

Networks and Wirearchy

By Valdis Krebs and Jon Husband



No one doubts that better management of data, information, and knowledge within the firm will lead to improved innovation and competitive advantage. Everyone agrees on the goal – better utilization of internal and external knowledge. It is the approach to this goal that is hotly debated. Many vendors and consultants push a technology-driven approach. “Buy our state-of-art knowledge storage system and you will never again lose knowledge that is vital to the company!” they exclaim. Others emphasize the soft side of the new way to work. “Create a network culture that rewards sharing, learning and adaptability,” they postulate. Culture comes first, and only then the technology to support it!

In an era where hyperlinked exchanges on collaborative computer platforms are beginning to characterize the knowledge-work environment, the need to create the right corporate culture – supported by the right technology – has never been more necessary. And in this context, the role of HR in today’s organizations is coming under increasing attack because of its reliance on outdated and rapidly obsolescing models and methods of employee management. Knowledge work today requires the effective utilization of knowledge, discovery and learning. And that requires both culture and technology!

Explicit information and data can be easily codified, written down, and stored in a database. We have the necessary skills and more than adequate tools for understanding this type of business information. Yet, simple data is frequently not where competitive advantage is found. An organization’s real edge in the marketplace is often found in complex, context-sensitive knowledge and wisdom found in the minds of employees, contractors and customers. Finding and using such knowledge in pertinent ways is difficult. It is often impossible to codify contextual knowledge and wisdom and store it as ones and zeroes in a computer.

This core knowledge of the corporation is found in individuals, formal and informal work groups, and their inter-connections. The

knowledge is in the network. An organization’s data is found in its computer systems, but a company’s intelligence is found in its biological and social systems – the networks of people creating value. Computer networks must support the people networks in today’s fluid and adaptive organizations – not the other way around.

Reinventing HR in an Era of Knowledge Networks

Visualizing Knowledge Networks

Today’s HR professionals need an in-depth understanding of the growing presence of networks of people and knowledge. However (and unfortunately), the HR profession, as it stands today, works with a core set of tools for understanding, influencing, and guiding knowledge work derived directly from the core assumptions of the industrial era (division of labor, specialization, silos of expertise, individual performance, top-down direction and control). These tools deliver work design outcomes that are dissonant with the structure and dynamics of networks of knowledge, and present major obstacles to the influence and effectiveness of the work of HR.

The organization chart makes these core assumptions visual. It has been a staple in the Human Resources department for 70-plus years. It displays who works where and who reports to whom. This was sufficient knowledge in a time when organizations faced little or no change. These charts were tools for control and planning for environments that were assumed to be stable and predictable.

Today’s fluid business environment makes the assumption of static structures increasingly questionable. Things change all the time based on new information and responses to that information. The fast economy requires flexible, adaptive structures that self-organize internally in response to external changes. In this knowledge-critical economy we need charts to show us both: 1) who knows what, and 2) who

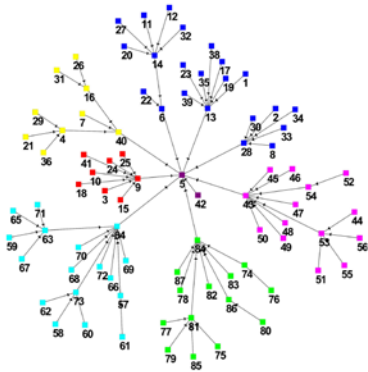


Figure 1. Organization Hierarchy.

knows who. In addition to pictures of hierarchy, we need visualizations of the massive interconnectivity that occurs in the workflows, knowledge exchanges, and learning relationships that are today's organization.

Organizational network analysis (ONA) is a software supported methodology that reveals the real workings of an organization: who knows who and who knows what. It uses the rigor of systems analysis to reveal the behavior inside and between organiza-

tions. Organizational network maps display, and make measurable, the interactions across the white space on the organization chart. These visualizations are in effect business X-rays of how things actually get done.

Human Resources managers and consultants can use these revealing diagrams in the same way that doctors use X-rays and CAT scans: to see what is normally invisible. Organizational network analysis exhibits both how knowledge is shared in emergent workflows, and how it is utilized in key business processes. In short, it uncovers the hidden dynamics that support learning, adaptation, and adding value in the modern organization.

Learning about and using ONA, HR managers and consultants can visualize and explore the connections that matter, and they can also measure and benchmark the patterns of connections. This technology provides the ability to drill down into a complex organizational system and find key employees, disconnected workers, and communication problems.

arrows are drawn from the employee, with the arrowhead pointing to their supervisor. Node 5 is the top manager in the organization shown in Figure 1. This is a network view of the organization chart. This data was obtained from the HR department and put into InFlow ONA software for mapping and measuring networks. This hierarchy is represented as a tree network, with hubs-and-spokes representing the prescribed organization structure.

The second type of organizational structure is not designed or engineered ahead of time like the hierarchy. These structures emerge during the course of everyday work and interactions amongst employees. We call this form of emergent organization a wirearchy. A wirearchy is a naturally emergent form of organization generated by flows of information emanating from and flowing towards a purpose, objective, or goal. Wirearchies are what you see when you complete an ONA aimed at uncovering who connects with who for what reasons and reflects how things get done (or not), based on the connections between people and the information and knowledge flowing between them.

The links of the emergent workflow – how employees add value – are obtained via a brief survey of each employee. The survey contains a handful of questions each revealing a different emergent network in the organization. Typical emergent networks include: work flow/value-add, social ties, advice/support, innovation, expertise, leadership, and voice of the customer. Figure 2 is a map of the work exchanges supporting the company's key product/service.

It shows the same employees as Figure 1. Here, two employees are connected by a grey link if they both stated, on an employee survey, that they worked with each other to produce the company product/service. The InFlow software arranged the network based on who was connected to whom, putting nodes that share many connections close together. This results in the visibility of clusters of collaboration. It appears that the formal organization structure strongly influences how things get done, with most of the strong work relationships existing within the walls of each department (departments are indicated by the same color). Yet, there are also links reaching across and through the white space on the organization chart to connect employees of different departments. Employees who establish work ties to connect their department to other departments or people outside of the organization, such as customers and suppliers, are called boundary spanners. In network terms, they are connectors.

In complex network diagrams like Figure

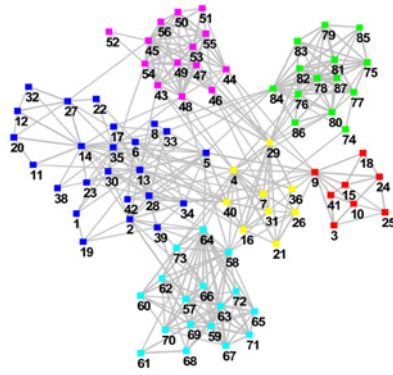


Figure 2. Value Add Network.

Organizational Structures

Organizations are composed of two types of networks: prescribed and emergent. Prescribed networks include the formal hierarchy, assigned project teams, and defined business processes. The company's emergent networks can also be visualized. These links reveal what happens in the white space (between the boxes) on the organization chart. They show the work, advice, influence, and support connections that have emerged between employees as they get their jobs done and learn from each other.

A real client organization is shown in Figure 1. The nodes identify employees in the organization. Employee names are hidden, replaced by numbers as a reference. The employee nodes are colored according to their department of membership. The links between the nodes show who reports to whom – the formal hierarchy. The

2, it is often hard to spot the connectors and whom they connect. We use our ONA software to extract just the boundary spanners from the complex network and show how they bridge various departments in value-adding processes. The circle of boundary spanners is shown in Figure 3. We see how the various departments work together to accomplish the goals of the organization.

In Figure 3, we see that the employee represented by Node 29 connects to many other employees, mostly to those in the Pink and Green departments. Information flows, knowledge is exchanged, and learning happens via the bridges that Node 29 forms with other employees. Node 29 and the other boundary spanners in Figure 3 are key employees in the modern 21st century organization. It is not just what they know, but who they know, and who knows them, that leads to a productive organization. Collaboration, innovation, and learning happen through these intersections and bridges, enabling adaptability in the organization. It is these boundary-spanning employees that change Hierarchy into Wirearchy.

Visualizations, like those in Figures 1, 2 and 3, give insight into complex human systems not readily available by other HR tools or analytics. Even deeper insights can be gained from measuring these complex human structures. Networks can be measured on the individual, group and system-wide levels. We can find emergent clusters, bottlenecks, key disconnects, and well-connected employees. A regular X-ray of how work gets done in the company allows us to monitor and improve the health of the organization.

Network Metrics and Competency Models

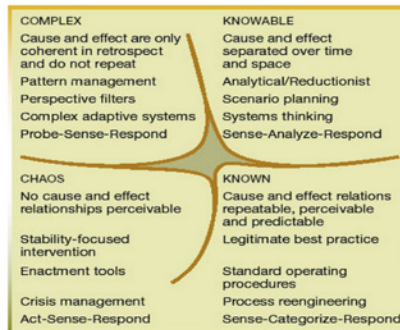
Once we have a map of the organization, we can measure it. A common belief is that high network activity brings increased network benefits – the more connections, the better. While this is occasionally true, it is not always the case. We do not want an over-connected employee network with many redundant ties, as this can unnecessarily extract time and energy. Being well-located in the network – having centrality – does bring network benefits. Research has shown that employees who are central in key networks learn faster, perform better, and are more committed to the organization. These employees are also less likely to turnover. On the other hand, employees with low centrality are much more likely to leave the organization.

Network metrics can also help HR professionals begin to understand how to use existing competency models differently and more

effectively. Parsing the metrics and augmenting our understanding of them through a process known as sense-making helps us see how people are using their competencies. The idea of sense-making is derived from an emergent concept that can help HR professionals deepen their understanding of competencies in action.

In essence, organizations today are increasingly struggling to come to terms with rapidly growing conditions of complexity, because the main HR methods for seeking effectiveness have been designed for complicated (knowable) conditions rather than complex (unknowable) conditions.

One of our era’s pioneers in the navigation and management of complexity is Dave Snowden, the past founder of IBM’s Centre for Organisational Complexity and the originator of the Cynefin framework.



To better understand how to respond to complex conditions, over the past decade, Snowden has developed an approach to assessing and navigating complexity that he calls sense-making. Sense-making involves gathering micro-narratives (anecdotes, stories, descriptions, etc.) and then assessing them through a process called “signifying,” whereby people signify their understanding of how someone will have performed in relation to the context provided by the micro-narratives.

The diagram on page 8 shows the signification process for effectiveness in carrying out key activities of successful consulting in large consulting firms. A generic competency model for consulting will typically have as key components: 1) “brings home the bacon” (sales), 2) makes things happen (effective delivery), and 3) finds/creates solutions (application of intellectual capital).

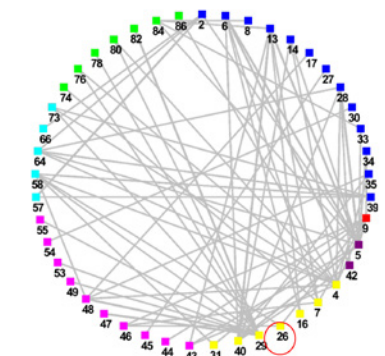
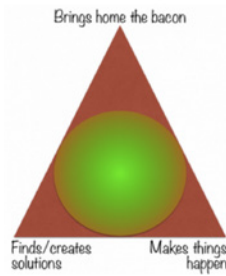


Figure 3. Boundary spanning between departments.



The signification process generates data into a database, which is then turned into a series of visual analytics that portray the competencies in action and allow for diagnosis and exploration of how to increase performance. This process of sense-making can be applied to any competency model in order to better understand and use the concept of competency modeling applied to talent development.

Such types of understanding are fundamental to the new role of the HR professional, especially when acting as a strategic change agent and operational management partner. This foundation of understanding can lead to sounder and more effective strategic decisions, value creation, and significantly enhanced HR credibility.

Future of Work

Connected employees, through emergent networks, help knowledge-based organizations continuously adapt to their changing environments. Exerting too much control over this process hinders effective outcomes. Building emergent communities and informal networks is a lot like gardening. The manager (gardener) must provide resources and remove obstacles (weeds) so that the employees (plants) can follow goals (sunlight) to self-organize and grow. Trying to exert too much control over this emergent process will usually result in a poor harvest. Tomato plants know how to produce fruit; so do employees. Support them in attaining their goals.

Networks of people and knowledge grouped around purpose and objectives are the landscape of the future of work. Human Resources should be among the first to be effective landscapers and gardeners. As we transition from traditional industrial hierarchies to connected, fluid wirearchies in the 21st Century, this includes shifting from individual-focused employee performance to group performance of connected employees. Better understanding of organizational wiring will lead to increased organizational effectiveness performance.

All organizations are faced with a significant, if not massive, transition in order to

adapt to the new networked digital environment. Hierarchical organization designs are becoming less and less effective with each passing month. As noted earlier, we posit that a new emergent organizing principle has been emerging for the past decade or more. Wirearchy is in effect an evolution of hierarchy that also takes into consideration networked structures, dynamics and the fluidity and responsiveness enabled by adapting to, and using, ongoing feedback loops between connected people and information.

Wirearchy is defined as “dynamic flows of power and authority based on knowledge, trust, credibility, and the generation of economic and social value.” It takes into account increased autonomy of knowledge workers, core knowledge management (KM) and social learning, the emergent notion of “working out loud” and the necessary adaptations to leadership and management practices. These are increasingly necessary for agility and effectiveness in a networked environment of accelerating information flows.

A fast and fluid business environment requires HR leaders and change agents/consultants to understand the constantly shifting economic webs within and between organizations. Static, hierarchical structures, alone, are no longer sufficient to function in the connected economy. Taken together, Figures 1 through 3 reveal how networks work together to get things done.

Organizational network analysis for network mapping and Cynefin’s sense-making taken together can significantly enhance an HR professional’s understanding of what’s going on in an organization, and how the organization’s intellectual capacity and capabilities can be situated, developed, and deployed more effectively to respond to the challenges of rapidly growing complexity.

A network view of today’s complexity-driven business world is necessary to adapt to the chaos and complexity of continuous change. In the past, HR departments focused on the nodes (employees) in the network, which were modeled as boxes on an organization chart. In times of reorganization, the boxes and their formal connections were moved around by management prescription.

In today’s fluid and complex economy, HR must also focus on the ties (flows, relationships) in the network, the stories that demonstrate how effectively the people in the networks are operating, and the ever-changing patterns of how these networks are responding to growing complexity. Network models of how organizations get things done are as necessary in the new economy as organizational charts were in the industrial era. Instead of just focusing on “hire and fire,” HR must now focus on “hire and wire.”

About the Authors

Valdis Krebs is founder and chief scientist at Orgnet LLC. Orgnet LLC – which celebrates 20 years in business in 2015 – provides Social/Organizational Network Analysis (SNA/ONA) software and services for organizations, communities and their consultants. As an HR manager in the early 1990s, Valdis led over a dozen ONA projects at TRW Space and Electronics – mapping and measuring networks of engineers and scientists. He has participated in or lead over 500 SNA/ONA projects with clients all over the world in all types of organizations. He presents his research and findings at top conferences around the world. He can be reached at valdis@orgnet.com.

Jon Husband created the concept and term “wirearchy,” which offers a unique perspective on social media and social networks – and their impacts on society, established institutions, learning and change, and the workplace of the future. He conducts research into business strategy, organizational structures, and work design in the interconnected knowledge age, and consults to select organizations in Canada, the U.S. and Western Europe. He can be reached at jon.husband@gmail.com.