LEADERSHIP

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> It is very true that I have said that I considered Napoleon's presence in the field equal to forty thousand men in the balance. —Duke of Wellington

> One bad general does better than two good ones. —Napoleon

Introduction

During the early nineteenth century, Wellington's and Napoleon's[1] observations made sense. With the onset of battle, communications became muddled, artillery was immobilized, and a commander's ability to control his forces was limited. Consequently, the leadership of a single general could prove decisive in battle by maintaining clarity of command and control.

We are now at a totally different stage of warfare. This not to say that the fog of war has completely lifted, but visibility and synchronized actions, and the speed, precision, and lethality of response is beyond comparison to anything that has preceded it. The battlefield success of the doctrine and technology of Network Centric Warfare was not based upon a single brilliant plan, or a single individual or group, but rather was a property of the network, both technologically and organizationally. As Operation Iraqi Freedom so vividly illustrated,[2] battle plans can now be changed very rapidly, affecting all aspects of operations—strategy, tactics, logistics and PSYOPs, operations, kinetics, and all types of forces. The competencies that make NCW a success are network properties; they are no longer solely the province of charismatic leaders or chance, but the result of diverse competencies and a new understanding of the role and growth of network leadership, and how it is learned and rewarded.

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[1] Roberts, Andrew. *Napoleon and Wellington: Battle of Waterloo and the Great Commanders Who Fought It*. New York, NY: Simon and Schuster. 2001.
[2] Hoagland, Jim. "The Franks Strategy: Fast and Flexible." *The Washington Post*. Washington, D.C. Apr 1, 2003. p. A-15.

Early leadership

Leadership among Greek warriors was based upon "a first among equals" principle. Such leadership was a product of a culture of equality and mutual accountability. In a very tangible sense, cultures are networks of social relationships. Military cultures, especially in battlefield situations, have highly articulated roles and codes of conduct and mutual accountability. Although an individual may gain prominence and status apart from a group, it is often not the result of individual achievement, but how the individual exemplifies certain traits that represent the best traits of that group, such as sacrifice, decisiveness, courage, initiative, and prowess. In fact, to attribute successes to the individual that derive from the group undermines a core principle of true leadership: the group comes before the individual. In the following stanzas taken from Alfred Lord Tennyson's ode to Wellington, many of the qualities that continue to make leaders great are captured:

> …Mourn for the man of amplest influence,
> Yet clearest of ambitious crime,
> *Our greatest yet with least pretence,*
> Great in council and great in war,
> Foremost captain of his time,
> *Rich in saving common-sense,*
> And, as the greatest only are,
> In his *simplicity sublime*…
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> *…Who never sold the truth to serve the hour,*
> Nor palter'd with Eternal God for power;
> Who let the turbid streams of rumor flow
> Thro' either babbling world of high and low;
> Whose life was work, whose language rife
> *With rugged maxims hewn from life;*
> Who never spoke against a foe;
> Whose eighty winters freeze with one rebuke
> All great self-seekers trampling on the right.
> *Truth-teller was our England's Alfred named;*
> Truth-lover was our English Duke;
> Whatever record leap to light
> He never shall be shamed…[emphasis added][3]

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[3] Tennyson, Alfred Lord. "Ode on the Death of the Duke of Wellington." November 18, 1852.

By embodying the best qualities of a group, a military leader does not try to elevate himself above his peers, but brings honor and distinction to them, be they his company, brigade, division, or Service. These qualities of "simplicity sublime" and "truth-teller" are parts of the best of military culture. They are hard to transfer from the field of battle into bureaucratic and administrative assignments, where often different kinds of codes of conduct are rewarded. As noted earlier, small networks of 150-200 individuals can still be coordinated by face-to-face relationships and personal codes of honor and accountability. At such a scale, combat relationships are more transparent and accountable, and hence, not so easily "gamed" and "politicized" as in hierarchical, formal organizations. It is not surprising that many who succeed on the battlefield fail to adjust to the rules of a bureaucratic organization, whose codes of success are often at variance with those of the battlefield group. In bureaucratic organizations, successful leadership can entail the subordination of the interests of the group to the promotion of the individual, as visibility to outside parties is associated with an individual leader who is *personally* credited with a certain policy or success. Under such circumstances, the leader in bureaucratic groups becomes a marker, a kind of shorthand, for the success or failure of an issue, policy, or campaign—not the exemplar of the group. This kind of leadership can entail taking much of the credit and little of the blame, thereby undermining the very principles of transparency and accountability upon which effective peer networks depend.

The systemic failure of corporate leadership and governance in the United States over the last 10 years can be partly attributed to a bureaucratic culture wherein a company's success was almost totally attributed to the skills of the CEO and senior management. This was reflected in senior executive compensation packages that ballooned to 301 times the average worker's pay package.[4] Yet when the downturn came, and even widespread fraudulent practices were revealed, very few corporate leaders were held accountable, and shareholders and employees assumed the bulk of the losses. These failures were neither personality- nor individually-based, but were systemic in terms of how leaders were selected, cultivated, rewarded, and held accountable. The systemic subversion of

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[4] See: Business Week's 54th Annual CEO compensation review. 2004.
Also see: Beer, Michael and Nancy Katz. *Do Incentives Work? The Perceptions of Executives from Thirty Countries*. Cambridge, MA: Harvard Business School. 2003.

governance leadership roles needed to achieve independence, truth telling, and transparency has been its own kind of perverse "network effect."

This chapter's treatment of leadership is not founded upon any "great man" leadership model. This is not to say that individual qualities are not important, but rather that sustainable and replicable qualities of leadership are treated here as a network property, made possible by the combination of the character of the social network and the individuals themselves. Moreover, it will be argued that there are several different types of leadership roles and the relative importance and combination of these roles depends upon the circumstances and structure of the organizational networks involved.

Types of network leadership roles

There are at least eight different kinds of leadership roles in a networked organization. Each of these can be associated with specific network *signatures* consisting of patterns of links and nodes and the social rules governing their interactions. For example, some network leaders, such as visionaries, primarily generate new information and typically do not directly request others to perform tasks for them. They generally work in conjunction with connector and facilitator leaders who help them get their information out. Connectors, unlike visionaries, may have many symmetric dyadic interactions and act as gateways for a variety of sub-networks, whereas truth-teller leaders may only interact weakly with other members, having strong ties with a relatively small number of peers.

The eight principal network roles are discussed below. Many of these roles can coexist in the same person. However, as networks grow in scale and complexity, these roles often become highly differentiated and expressed as Searle's *institutional* facts.[5]

The Exemplar or "Alpha Member"

 Most peer networks, whether they are military, technological, recreational, adolescent, criminal, terrorist, artistic, professional, or athletic, are founded by individuals who exemplify the standards and

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[5] Searle, John. *Mind, Language, and Society*. New York, NY: Basic Books. 1998.

qualities that characterize the best competencies of the peer network. These are the role models that others imitate. Sometimes their role can be simply symbolic, even ceremonial, but they are nonetheless important in setting the tone and culture of the organization. Successful and charismatic founders of new organizations, from Bill Gates, Steve Jobs, and Sam Walton to Osama Bin Laden and Aum Shinrikyo, all embody values and personalities that become the values of their organization. These leaders also exemplify the assessment criteria and set the standards for becoming a member of a network. In the military, each Service has its own types of exemplars: pilots and Seals for the Navy; Green Berets, and Rangers for the Army; and fighter pilots for the Air Force. These exemplars embody what is considered the most difficult and admired professional qualities that set that Service apart.

The Gatekeeper

 For every network there are membership rules—criteria for being included, retained, elevated, and excluded. The gatekeeper decides who is in and who is out. In Congressional politics, the party leadership plays this role by deciding who gets what committee assignments and whose bills take precedence in a legislative agenda. This is a role that President Johnson as the former majority leader of the Senate understood brilliantly, while President Carter—an outsider, visionary, truth-teller, and moralist—never fully appreciated. In many military organizations, the drill sergeant often plays multiple leadership roles, acting as exemplars, enforcers, and gatekeepers. He weeds out recruits whom he believes fail to meet the standards of his unit. The gatekeeper role is especially important for elite units that seek to achieve a high degree of exclusivity based upon exceptional standards of excellence. Like the doorman to exclusive clubs, the gatekeeper role is a combination of truth-teller, applying the standard for admittance, and enforcer, denying admittance to those parties that fail the test.

The Visionary

The role of the visionary leader is to imagine futures, determine what is limiting about the present, and show what is possible in the future. Visionary leaders such as Steve Jobs, Winston Churchill, Walt Disney, Craig Venter, Billy Mitchell, and Thomas Edison are a constant fount of new ideas and are "at war with the present." Many high technology startups have been founded by visionaries, but eventually end up being run by operatives or fixers. The visionary leader imagines new possibilities, creating new institutional facts and realities, and therefore plays a critical role in moving networked organizations in new directions. This is an absolutely critical role in the start-up or crisis phase of an organization. However, it can also be disruptive in circumstances where continuity and execution are critical to success.

Visionaries play a vital and sometimes contentious role within the military. They are often the first to see weaknesses in prevalent military doctrine, to espouse new technologies and doctrines, and therefore, to challenge current leadership and entrenched interests. Consequently, unless they are able to prove themselves within wartime, their ideas can languish for decades. Rare are the individuals such as Lord Nelson or Napoleon, who were both visionaries and the senior commanders. In the case of Billy Mitchell (who championed the use of airpower), Col. John Boyd (the father of the OODA loop), or even Winston Churchill, it was only later in their careers that their innovations were appreciated. However, as the nature of warfare today is in constant transition with respect both to doctrine and new technologies, the visionary will have increased influence.

The visionary role is best coevolved with that of the truth-teller.

The Truth-Teller

In every network organization, someone has to keep the network honest. This entails the very challenging task of identifying free riders and cheaters. In knowledge-based organizations, it is also about ferreting out half-truths, spin, blunders, and lies. Such a leadership role can become

easily compromised. Like the accounting function in a corporation or the judicial function in the legal system, truth-tellers can lose their independence, and hence effectiveness. Since these are often the first roles to go in times of stress, successful leadership is exemplified here by independence, transparency, accuracy, and candor in the face of enormous pressure. As Tennyson's ode to Wellington[6] eloquently and astutely expresses, truth telling and resistance to the lure of fame go hand in hand and are a critical and enduring signature of effective leadership. One of the arguments for modesty in leadership is that the lure of celebrity and its attendant rewards can compromise independence and hence, credibility. Therefore, if a leader is to be an effective truth-teller, he or she must also be credible, and even the hint of self-dealing can undermine his effectiveness.

The challenges are especially acute and consequential within military organizations. If credibility breaks down, trust soon becomes the next casualty, and then the overall effectiveness of the chain of command. The admonition "Don't shoot the messenger" is taken from military experience and reflects the high potential cost of reporting unwanted information. In response to such pressures, the military developed the doctrine of "ground truth" after the Vietnam War. The truth telling goal is to provide authenticated and accurate reporting of the outcomes of missions. It can take enormous courage to resist the inevitable pressures of peers and superiors to report what they want to be known, rather then the truth of the matter. Being a truth-teller can be highly unpopular and a long road to advancement.

Even highly established and previously unchallenged military institutions can come under enormous pressure for truth telling. The armed forces newspaper, *Stars and Stripes*, undertook its own "ground truth investigation" into morale in Iraq in 2003 and was widely censured by some members of Congress and threatened with a reduced budget for its reporting.[7] Similarly, the success and credibility of the inquiry into the alleged tortures within Abu Ghraib and elsewhere within Iraq and Afghanistan will depend upon individuals assuming very strong truth-teller leadership roles.

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[6] Tennyson, Alfred Lord. "Ode on the Death of the Duke of Wellington." November 18, 1852.
[7] See: Stars and Stripes website: www.stripes.com and "Finding a Balance at Stars and Stripes." NPR, 3-10-04.

The Fixer

This is an individual who knows how to get things done and measures him or herself not just by how many people they might know, but rather how they can get things done that others cannot. Such individuals are results oriented. They "know where the bodies are buried" and what "makes people tick." In politics, they are the operatives, the Mr. Fix-its. They are all about opening and closing loops—getting tasks done. In Tennyson's words, they abide by the "rugged maxims hewn from life." They are without illusions and are inherently pragmatic. They may interact with a range of other network leaders—visionaries, truth-tellers, and connectors—but always with a concrete outcome in mind.

Within the military there is the archetype of the "scrounger," an individual who is highly skilled at finding and assembling "found" materials, people, and resources to solve a variety of human and mission needs, from chocolate and silk stockings during WWII, to scrap iron as armor platting for Humvees in Iraq. Fixers are gifted improvisers, what the French call "bricolagers," who take common available materials and repurpose them into something useful. In contrast to those who work through formal channels and depend upon approved procedures, fixers typically are "rule benders" and work through informal networks. Within the British Army during the late Victorian period, the Quartermaster was famous for the orderly but creative acquisition of supplies under the most trying and unpredictable of circumstances.

The Connector

These network leaders participate in multiple social networks, connecting not only with a large number of members, but a highly diverse number of members as well. They are known for having numerous friends, connections, and contacts—for being consummate networkers. Like the visionary leaders, they can introduce variety and options into a network through the diversity of people with whom they interact. They are critical for identifying and accessing new resources and helping to get a message out. By building

links across network boundaries, they can help a networked organization break out of the "lock ins" of scale-free networks and introduce greater diversity, and hence robustness.

During WWII, General Eisenhower as the Supreme Allied Commander developed a reputation as a highly accomplished connector leader by virtue of his ability to relate to the different interests and cultural styles of the allied commanders. He was able to make and sustain connections among contending parties in order to keep the alliance together and on course. He was also able to exercise significant control over those whose primary allegiances were to different military organizations.

The Enforcer

In smaller networks, this role is often combined with that of the gatekeeper and even the truth-teller. However, in larger networks it is an independent role. Enforcement can mean physical coercion, but more often entails psychological or peer pressure. Like the truth-teller function, independence and transparency are critical for overall network effectiveness. Clearly, force and military means are the enforcement methods of last resort, but are necessary in order to buttress other forms of enforcement, which can vary from guilt and shame to legal redress. Most networks have their own forms of redress and enforcement that entail exclusion. The power of ostracism in Greek city-states, for example, was extremely effective because it not only removed an individual's right of protection but destroyed their social identity as well.

An exceptional example of a senior commander acting to enforce discipline across all levels of command was the Duke of Wellington's order during the Peninsular Campaign in 1807. Wellington issued an order that any breach in military discipline towards the treatment of the Spanish civilians and military would result in an immediate flogging and hanging. According to historian Paul Kennedy, this order was enforced with impartiality and force and was instrumental to Wellington's success.[8]

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[8] Presentation of Paul Kennedy at Yale University CEO Summit. May, 2004.

The Facilitator

In order for a network to grow and evolve, it must be able to add new members and reach across network boundaries in order to do so. The facilitator role is pivotal in creating communities or sub-networks that provide the greatest form of network value. By assuming a leadership role in helping others, facilitators create value that benefits an entire network or community, whereas a connector, while playing a similar value creation role, appropriates value to himself and only indirectly benefits the overall group. The role of facilitator in many respects resembles that of the "community coordinator" in the development of communities of practice, a method developed for helping to create and leverage knowledge.[9]

Within the military, this role is filled primarily as a staff function to a commander, and therefore may not appear to have the caché of the connector or visionary leadership roles. However, in networked organizational structures where decisionmaking is be more distributed and less hierarchical, this leadership role is vital to coordinating and enabling other actors and decisionmakers. In the case of networked organization, the facilitator role and the associated skills of enabling cooperation and self-organization will play a more critical role than within current hierarchical organizations. When self-synchronization depends upon peer-based cooperation, the facilitator role is a prerequisite for effective operations.

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[9] Wenger, Etienne, Richard McDermott, and William M. Snyder. *Cultivating Communities of Practice*. Cambridge, MA: Harvard Business School Press. 2002.
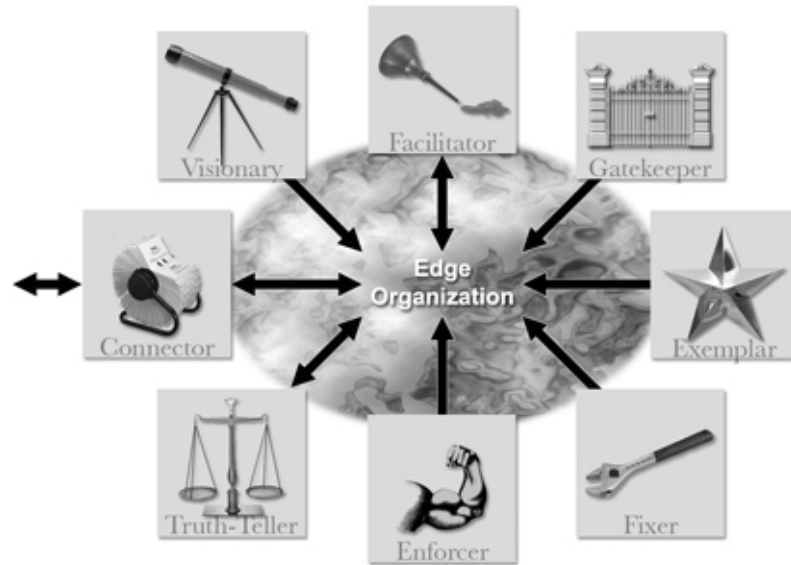
**Figure 4. The Flow of Knowledge and Skills between Leaders
and the Edge Organization**

Network structures and leadership roles

Social networks self-organize to acquire and allocate resources such as information,
goods, favors, access, privileges, and protection. As discussed earlier, the specialization
of roles in social networks has been demonstrated to have strong long-term survival
value, and therefore has been biologically encoded through evolutionary forces as innate
psychological or personality traits. These traits are reflected in how people read social
cues, detect cheaters, create and share ideas, and form affinities with strangers.

In addition to having innate social exchange competencies, some alpha or exemplar
individuals are especially proficient at a skill or exhibit a prized trait that warrants
widespread emulation and imitation. Typically, alpha individuals have a special physical
prowess, physical attraction, intelligence, social proficiency, or some combination of
these traits. When one considers Cosmides and Tooby's findings[10] on innate social
exchange algorithms and Damasio's analysis of the neuro-physiology of social emotions
combined with Dunbar's studies on the role of grooming and language in social groups, a
compelling argument can be made that these different roles are an evolutionary stable

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[10] Cosmides, Leda and John Tooby. "Cognitive Adaptations for Social Exchange." *The Adapted Mind–
Evolutionary Psychology and the Generation of Culture*. New York, NY: Oxford University Press. 1992.

strategy that makes possible the efficient functioning of any self-organizing social network. Few of these network roles have any intrinsic individual value. However, when combined with other roles, they enable the organization and functioning of complex networks of exchange relationships. Leadership in this context can be regarded as a proficiency in any one or combination of these network roles. In this sense, some individuals may have greater innate talents than others, but the effectiveness of these gifts is dependent upon the overall qualities of the network and the roles of other members of the network.

Network leadership roles assume different levels of importance depending upon the phase of evolution of a networked organization. This fact is often not fully appreciated in the business leadership literature where visionary leaders are periodically revered and reviled depending upon the ebb and flow of their company's earnings. The value of such leadership roles might be more fruitfully understood by attempting to determine the conditions under which a visionary role is adaptive and when it is not, thereby recognizing that it is one of many combinations of leadership roles that is required. Likewise, the absence of certain critical leadership roles, such as truth telling, can contribute to the failure of corporate governance or the excesses of overly zealous visionaries. A further example of the importance of different kinds of network leadership roles can be found in the failure of large organizations to manage relationships across functional and organizational boundaries. Here the high "agency costs" of coordinating across organizational or functional boundaries is largely due to the absence of leaders who are connectors and who know how to interact and affiliate with third parties to build trust. These are what Burton identifies as the *tertiaries*,[11] the brokers between organizational networks.[12] In each of these examples, there are leadership roles whose value and appropriateness depend upon the state of the network. The effective governance of a networked organization should therefore involve knowing the status of the organizational network, being able to assess the strengths and weaknesses of different roles, and then allocating the appropriate leadership assets to improve the overall

[11] Burt, *Structural Holes*.
[12] Baker, Wayne. *Achieving Success through Social Capital*. Ann Arbor, MI: University of Michigan Business School. 2000.

performance of the network. This is something that Louis Gerstner understood when he first took the job of CEO at IBM. Initially, he was criticized for being insufficiently visionary, to which he responded that the company had become too enamored of its own vision and detached from reality. What was needed, he contended, was a good dose of truth telling, an operational overhaul, and then a new vision. These were different leadership roles that he seemed to switch in and out of comfortably and effectively.[13]

Joint leadership and meta-leadership

Just as there are different leadership roles *within* social networks, there are also meta-leadership roles that cut *across* networked organizations. When it comes to leading across different organizations, such as coalition partners, partnerships, alliances, joint command, or multi-agency missions, a new set of meta-leadership roles comes into play. These roles are different from those in a hierarchical organization where subordinates are required to execute orders or follow management directives and are held accountable for doing so. In joint command efforts, on the other hand, collaboration is peer-based, consensual, and mutual. There are no prior histories for building reciprocity, trust, or transparency. Therefore these have to be created anew over time. Moreover, as the leadership role is more one of governance than of command, the issue becomes how to cooperatively develop metrics and protocols that respect the integrity of each of the respective organizations.

That being said, creating new meta-networks is much the same as creating any peer networked organization, except that the units are significantly larger and each has its own distinctive culture. Accordingly, certain leadership roles have to be established for all participants—specifically, what behaviors or traits best exemplify the qualities and standard being sought of the meta-network. Since leadership in joint efforts typically rotates over time, exemplar leadership roles should be filled by those who have qualities that are not closely identified with any one particular organization or Service. Rather, an effort should be made to give this networked organization its own independent identity. An early visionary can act as the exemplar member and personify the desired qualities,

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[13] Gerstner, Louis. *Who Says Elephants Can't Dance*. New York, NY: HarperCollins. 2002.

thereby setting a precedent for others to follow. However, there should be an effort to identify other network leadership roles and the associated metrics and protocols that the different representatives of the joint organizations would undertake.

This networked approach to joint leadership differs significantly from the traditional, hierarchical Napoleonic staff codes wherein a small number of fixed staff personnel with limited specialization perform most of the joint leadership support functions. The networked approach more closely resembles former Marine General Anthony Zinni's proposal for a Modular Commander Center, which stresses specialization and flexibility.[14] As a former CENTCOM commander, General Zinni recognized that commanders had variable missions requiring combinations of different functions, resources, and partners. In effect, the command structure had to be agile enough to adapt to the different circumstances of the mission from unilateral humanitarian missions to coalition-based major combat. The combinations of skills for each differed significantly and therefore would entail specialized social network protocols and combinations of different network leadership roles and skills. Under such conditions where it is difficult for one coalition partner to exert authority over another, as many of the organizations are sovereign and independent, the only form of effective control is the selective exclusion of partners or the minimization of their role. The qualities of the connector and the facilitator network leadership roles are especially important at this senior level and have their own specialized "social protocols" and skills for setting and coordinating joint missions.

Leadership and scope of control

In hierarchical and bureaucratic organizations, leadership is often confused with scope of control and authority—power. In such organizations, leaders are given the latitude, even the expectation, to exercise significant control at all levels of the organization. This is often expressed in budgetary terms: the willingness and the ability to control, cut, or redirect a subordinate's budget. The power of a superior is virtually absolute in such organizations as they have the authority to project control all the way down the

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[14] See: Alberts and Hayes, *Power to the Edge*. p. 156

organization. There are no autonomous layers, and in this sense, decision rights are not protected but revocable and alienable. Usurping local control and autonomy through top-down budgetary restrictions can undermine the efficacy and self-organizing capabilities of an organization and thereby prevent it from effectively learning and adapting. The integrity of local rules and allocation protocols have to be maintained, and while there can be a decrement in the gross resources available to a subordinate or sub-network, these resources should not be explicitly earmarked or constrained, as such interventions will prevent the network from being self-organizing. This is the same type of issue as the requirement for tactical autonomy in a command system, where the supra-ordinate strategic layer determines the objectives and the assets to be allocated, but the subordinate commander has the authority and the responsibility to make the tactical decisions.

In a networked organizational model where there are also independent layers of self-organization and different types of protocols for interaction, the transecting of layers by a supra-ordinate to a subordinate, in effect, micromanaging and second-guessing, is dangerous for the well-being of the network. It transforms a collective, networked asset into an episodic individualized asset, thereby undermining trust and accountability. This may happen out of frustration by a senior manager wanting to get things done and going outside official channels. However, in every case it undermines the collective capability of a networked organization to self-organize.[15] For this reason, it is very important to move away from the individualized model of leadership and authority and to develop governance mechanisms that build up the overall ongoing assets of the networked organization. Network leadership roles that are held accountable to the interests of the whole will yield far more efficient, effective, and accountable organizational structures than those that are governed through sporadic and episodic interventions that undermine local authority.[16]

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[15] For example: Daniels, Aubrey. "The Dangers of Micromanagement." Entrepreneur.com. February 4, 2002. http://www.entrepreneur.com/article/0,4621,296886,00.html (Feb 2004)
[16] Mochal, Tom. "Balance accountability with authority through effective communication." *TechRepublic*. September 10, 2001. http://techrepublic.com.com/5100-6330-1027972.html (Feb 2004)

Social currencies and senior leadership

One of the innate social exchange algorithms that all people seem to have is the ability to trade favors in order to build social relationships and systems of mutual obligation.[17] In the traditional societies long-studied by anthropologists, this is manifested in gift exchange systems where social obligations are created and repaid through the exchange of gifts.[18] Even without a physical accounting of who owes what to whom, people are very proficient at keeping score, not only in terms of knowing how much is owed, but what is owed—favors, goods, payments, or special privileges. The exchange of gossip is a very powerful "social glue" and plays a vital role in keeping a group together and informed of the status of its members.[19] Different social groups have different systems of exchange, different kinds of tokens—what we call *social currencies*—for creating affinities, building relationships of mutual advantage, and enabling the valuing and trading of different kinds of skills, privileges, and goods. In other words, people in social and work networks create their own markets around their particular skills and resources and use these transactions to build social cohesion and trust within and across social networks. Social currencies are typically denominated in the types of skills and resources that define a social network. For example, in some *professional* networks (medicine, law, and consultancies), the prevalent social currencies are knowledge, expertise, and access to important events and people; in other *social* networks, social status and privilege of membership can be the principle inducement.

In many cases, the social currencies that fuel the many informal networks that make up businesses and formal organizations are often more powerful than other more traditional forms of inducement, such as financial incentives. Indeed, most large organizations are made up of peer networks of constituencies who, by virtue of shared skills and mutual interests, act more on the behalf of their network than for benefit of the overall organization. Members within these networks realize that their peer relationships have

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[17] Dunbar, *Grooming*. p. 72.
[18] Hyde, Lewis. *The Gift*. New York, NY: Vintage Books. 1979.
Mauss, Marcel. *The Gift: Forms and Functions of Exchange in Archaic Societies*. New York, NY: Norton. 1967.
[19] Dunbar, *Grooming*. p. 112.

more influence over their future success than the formal organization or enterprise. Successful senior leaders, for example, know what the currencies are for such peer networks and they know when and how to cash in their chips to advance their interests and those of their peer networks. This kind of behavior is often dismissed as politics, and when undertaken in an opaque, self-serving, and episodic manner, can completely undermine the trust and efficacy of an organization. Nonetheless, it is through such shrewd negotiations that truly effective and credible senior leaders arise, and it is as natural as breathing for most accomplished senior leaders.

These senior leaders, however, tend to combine for a variety of leadership roles, with particular emphasis on connector leadership skills. They tend not to be visionaries or truth-tellers, who by bent of personality can be so committed to their vision and truth telling that they fail to build the requisite social capital with their peers to advance to more senior levels. Examples in the military are Billy Mitchell, George Patton, and John A. Boyd. The leadership roles that emerge under these circumstances are the connector, fixer, and facilitator. Such leadership roles seem better adapted to reading and responding to complex social signals and building the requisite social capital to assume senior leadership roles. In this camp, one would find Dwight Eisenhower, Omar Bradley, and George Marshall. Only under the rarest of circumstances do you find military leaders who combine visionary roles and skills with those of the connector, exemplar, and fixer: Lord Nelson, the Duke of Wellington, Carl Phillip von Clausewitz, Otto von Bismarck, and George Marshall. The challenge is not to eradicate such behavior, but to harness it by making the coining, exchange, accrual, and cashing in of social currencies wholly transparent and driven by criteria that support the mission and capabilities of the entire organization.

One of the most ubiquitous and natural of social currencies is reputation. It is not surprising that it is the driving force behind so many different Open Source and peer production networks. Individuals can have multiple reputations and a reputation in one field may not be easily transferable into another, because reputation is highly context-specific and subject to the conditions of local rules. Nonetheless, just as trust can be transitive—e.g. I trust whom you trust—especially if it is predicated on strong ties

established over long periods of time, so can reputation be transitive even when circumstances may not warrant it. For example, someone who is a great hockey player may not be a great businessperson, but because of the desire of one group to affiliate with another, reputation points or social currencies garnered in one area are often convertible into another.

Careers can often be built by leveraging a highly visible success in one area of endeavor to a succession of successes in other areas of endeavor such as athletics, business, academia, politics, and public service. The challenge is to trade up and to increase the cumulative value of a personal currency. Great "cross network players" include George Washington, Benjamin Franklin, Henry Kissinger, Ronald Reagan, Arnold Schwarzenegger, and Rupert Murdock. A remarkable fact is the extent to which high reputation ratings are transferable across domains, especially in the case of "world class" ratings where Nobel Laureates, NBA athletes, film stars, and media commentators can form a common peer group, irrespective of glaringly different competencies. It would seem that extremely high competency creates a peer network of celebrity and achievement.

In terms of building robust social networks that offer the right combination of leadership roles to achieve a larger organizational purpose, what might be good for the individual may not be good for the organization. Visionaries, for instance, may provide needed innovation and achieve significant personal and organizational success through their visions. Yet if such visions are not challenged by truth-teller leaders and held accountable by enforcers, they may result in "false" successes and inappropriate learnings at the cost of the organization's success. Visionary leaders, on the other hand, would have moved on to other organizations and social networks based upon their proclaimed "success." Similarly, an excess of truth telling and enforcement leadership can stifle both innovation and risk taking, just as an excess of connector leadership within private firms can result in acquisitions that are neither strategic nor synergistic. According to Professor Jeffrey Sonnenfeld, Associate Dean of the Yale School of Management and head of the CEO Institute, companies tend to go through a succession of CEO leadership roles without a

coherent understanding of how they relate to either one another or to the interest of the corporation and its shareholders.[20]

A network definition of leadership

One of the great unknowns in the business and organizational development literature is what accounts for great leadership. It is one of the softest areas of the social sciences, having defied rigorous analysis for decades. Yet, leadership is considered one of the key ingredients for the success of any organization. The position taken here is that leadership is both born and nurtured. As we have argued throughout this book, the evidence for the biological and evolutionary basis underlying the personality associated with leadership is compelling and growing. Individuals have innately different leadership capacities in the same way that they have different mental and physical capacities. These personality traits are some of the genetic variables that evolution periodically and randomly shuffles. But what makes a personality trait—such as the ability to interpret emotional cues, to connect with other people, to detect cheaters, to gossip and trade favors—a property of the social network are the rules that govern how individual members interact and cooperate. In this sense, leadership is a network effect that can result in highly responsive and effective leaders, or contrarily, degradation into kleptocracy or demagoguery.

On the other hand, if networked organizations can be designed that select for certain leadership roles and competencies that can be measured, evaluated, and improved upon, then leadership ceases to be an ineffable quality, but becomes a tangible asset that can be learned, improved upon, and replicated. Table 2 summarizes some of the potential metrics of network leadership that are associated with the eight different leadership roles. These lists are not meant to be definitive, but rather illustrative of how explicit network metrics might be related to both the definition network roles and the self-management of those rules through the appropriate metrics and feedback.

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[20] Personal communication with Jeffrey Sonnenfeld at Yale CEO Summit, 2004.

Network Roles	Signature Pattern	Types of Links	Performance Metrics	Social Currencies
Exemplar	star, asymmetric	inform, challenge, assert	independence, trust, reach, completion rate, reputation	expertise, reputation, trust, access
Gatekeeper	asymmetric, gateway, hub, weak links, power law	invite, offer, uninvite	transparency, independence, completion, reputation	access, information, reputation
Visionary	star, sparse asymmetric, strong ties, weak links	inform, question, challenge, assert	social capital[21], reputation, initiation, reach, trust	expertise, information, reputation
Truth-Teller	dense, sub-networks, strong ties,	question, request, inform, assess, challenge	independence, reputation, transparency, trust	reputation, trust
Fixer	strong ties, weak links, hub, power law	request, offer, question, assess, directive	completion rate reputation, reach	access, goods, services, income, reputation
Connector	symmetric, gateway, weak links, small world	inform, access, invite, offer, request	density, [22]diversity, redundancy, reach, trust	access, favors, reputation
Enforcer	strong ties, sub-network, power law	directives, compliance, request, question	completion rate reputation, transparency, trust	access, favors, reputation
Facilitator	gateway, sparse, GFN	invite, request, offer	completion rate diversity, initiation, reputation	reputation, access, favors

Table 2. Network Properties of Leadership

Signature pattern

Much of the research on social networks stresses the fact that an individual's role in a social network is dependent upon their structural position in the network. Individuals who act as go-betweens or connectors are typically seen as having a network signature

[21] See: Baker, Wayne. *Achieving Success Through Social Capital.* University of Michigan Business School Series: Josse-Bass. 2000.
[22] See: Burt, Ronald. *Structural Holes.* Cambridge, MA: Harvard University Press. 1995.

measured in terms of how many other members are linked to them and the directionality of these links. The field of social network analysis is still in its early phases of development, and there are many different types of network measures: density, power laws, hub-and-spoke, small world effects, reach, strong ties, weak ties, stars, sub-networks, clusters, clumpiness, constraints, redundancy, effective size, etc. These measures for the most part ignore the *type* of links and try to derive a description of a network principally from its topology. As Barabasi observed in noting the limitations of his own analysis of scale-free networks[23] and as Watts noted in his critique of small world effects,[24] the types of links are very important, as are the rules governing the addition and removal of links. Hence, a description in terms of structure alone is insufficient.

Types of links: Tagged

The fact that two parties are only removed by three to six links is no guarantee that one party can access another. It all depends upon the nature of the links. Not everyone can or ever will have access to one another. There are social, cultural, and economic rules that preclude certain forms of interaction. More importantly, for the purposes for understanding network leadership roles, the tagging of the links is associated with the nature of the leadership role. Visionaries' characteristically originate informational links, and, unlike fixers, are not in the business of asking people to commit to completing tasks, whereas gatekeepers are periodically inviting and uninviting people to join a group. The notion of tagged links as discussed here is very similar to Searle's notion of "speech acts," forms of dialogue that people use to get other people to do things.[25] This is a fertile and highly developed field of linguistics—discourse analysis and pragmatics—that offers significant promise for identifying the grammars of interactions among members of a social network. There are rules or social protocols for the addition and removal of

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[23] Barabasi, *Linked*.
[24] Watts, *Small Worlds*.
[25] Clippinger, *The Biology of Business*.
See also: Searle, John R. *Consciousness and Language*. Cambridge, MA: Cambridge University Press. 2002.

combinations of such links, thereby making most complex social networks *not* scale-free.[26]

Performance metrics

Given the visibility that being a member of a network provides and the opportunity to track and measure interactions, it then becomes possible to provide relatively simple, straightforward, empirically based measures related to the quality of leadership. For example, a leader should not lose track of people, resources, or projects, but have a high completion rate for the number of commitments or "loops" that he has initiated. Measures can tell how many loops remain open, how fast they are being closed, and who is the bottleneck.[27] In a world of such visibility, there can be real accountability. Perhaps the initial metrics are not correct and do not reflect true performance. They then could be modified over time through feedback, and adjusted to drive the desired behaviors. As was noted in the earlier analysis of peer-to-peer networks, reputation is a widely shared performance metric and a profound driver of behavior. There are more sophisticated measures such as reciprocity and social capital measures, but every performance measure would have to be adjusted for the particular needs and circumstances of the networked organization.[28]

This can be an important measure because each network and leadership role evolves its own social currency, and these currencies are *relational* measures indicating the status of an individual's relationships with others in the network. The ability to amass significant amounts of social currencies can translate into effective leadership. The ability to convert from one social currency account into another can greatly facilitate a leadership role, such as a connector or a fixer. This is an important dimension of network interactions and needs to be understood in order to direct overall network behaviors.

[26] Barabasi, *Linked*.
[27] For examples of such measures, see: Burt, *Structural Holes*. Watts, *Small Worlds*. Baker, *Achieving Success*.
[28] Baker, *Achieving Success*.

Developing network leaders

Visibility and digitization

As more and more interactions become digitized and observable, opportunities abound for using the naturally occurring data about the volume and the nature of the interactions among members of network organizations. Collaborative technologies, as simple and ubiquitous as e-mail, make it possible to make visible the millions of social interactions among the participants in networked organizations and thereby gain insight and eventual control over how members manage their work relationships. Not only is it possible to capture data about who is interacting with whom, but it is also possible through analytics to identify some of the emergent network leadership roles. Simple modifications to existing collaborative platforms make it possible to identify the network signatures of different types of leadership roles. By making different members' behaviors visible to one another, and by developing metrics for rating leadership performance, many of the techniques that are used in peer production systems—Open Source, eBay, and even MMORPGs—can be applied to the self-synchronized management of networked organization.

For example when setting up multifunctional or cross-organizational teams through e-mail, it was possible for all the members to see who communicated with whom about what topics and how frequently. A new kind of self-enforcing accountability could be introduced. Furthermore, by providing metrics of responsiveness, connectedness, loop closing, and peer ratings, not only would shared awareness be increased but new forms of self-synchronization would emerge.

As more data on the interactions of social networks becomes available, it should not be too long before network leadership roles are identified in much the same way that different roles are identified in online games and peer production systems. It is just a matter of time before network leadership roles become digital, and by virtue of their becoming digital become measurable, teachable, and systematically deployed to maximize network performance.

Identify performance metrics for network leaders

Social network analysis has identified some of the preliminary network structures associated with different kinds of leadership roles, such as the importance of connectors and hubs in network organizations, or how small world effects can be achieved. With the advent of *social software* to manage social interactions, form ad hoc groups, close decision loops, and enable self-synchronization behaviors, leadership qualities that had been unmanageable intangibles for so long can be measured, improved, and taught in a way that was never before possible. With the wide-scale adoption of RFID and mote technologies for tracking physical assets in real time, and the enormous strides in information sharing, improved awareness, collaboration, and self-synchronization demonstrated by the war in Iraq, the time is not so distant when leadership roles will be measured and tracked digitally and become an integral part in how networked organizations are managed. These cumulative innovations will significantly reduce agency costs and improve the flexibility and productivity of large-scale organizations by orders of magnitude. New metrics will make it possible to measure the degree of trust, reciprocity, successes, failures, social capital, diversity, network value, etc. within an edge organization. By making all assets—physical, human, content, and interactions—observable and providing for the selective disclosure of information and the dynamic allocation and revocation of security access, it will be possible to have much more secure and robust networked organizations.

Career paths

In order for new models of network leadership to be adopted and become an integral part of networked organizations, there have to be clear career paths that reward the skills of network leadership as a recognized part of career development. In military organizations where the alpha leadership role is still wedded to certain traditional combat roles (the fighter pilot, the Navy Seal), identifying new alpha roles that exemplify important and valued competencies outside those of the traditional military culture could prove challenging. In forms of warfare that are increasingly informational, analytic, sensemaking, and collaborative, communication and interaction skills are becoming

increasing important. New kinds of competencies will be selected and need to be rapidly incorporated into the training of all recruits. By having explicit, real-time measures not only of important leadership traits but also the demand for different types of leadership roles, human resource departments will have an easier time not only in developing credible and practical work performance criteria, but also in anticipating the demand for current and new types of leaders and skills. As suggested earlier, through the real-time content analysis and tagging of messages, primarily e-mail and instant messaging, it would be possible to differentiate visionary leadership roles from truth-tellers. The analysis might reveal a dearth of truth telling interactions and that visionary-type communications dominate the interactions within the social network, leading to bad decisions and failed missions. Individuals could be evaluated in terms of how well they are able to fulfill different network leadership roles and recommended for the roles that they are best suited for. As Table 2 illustrates with its Performance Metrics column, there are specific metrics associated with different types of leadership roles and these measures could derived from naturally occurring metadata that are the byproduct of e-mail interactions.[29] Given these capabilities in the future, not only could there be a "real-time inventory and stocking system" for leadership skills and roles, but real-time systems for evaluating the performance of human assets and knowing when to replace or upgrade them. Such metrics will also be used to conduct forensic analyses of different missions where there have been leadership successes, failures, or the need for new kinds of leadership roles or combinations of roles. Given the explicitness of the leadership models, lessons learned from one networked organization can be rapidly applied to another, thereby accelerating organizational learning and innovation adoption.

Conclusion

Like the "nature versus nurture debate," the "born versus made" leadership debate is based upon a false dichotomy. Just as genes interact with the environment to express unique physical characteristics and capabilities, so too is the quality of leadership an

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[29] The content analysis of messages and text and the rating of these messages in terms of some marketing or expertise category are being undertaken by a variety of companies and services today. www.technorati.com, g-mail for www.google.com, and www.tacit.com for corporate e-mail.

expression of how innate personal characteristics interact with organizational factors. Given this perspective, leadership is not regarded as the random occurrence of great men at moments in history, but rather as a network effect, the interaction of innate traits, themselves long nurtured and refined by evolutionary forces and the organizational context in which these traits are expressed. In other words, great leadership is the combination of individual traits and historical and institutional contexts. This is powerful knowledge if we can learn to identify the types of roles needed to guide a group or an organization in a certain situation, and then find the right person for the job. An important task in the coming years will be the training and testing of future leaders.