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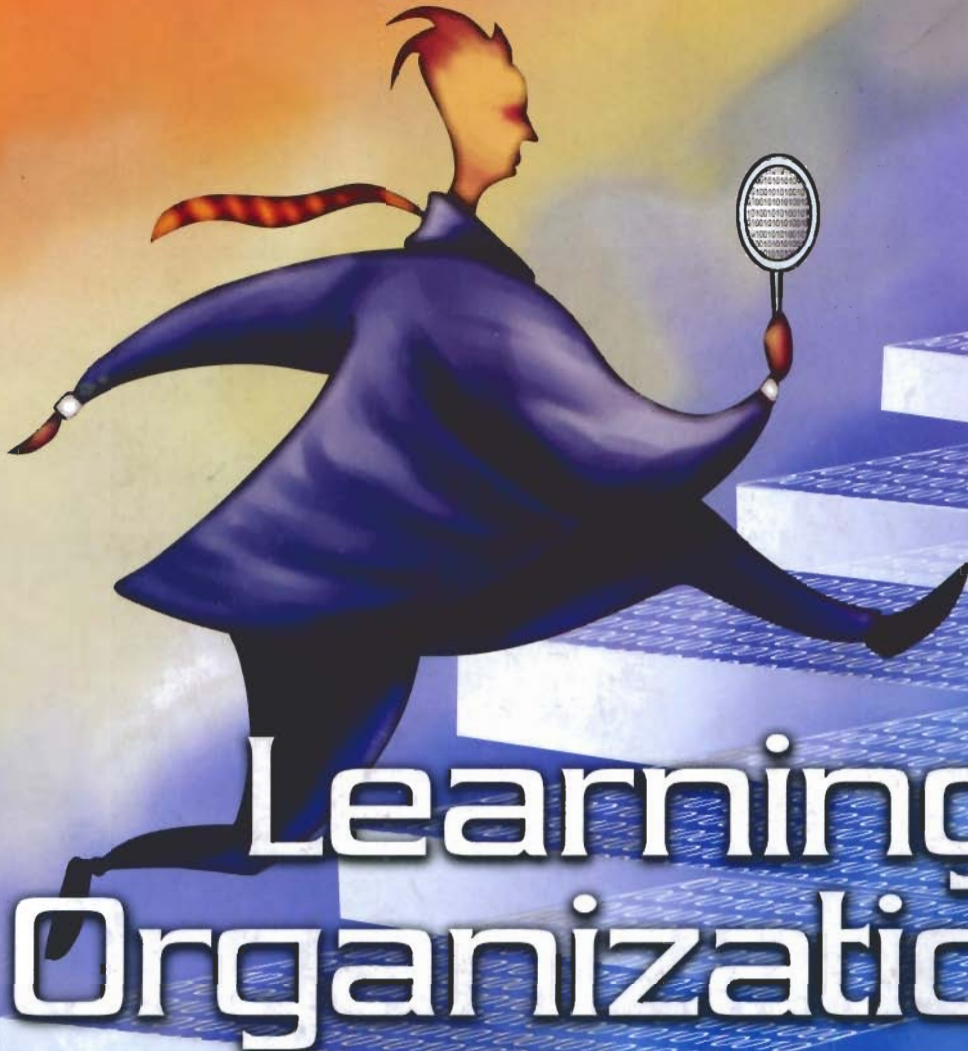
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Learning Organizations



and action of businesses now operating interconnected globally and locally, at the speed of computer networks. While in each domain there is information and as many questions, drawing as they do from the experience of companies large and small, (from IBM and Qualcomm to the Bordeaux Colloquium), and networks (from the European Union to individual Facebook Groups), each offers insight into the new ways of thinking and acting required.

net^oWORK Thinking and Acting

Each dimension points to how succeeding today demands thinking beyond a solely transactional, process-oriented, linear view of organizations (ingrained from years of standard business school models and management practices), to one that embodies networks, complexity models, and demands non-linear mental approaches. Critical is learning to operate "And Both", of appropriately choreographing control and openness, facilitating interactions, engagement, participation and contributions from all stakeholders (employees, partners, suppliers, external expertise networks and shareholders), to enable a continuing flow of essential knowledge and fresh ideas vital to sustainable economic value creation in a connected 21st century world.

We're using 'net^oWORK' to embody the importance of seeing networks as resources to be leveraged and put to WORK to create value for organizations. Moore's Law continues enabling digital computer networks to increasingly connect people and distribute information faster than carbon-based humans can absorb. The 10 net^oWORKing dimensions below are offered as essential for effective executives to adapt organizational cultures to nurture knowledge flow for economic value creation—Robert L Buckman's original goal—in this environment.

1. Organizations Function as Complex Network Webs

net^oWORKing begins with understanding organizations as an ecosystem of Networks.

Exhibit I shows the ecosystem of networks radiating out from the core to the periphery, the marketplace. Internal to the organization is the familiar formal structure, the backbone, like the road system. But the work gets done through the network of relationships and interactions taking place in the informal. The organization can control its operating structures but must constantly innovate and adapt to the marketplace through interactions with, and exchanges between and among customers, suppliers, partners, regulatory bodies, and

in the context of macroeconomic conditions.

IBM is an organization that determinedly understands and adapts operating in complex human networks. From Lou Gerstner's³ 1993 arrival, move to "eBusiness" and services, pioneering use of company wide employee engagement through JAMS, corporate blogging, to more recent initiatives designed to bring the marketplace into the business (including opening research labs to customers and partners and supporting teaching of a new discipline "service science management"), IBM has embraced net^oWORKing. IBM's Mike Wing, Vice President, Strategic Communications explained:

"...there are almost too many ways in which IBM is working to create the technology, policy and culture of open platforms and standards to know where to begin... but in truth, there's very little about IBM today that doesn't manifest this... from our hardware and software, to our IP innovations (such as the wiki we used to engage the legal and policy communities around new approaches to patent quality... or opening up our patent portfolio to open-source efforts in healthcare and education), to the way we're managing IBM itself."

2. Work Gets Done Through Individual Networks

"Intensional networks are the personal social networks workers draw upon and collaborate with to get work done. ... Intensional networks exhibit aspects of both emergence, being called into existence to accomplish some particular work, and history, drawing on known relationships and shared experience."

—Nardi Whittaker, Schwarz⁴

"Intensional", Bonnie Nardi and colleagues, explain in "Networkers and their Activity is Social Intensional

³ Legacy, Martha (2002) Gerstner: changing culture at IBM. *Working Knowledge Newsletter* Retrieved April 25, 2008 from <http://hbswk.hbs.edu/archive/3209.html>

⁴ Nardi Bonnie A, Whittaker Steve & Heinrich Schwarz (2002) Networkers and their activity in intensional networks. *Computer Supported Cooperative Work* 11: p 205–242 Kluwer Academic Publishers. Printed in the Netherlands. Retrieved April 25, 2008 from http://darrouzet-nardi.net/bonnie/pdf/Nardi_networkers.pdf

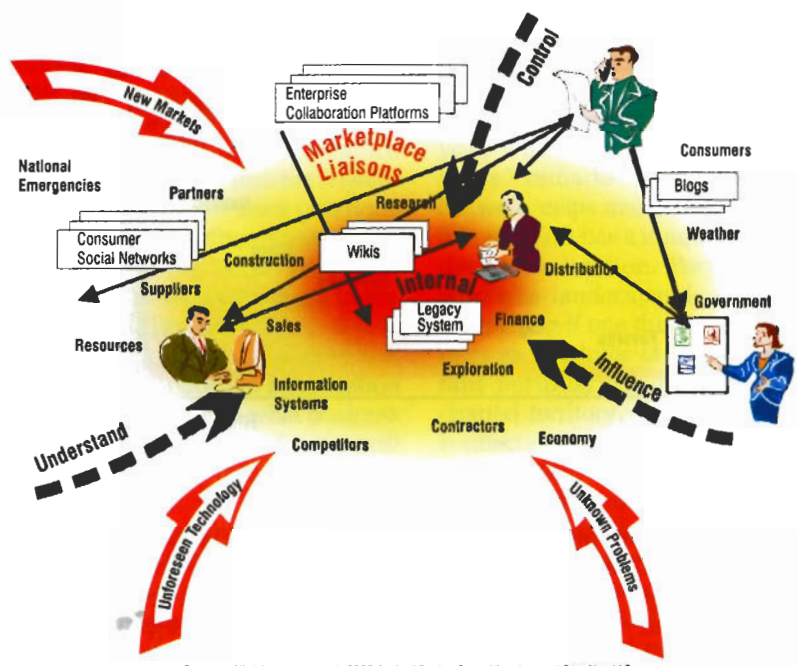


Jenny Ambrozek is Founder of SageNet LLC, a consulting practice helping businesses create value by architecting the intersection of organizational strategy, operating models and participatory media tools to engage stakeholders and leverage intentional human networks. Her work in online interaction began in the mid 1980s with Edutel, an Australian Caption Center developed educational content service delivered on Prestel standard Videotex. Jenny authored *The Edutel Book: A Guide to Videotex in Education 1985*. In 1988, Jenny joined US based pioneering online service PRODIGY where she served as Director, Community Development. Overseeing a wide range

of member engagement components in content areas ranging from entertainment to technology and parenting, Jenny learned firsthand about the importance of day-to-day operating practices to minimize the cost of supporting interaction. Since 1996 Jenny has helped clients implement successful online network and collaboration efforts.

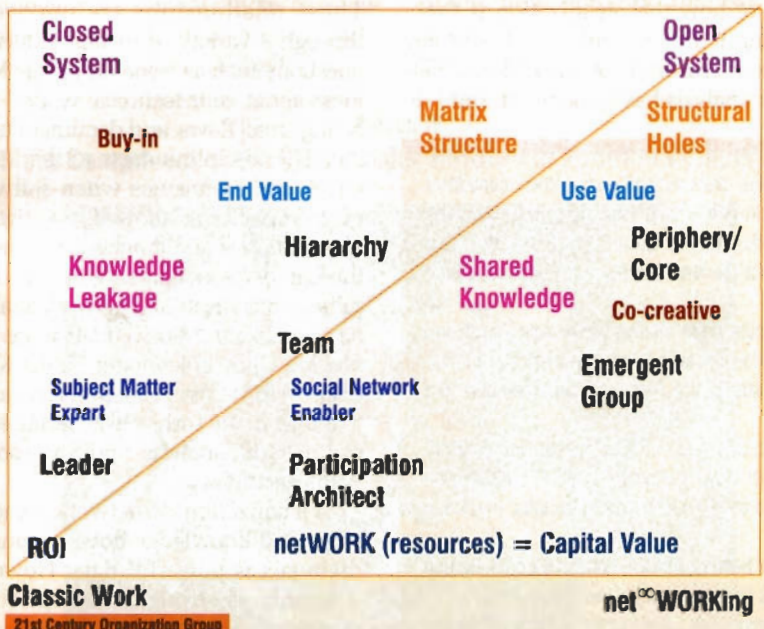
Jenny is co-author of the *Online Communities in Business Report (2004)*, co-founder of the 21st Century Organization blog and contributor to TheAppGap. Her recent articles include "Learning through Participation and Connecting Intelligence" (2007), "Broadcasting Innovation: Organising to Connect Intelligence" (2007) and "Co-creating an Organisation's Future" (2008). She is a convener of the *Facebook Groups in Business (2007)*, peer-to-peer action research study and a contributor to the forthcoming *The Sustainable Enterprise Fieldbook*. Jenny serves as Participative Media Associate for the University of Warwick Knowledge Innovation Network.

Exhibit I
Open Networks Ecosystem



Sources: All rights reserved. © 2008 Axelrod Becker Consulting, Inc. and SageNet, LLC

Exhibit II
Language Shifts



Sources: All rights reserved. © 2008 Axelrod Becker Consulting, Inc. and SageNet, LLC

Networks” is not a typing error. It is derived from individuals who find a tension or stress in their network to try to remember who is doing what, to whom they can reach out and what best media for contact to enlist them for work. Tensile strength, another aspect depicts the fortitude one needs in pursuit of collaborative work and lastly, “intensional logic” is a framework for many “possible worlds” or “versions”. What word better conveys the complex aspects of an individual net^{OC}worker?

Very few 21st century jobs are truly work done in isolation from others. Still hiring practices in most organizations focus primarily on an individual’s talent. Imagine asking your next job candidate, “When do you reach out to your network to seek solutions? What’s the TENSION or INTEREST that makes them collaborate?” as FAS Research Vice President, Doris Spielthener, suggests.

Models developed by “Value Network Analysis” creator Verna Allee⁵ emphasize the “intangibles” exchanged in the process of tangible work. Many of these intangibles are embodied in the individuals performing the work in the network. Mapping both tangibles and intangibles provides a richer picture of the overall network value, what we call “Network Capital Value”, as it ultimately equates to “economic value.”

3. Knowledge is Created Through Individual Interactions

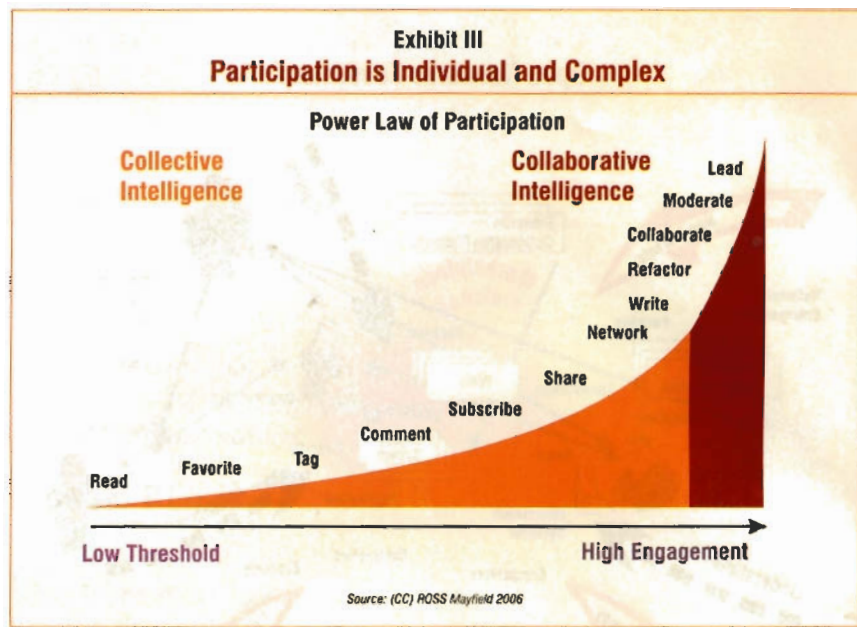
Creating value through interactions is not a new concept but with computer connectedness fueling the potential and organizations moving from industrial to services businesses, researchers focused on understanding it. The inaugural *Fast Company* Magazine, 1995, featured John Seely Brown and Estee Solomon Gray’s⁶ report of Xerox PARC research explaining how copier technicians worked. Outside the traditional hierarchical structures, they speeded repair times by informally solving each other’s problems in warehouse and after hours of conversation.

⁵ Allee Verna (2008) Retrieved April 25, 2008 from <http://www.vernaallee.com/>

⁶ Brown, John Seely, Gray, Estee Solomon (1995) The people are the company. *Fast Company Magazine*. Retrieved April 25, 2008 from <http://www.fastcompany.com/magazine/01/people.html>

In 2008 Bordeaux Colloquium, director Kimberly Samaha strategically collects a diverse group of global energy executives to interact in projects, annual colloquiums, and online spaces to promote a new paradigm shift in the energy industry towards sustainability. And what we learn is that the power of each of those interactions is being amplified through net^oWORKing. "Power is being given to the individual", Bob Buckman told us:

"Whenever you expand an individual's Span of Communication you also expand their potential Span of Influence and their power. The individual communication device that we call the computer and the Internet have forever changed the power that the individual has today."



4. Patterns of Participation Impact Knowledge Flows

Just 6 years after Tim Berners Lee invented the World Wide Web, Xerox PARC research saw the impact of computer connectedness:

"Organizations are webs of participation. Change the patterns of participation, and you change the organization. At the core of the 21st century company is the question of participation. At the heart of participation is the mind and spirit of the knowledge worker."

– John Seely Brown & Estee Solomon Gray, *Fast Company* 1995

By August 2006, pioneering wiki company SocialText's CEO, Ross Mayfield captured the complexity of participation, and challenge of engaging people in a connected world, in his "Power Law of Participation."

5. Organizational Network analysis (ONA) Reveals Current Knowledge Flows And Individual's Roles

"...if the objective is to achieve a snapshot of how the organization is functioning at the moment and who the key players are, then organizational network analysis has some merit. But I do

not think it has much to do with building the culture of work for the future. What I am talking about is how you change what the organizational network is currently to something very different in the future."

– Bob Buckman 2008

ONA is a diagnostic approach used to make visible the connection an individual has to another within the boundaries of an organization and beyond. These relationships are uncovered through a variety of means: Interview questions such as "who do you go to for ideas about your technical work?" analyzing email flows, and document tracking. The discipline dates to the 1930's and found resurgence when software-enabled platforms allowed investigating large data sets and depicting the results through network maps. While the discipline of organizational network analysis has significantly evolved since, (as pioneering ONA practitioner Valdis Krebs advises) IBM's Jerry Falkowski so named it at IBM in the early 1990s because "social network analysis" did not resonate with executives.

Visualization of network relationships and knowledge flows among individuals is powerful data. However, it is only as strong as the questions



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As principal of Axelrod Becker Consulting she creates sustainable growth and identifies new revenue opportunities based on the power of stakeholder networks. Her clients range from startups to *Fortune* 500s, nonprofits and government agencies.

Victoria co-founded the 21st Century Organization Group and blog <http://c21org.typepad.com> in 2005 to keep a pulse on emerging business and address issues in today's interconnected global business environment. Her latest writing appears in *Inside Knowledge* on open innovation networks, prediction markets and online virtual business environments.

She is a frequent presenter to groups such as the U S National Security Agency, Bausch & Lomb, Baruch College MBA Program, the Lawyers Alliance of New York, US Chamber Institute and many more.

She serves as a current board member of eSight and the Organization Development Network of Greater New York.

⁷ Mayfield Ross (2006) Power law of participation. *FLICKR* Retrieved April 25, 2008 from <http://www.flickr.com/photos/ross/135959002/>

upon which it is based. It can expose blocks, gaps, and overuse patterns in participation across and between employees, work divisions and entire organizations.

Network analysis beyond the boundaries of the organization, does supply chain analysis, pre- and post-M&A, and locate unique knowledge, thus holding even greater benefit. While network maps provide invaluable insights into how work gets done in organizations, further investigation (such as follow-up interviews with participants) is required to get inside the human dynamics.

Before undertaking a network analysis, the responsible organization leaders need to identify what business issues are to be addressed, who will have access to the information and who will design the interventions based on the data. The analysis alone will not change behavior.

Robin Teigland, a knowledge networking researcher at the Stockholm School of Economics says "more executives understand the power of networks and as the demand goes up, collecting network information is easier – it is online and automated into analysis tools like Shortcut, it is every man's tool." Trampoline, Visiblepath and Insideview are several others, each designed for specific applications. Traditional tools such as UCINET and In-

flow provide the widest flexibility and require greater sophistication to use. FAS Research represents a third category—research/consulting firms with proprietary software.

6. Network Maps Visualize Network Analysis

"I've never met anyone in the last 10 years who didn't react to the network maps," remarks Doris Spielthener. Network maps make the invisible visible and FAS has a unique ability with data visualization. Portraying networks as landscapes is particularly compelling if one thinks of the mountains as rich hubs of activity, and distant periphery and valleys as uncharted territory where new network connections are to be found, as shown in Exhibit IV.

Network visualization provides a common view for individuals and groups to discuss the revealed patterns of information flows. Significantly, Doris reminds us that:

"the network doesn't look the same to everyone. It depends on the goal and where you are in the landscape."

7. Network Analysis Provides New Measurement Tools

*Net Work*⁶ author Patti Anklam explains how network analysis gives fresh insight into how well the organizations are operating:

"On network measures, I always make these three distinctions: Structural. These are about the network as a whole. Density (how well connected overall), Distance (degrees of separation), and cross-boundary densities. The overall density is a good benchmark if you are mapping from year to year. The cross-boundary densities pinpoint the effectiveness of group-to-group interaction.

Centrality. Finding the key people. It's easy to spot the really central (in-degree) people in a chart, but you need the metrics (like betweenness) to really see the people who are on the most paths and on the critical paths.

Personal. How diverse is your individual network? How much of your network consists of people in your own organizational unit? At your level in the hierarchy? In your geography? Networked people are higher performers and tend to stay in organizations longer so there is a correlation between "network and organizational performance."

Through more than a decade of putting network analysis to work in organizations, (beginning at IBM's Institute for Knowledge-Based Organizations), Professor Rob Cross, convener of the University of Virginia's "Network Roundtable" has worked to translate network analysis into business value for enterprises:

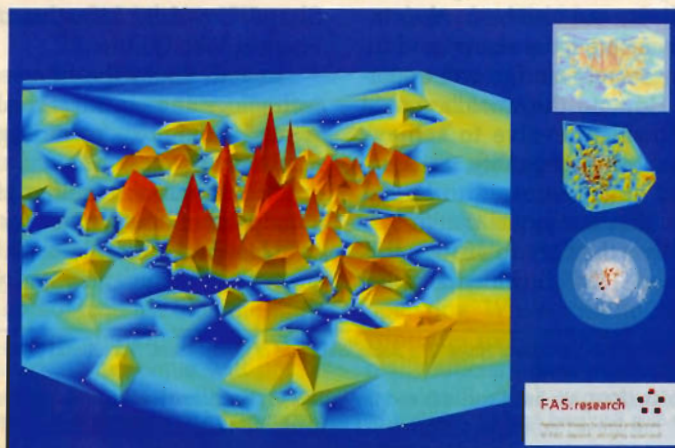
"When executives can see how information flows or not, through informal networks in their organizations, they can justify cost-efficient interventions to improve. Network analysis can help replicate high performer networks, teach employees collaborative approaches used by more effective networkers, especially to better manage information flow, make valuable expertise more available, and revamp performance metrics to better reflect accountabilities."⁹

⁶ Anklam Patti (2007) *Network: a Practical Guide to Creating and Sustaining Networks at Work and in the World*. [Paperback] Burlington, MA: Butterworth – Heinemann

⁹ Cross Robert L., Martin Roger D. & Weiss Leigh M. (2006) Mapping the value of employee collaboration. *McKinsey Quarterly* Retrieved April 25, 2008 from http://www.mckinseyquarterly.com/Mapping_the_value_of_employee_collaboration_1827_abstract

Exhibit IV

Main Component of the Shareholder Network of Austrian Companies



Sources: Organizational Network Analysis Map Courtesy FAS Research © 2008

And in his breakthrough book *Structural Holes* (1995) Ronald Burt¹⁰ applies network analysis to help companies create competitive advantage by understanding marketplace disconnects (information access, timing, referrals and control) that provide entrepreneurial opportunities.

8. Knowledge is in NetWORKING Innovation is The Result of Action
 "...economic value could only be obtained in our environment when knowledge moved across the organization in response to a need."

— Bob Buckman 2008

Qualcomm Venture Fest

Bob Buckman's summary "knowledge flows in response to a need", to generate economic value is exemplified at Qualcomm. Ricardo Dos Santos, Senior Director, leads "Venture Fest" to stimulate knowledge flow and actionable new business ideas. He explains: "Innovation is at the heart of Qualcomm's success – (since innovation is such a vague word we can rephrase by saying "organic growth initiatives are critical to our long term objectives)."

"We work in new business development and we've come up with an initiative to involve or empower all of our employees to participate in the innovation process – The Venture Fest... is essentially an internal, democratic business plan competition with the following specific objectives:

1. Increase the number of experiments at Qualcomm leading to organic growth initiatives
2. Develop new-business leaders (intra-preneurs)
3. Promote innovation as a way-of-life throughout the company—get everyone to see the world through 'growth colored glasses'.

This is our high-level process flow for Venture Fest – at first glance, this is not unlike other new product or new business development process. The difference and (as we've learned the hard way) the key to success is to apply Future of Work or Collective Intelligence (or Wisdom of Crowds) concepts in EVERY step of the process."

Dos Santos also explained Qualcomm's 4-step approach:

1. **Generate:** Allow everyone to be involved to increase number and diversity of possibilities.
2. **Select:** Let the masses highlight the better ideas, tagging, rating, and now prediction markets.
3. **Develop:** Initiators have to retain ownership
4. **Implement:** Continued ownership by idea generators, even the contributing crowd.

"The key to innovation – empowered employees, not a series of command and control budget approval meetings. Just do it with coordination, cultivation from upper management – at least to the point where many millions of dollars are at stake.

Innovation isn't just about delegating power. It's having power originating from anywhere in the organization (especially since information is power, and today's cost of information has been greatly reduced."

— Ricardo Dos Santos

Rethinking Patents Portfolio at IBM

Reaching outside an organization's boundaries to a multidisciplinary network for diverse thought using a wiki enabled IBM to rethink its patent portfolio. Steve Malkiew, director, communications technology and intellectual property IBM Research explained:

"Traditionally, a patent is used to exclude someone from using an invention. But when innovation is defined by collaboration and open standards, patents can also be used as intellectual capital, to be shared and invested to generate new growth opportunities. How do the world's patent systems need to evolve to achieve this? What levels of quality, transparency, and openness need to be enhanced within our global patent systems? Rather than try to answer this on our own, IBM convened a global

dialog using wiki technology with experts from the fields of law, economics, government, business and academia. After a six-week on-line dialog, ...report was produced. IBM went on to adopt many of the recommendations as party of its first-ever IP policy for how we create and manage our patent portfolio."

Both Qualcomm and IBM emphasize the network space, the edge of the network, the diversity, the opportunities, tapping the wisdom of the crowd and the individual and their network. Knowledge lives in the network where it is created.

Regional Networks Increase Competitiveness

The most macro-level networks are those that reach across sectors of private industry, government and academia, each with different motivations—the triple helix approach of Avedas described by Robin Teigland.

"Innovation improves with bringing in people with different ideas and competitiveness – time to market improves as more (groups) are hooked into a network of regional and firm networks."

Innovation moves from "closed" to "open".

9. Technologies Shape Work

In a provocative October 2007 blog post, Stowe Boyd¹¹ (who is credited with the term "social tools") asserted:

"We Build Our Tools And They Shape Us: How Lifestreaming¹² Is Shaping Web Culture."

But no doubt the intersection of technology and organizational culture is more complex. According to Bob Buckman:

"If you look at it [culture] from the standpoint of how much effort it takes to achieve and effect knowledge sharing across an organization, you will

¹⁰ Burt Ronald (1995) *Structural Holes: The Social Structure of Competition*. [Paperback] Cambridge, MA: Harvard University Press.

¹¹ Boyd Stowe (2007) We build our tools and they shape us: how lifestreaming is shaping web culture. *Message Blog*. Retrieved April 28, 2008 from <http://www.stoweboyd.com/message/2007/10/we-build-our-to.html>

¹² Lifestreaming is the label given to providers like Twitter, Facebook, Jalku, and Pownce that provide a continuous flow of updates, insights, and recommendations from a social network.

find that the technology piece is about 5 to 10% of the effort, changing the way work is done is the 90 to 95% of the effort. You can define the effort as time or as money, it still comes out about the same."

Buckman's concern is about change: "Think about how you shift the average speed of response of the organization toward instantaneity relative to the needs of its customers. That is how you can achieve a competitive advantage."

From hands-on experience as Chief Executive of an open source technology company, Simon Wardley offers practical advice:

"So whilst the tools are incredibly useful, they need to be managed but not in a 'traditional sense'. However, not many people are focusing on teaching others how you manage with the 'complex systems' exposed by these tools. It's not just changing mindsets, its teaching managers how to more effectively manage in a non-linear world, how to cope with more complex systems and to allow flexibility and control to exist where it is needed."

- Simon Wardley

MIT researcher Peter Gloor,¹³ gives insight into those skills from watching Tim Berners-Lee—the man credited with inventing the World Wide Web—work closely for a few months. Gloor observed:

"I saw that his real genius lay in his ability to coordinate and incorporate the ideas of all these hundreds of other people based around the world"

10. Balance Intension and Control
Bob Buckman makes the case that "culture is still the key element". To promote knowledge flow in response to a need somewhere else in the organization, he suggests:

1. Redefining the time equation of work by doing things differently. If you do not redefine the time equation of the individual relative to his work, then people will not be interested in participating in what you are proposing. This is because

- everybody is time compressed.
- 2. Knowledge will not flow unless there is trust between the parties that the knowledge will be used in an appropriate manner. And, that the knowledge given will not be accepted unless there is trust that it is the best that can be given at that moment.
- 3. Trust is built on the fundamental values of the organization. What the people believe is important for them to trust communication with people that they have never met. Think about how you determine the fundamental values of the organization. And, how you make those fundamental values on which trust is built as the bedrock of the organization. That is what we did when we determined the values that make up our Code of Ethics."

Culture underpins all of the above. The end is the beginning and the values, beliefs, norms that are modeled and enacted daily in all aspects of work—openness, support in sharing and 'acting'. These are all values.

- ⊕ What do the behaviors look like to support these values?
- ⊕ What does action in your firm look like?

Involve organizational members in developing your values in action with integrated metrics and rewards. Policies are an artifact of culture as are incentives, rewards and acknowledgements. Motivation is not by force. One can only create the conditions for individual motivation to be expressed as we have described here, as the executives represented here have created networked cultures to balance intension and control.

Call to Action

We understand the challenge net^oWORKing provides but contend both individuals and organizations must adopt "And Both" thinking and operating. While core functions may continue to rely on familiar, maximally efficient processes and capability—intellectual, organizational, and technology—must be added to tap and

leverage the value creating potential of net^oWORK.

Consciously operating organizations as interconnected human networks are challenging to traditional organizations. When value is created through interactions, sharing and being open to ensure knowledge flows are essential for innovation at the pace 21st century business demands. To promote innovation and increase value creation, organizations must adopt a new, trusting approach to employees, recognizing the power each can increasingly contribute through their connected personal networks.

From Socratic dialogues to Senge's "Fifth Discipline" we're aware of the power of conversation and challenging dialogues to refine thinking and let new ideas emerge. Tapping our networks for this article, with the resulting conversation and idea flow, reminded us of that. Trying to sift the wisdom our networks delivered also brought home how essential is taking time to listen carefully, reflect on what is truly being said, further conversations with existing participants and engage new contributors for understanding and synthesis.

We end with deep gratitude to all those who helped shape our thinking, and especially Robert H Buckman, who inspired this article. To quote him: "Need always has to be there as the driving force that causes knowledge to be sought, and if trust exists, then it will move in response to the need." *

The authors sincerely appreciate the contributions of the following experts to this article through conversations and email exchanges:

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And especially Jerry Ash, our valued first-degree tie and connection to Robert H Buckman.

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Reference # 03M-2008-07-14-01

¹³ Gloor Peter (2008) Is collaboration the future of invention? CNN Online News. Retrieved April 25, 2008 from <http://www.cnn.com/2008/WORLD/europe/04/03/collaboration.spirit/#cnnSTCtext>