This produced the familiar pyramid of offices with functional divisions. The nature of each office was determined by the requirements of the organization, so that persons were essentially defined as functions in a “mechanical” system (Burns and Stalker, 1961).

The extreme version of the bureaucratic paradigm was Frederick Taylor’s (1911) “scientific management” of shopfloor workers. Taylor insisted that every motion should be determined by rational study of the requirements of production, and workers should merely follow the prescriptions laid down by management. At higher levels,

bureaucratic rules were of course not so behaviorally detailed – Weber himself believed that most jobs would require a good deal of autonomous judgment and use of expertise. Nevertheless, the essential requirement common to all levels was that actors stay within the boundaries of their official job definitions in order to maintain the rationality of the overall system.

In practice, it was clear from the start that no organization could operate purely on such a purely rationalized basis, because no system designed like a machine could deal with the complexity and fluidity of actual business activity. Real-world functioning required constant interaction and mutual adjustment among many players which could not be controlled by the relatively slow processes of rule-writing and job definition. An excessive focus on rule-following, as Merton (1940) argued, could lead to overconformity and a “sanctification” of procedures and loss of attention to the purpose.

The initial solution involved the development of informal teamwork and cooperation. Chester Barnard’s landmark *Functions of the Executive* (1938) outlined two parallel worlds: a formal structure which resembled Weber’s hierarchy of offices, and an “informal organization” of mutual cooperation. Leadership, in his view, consisted of maintaining the strength of both these worlds simultaneously. The famous “Hawthorne studies” demonstrated that a sense of teamwork improved productivity even in routine tasks (Roethlisberger et al., 1939), and inspired to a widespread philosophy of “human relations” management.

This hybrid of formal bureaucracy and informal cooperation, cemented by secure employment and organizational loyalty, marked the best work systems through most of the twentieth century. Where management pursued a more purely bureaucratic or rationalist vision and, ignoring the informal organization, the result was the kind of destructive political infighting famously documented by Michel Crozier in *The Bureaucratic Phenomenon* (1964). Successful companies brought informal relations into harmony with the formal structure through a set of tightly interlocking practices. For example, compensation was relatively uniform within each level in order to prevent envy among peers and to avoid overlaps between levels; rewards were expected to come through promotions, not pay differentials. Elaborate internal training organizations took over from the educational system to provide company-specific skills beyond the entry level. Strong norms of loyalty developed to anchor a lifetime commitment, with reciprocal obligations from the company. Equally strong norms have prevented people from going over their bosses’ heads or transgressing onto others’ turf. These norms, and many more, were necessary to sustain the human commitment and cooperation that animated the rational hierarchy.

But companies have become increasingly aware that this bureaucratic-loyalist complex breaks down in situations of high dynamism and complexity – the very kinds of situations that are increasingly common in determining competitive success. The operation of bureaucracies requires systematically limiting channels of communication. Getting anything done beyond the immediate work group requires going up the “chain of command”, which is a formal, slow, and erratic process and easily blocked. As the formal organization is organized in aptly-named vertical “divisions”, the informal organization divides into “stovepipes”, in which relations within particular areas

overwhelm the sense of the whole. Divisions fight against each other and resist working together.

Relations in bureaucratic systems are also defined almost entirely to other members of the system: each person worries about a boss and (above the shopfloor level) a few subordinates. Aside for a few sales people at the lower margins of the organization, no one connects to customers. Internal connections, stable and reinforced daily, become more salient than the changing pressures of the outside world – so there is a strong tendency to turn inward, to fail to respond to the environment. For the same reason bureaucracies emphasize internal harmony, which leads to resistance to diversity and novelty, and to strong defensive routines that block learning.

These weaknesses have been documented in many studies of bureaucracy (Jackall, 1989; Kanter, 1977), and – more important – are widely accepted in practice by business leaders. Thus there has been a sustained effort to develop organizations that connect more richly. Companies have widely sought to break down stovepipes and other internal barriers to communication, to build more bridges to the outside world, and to free individuals to innovate.

Alternatives

The critique of the bureaucratic model, and its central concept of stable offices or jobs, has produced several distinct images of what the future organization might look like. The terminology, once again, remains inconsistent: important terms have included “ad-hocratic” (Mintzberg, 1998), “networked” (Podolny and Page, 1998; Powell, 1990) “collaborative” (Heckscher, 2007), “matrix” organization (Galbraith, 2008), and dozens of others. We can distinguish a few broad strands. One aims to increase individual autonomy by reducing or even eliminating formal organization and returning to markets; another seeks a revival of a “mutualist” philosophy that dates to the 19th century, with an emphasis on local participation; and a third seeks to build networks into reliable mechanisms for coordinating economic activity at large scales.

1. Freeing the individual

The first of these sets of reforms focuses essentially on reversing the growth of formal organizations by cutting back on rules and enlarging the sphere of individual autonomy. The aim is to tear apart the restraints that hamper bureaucracy – the cumbersome chains of command, the inward-focused loyalties, the conflicting stovepipes – and to free individuals to pursue initiatives and connections on their own.

The pure market image

Some foresee the end of organizations, with individuals acting as “free agents” (Pink, 2002) hawking their wares in open markets. This tendency is facilitated by new communications technologies making possible direct relations between independent producers and consumers. There have been some initial successes of this type in hospitality (Airbnb) and local transport (Uber). “Workers” in these cases have to please only individual customers: there is neither supervisor nor powerful organization shaping the work.

The problem with this model is the same one it has always been: markets are poor at coordinating complex interactions. Even hardened economists have increasingly

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The most simplistic approach is to focus on the removal of bureaucratic rules and constraints. “Ad-hocracy” suggests that decision-making should become entirely informal and spontaneously negotiated. A few companies have attempted to remove all job titles (Seidman, 2011; Semler, 2007). However, in practice, even the most radical and fluid of these organizations need a good deal of structuring of process.

recognized the need for organization in some form (Williamson, 1975) Thus, while it is true that there has been substantial growth of “freelancing” in much of the industrialized world, most of it is contracted by formal organizations for particular projects. Some of the true independent workers of the past, especially medical professionals, are going in the opposite direction, drawn more and more into regular employment. There are relatively few industries where a true market solution has advanced, mainly in individual services; the larger movements have been towards new forms of organization such as decentralized, mutualist, or collaborative forms.

Decentralized organization

The economic impulse is still visible within organizations, however, in modified form, in the popularity of decentralization – reducing the degree of central control by giving more autonomy to units at a lower level. Decentralization can be done in many ways: for example, by creating product units with the freedom to innovate within their own products; or by creating autonomous units that perform specific pieces of a production process (modularization) (Gittell et al., 2008; Simon, 1974).

Although decentralization is often touted as new and anti-bureaucratic, it – like markets – is essentially an old move that does not fundamentally challenge the bureaucratic paradigm. The “decentralized bureaucracy” was invented by Alfred Sloan and Pierre DuPont in the 1920s, making possible much more complex production than was possible in a strongly centralized setting (Chandler, 1977). But decentralization also creates its own set of problems: duplication of effort in different units, disconnection between the parts, lack of coordination for the customer, lack of fit among products made by different parts of the same company. For these reasons large companies in the twentieth century went through regular cycles of decentralization (when more freedom and innovation were needed) and centralization (when more standardization and efficiency were needed). The “new” efforts at modularization and autonomy have not escaped these dynamics (Gittell et al., 2008).

The “star” paradigm

The “star” paradigm might be considered a highly decentralized model midway between organization and market. It is particularly popular in the financial sector, but has spread widely, even into traditional manufacturing. The premise of this model is that an effective organization merely gathers the most talented people and frees them to perform their best by minimizing rules and supervision. The employment relation is weak, and pay levels are highly responsive to market signals.

The focus on gathering the best people leads to a “War For Talent,” as an influential McKinsey & Co. article (Chambers et al., 1998) put it. The core assumption is that talent is a general individual quality: good organizations hire and retain those who have more of it. The prime solution has been to pay top talents well in order to keep them from being stolen by competitors.

The second part of this approach is to free the stars from restrictive rules. This of course creates problems of coordination and accountability. The solution has come from “agency theory,” which recommends monetary rewards for performance that meets the goals of the “principals” – i.e., shareholders (Jensen, 1994). Thus, in the ideal, work is minimally structured but maximally rewarded; no one tells you what to do, but if you

do it right you get a lot of money. The low level of structure encourages innovation and entrepreneurship. On the flip side, those who do not meet the goals are seen as “deadwood” to be gotten rid of.

There is, however, considerable organization and management even in star models that is often overlooked. Managers define strategies, set targets, assess performance, and allocate pay. The stars can often leverage the ability to go out on the market in order to negotiate internally, but they remain subject to chains of command.

Star-focused organizations have been extensively researched, and the evidence on their effectiveness is at best ambiguous. The most influential studies focus on the performance of individuals but have little to say about whether the organizational result is better. And this is a crucial omission, because there are many reasons to believe that *even if* strong incentives increase individual effort and goal-seeking, that might not translate into better *organizational* performance:

- High reward for performance may encourage game-playing, manipulation, and pursuit of short-term goals rather than a broader view of sustainable competitiveness.
- The emphasis on individual stars may undermine the coordinated teamwork needed for complex projects. If a problem requires cooperation across departments or the combination of different types of expertise, there is likely to be conflict over credit.
- Most tasks require a mix of orientations, including some highly innovative and even aggressive employees, and some who are more steady and reliable. An overemphasis on the former of these dimensions is as destructive as the latter (Delong and Vijayaraghavan, 2003; Spreier et al., 2006).
- The approach may create a vicious circle which undermines commitment at all levels. On the high end, people who are highly marketable are constantly enticed by the lure of something better, leading to a kind of compensation “arms race.” Other people, however, are stuck where they are because they cannot generate competing offers. This group naturally engages in narrow organizational politics to reduce their vulnerability, and they are also resentful, because it is increasingly obvious that the company does not value them. The gap inevitably develops into a sharpening dualism. The end of the road may be an organization to which no one is really committed.

How serious are these problems, and do they offset the motivational power of individual incentives? The evidence is poor, but it tends to show that companies that avoid the star approach do better than the ones that embrace it. The evidence in *favor* of star systems is thin: surveys of the academic research have found that the core proposition, that emphasis on individual talent benefits company performance, has not been established (Rosenthal and Dudley, 2007) At the same time, there is much evidence for negative consequences of strong emphasis on individual performance. Studies of the financial services industry – the epicenter of the Talent War – shows that “stars” who move to new companies perform worse than average in their new settings, especially when they are involved in interdependent tasks (Groysberg, 2010; Groysberg et al., 2008, 2011). Considerable qualitative work has shown the problems in more detail:

overemphasis on individuals, internal competitiveness, lack of attention to systemic issues (Beer et al., 2004; Pfeffer, 2001; Spreier et al., 2006). And if one begins to list the paragons of tough performance-based rewards versus the companies that reject that approach, emphasizing more teamwork and collaboration, a disconfirming pattern emerges. The key exemplars cited in the original McKinsey “War For Talent” article include Enron, Home Depot, Bear Sterns, Citibank, and First USA Bank. All of these have encountered major trouble in the last decade, several catastrophically. Those that have generally rejected star approaches include Procter & Gamble, IBM, Cisco, Goldman Sachs, Southwest Airlines (Galbraith, 2008; Gittell, 2003; Heckscher, 2007); overall their record is far better and more sustained.

The most consistent exponents of the star views argue that good employees welcome these changes and embrace the new opportunities:

“Anybody who is in an organization today has a place, an opportunity to contribute – there’s no deadwood. . . . The extra responsibility makes people feel important and appreciated . . . even though workloads may be heavier. . . . The people who remain face a challenge, but it’s one that a great many are eager to confront.” (Graham, 1997)

While hard evidence is scarce, what there is generally does not support this view. Especially since the 2008 recession, concern about job security has risen in both Europe and the U.S. and appears to have fueled a broader sense of pessimism about the future (Debating Europe, 2014; Saad, 2013).

2. Cooperative mutualism

Cooperatives

An old image that has resurfaced is that of a world of small producers engaged in exchange regulated not by market logic but by associational norms of sharing, mutuality, and participative decision-making. This harkens back to the cooperatives of the nineteenth century, often associated at that time with worker movements. The most traditional form is the call for groups of worker cooperatives (Rothschild and Russell, 1986; Wright, 2010). These tend to draw heavily on a few examples: Israeli kibbutzim; the Mondragon group, in the Basque region of Spain, which has grown over fifty years to over 80,000 workers in hundreds of companies, and has its own training and financing arms (Whyte, 1991); and the Emilia-Romagna region of Italy (Sabel, 1999). Other concentrated networks of cooperatives include Scandinavia and the logging areas of the American and Canadian Northwest. In the U.K. successive governments, both Labour and Conservative, have trumpeted versions of “new mutualism” which would encourage such cooperatives; their primary model, besides Mondragon, is the John Lewis Partnership of retail stores.

These efforts appeal to the growing disenchantment with large bureaucracies, as well as rising inequality, and promise more local autonomy. The decentralized cooperative version is particularly attractive because it encourages a high degree of democracy. There is also strong evidence that worker ownership in general is positively related to productivity and firm success, at least when they are managed in a participatory way (Kruse et al., 2010).

It is less clear, however, that this form can thrive beyond a local level. Cooperatives have a long history as interesting but marginal institutions; most current efforts fall well within this pattern. Those that are linked into regional or industry groups appear more robust, but even the best examples of these are under strain as global flows of products and capital accelerate. Mondragon and the John Lewis Partnership have long remained as isolated beacons without engendering significant offspring, while most kibbutzim are moving away from cooperative principles (Russell et al., 2011). Moreover, Mondragon, as well as some large U.K. consumer cooperatives (such as the Cooperative Bank and The Cooperative Food) have run into serious difficulties since the economic crisis of 2008. Finally, it is not clear that any of these cases have significantly modified the bureaucratic form of organization: most internal accounts of Mondragon and John Lewis find that the work and authority structures are not sharply different from conventional companies.

This experience suggests that while cooperatives can occasionally maintain themselves through committed leadership and group spirit, they are hard to replicate and are vulnerable to defection in crises. Some analysts generally favorable to the cooperative movement have concluded, from the struggles of Mondragon and the Emilia Romagna districts, that cooperative mutualism cannot succeed widely without wider systemic reform of capitalist markets (Alperowitz and Hanna, 2013; Harrison, 1994).

3. Collaborative networks

A final vision, with more traction within the core economy, explores coordinated teamwork – the combination of diverse capabilities in pursuit of a shared purpose. This has begun to coalesce into a logic of networks, which turns much of the bureaucratic logic on its head. While the virtues of good bureaucracy are stability, consistency, reliability, and efficiency, the primary virtues of a network are flexibility, responsiveness, and innovation. A bureaucracy ceates a stable organization by dividing tasks into fixed pieces, while a network seeks constantly to reorganize capabilities around new tasks. Networks seek to create for any given problem not an organization but a team – a constellation of exactly those people who have the right knowledge and resources for that particular problem; their mission is not to execute routinized procedures, but to analyze the particular issues and respond to them. This undermines the idea that people should be attached to particular jobs: the measure of value is no longer “doing your job”, but contribution to the collective mission. In a hierarchical organization, those who go beyond their defined job functions are viewed as threats to the order of the whole; in a network-based system, they are vital to responsiveness and innovation.

We will elaborate three important aspects of the development of a network logic, with increasing scope:

- Stable autonomous teams, which began to emerge as early as the 1950s but became widespread only three decades later.
- A more recent development which poses even more profound challenges to the bureaucratic paradigm: the rise of temporary, project-focused teams crossing boundaries of the formal organization. These include “virtual” teams that do not even meet in person but cooperate fluidly across space.

- “Post-bureaucratic” forms, which seek to reorganize production on a larger scale based on shifting project teams and multiple cross-cutting accountabilities.

1. Stable work teams

In the 1950s the first significant break in the bureaucratic paradigm emerged from theorists grouped in the Tavistock Institute, who began to articulate notions of *formalized teamwork* in which jobs, with clear accountabilities and spheres of autonomy, gave way to groups with shared responsibility and flexible structure. In these “sociotechnical” environments workers were expected to gain the skills for multiple tasks, to fill in for each other as needed, and even to make significant decisions together about methods of work (Trist and Murray, 1993).

In the 1980s there was an acceleration of team-based systems in this vein, under such rubrics as “Quality of Work Life” or “autonomous teams”. These began to take on a wider range of authority. Much team research today continues to focus on this particular *kind* of team, increasingly extended upwards into the ranks of middle managers and engineers. Though terminology is inconsistent, they are frequently referred to under the rubric of “High-Performance Work Systems” (Appelbaum and Berg, 2000)

These teams essentially gather people who, in the older bureaucratic model, were subordinates of a single supervisor. Thus they generally are homogeneous in terms of the kind of work they do – they include assembly-line workers *or* engineers, for instance, but not both. And they are stable: the general belief in the literature is that the commitment needed for effective teamwork depends on assurances of employment security. They are usually small, 6-8 people, though some have grown to two or three times that size.

What is new in these teams is that, rather than getting job definitions from HR specialists and being monitored by a supervisor, workers decide tasks among themselves and monitor each other. Thus on the shopfloor of Japanese auto factories workers gather periodically to check their performance against that of other teams and to investigate ways they can improve (Adler et al., 1997; Rubinstein and Kochan, 2001). This radically alters the daily experience of work. In the pure Taylorist or bureaucratic structure, employees frequently develop informal peer norms around how to steer or resist their supervisor’s demands; in a successful high-performance work system, they use formal problem-solving methods to improve their overall performance. But beyond the level of the team itself, the organization of work does not change a great deal: the hierarchical structure is essentially unchanged from the bureaucratic model, and teams get their goals through top-down management systems.

The research on the performance of these teams generally shows that they do better than comparable bureaucratically-organized work units, primarily because of lower turnover and absenteeism, and sometimes innovative redesign (Combs et al., 2006; Stewart, 2006). This positive result remains, however, only while the teams remain stable and focused on a consistent task. Things are once again much less clear when one broadens out to the question: do these teams actually contribute to more effective organizations over time? It is striking how many instances there in which teams have been effective but nevertheless have not survived – a phenomenon sometimes called the “successful failure” (Heckscher, 2007: 213) This includes most of the touted exemplars of the 1980s and 90s,

decades, such as Saturn's Spring Hill plant (Rubinstein and Kochan, 2001), NUMMI (Adler et al., 1997), and Xerox's Rochester plant.

There are a number of systemic reasons for this fragility:

- Stable teams build up strong internal solidarity and cohesion. They may therefore become more resistant to change introduced from outside, such as new technologies. It is easier to impose change from above on workers who are filling individual jobs than to get a team to agree to it.
- The same solidarity that makes possible internal flexibility may create walls against other parts of the organization. Where the star system pits individuals against each other, the stable team system merely moves that up a level: teams may protect their turf and withhold information from other teams. Their successful experiments are seen as their own property rather than something to be shared.
- The grounding of commitment in security is an increasingly untenable bargain. Very few companies are able to promise real security in highly-competitive markets, especially security attached to a particular team or location. Companies that have tried it have almost always been forced at some point to back off, under pressure from market or technological shifts. Thus the basic foundation of trust is undermined.

Stable teams, in short, increase flexibility and innovation within the boundaries of the group, but they do not extend reliably those gains to a larger system.

2. Project (cross-functional) teams

The research literature is insufficiently clear about the distinction between teams that are essentially permanent, as just discussed, and those that come together on a temporary basis for particular projects. The latter – especially ones that cross organizational boundaries – have grown much more common in recent decades, and their scope has grown dramatically. Whereas in the past project work was largely limited to research divisions, today it is common to bring together assembly workers and engineers, or marketers, business consultants, and programmers, often cutting across formal organizational levels, and sometimes across multiple organizations (Donnellon, 1993; Gulati, 2010). People often move in and out in different phases of work depending on needs for skills and resources.

A major driver for the rise of project teams is the growing importance of knowledge to production. Commodities, which have low knowledge content, are increasingly going to areas of low-wage production or being automated. Work in the advanced economies generally has value because it is responsive to customer needs or innovative, or both. Responsiveness and innovation, however, increasingly depend on combining the knowledge of multiple specialists in interdisciplinary discussion. Thus the discussion of project teams overlaps with the literature of knowledge management (Nonaka et al., 2000).

The dynamics of project teams are sharply different from those of permanent teams. They are less likely to build strong boundaries around themselves and to hoard information. But they have different problems:

- They need to master the same skills as stable teams, plus some that are even more difficult: how to integrate people quickly into the workflow as they move in and out of the team; how to revisit and redefine overall objectives as external demands shift; and often how to communicate over virtual technologies.
- They diffuse accountability by breaking the clear lines of the bureaucratic model. Members of the teams have multiple “bosses”. Supervisors do not necessarily set the targets for their subordinates, and they cannot easily observe performance directly. And the team’s objectives are likely to shift as the project develops, making it more difficult to establish clear benchmarks for success.
- They often generate political tension because they cut across existing unit lines. Team members are often expected to protect the interests of their home units rather than fully contributing as members of the project team. Such tensions can be a major source of conflict, especially as scope increases – when, for instance, teams include members of more than one company.
- They need to combine multiple kinds of knowledge with different standards and traditions. Misunderstandings and prejudices are common: engineers believe that marketers are too glib and shallow, marketers believe engineers are too perfectionist and inwardly-focused. The technical knowledge of one group must be taken on faith by members of another (Donnellon and Margolis, 1990).

In recent years the difficulties have been magnified by growing use of communications technologies, especially virtual meetings over the internet. The challenges of virtual teams have an entire literature to themselves, but their dynamics are not essentially different from co-located teams – just more so (Hinds and Mortensen, 2005). They tend to have high levels of conflict and miscommunication. Anecdotal evidence nevertheless suggests that their use has risen sharply in the last decade (Lipnack and Stamps, 2008).

One lesson which has come out of the research on project teams is need for deliberate, organized process (Bryk et al., 2011; Colfer and Baldwin, 2010). It is not enough for people to form a team; there must be a set of steps that structure discussion and decision-making. In effect, rather than relying on established rules and procedures established by functional experts in a bureaucracy, they must largely invent and enforce their own rules. Thus explicit agreements must be negotiated about roles, responsibilities, time lines, and decision processes.

3. Beyond teams: post-bureaucratic systems

Team-based work systems present fundamental challenges to every aspect of the familiar bureaucratic organization that was dominant a few decades ago. The organization as a whole needs to learn new approaches for setting goals, assessing performance, establishing career paths, motivating employees, compensation, and leadership. The reorganization of work, in short, is just part of a reorganization of the *system* of work.

Within organizations, the proliferation of cross-functional teams, “communities of practice” (Wenger, 1998), and temporary projects has led managers to rethink the bureaucratic hierarchy. Some have pictured it upside down, with employees at the top and management as “support”. Though this is of course partly rhetorical – managers

still hold authority – it does reflect the important fact that subordinates now often have specialized knowledge and skills that their bosses lack. Others draw multiple layers: a stable hierarchy overlaid by projects and “initiatives”. This more complex forms of collaboration combine centralization and decentralization through strong process organization: that is, people can form cross-functional teams fairly freely, as in the “ad-hocracy” approach, but they must justify and document what they are doing so can they coordinate effectively with other groups (Miles et al., 2009; Galbraith, 2008; Heckscher, 2007).

Across organizations, there has been a general move towards spreading production along supply chains involving many companies, rather than trying to internalize everything within one company; the best of those chains involve more than purely commercial connections, but build ongoing relations and collaborative networks (MacDuffie and Helper, 2006). Customers, too, are increasingly treated not just as market agents; companies seek to draw them into deeper relations, often using social media to encourage communities (OHern and Rindfleisch, 2010). These companies are seeking to replace the sparse communications channels of classic bureaucracy with many rich cross-cutting relations; and they face the problem of how to organize those complex relations into a coherent process of production.

These developments have spurred great organizational innovation in mechanisms of process management and learning. This is an extremely rich field which has not been properly surveyed. It includes a wide array of techniques for managing participatory teams; for building flexible processes across teams and organizational units; and for drawing lessons that have practical use in future activity (Grover, 1999; Heckscher, 2007: 6). In the last decade the internet has spurred a further acceleration of methods for better communicating, and for gathering and organizing data.

In the light of these innovations, the bureaucratic process looks extremely limited. It has become increasingly feasible for people to come together in fluid constellations as problems evolve, without waiting for orders from their superiors. There is much less report-writing for bosses, and much more documentation of activity in ways that can actually be accessed by other actors as needed.

All these innovations, including their incomplete aspects, are even more clearly represented in open source software. This is a form of organization where the tools of bureaucratic authority are largely absent because most actors are volunteers; yet in some instances, such as the battle between the Firefox browser and Microsoft’s Internet Explorer, it has managed to out-perform powerful corporations. Research on open source emphasizes the importance of distributed process management, strong reputational mechanisms, and a combination of modularized production units linked with rich discussion tools (Ferraro and O’Mahony, 2012; Langlois and Garzarelli, 2008; Benkler, 2007).

Challenges of the network model

The understanding of networked production – including flexible teams and post-bureaucratic organizations – is still in its infancy, though the practice is maturing rapidly. A large number of questions have no good answers and could benefit from research.

Though the evolution of work and work organization has been essentially in the direction of greater complexity, there is little understanding of how much complexity is manageable. Management texts used to emphasize limiting relations, each person dealing only with a small number of reports. The current trend, however, is to multiply links. Decentralization increases the number and difficulty of hierarchical connections, so that people may be “supervising” dozens of people scattered around the world, rather than just a small and co-located handful; and each actor may in addition be part of multiple teams with formal responsibilities, some temporary and some longer-term, cross-cutting the hierarchical lines. Many companies have created directories of employee skills and experiences so that every member may be able to reach any other member when necessary.

It is clearly not possible to manage an organization in which everyone deals with everyone else. Already many people feel overwhelmed by email traffic and meetings. It is essential to structure this free-for-all without returning to the rigid and limited links of bureaucracy. Network theorists have sought to develop models of structured linkages, notably with the concepts of modularization and “small worlds” (Uzzi et al., 2007; Watts, 1999) – both of which model small, continuous groups linked by flexible “bridgers”. But this small-world structure may still be too limiting: it does not comprehend the possibility that anyone – not just a few bridgers – may need to get resources and information from distant parts of the system. Even more important, it has not yet developed effective methods for understanding shifts in relational patterns over time, which is essential to organizing dynamic systems.

More generally, there is poor understanding of the *systemic* nature of the changes under way. Researchers tend to focus on one or a few pieces – compensation, strategy, relations, capabilities, hiring, and so on; but research on the nature of effective organizational systems which combine all these elements in a new way is rarer. Thus, although there is clearly widespread movement towards more complex and flexible organization, hard evidence that it works better than the old methods is scarce.

In many particular areas of human resources, the weakening of bureaucratic practices has led into still-uncharted waters. To cite just three:

- **Assessment:** The diffusion of accountability discussed earlier has led to much the use of multi-source or “360-degree” assessment, in which many people with whom an actor has worked weigh in on the evaluation of performance; the supervisor in such a system becomes something like a coordinator of feedback rather than a sole judge. This approach may make it possible to overcome the tension between individual accountability and teamwork, which are generally seen as opposed: that is, those who contribute most effectively to the shared mission may be seen by peers as legitimately worthy of higher pay, without disrupting the sense of fairness and solidarity needed for effective teaming. But practice in this area is particularly far ahead of the research (Peiperl, 2001; van der Heijden and Nijhof, 2004).
- **Training:** Bureaucratic organizations classically relied on on-the-job experience and formal job training to develop the capabilities they needed. In recent decades many companies have reduced their use of formal employee training programs. It seems likely that many employees are drawing more than in the past from

professional associations and conferences, adult education (including online courses and certificates), and other extra-mural forms of training. But the extent of this move has not been well documented, and the comparative effectiveness of the alternatives even less.

- **Compensation:** The network approach has also undercut the traditional compensation system. As the stability of offices has declined, the emphasis has shifted to individual performance. A disconnect has developed between hierarchical progression and rewards, as young employees with special skills command high premiums and older ones, with capabilities less in demand, lose bargaining leverage (Kanter, 1977). These forces have driven the spread of “pay for performance”, closely linked to the “star” models discussed earlier. Yet the evidence of the effectiveness of this approach is very contested, with some researchers finding significant problems at both motivational and organizational levels (Ariely et al., 2009; Beer et al., 2004; Deci et al., 1999).

At the broader level of society and the economy as a whole, much work needs to be done on the scope, direction, and consequences of the changes we have outlined – for example:

- **Contingencies:** Although it is unlikely that either flexible teams and individual incentives are magic bullets that work everywhere; they presumably improve organizational performance only in certain circumstances. A number of authors have suggested that flexible team systems are especially effective in work settings with high knowledge demands (Grant, 1996; Nonaka, 2005). It also appears anecdotally that a strong focus on individual compensation is most often used in a few settings stressing sales or investment. But there is as yet been no agreement on the relation between work organization and contextual factors. Given the speed of change in many industries, this is a tall research order.

There are also large sectors of the economy involving relatively unskilled and routine tasks that have not been much affected by the trends reviewed above. But there is also evidence that automation of such jobs is accelerating, and that the move to knowledge value will continue to spread (Acemoglu and Autor, 2010; Autor et al., 2003).

- **Dualism:** There is some evidence that open networks gravitate to a more dualistic form, with a sharp divide between winners and losers, than traditional bureaucracies (DiMaggio and Garip, 2011). This tendency does appear in at least some leading companies – indeed, certain management systems explicitly try to weed out the best from the rest (Huselid et al., 2005), and they concentrate rewards on a smaller slice of the employee body. Other research, however, indicates that such high levels of inequality may undermine commitment and cooperation (Wilkinson and Pickett, 2009). There is little research that tries examines this tension and explores what level of inequality is motivationally constructive, and at what point it becomes destructive.
- **Careers:** It is clear that the logic of networks disrupts traditional career paths. Research confirms a general decline in job tenures and a weakening of internal labor markets, especially for men (Farber, 2007; Hollister, 2011). There is less

imperative for internal development of talent; it can be bought from the network. In the abstract, this could even make sense from the employees' point of view, offering them greater opportunities than the standard upward career for variety, independence, self-development, and choice.

But the ideal picture of a fluid labor market is distorted and slowed by collision with the societal institutions still organized around large firms. Educational systems are geared to taking people up to their entry to the labor market but not beyond; a network logic would require that people return to education intermittently throughout their careers, rather than getting their training from inside the firm. Career information is likewise still largely restricted to firms: a network requires open information about opportunities and reputations, so that people can move quickly and efficiently to the "right place" in the complex network. Some alternative methods of training, placement, and career development are developing, but the study and practice of lag well behind the need.

Critical views of collaborative networks

For most of the twentieth century the critical literature on organizations, often Marxist in orientation, focused on the destructive effects of large bureaucracies in undermining craft skill and autonomy (Braverman et al., 1974). A more recent strand has emerged around the networked form of organization.

One view sees "teamwork" as just a rhetorically disguised form of managerial control (Fucini, 2008; Kamata, 1984; Parker and Slaughter, 1988). These critics generally focus on stable shopfloor teams, particularly in the automobile industry which was among the first to pursue "worker participation." They show instances where teamwork is used to amplify managerial discipline by setting teams in competition with each other, leading workers to push each other to harder work and higher performance (Barker, 1993; Sewell, 1998). Strongly contrary views, arguing the benefits of teamwork for workers as well as companies, have come from multiple perspectives, including managerial (Katzenbach and Smith, 2006), humanistic (Maccoby, 1994), and labor (Kochan et al., 1997).

Several overall conclusions can be drawn from the debate. First, it is clear that managerially-led teamwork is very vulnerable to abuse of the type described by the critical view. Second, there do exist successful instances that combine substantial involvement and employee satisfaction with high productivity. Third, workers, especially when represented by supportive unions, can effectively resist the abuses and turn teams towards more positive forms (Kochan and Rubinstein, 2000). Fourth, even the best shopfloor teamwork has little effect in slowing the larger forces of merger and acquisition, foreign subcontracting, and other motives for closing plants.

Above the shopfloor level the debate includes some similar themes with different contexts. A good many of "empowerment" programs are merely an extension of old "Human Relations" management which emphasizes good feeling without significantly changing work practices (Heckscher, 1995). But many studies also show that the increasing importance of knowledge innovation as a competitive differentiator requires serious transformation of work and a greater collaboration (Heckscher, 2007; Wuchty et

al., 2007). Adler's "paleo-marxist" argument bridges the usual critical-managerial divide: He sees collaborative teamwork as genuinely necessary to the success of capitalist firms, yet also as undermining their long-term ability to focus on profit maximization (Adler, 2009).

Another effect of the networking of production is the rise of contingent and subcontracted work, blurring the boundaries of firms and reducing employment security. This, too, has produced divergent assessments. Much management literature sees it as a mutual benefit: companies gain flexibility, while workers gain the freedom to develop their skills and interests in "boundaryless careers" independent of any firm or boss (Arthur and Rousseau, 2001; Zeitz et al., 2009). Critical literature emphasizes instead the insecurity of the jobs and the ease with which they can be exploited. Some see the growth of a new class, the "precarariat," which can become a source of social instability (Standing, 2011). Again, the general conclusion seems to be that the change process can move in at least two different ways: some employers exploit it for cost-cutting, but others are seeking to develop flexible networks with relatively highly-paid work (Håkansson and Isidorsson, 2012).

Conclusion

Significant organizational changes and experiments are under way across almost all industries. The consistent driver is an attempt to overcome the limitations of bureaucratic organization: restriction of communication channels, inward focus, rigidity of rules, lack of cross-unit cooperation, and other well-documented weaknesses. We are in a transitional period in which much of bureaucracy remains, while more complex mechanisms of network relations are under construction. The star and network alternatives have the greatest rhetorical momentum, but both lack clarity in many details.

In the meantime, decline of bureaucratic institutions is producing a series of social and economic distortions. It generates widespread feelings of insecurity that may undermine engagement. It encourages free-agent mentality among some employees, which is disruptive to managers seeking consistency and predictability, and at the same time creates a deep moral resentment among others. Further, it generates misunderstanding and mistrust, which undermine the collaboration vital to a healthy knowledge-based economy.

It seems likely that the continuing pressures for collaboration and engagement will increasingly conflict with the structures of capitalist markets. The decentralized mutualist form of organization, while often both democratic and productive, has been weakened by the pressures of globalization. As for more mainstream participation and collaboration, there are constant incentives to manipulate it or even destroy it in the service of short-term cost-cutting. The "star" model, which promises to reconcile entrepreneurship and coordination, has not demonstrated much economic value but has led to acceleration of inequality and undermining of broader collaboration.

Whatever route is taken, it is clear that work already looks very different from the model described by organization scholars in the 1940s and 50s, in which employees at all levels were expected to display – as Robert Merton (1940: 562) put it – "strong sentiments which entail devotion to one's duties, a keen sense of the limitations of one's authority and competence, and methodical performance of routine activities." And it is probable

that increasingly in the future the primary demands will involve innovation, independence, and an ability to work well with others in complex knowledge tasks.

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