NETWORKING SCHOLARS IN A NETWORKED ORGANIZATION

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ABSTRACT

Long-standing traditions of long-distance collaboration and networking make scholars a good test case for differentiating hype and reality in distributed, networked organizations. Our study of Canadian scholars in the GRAND research networks finds that they function more as connected individuals and less as members of a single bounded work group, often meeting their needs by tapping into diversified, loosely knit networks. Their internet use interpenetrates with in-person contact: the more they use one, the more they use the other. Despite digital networking, local proximity is important for collaboration and seniority for inter-team and interdisciplinary boundary spanning.

Keywords: Networked-work; networked-research; networked-organization; Canada; social-network-analysis

The world is becoming networked. Not only are computers, families, and friendships networked, but so are work and organizations (Rainie & Wellman, 2012).
To understand this, our NAVEl research team has been studying GRAND: a networked organization of scholars. GRAND consists of loosely coupled projects whose scholars work in multiple teams and juggle assignments. Moreover, GRAND’s geographically distributed teams use the internet, mobile media, planes, and cars to connect their offices, labs, homes, and public spaces. Although scholars are special kinds of workers, their work organization exemplifies a broad change from the long-standing industrial bureaucratic norm of employees embedded in focused work groups that fit into organizational trees.

The proliferation of networked, distributed work is being driven by the move of developed countries away from growing, mining, making and transporting things – atom work in the material economy – to selling, describing, and analyzing things via words and pictures – bit work in the digital economy (Florida, 2012; Negroponte, 1995). The internet revolution has allowed bit workers to use information and communication technologies to connect and collaborate through text, images, video, and audio. They can communicate and access shared information and databases at a distance – from publicly available libraries to secret organizational records. More recently, the mobile revolution has allowed some bit workers to be productive with their laptop computers, tablets, and smartphones while away from their desks. While the purchase of desktop computers has leveled off and that of wired-in landline phones has declined, the purchase of mobile media has soared, making it easier to push bits from many locations (Boyles & Rainie, 2012; Rainie & Wellman, 2012).

Despite widespread interest in networked organizations, there has been more speculation than evidence. Early discussions viewed networked organizations as the antithesis of traditional bureaucratic organizations. These discussions expected networked organizations to avoid the hierarchy, centralization and formalization that are key characteristics of bureaucracies. Empirical research, scarce as it is, reveals a more complex picture. Traditional bureaucratic properties co-exist with networked ones, with emergent communication structures overlaying old authority structures and functional divisions (Ahuja & Carley, 1999; Krebs, 2007; Shrum, Genuth, & Chompalov, 2007; Stephenson, 2008).

We provide some evidence here, based on our ongoing study of a large networked and distributed organization of scholars who are consummate bit workers. Long-standing traditions of long-distance collaboration and networking make scholars a leading-edge test case for differentiating hype and reality in distributed, networked organizations. Our research takes
advantage of publicly accessible performance and collaboration indicators, such as grants, presentations, papers, books, and the like. We also use survey and interview data that report less visible indicators, such as the scholars’ friendships and other forms of interaction.

THE PROLIFERATION OF SCHOLARLY NETWORKS

Scholarly life is often not as silent, lonely and contemplative as has been advertised (Lonely Scholar Salon, 2012). Effective scholars rarely talk only to themselves. They lecture, mentor, present papers, schmooze at conferences, gossip over coffee, blog, tweet, Facebook, and publish articles and books. If scholars have a message to get out, they must communicate and not leave their work moldering in their desk drawers and computers. Many also work together, be they social scientists studying networked organizations or computer scientists writing code. More commonly, scholars bounce ideas off of each other as they seek advice, information approval, position, fame, and fortune.

Scholarly communication has mostly been face-to-face ever since Eve told Adam about the value-added properties of apples. Socrates strolled the agora with his disciples, and Plato wanted to camp with his compatriots in a cave. Archival fragments document the correspondence of scholars in the Middle Ages. The 17th century European Enlightenment gave impetus to scholarly networks that were more widespread and formalized than the heretofore haphazard visits or correspondence of scholars. By the 1650s, there were clubs with hundreds of scholars meeting in dozens of cafes in London to discuss science, philosophy, and literature. Those who did not live in London or Oxford wrote letters or traveled to exchange ideas (Pears, 1997). These clubs gave scholars a supportive audience for their work and informed them about work being done elsewhere. Between 1660 and 1662, one network formally organized itself as the Royal Society of London, although in practice there were members throughout England. It was soon followed by the French Academy of Sciences, and somewhat later, the Royal Irish Academy. The earliest known work of interaction was published in 1665 (Beaver & Rosen, 1978; De Sola Price, 1961; De Sola Price & Beaver, 1966; LeRoy Ladurie, 1997; Marshall, 1990; White & McCann, 1988).

Early scholarly networks spanned many disciplines, as when the French Ency clopedists’ attempted to codify all knowledge (Diderot & d’Alembert,
It was only in the late 19th century that the Industrial revolution fostered a turn away from broadly based scholarly networks toward hierarchical rational-bureaucratic organizations built around specialized sub-disciplines.

Specialization and the proliferation of universities mean that scholars rarely have kindred spirits within their own universities. The growth and specialization of the academic world means that most people interested in a scholar’s work live elsewhere. Hence, scholars must rely on contact with colleagues elsewhere to keep aware of trends, define paradigms, promote resources, inculcate methods, and disseminate findings. Some of their networks develop in-group identities and purposes, coalescing into “invisible colleges” that are faster and more innovative than journals encumbered with refereeing protocols and printing lags (Crane, 1969, 1972; Cronin, 1982; De Sola Price, 1961; Gresham, 1994; Koku, Nazer, & Wellman, 2001; Mullins, 1972). As noted scholar Charles Tilly once put it, “only people outside of a specialty area rely on reading published papers to learn what is going on” (1968).

Yet, spatial proximity and intellectual affinity have been the main bases for scholarly organization. As recently as the 1970s, scholars communicated more with colleagues at their respective universities who were in other fields than they did with specialists in their own field at other universities (Friedkin, 1982; Carley & Wendt, 1991). In the old days — until the late 20th century — scholars used the post to exchange research drafts, waiting impatiently for replies. They generally avoided intrusive and expensive telephone calls that were unlikely to find the other party available. Occasionally, they spent time and money junketing to occasional conferences with likeminded souls.

The internet’s ability to span continents in a single bound has potentially minimized the constraints of time and distance, so much that Economist pundit Frances Cairncross proclaimed The Death of Distance in 1997, internet enthusiast William Mitchell proclaimed “the keyboard is my café” in 1995 (p. 7), and Lee Rainie and Barry Wellman announced “the new media is the new neighborhood” in 2012 (p. 13). Computer networks have become social networks. To communicate, scholars use email (with attachments), specialized listservs, blogs, tweets, forums, and wikis — plus the ability to write, calculate, and store files in the internet cloud rather than their own computers. In the 21st century, online storage in password-protected clouds — such as Dropbox — and openly accessible archives — arXiv is the largest and most famous — have become repositories for members of invisible colleges to post papers rapidly (Ginsparg, 2011).
Digital collaborative tools and communication technologies have fostered a continuing increase in the number of papers coauthored within and across disciplines and geographic areas (Hey & Trefethen, 2008; Olson et al., 2008; Shrum et al., 2007; Wagner & Leyesdorff, 2005). Yet, communicating across distance is problematic even when technology is ubiquitous. Using digital media instead of in-person contact can increase misunderstanding, slow down communication, decrease participants’ adaptation to other cultures, and hinder trust (Bos et al., 2008; Dimitrova, Koku, Wellman, & White, 2007; Olson & Olson, 2003).

Not all networks are spontaneous. Government and foundation funding have fostered large and complex research enterprises. Indeed, the research for this chapter comes from a network funded by the Canadian government. Such multi-organizational, multi-disciplinary, and multi-site projects often pool data, share expensive equipment, and link academic, corporate, and government concerns (Cummings & Kiesler, 2005; Galison & Hevly, 1992; Rhoten, 2003). Accomplishing large-scale, complex collaboration in these more formal networks entails organizational issues such as negotiating goals and priorities, providing administrative and technological support, protecting intellectual property, coordinating the different procedures of multiple institutions, internal competition for funding, and disparate levels of funding between disciplines. For example, the physical and health sciences are often better funded than the social sciences and humanities (Bos et al., 2008; Rhoten, 2003).

There are additional challenges when large research networks are multidisciplinary, as most universities and publishers continue to emphasize disciplinary boundaries (Dimitrova et al., 2007). Researchers from different disciplines lack the common culture, lore, understanding of issues, methodologies, and practices that disciplinary training and professional interaction foster (Cummings & Kiesler, 2005; Dimitrova & Koku, 2009; Olson et al., 2008). For example, social scientists write longer articles with fewer co-authors than physical scientists, and humanists are more apt to write single-authored books. Physical scientists rarely know the code of conduct for research involving human subjects that social and health scientists have internalized. The unique structural and cultural conditions in each discipline encourage collaborative behavior to a different degree (Birnholtz, 2005). When scientists collaborate with others from different sectors, organizations, communities, and countries, additional challenges may arise from different perspectives regarding what constitutes a research goal, realistic tasks, and task completion time frames (Sonnenwald, 2008).
The Navel Study: Implications for Networked Organizations

Our case study examines the GRAND scholarly network, part of the Canadian Network of Centres of Excellence (NCE) program to support multi-disciplinary and nation-wide research (http://grand-nce.ca/). In 2010, the Canadian government provided GRAND (Graphics, Animation, and New Media) with $25 million to support a five year program of developing and analyzing new digital media. GRAND created a loosely connected network of academics, government, and industry decision-makers and researchers, NGOs, and other stakeholders, only some of whom had previously known each other. The decisions of GRAND’s organizers about recruitment and network structure worked to have projects — the basic organizing units of GRAND — contain scholars from different disciplines and universities. To get funded, projects must be interdisciplinary and geographically dispersed.

GRAND researchers’ diverse disciplines, university affiliations, and locations enhance possibilities for boundary-spanning flows (Dimitrova et al., 2011, 2013). Two-thirds of the projects involve three or four disciplines, with disciplines ranging from Computer Science and Engineering to Art and Design, from Information Science and Journalism to Social Sciences and Humanities. GRAND researchers work in universities spread across seven provinces, from British Columbia on the west coast to Nova Scotia on the east coast. Half (52%) come from Natural Sciences and Engineering; most of the rest (45%) come from the Social Sciences, Humanities, and Art and Design, while a few (3%) come from Health Research. On average, project team members come from five universities located in three provinces.

Our “NAVEL” (Network Assessment and Validation of Effective Leadership) team comprises one of GRAND’s 34 projects. We gaze at networks of collaboration and communication among GRAND scholars, using data from our online survey and in-person interviews conducted in 2010. (A follow-up study is underway.) At the stage that we collected the data, GRAND comprised 143 academics: 56 (39%) of them were project leaders holding the title of Principal Network Investigators (PNIs), while 87 (61%) were Collaborating Network Investigators (CNIs). We focus in this chapter on the nature of scholarly relationships and network structure in GRAND (see also Dimitrova et al., 2013).
RELATIONSHIPS IN THE NETWORKED ORGANIZATION

1. **Knowing, Friendship, and Working With are the most numerous relationships** connecting the GRAND network. The weakest type of relationship, Knowing another GRAND member, is the most common. Members of professional communities such as GRAND often know many others because they meet at conferences, exchange graduate students, or collaborate on grant proposals. In addition to such common foci of interaction, GRAND members know each other because they were recruited in a snowball process that is common in research networks: the core group of researchers invited their long-term collaborators who, in turn, invited their own collaborators (Dimitrova & Koku, 2009; Dimitrova et al., 2007).

Friendship and Working With are the next most numerous relationships — and operationally more important. Working with someone is the official reason for the existence of GRAND, and in professional networks, friends and collaborators often coincide. Less numerous relationships are Gave Advice, Received Advice, Gave Networking Help, Received Networking Help, and Coauthoring. Note that we report here on GRAND at an early stage. We expect that as in other networks we have studied, working together and friendship will eventually lead to more collaborative advice, help, and coauthorship relationships. Indeed, Gave and Received Advice are already the most strongly correlated relationships with each other and with the other relationships (Dimitrova & Koku, 2009, 2010; Haythornthwaite & Wellman, 1998; White, Wellman, & Nazer, 2004).

2. **Projects and teams are the basic units of collaboration.** Not surprisingly, all types of relationships are more numerous within projects than across the entire GRAND network. Both work and propinquity come into play. The scholars know more collaborators in their projects, and project members often work nearby. Moreover, projects are more likely to have scholars linked by multiple relationships. For example, Friends exchange more Advice.

However, few projects are monolithic entities. Project members rarely work with everyone in a project. Rather, they usually work with teams of three to six: the projects themselves really are networks of teams. There is a limit to how much connectivity the researchers have, as scholars often organize their work to maximize independence and minimize coordination (for previous research, see Cummings & Kiesler, 2005; Haythornthwaite, 2003).
3. GRAND scholars mostly communicate with their colleagues via email: one-to-one, in small groups, and in larger lists. Although many of our students sneer at email as old fashioned, it provides many affordances: flexibility from one-to-one to one-to-many, easy forwarding, exchanging attachments of papers and data, documenting the communication, linking to websites, and above all the advantage of being available to diverse collaborators. Despite GRAND members’ digital savvy, they rarely use other media with their colleagues in the network, such as internet phones, mobile phones, or social networking sites.

4. In-person contact is almost as frequent as email. The high frequency of in-person communication is consistent with previous research suggesting that physical proximity increases the likelihood of communication. Furthermore, GRAND scholars report that in-person contact is the most effective way for diverse collaborators to brainstorm or hold complex discussions. Other studies report similar results (Bos et al., 2008; Dimitrova & Koku, 2010; Krackhardt, 1994; Olson & Olson, 2003). Moreover, some GRAND projects produce physical prototypes or other tangible artifacts, best dealt with when colleagues are in close proximity.

GRAND scholars do not inhabit separate online and offline worlds. The scholars they talk with online are the same they talk with in-person. This is consistent with previous research showing that scholars use multiple media to maintain strong scholarly relationships (Haythornthwaite & Wellman, 1998; Rainie & Wellman, 2012).

STRUCTURE IN THE NETWORKED ORGANIZATION

We wondered if the pattern of relationships in GRAND manifest the characteristics of the networked organization deliberately sought by its leaders though recruitment and design. Boundary spanning relationships across organizational, disciplinary, and geographical boundaries are the hallmark of such organizations, together with flat hierarchy and less formalization.

5. GRAND has attracted researchers who — in addition to pragmatic considerations of funding and career building — want the intellectual stimulation of diverse collaboration and the benefits of links with the right crowds. They report wanting to meet colleagues from other segments of their own disciplines and from other disciplines, discuss research questions, find new methods, connect with senior mentors, and build new paradigms (see also...
Higgins & Notria, 1999; Mo & Wellman, 2012; Reagans & Zuckerman, 2001). Just as projects connect people, people interconnect projects (Breiger, 1974). The researchers’ motives bode well for the collaboration in GRAND as previous research has found that both intrinsic and extrinsic motives encourage interaction, and that intellectual stimulation provides a stronger incentive for collaboration than economic rewards (Howley, Chaudhuri, Kumar, & Rosé, 2009; Rafaeli & Ariel, 2008). At the early stage of GRAND many members connected within their own disciplines and provinces. This is consistent with both other research emphasizing the difficulties of developing cross-disciplinary and dispersed ties (Bos et al., 2008; Cummings & Kielszer, 2005; Olson & Olson, 2003), and with Scott Feld’s “focus theory” (1981) contention that institutions such as universities and specialty areas particularly foster conditions for interaction.¹

6. Ties that span intellectual boundaries can aid in the creation and transfer of knowledge. GRAND researchers work both within and across disciplines. However, at this early stage, the number of cross-disciplinary ties in GRAND is low. Where such cross-disciplinary ties do exist, they tend to link functionally close disciplines such as Computer Science and Computer Engineering (for a similar finding, see Rhoten, 2003). Thus, there is little collaboration between Computer Science and Engineering, on the one hand, and Social Sciences and Humanities, on the other. More than 50 years after C.P. Snow (1959) pointed to the separate science and non-science cultures, the difference continues to appear in an avowedly interdisciplinary network that has thought hard about supporting boundary crossing.

Network analysis shows three patterns. Researchers in Computer Science and other high-tech fields work most actively with colleagues in their own disciplines. By contrast, researchers in the Social Sciences and Humanities are more apt to collaborate with colleagues outside of their disciplines. This may be a result of GRAND comprising a large number of computer scientists. Third, the design expertise of those in the Art and Technology discipline fosters bridging between their humanities approach and that of computer scientists.

7. More senior scholars link projects. PNIs — who are required to participate in at least three projects — connect projects more than CNIs who are usually more junior. Participation in multiple projects expands the PNIs’ networks, increases their centrality, places them in bridging positions, and leads to communication advantages (Collins-Dogrul, 2012). Because such higher-level GRAND members bridge inter-group communication across projects, they are able to contact other project members in shorter times and at lower costs.
Thus, the design of GRAND, intended to foster ties across projects and permeability across organizational boundaries, contributes to the hierarchical differences in communication. Although the network was designed with few formal hierarchical differences, hierarchy still matters for communication patterns. In GRAND, relatively flat authority structures coexist with hierarchical communication structures where the more central scholars have consistent advantages in their communication. Paradoxically, fostering one aspect of the non-traditional networked organizations — cross-organizational flows — is associated with fostering another aspect of traditional bureaucratic organizations — hierarchy. Such a pattern may mean a trade-off in the structural characteristics of the networked organizations where cross-boundary flows strengthen hierarchical communication.

Although early discussions about networked organizations had expected them to be non-hierarchical (Sproull & Kiesler, 1986) and decentralized (Baker, 1992), our findings are consistent with research showing hierarchy in them. Ahuja and Carley (1999) have shown that networked organizations can exhibit considerable hierarchical and centralization tendencies in their communication structures. Krackhardt and Brass (1994) suggest that the most efficient way for a leader to quickly access information and resources is to establish ties with at least one person in each subgroup. Hierarchy and formalization can aid large collaborative networks by providing clear, centralized lines of authority, communication, and resource allocation (Rhoten, 2003; Shrum et al., 2007).

8. **Collaboration with near-by scholars continues to be the norm.** An advertisement for an executive MBA asserts: “Distributed teams are the new normal — and whether members are located down the hall or in a different time zone, the challenge remains the same for leaders and managers” (Randall Anthony Communication, 2012). Although GRAND has worked to become a distributed network, at the time of our study, the scholars mostly work with others in the same metropolitan areas and universities, and they tell us that they prefer to work with such nearby folks. At the same time, they value the networks they have with other GRAND researchers across the vast expanse of Canada, flying as far as 4,400 kilometers from Halifax to Vancouver to meet collaborators in-person. Ties extending outward to other metropolitan areas may increase as the network matures.

Yet, the predominantly local pattern may not be the sign of undeveloped cross-boundary flows but an integral part of the ways in which networked organizations function, preferring the broader and easier band of in-person contact. Work and communication in GRAND are consistent with gloCalization (Wellman & Hampton, 1999). Although networked
employees work both locally and globally, they predominantly work locally, just as Quan-Haase and Wellman (2004) found in an earlier study of digital media users.

**NETWORKED WORK IN THE NETWORKED OPERATING SYSTEM**

Our research shows that reality is more complex than the early deductive expectations for networked organizations. The study of GRAND reveals a networked organization in which opposing characteristics co-exist: to some extent it exhibits the cross-boundary flows, relatively flat authority structure, and distant ties expected in a post-bureaucratic networked organization model. Yet, it also exhibits the communication hierarchy, within-discipline ties, and spatial concentration of traditional bureaucratic organizations. Such a mix of opposing characteristics may be due to the early stage of GRAND we studied. However, other studies have found similar mixed patterns in established organizations, suggesting that opposing characteristics may be an integral part of the way networked organizations function. Comparing networked organizations with traditional bureaucracies is a helpful first step in their understanding yet it forces networked organizations into a familiar dichotomy of bureaucracy—post-bureaucracy and precludes the development of a multi-dimensional model. The development of such a model can be grounded in the richer theoretical framework of networked individualism.

The GRAND networked organization exhibits many characteristics of the new social network operating system we call **networked individualism**. The advent of personal computers, mobile phones, and communication networks has changed many workers’ relationships with each other and their relationships to information. It is the synergistic coming together of a **triple revolution** (Rainie & Wellman, 2012).

- The **social network revolution** has provided the opportunities — and stresses — for organizations and workers to reach beyond the world of tight groups.
- The **internet revolution** gives organizations and workers communication power and information-gathering capacities that dwarf those of the past. In many cases, it has also changed the point of contact from the workgroup to the individual worker.
• The *mobile revolution* allows organizations and workers to access colleagues and information at will, and at any location. In return, colleagues and information are always accessible.

Key elements of the social network operating system are:

1. *Workers function more as connected individuals and less as members of a single bounded work group.* Digital media have played a special role in networking GRAND. The *person* — the GRAND scholar — has become the unit of connectivity, moving among multiple projects and teams. Like other networked workers, the scholars’ social networks are in flux, as teams change in membership and character. Such changes mean that developing work relationships or networks is an ongoing process characterized by continuous efforts. GRAND researchers often recruit new collaborators to stabilize and improve their position in the network and look for opportunities to communicate with existing collaborators. Researchers with the capacity to seek out others, negotiate, and renegotiate relationships have the potential to access additional resources and reduce their personal and professional uncertainties. This entails knowing the possibilities and limits of one’s networks and being able to augment them as necessary. In GRAND, networking skills are correlated with formal position: PNIs are central because of their greater seniority in their fields and higher positions in GRAND.

The main consequence of this shift to networked individualism is that while workers’ options increase, their safety net decreases. They are more on their own in ways that can be both liberating and taxing. In the world of networked individuals, organizations have limited capacity to hinder a person’s ambitions, productivity, or activities. At the same time, organizations have limited capacity to act as buffers or safety nets. Networked individuals both *can* maneuver more and *need* to maneuver more.

2. *Networked individuals often meet their needs by tapping into diversified, loosely knit networks of many associates or creating such networks from scratch, rather than relying on tight connections to a relatively small number of core associates.* GRAND requirements for working across project and university boundaries multiply the connections of GRAND scholars to various subgroups. The scholars often have partial membership in multiple networks and rely less on permanent memberships in settled groups. As bit workers, they are able to sustain more long-distance relationships than in the past, although proximity and in-person contact still matter. All this
means that they need to work hard to manage their networks and the needs of their work lives. Looser and more diverse social networks require more choreography and exertion to manage.

3. Digital media permit networked workers to maintain larger, more specialized, and more diversified networks. We have often encountered assertions that technology creates social isolation as people communicate via digital media such as email and mobile devices rather than via richer in-person encounters (e.g., Turkle, 2011). They are just the most recent version of continuing assertions that technology will destroy community at home, the neighborhood, and the workplace (reviewed in Rainie & Wellman, 2012).

We find a different story. Digital media are integral parts of the new workplace, building on, enhancing, and extending in-person project meetings and encounters. Digital media help GRAND researchers manage larger, more specialized, and more diversified sets of relationships. The preponderance of email communication among GRAND members and their search for new collaborative tools confirm the importance of new communication tools in their work. The strong correlation between email and in-person communication among GRAND scholars further suggests that these are not mutually exclusive media. Instead, the scholars use both digital media and in-person contact to connect with collaborators.

Evidence from multiple studies supports our finding. Rather than digital media luring people away from in-person contact, larger networks make more use of digital media, overall and per capita (Boase & Wellman, 2006; Rainie & Wellman, 2012; Wellman, Garofalo, & Garofalo, 2009; Wang & Wellman, 2010).

4. Networked individuals often work in teams or peer-to-peer relationships that are less bound up in boss/subordinate hierarchical relationships. The multiple involvements of GRAND scholars that cross team, project, disciplinary, and organizational boundaries both expands their purview and increases coordination stresses. Their organizational lives are more horizontal and less vertical. Yet, hierarchy persists. Those in higher positions retain centrality, broader knowledge, decision making, and privileged access to resources.

GRAND scholars reflect the situation of networked workers who frequently operate in multiple teams rather than working with the same colleagues every day. Many of the most networked workers have jobs built around creative effort rather than manufacturing or standardized paper pushing. This pushes more autonomy and authority onto individual workers. Sometimes this happens within organizations, with people shifting their
work relationships throughout the week. They rely on digital media to
obtain and share information and complete tasks. For example, a Pew
Internet study found that two-fifths (41%) of American workers belong to
multiple teams (Madden & Jones, 2008). A study of Intel’s knowledge
workers found three-fifths (61%) working in three or more teams, often
connecting from home, on the road, and across large distances (Chudoba,
Wynn, Lu, & Watson-Manheim, 2005; Lu, Watson-Manheim, Chudoba, &
Wynn, 2006).

5. Digital media have made it easier for geographically distributed bit
workers to work physically apart. Organizational analyst Noshir Contractor
observes: “We still have sparse socio-technical knowledge of how potential
globally distributed teams and systems of teams are assembled” (2012,
p. 2). The GRAND study provides some evidence of interplay between
local and global work. Physical proximity predominates. Yet, digital media
provides the scholars with enhanced global connectivity with kindred col-
leagues, including increased visibility, access to specialized GRAND
experts, and contact with prestigious senior faculty. Yet, it is the scholars’
in-person encounters as collaborators and conference-goers that create and
maintain their online contacts.

6. Digital media are transforming the work/home balance. Many
GRAND members work both at their universities and at home. They either
substitute time at their universities with time at home or extend their work
days by bringing work home for nights or weekends. For example, we
wrote this chapter at our homes, but did proofreading and citation check-
ing at our NetLab office.

This is a common pattern for bit-workers, who are able to connect to all
but the most secure files from work, home, or on the road (Noonan &
Glass, 2012). While management experts once thought that much bit-work
would move permanently to internet-equipped homes (Gordon, 1987), in
reality, home and office works are usually complementary. The interpene-
tration goes in both directions. In one direction, workers bring work home
from the office to finish off jobs or they may even stay home full or part-
time. For some, the new media tethers them to their jobs: they can’t just
leave work behind when they head out the office door. Many feel that time
pressures and frequent requests mean they need to complete tasks when
they are away from their work places. Others, like many GRAND scholars,
want to do more than they can accomplish at the workplace, and they
extend their hours at often more salubrious home environments (Shrum
et al., 2007). At the same time, home extends into the workplace: it is easy
in many organizations for people to surf the web at work or to use their
phones and the internet to communicate with family and friends (Kennedy, Wellman, & Amoroso, 2011).

In conclusion, we have argued, and to some extent shown, that studying the GRAND network provides real-world insight into the nature of distributed networked organizations (see also Dimitrova et al., 2013). We believe that such organizations are part of the turn to networked individualism where loosely bounded, sparsely knit, fragmentary networks have supplanted tightly organized groups. We have shown that the internet and mobile communication aid this networked operating system, but only in conjunction with physically proximate in-person contact (Rainie & Wellman, 2012).

To be sure, the world is not one of pure networked individualism—not even for North Americans. Some people continue to live group-centered lives, bounded by their workmates, kin, or neighborhood. Yet, the evidence suggests that the shift to networked individualism is widespread and is changing the rules of the game for social, economic, and personal success. Networked workers need all kinds of support because they live in a new environment that affects their capacities to deal with one another and with information. It is an environment that encourages people to rely more on their social networks to find and assess the most important information and provide key kinds of social support. It is based on a digital media ecosystem where the volume and velocity of information and communication are growing dramatically: the places where people can encounter others and information are proliferating; people’s ability to search for and find information is greater than ever; their tools to customize and filter information are more powerful; their ability to reach out to each other is unprecedented; and the ability to create and share information is in many more hands. The costs are real: for instance, too much interpersonal connectivity can be burdensome and can aid unwanted government and institutional surveillance (Lyon, 2007). Yet, the benefits for a flexible social organization—and life—are palpable (Rainie & Wellman, 2012; Rainie, Wellman, Beermann, & Hayat, 2012). It is the continuing tension between freedom and flexibility on the one hand and structure and control on the other.

NOTE

1. We maintain the social network analytic distinction here between single-role relationships, such as Giving Advice, and ties connecting people by one or more role relationships.
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