Abstract

As the pace of changes quickens in every domain touched by today’s technical and knowledge revolution, so does the pace of growth in books, workshops and websites on radical innovation. That’s because most companies need to engage in radically innovating their products, services, and processes if they want to remain or become relevant players in the changing game of business.

The intent of writing this living, continually work-in-progress document is to focus a critical mass of attention on the single most generative factor of radical innovation: professional communities of practice and the interstices between them. “Communities of practice are groups of people who share a passion for something that they know how to do and to interact regularly to learn how to do it better.” (Etienne Wenger)

They’ve been with us from the beginning of humankind; what’s new is that in the knowledge economy, the main source of value creation is shared knowledge and collective intelligence, not land, labor or capital. It is that shift in the basis of value creation, what propelled communities of practice (CPs) in the limelight as collective players with largely untapped potential for radical innovation.

Contents

What is radical innovation
Why now?
CPs and radical innovation
When incremental improvement is not enough
What characterizes radical innovation
Commoditization and disruptive innovation
The human source of radical innovation
Barriers and enablers of innovation
How communities of practice support innovation
How communities of practice support radical innovation
The CI Innovation Architecture™
Epilogue
What is radical innovation

Innovation means, fundamentally, change, being responsive to life in her full splendor of constant dance and fluctuation. Responsiveness to quickening change in technologies and market conditions starts with the capacity to sense both the dangers of staying the way we have always been and how we do things, and the opportunities to innovate. Chances are that you’re sensing both of these well, and wanting to learn how to do it even better. If so, welcome to “radical innovation”!

Radical innovation is close to the right edge on the continuum that goes from incremental/sustaining to radical/disruptive innovation.

Radical innovation is non-linear, high-speed, and discontinuous innovation. It thrives on new approaches that may range:

from work in small teams of 3 to 5 creative people connected with such light weight tools for collaborative discovery and idea re-combination as blogs, wikies, and forums … read more http://www.eccop.com/blogs/public/archives/000043.html on how Google does it
to using advanced visualization tools for “information painting” http://www.eurekalert.org/pub_releases/2003-04/giot-sup040303.php and letting networks of creative groups and communities of practice exchange insights and inspiration easily, unfettered by chains of command,

and to taking smoother and faster roads to transitioning from a radical innovation project to operating status or new product on the market.

The skilful combinations and uses of those ways can break through the old patterns and assumptions that cause projects and organizations to stay stuck.

“Radical Innovation” means great surprises that can be unpleasant or pleasant, depending whether you’re trying to catch up with or generating it. It also means a product, a strategy, or a process, that alter social or business practices.¹

¹ Some older managers who remember the 60’s get annoyed or enthused by the word “radical” depending on which side of the barricades they were. Forget the 60’s; none of the hot-headed student leaders could have possibly been as radical as the waves of innovation ushering in sweeping transformations in social and business practices.
Why now?

There are 8,720 webpages mentioning “radical innovation” (recorded on 03.05.02) vs. the few hundreds only a few years ago. Why is that explosion now? That’s because nowadays, more than ever, incremental innovation will not save a company from becoming irrelevant on the market, in the face of fast-moving opportunities and challenges. Standard methods of innovation, such as incremental improvement and pilot project development, are too constrained by internally reinforced assumptions about current ways of doing business. These methods cannot make the necessary leaps in a world where so much is in flux.

Consider the difference between what radical and incremental innovation can accomplish in the following scenarios.

• A large telecommunications company is facing competition from the Internet that threatens to shrink its long distance calling revenue. New product ideas are needed that might entail completely rethinking the business. The problem is so complex that the company needs people across the organization to think in parallel and outside the box in order to invent a new future. It is building on existing knowledge networks of the enterprise, equip them with new, lightweight collaboration technologies that together change the way how it solves problems. A culture of radical innovation is being born and it makes seemingly impossible obstacles surmountable.

• An enterprise software manufacturer realizes that its core business is being eroded by the “open source” software movement. With cheap and free software becoming increasingly available, the company needs all of its product development groups thinking in new ways about how to incorporate the new technologies while still retaining the primary value to customers that drives revenue. Specific challenges related to developing the new product strategy are climbing high on the “issues lists” of the company’s communities of practice...

• A longstanding hardware company has been growing by acquisitions. Now there are growing pains and culture clashes in a world in which the old business models don’t work as well as they used to. For the company to succeed and thrive, a new product development culture must emerge that not only takes the best of all the original companies and tries to fit them but is also targeting emergent opportunities for radical innovation. They are the opportunities that can be identified and realized only when colleagues of the same practice from all the old and new components of the company are encouraged to share notes form innovation communities, and connect the dots of disjoint capabilities and resources into surprising, new performance.
Communities of practice and radical innovation

Radical innovation projects are non-linear, complex systems, and “Complex systems seem to operate and survive best when they operate on the edge of chaos and order and when behavior is organized from the bottom up.”² In business, one of the first few life forms organized “from the bottom up” are communities of practice (CPs). They are natural partners for radical innovation, and have the potential to reinvent radical innovation itself, as long as management doesn’t try to over-manage them, which would kill that potential.

Where does it come from?
How can it be liberated to realize its full business and social value?
What does that potential consist of?

I have more questions than answers about all that. This paper is a conversation with the insights and inspirations I’ve been gathering from studying and working in innovation and communities of practice. I hope to write its next version with all who are intrigued and attracted by the possibility to discovering and realizing more value of from CPs for radical innovation in the enterprise.

According to KPMG’s “European KM Survey 2002-2003,” in the last two years, 45% of the companies started internal “communities of practice.” Yet, very few of them have paid attention to the crucial link between CPs and innovation, let alone “radical innovation.” The purpose of this paper is to contribute to filling that gap, and help organizations and their CPs discover the extra value that they can create for the customers and themselves if they tackle together the challenges of radical innovation.

When incremental improvement is not good enough

² Complexity: The Emerging Science at the Edge of Order and Chaos, by M. M. Waldrop
The Economist calls Professor Hamel “the world’s reigning strategy guru.” Gary Hamel goes around advising corporate leaders: “First the revolutionaries will take your markets and your customers. Next they’ll take your best employees. Industry revolutionaries will exploit any protective urge, any hesitancy... Any attempt to hunker down, to fall back and re-group, or to disengage will be seized as an opportunity to claim more ground.” If you can’t beat radical innovators, your best chance to stay relevant to your markets is to become one.

Whilst in slow-moving times incremental product improvement is sufficient to adapt, in an era that some call “jump time” and Hamel calls the “age of revolution,” a time of accelerated and discontinuous changes, only the capacity for radical innovation can ensure that the company can catch up with its markets that innovate faster than any company can.

Today, more than ever, the capacity of a business to consistently deliver radical innovation is a key factor of its success and longevity. Incremental improvement will clearly not be enough to adapt to, let alone thrive in emerging and shifting contexts. “[C]ompanies introduce sustainable innovations and continually improve their products and processes, but they get caught unaware by newcomers who have introduced disruptive innovations, capturing and transforming traditional markets.”

When facing disruptive innovation by markets and technologies, incremental improvement is like the famous re-arranging of the chairs on the deck of the Titanic. Yet, numerous research studies have shown that “it is often difficult to get support for radical projects in large firms where internal cultures and pressures often push efforts toward more low risk, immediate reward, incremental projects.”

This paper is dedicated to those who want to change that, and need a framework and some useful, actionable distinctions for creating a company-specific version of it, with company-specific results. It is a companion document of the action research on “Reducing Obstacles to (Radical) Innovation with Communities of Practice,” undertaken by the European Collaborative for Communities of Practice.

**What characterizes radical innovation**

“Radical innovation” refers to a product, a service or a process that alter some social and/or business practices. As it can be expected in any emergent field, there are several definitions of what constitutes “radical innovation.” Instead of crafting yet another one, I introduce 4 aspects of “radical innovation” which seem to be the most pertinent to business performance.

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3 Leading the Revolution: How to Thrive in Turbulent Times by Making Innovation a Way of Life, by Gary Hamel

4 The Innovator’s Dilemma, by Clay Christensen, 1997

5 Radical vs Incremental Innovation, by Walter Derzko, at the European KM Forum,
Radical innovation is mission-critical innovation

“Sometimes you need more than incremental innovation ... much more. Sometimes you need to ... 
* reinvent your business strategy 
* leapfrog the competition
* revolutionize your industry
* create the future” Mission-Critical Innovation

Jump in improvement results

“It goes beyond the 5 or 10 per cent year-on-year continuous improvements from sharing existing knowledge, but the 10 fold and even 100 fold breakthroughs from innovation.”

Crossing boundaries

For radical innovation to occur, it is frequently necessary to meld knowledge coming from different disciplines, professional communities, business units and functions. How well a company is geared up for radical innovation can be gauged by its capacity to continually develop, integrate and apply knowledge from many diverse sources. However, the more domains of practice are involved with a radical innovation, the more challenges it presents to the usual integrative mechanisms of the company. It’s not only a constraint of how “radical” a company may go, it’s also an opportunity to explore the potential role of the network or constellation of its CPs as integrator, at least in the idea stage of managing radical innovation.

6 The Innovation SuperHighway: Harnessing Intellectual Capital for Collaborative Advantage, by Debra M. Amidon
Questioning not only “how” and “what” but “why?”

“Incremental innovation happens at the activity and idea level, but radical or breakthrough innovation occurs when mental models shift. To facilitate such shifts in mental model is a process that is deeply reflective not just on ‘how’ and ‘what’ but also on questioning the ‘whys’.” – Gautam Gosh

When change had a steady pace, innovation in the “how” and “what” was all what was needed to adapt to it. To synch with accelerating change requires more than that, it asks for continually upgrading our mental models and questioning the “why” just to stay current with changing circumstances. “Even many people who understand intellectually that change is accelerating, have not internalized that knowledge, do not take this critical social fact into account in planning their own personal lives.” --Alvin Toffler

Why is it so? Not because we're stupid or lazy; it's just that the millions of years of relatively slow evolution has not prepared us as individuals, it has not been equipping us, for the present when change is dramatically accelerating. Deeply seated mental models don't resign peacefully without being challenged by the models of others in our personal and professional lives. That's why to increase our readiness for radical innovation as people and organizations, we must strengthen those communities of practice, where learning through our mental models is a fact of daily life.

To better understand the essence of radical innovation, we need to compare it with incremental or sustaining innovation. Only then we can get the full picture of the adjustments required in our mental models of innovation. The main differences between what characterize incremental vs. radical innovation are captured in the following table.

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<thead>
<tr>
<th>Incremental versus Radical Innovation</th>
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<tbody>
<tr>
<td><strong>Incremental</strong></td>
</tr>
<tr>
<td><strong>Emphasis</strong></td>
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<tr>
<td><strong>Technology</strong></td>
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<td><strong>Uncertainty</strong></td>
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<td><strong>Business Plan</strong></td>
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<table>
<thead>
<tr>
<th>Idea Generation &amp; Opportunity Recognition</th>
<th>Occur at the front end</th>
<th>Occur sporadically throughout the life cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key Players</td>
<td>Formal cross-functional teams</td>
<td>Cross-functional individuals, informal networks</td>
</tr>
<tr>
<td>Process</td>
<td>Formal, phase-gate model</td>
<td>Informal, flexible at early stages - formal at later stages</td>
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<tr>
<td>Organizational Structures</td>
<td>Cross-functional project team operates within a business unit</td>
<td>Idea - an incubating organization - a goal-driven project organization</td>
</tr>
<tr>
<td>Resources and competencies</td>
<td>Standard resource allocation</td>
<td>Creative acquisition of competencies and resources</td>
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<tr>
<td>Operating Unit Involvement</td>
<td>Formal involvement from the very beginning</td>
<td>Informal at early stages - formal at later stages</td>
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Source: Radical Innovation

Commoditization and disruptive innovation:

Does the telecom industry show the shape of things to come?

A “disruptive innovation” re-defines the rules of the game and can do all or any of the following things:

- alter the basis for competition
- changes the economics of an entire industry
- make obsolete more expensive business concept, processes, and infrastructure

Disruptive innovation is the main vehicle of commoditization that makes products and services cheaper, by displacing older, more expensive technologies and business processes.

Not all industries are equally sensitive to disruptive innovation; consumer electronics, telecom, computers and online services certainly lead the way, but banking, airlines, pharma and healthcare, even general merchandizing and energy are not protected from it.

Examples that speak of disruptive innovation are countless. The cellphone that allows people to stay connected in action with partners and colleagues whilst on the go, reduce my dependence on and the use of fixed lines. Collaborative filtering that starts really “understanding” my reading habits and making truly useful recommendations, changes the patterns of how I buy books. To understand the anatomy of disruptive innovation, let’s take a closer look at the world of telcos, and listen in what worries some industry executives.
“The on-going commoditization of technology cannot be undone. Products will continue to get better but they will also continue to fall in price. In the face of these dynamics jobs will melt away.... We are witnessing the commoditization of the entire industry. It is not just telecom. It is telecom and all of information technologies. Both industries are finally maturing across the board. While new products are appearing, they cost less and do more.

“When new software is needed, it may be designed in North America or Europe. But the code is written in Bangalore, or Moscow, or Shanghai. Hua wei is sued by Cisco for doing what is in effect a commodity knock off. Back ’home’ a handful of folk do the integration, first of the software, and then of the firmware and prototype hardware. They ship the result back to Bangkok or Kuala Lumpur for replication and assembly. Container ships bring the boxes back to ports like Yokohama, Newark, or Antwerp for sale on the shelves of Best Buy and Comp USA and other warehouse retailers. Prices are driven inexorably downward.

The legacy telco network is one where the monopoly must cut its own throat to try to compete with open architecture Internet upstarts that would take away its more profitable business customers.... When voice no longer rides on the TDM transport that was especially designed to carry it and is just a packet-encapsulated application on an IP network, the new central office is no longer a building housing five million dollars worth of equipment. It fits on a desktop using SIP, SIP proxy servers, and ENUM databases. It costs well under five thousand dollars and delivers an entire range of services not possible to derive from now obsolete TDM hardware costing a thousand times more.”

We may not get all the industry-specific abbreviations but get the gist of the story: disruptive innovation can represent a value proposition as different from the products and services that it displaces as the difference of personal computers from their bulky, room-filling predecessors. Distributed and web-connected processes displace less efficient ones in commerce and industries, thus both reducing waste, and jeopardizing the viability of companies that are slow or too incremental in their approach to innovation.

Disruptive innovation is frequently introduced by start-ups on initially small markets, not appealing to the appetite of large, well established companies targeting significant revenue increase on near term. “If an organization is used to having success, the threshold for a successful product often is set very high, therefore small markets cannot satisfy the near-time growth rate expected by the managers...” A popular strategy of established companies to balance that is the setting up venture units and innovation organizations separate from their main business.

No matter where innovation projects reside, challenging the sacred cows of one’s industry economics and management beliefs calls for not only courage but also the mental agility of comparing, playing with, combining and transcending mental models. That can be accomplished only by people comfortable with probing their own mental models, questioning the “why” as much as the “what” and “how.”

7 The Paradox of Commoditization, by Gordon Cook – http://www.cookreport.com/12.03.shtml
That's why it's difficult to overestimate the importance of an enterprise culture of collaborative learning fueled by the trusted learning partnerships that CPs are.

Whether your organization is leading the way of, or trying to counter-balance the impact of disruptive innovation, communities of practice and their constellations or networks or can be its best ally. Threat them in that way, don't overlook what they can bring to fostering innovation when their relationship with the formal organization is designed for mutual success.

**The Human Source of Radical Innovation**

Innovation is not only one of our human capacities but the one that made us human. If it is so fundamental to the existence of our species that our very capability to evolve depends on it, then we can assume, the capacity to innovate and make life better is present in each individual.

Given that, it is shocking how small the shreds of that capacity are, that most businesses can evoke and engage today. What shocks me is to think about all the wasted — because it’s not been engaged — energy for innovation that our workplaces are producing day after day. The economic and human cost of the lost opportunities for innovation is getting higher. Think of the tremendous opportunities that get lost when supporting innovation is only lip service, and “don’t rock the boat” rules apply.

What if the “revolutionaries” are a minority today, but will be the majority tomorrow, the young and the old, women and men, who want to use their full capacity to create, innovate, and make life better for all. What if they wanted to work only with organizations who learned how to keep them interested and engaged? Will your company succeed in an ever more demanding market of talents, where one of their demands is opportunity for meaningful work and innovation?

Gearing up to increase your company’s capacity for radical innovation, and knowing that innovation comes from people, you may ask, where will you find the ones who will drive radical innovation?

"Here is the paradox: You need a great team of people with diverse skills to perform a symphony well, but no team has ever written a great symphony!

While cross-functional teams are key players in defining and implementing incremental innovation projects, cross-functional disruptive individuals tend to
be key players in defining radical innovation projects.”

Cross-functional individuals belong to multiple communities of practice, and it is the multi-membership that gives them the boundary-spanning multi-perspective, from which they can see radical innovation opportunities where others may see an opportunity only for gradual improvement or nothing.

Champions of radical innovation are most likely to appear on the North, East, and South of William Miller's Innovation Styles assessment wheel, the place of Visioning, Exploring, Experimenting. Visioning and other enterprise-wide meaning making activities in most companies are still a privilege of management. In the formal organization of key performance indicators and deadlines there’s not much room for exploring and experimenting, two of the styles that can give birth to radical innovation. Communities of practice can be powerful allies, even strategic partners, to management, precisely because of their being the learning spaces that encourage exploration and experimentation.

**Barriers and enablers of innovation**

To fully understand the ways in which CPs can support innovation, and to mobilize their power, first, we need to identify what supports and resists that mobilization in the business, social, knowledge and technology dimensions of the organisation, what are its principal barriers and enablers.

The sections that follow can only give a taste of that. A fuller and more systematic exploration is facilitated in our workshop series http://www.communityintelligence.co.uk/what/cop.php on Gearing Up for Radical Innovation, and in our action research program http://www.ECCOP.com/ar_summary.pdf on Reducing Obstacles to (Radical) Innovation.

1. **Barriers to innovation**

   · The traditional barriers of innovation, the “not invented here” syndrome and groupthink can be reinforced, in some cases, by inward-focused and not-facilitated CPs without strong ties to the rest of the organization and the outside world. Those syndromes can also be weakened when CPs are facilitated and encouraged to cultivate various professional contacts.

   · Each of the following boundaries can become a barrier or bridge to boundary-crossing, a condition of radical innovation. It depends whether they’re plagued with mistrust and coordination deficiencies, or blessed with an effective boundaries management.

   

   * functional boundaries

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* hierarchical boundaries
* technical boundaries
* geographic boundaries
* cross-cultural boundaries
* economic and legal boundaries (between organizations)

- Traditional KM approaches have not been proved very effective for tapping into the innovation potential of CPs because of their over-investing in the technology at the expense of investing in people and the nurturing of a culture more conducive to knowledge sharing.

- Finally, if the company has a well-rounded knowledge strategy with the right provision for removing all of those barriers, there will be one still left: the lack of shared or at least inter-locking taxonomies and ontologies which could be used in collaboration across different domains of practice.

2. Enablers of innovation

- The main organizational enabler is an innovation architecture well-integrated with a holistic knowledge strategy that recognizes that the highest value asset/capacity of any company is not simply its members but the productive and trustful relationships among them. If the knowledge strategy is strong on developing such meta-capabilities as collaborative learning (c-learning), it will be more successful in leveraging the power of communities of practice for innovation.

- There's no more powerful magnet for innovation than a compelling goal or challenge that can be met only through innovation. The more significant the challenge and the leadership’s support to meeting it, the more energy it will attract and mobilize for innovation.

- Another important enabling factor is the work of facilitators of productive conversations and knowledge emergence.

- Structures, processes, and events designed for effective cross-fertilisation of ideas, knowledge and practices across business units and other boundaries, increase opportunities for innovation. E.g.: knowledge cafés, virtual knowledge fairs, digital suggestion box that triggers responses, reward points for high-value knowledge sharing, etc., or weblog (see the last point of enablers).

- The main technical enabler is an enterprise-wide collaboration platform shared by all CPs, optimized for supporting the cross-fertilization of knowledge and expertise.

- Weblogs or “blogs” are personal and group knowledge publishing tools well-suited to the instantaneous distribution, cross-referencing, combination and popularity-ranking of ideas from any number of sources, located in any mind on Earth connected to the Web. Let me illustrate it with a real story I picked up on my surfpath.
1. “A pretty much unknown person in Boston, that none of these people would know if they walked past me on the street, has built a reputation over a month and a half, writes something online.
2. He notifies people that he knows would appreciate the material.
3. Within 2 hours there is both a discussion of it going on and, more importantly, an implementation.

This is, to me, real Knowledge Management -- knowledge was created (in my head), represented (in my blog) and then people were notified (email) and then confirmation occurs (via IM).

The issue for me is that one person, working out of his house, can affect organization’s 3,000 miles away across two different cultural boundaries. Scott’s little mini-case here is an excellent example of why blogs have my vote as disruptive innovation in knowledge management space.” Source: weblog of Scott McGee

How communities of practice support innovation

The ways in which CPs foster or support innovation are countless, both in the sense of “numerous,” and “uncounted”. A systemic approach to inventory them would open the door to better align community practices with the strategic intent of the company and its innovation management. To develop and implement such an approach is one of the objectives of the current action research study on “Reducing Obstacles to (Radical) Innovation with Communities of Practice.”

We can begin that inventory process by simply gathering our observations and relevant quotes, as a first step. Below is my list and I'd be curious to hear of yours, particularly, if it’s about a way in which CPs contribute to innovation, not listed here. So, how do communities of practice help innovation?

- by the organizational culture that they can shape, if they are supported by management

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http://www.mcgeesmusings.net/2002/05/15.html
“Having developed the ability to learn in communities of practice, an organization has established a platform where collaborative problem solving and innovation are readily internalized as just the way people do their work.”

Communities of practice can become a productive platform for innovation IF the enterprise makes it a habit “to learn in communities of practice.” What would it require to realize that big IF? It asks for understanding and acting accordingly on two things:

• Communities of practice are learning spaces, in which the enterprise can grow and enhance its creative and sustaining capabilities.

• The better an enterprise supports its CPs, the stronger platform it can build for innovation to occur almost naturally.

- by mastering the art of productive conversations

“A key source of innovation is the close interaction with members in a community of practice who have developed the ability to have productive conversations. These dialogues in which assumptions are questioned as a matter of course and people are committed to build on one another's ideas in a high-trust vessel for exchange, will contribute significantly to elevating the innovation quotient of an organization”

Innovative ideas don’t appear from nothing. They are born in productive conversations. People and communities can learn mastering the art of it when supported by skillful facilitation. That’s why the quality of community facilitation has a direct and potentially high-value impact on innovation capacity.

- by specializing in fostering innovation

Some strategic communities of practice are innovation-focused. In fact, many of them were designed for discovering and creating breakthrough insight and innovation. A frequently quoted example of successful, innovation-focused CPs is the Knowledge Exchange groups at DaimlerChrysler.

Such innovation communities of practice have the potential to develop and model the roles and practices that some of the other CPs too can include in their capability repertory. For example, the tradition of “Tech Clubs” formed by various engineering disciplines at Chrysler, in the early 90’s, includes the shared appraisal of emergent technologies and their implications for the industry, and the possibility to form new Tech Clubs to monitor the most relevant ones.

- by helping to attract and retain key talent for innovation

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11 Leveraging Communities of Practice for Strategic Advantage, by Hubert Saint-Onge & Debra Wallace (Butterworth-Heinemann, 2003)

12 ibid.
Innovative people enjoy working in an atmosphere of innovation, which can be enhanced by CPs. Providing a precious environment of open dialog, building on one another’s ideas, questioning assumptions, an organization’s communities of practice can become a factor in people's decision to stay with it or leave if they get a financially better offer.

- by stewarding the knowledge bases, taxonomies, and knowledge maps of their practice

CPs are organized by practice areas, each of which can be described by a certain body of knowledge that represents the competence of the enterprise, that CPs are stewarding. Innovation frequently comes into being from novel arrangements of existing knowledge, therefore how well those community-based knowledge assets are organized and validated is a can be substantive factor of the organization's innovation capacity.

“When planning how to manage the value of knowledge resources, it is important to consider management as a set of functions managed by various players, not only managers… Community members act in partnership with formal team or business unit managers to manage the value of knowledge resources. Both parties negotiate to what extent these management tasks should be managed inside the community by its leaders and members or outside by business unit or corporate managers (or collaboratively, by both).”

The classification of terms used by the working knowledge of a community in any domain of practice can be one of the principal contributions of CPs to develop productive capabilities in knowledge-based organizations. Whilst individual domain experts can create drafts of taxonomies, ontologies, and other classification schemes, it is the participation in a shared practice that makes community members uniquely qualified for the collaborative deliberations of such schemes.

When domain knowledge is mapped and classified it provides a more fertile soil for the seeds of innovation to grow, by making easier to sense possibilities for the cross-impact of ideas.

Looking at the roles that CPs play in fostering and supporting innovation, it is useful to differentiate its three stages: idea -> implementation -> commercialization. The next paragraphs present some examples of how CPs help in each stage.

- by knowledge melding, in the idea stage

Innovation development frequently starts with collecting, evaluating, connecting, and re-contextualizing ideas relevant to the problem or opportunity that the innovation is to meet. This is the “idea conception” stage, in which knowledge and expertise from various sources meld into patterns of new potential. In this stage,
CPs can become a strategic partner to innovation management. (Strategic partners inform one another about their plans and needs in order to find ways to better mutual support.) The effectiveness of the communities’ contribution to these stages largely depends on the quality of technical support of knowledge flows and idea re-combination, and the work of learning facilitators.

Many community members participate in more than one community. **Multi-community membership** is another factor that enhances the cross-fertilization of ideas and compensates for the typical lack of taxonomies explicitly shared across CPs. Membership in multiple practices can also be a source of sensing and validating early signals of innovation opportunities. “**Multi-community membership OR communities across boundaries (where "membership" could be read as "organization") is required for radical innovation (and to a lesser extent, for innovation)**” –Erik van Bekkum.

- **by strengthening trust, in the implementation stage**

The implantation of radical innovation requires high-precision coordination of action across multiple teams, units, and communities. When coordination is lubricated by trustful relationship amongst the players, then there is less friction, and transaction costs are lower.

The transparency of behaviors in the practice of the community makes it a good nest for high-trust relationships that are essential to perform the complex and interdependent tasks involved with radical innovation.

- **by sharing stories, in the commercialization stage**

When the innovation cycle turns into the commercialization stage, success stories of various uses by early adopters are potent facilitators of market acceptance. It is particularly true if the essence of the innovation is perceived as difficult to understand, which is sometimes the case with innovation that starts a new paradigm and brings a new value proposition. Customer communities of practice are invaluable sources for early adopter stories.

**How communities of practice support radical innovation**

CPs are engaged, typically, in incremental improvement but they also have ways to support radical innovation. Here are some examples that will require further research to understand their full impact and significance.

- In large companies and business alliances, globally distributed CPs can help the enterprise learn better with/from the most demanding global customers. Such learning can serve as a magnet of innovation.

- Through their online forums, knowledge bases, issues list, and other knowledge artefacts, CPs turn the tacit knowledge of their members knowledge nuggets more
readily available to the cross-fertilization across knowledge domains necessary for radical innovation.

- CPs can integrate and validate complex knowledge practices frequently required in radical innovation.
- Through multi-CP belonging and participating in external professional networks, members of properly facilitated CPs can become sources of the out of box thinking that radical innovation is asking for.
- Shift in deeply seated mental models, necessary to radical innovation is most likely to occur in high-trust relationships fostered by the communities.
- Knowledge brokers, peripheral participants, multi-community members and other “cross-pollinators” of CPs are likely carriers of seeds of radical innovation.
- Perceiving the true potential of CPs for radical innovation frequently requires a shift in our unit of analysis. In the case of sustaining innovation, focusing on the internal innovation dynamics within a single community maybe sufficient. When it comes to radical innovation, it can be more useful to focus on a network of interconnected CPs as the unit of analysis.

Needless to stay CPs can’t drive radical innovation to success without close alignment and collaboration with such functional areas as marketing, R&D or strategic management.

**CI Innovation Architecture™**

**Creating a vortex of radical innovation**

Forward-thinking innovation management embraces the principle of "designing for emergence," the fact that radical innovation frequently results not from one big idea but from the combination of the emergent qualities of several smaller ones, therefore it cannot be planned with the same predictability as other business processes. Although it can’t be planned as, for example, a new factory, a network of conditions that favor it can be architected to yield surprising results. The CommunityIntelligence (CI) Innovation Architecture provides a high-level map and a methodology for producing them.

Its core idea is that the most potent radical innovation emerges from the various combinations and cross-impact of social, knowledge/learning, business and technical innovations. For example:

- When the *social innovation* of building swift trust among relative strangers who learn together on a virtual Innovation Campus, is combined with the *learning innovation* of weblog-based, shared Learning Journals, their cross-impact can result in rapid capability development at the level of individual members, their teams and communities.
· When the business innovation of strategic communities of practice is combined with the social innovation of distributed leadership, their cross-impact can result in greatly improved organizational performance in producing better blueprints for selected strategy areas.

· When the technology innovation of XML-supported, shared weblogs are combined with the business innovation of value networks and value webs (beyond value chain), their cross-impact can result in significantly increased business performance which will be enabled by a larger number of players who can more precisely coordinate their action, and with less effort.

· When the knowledge/learning innovations of appreciative inquiry or collaborative scenario writing are combined with the technology innovation of collaborative filtering and reputation systems, their cross-impact can result in substantial advancement of the knowledge domains touched by them.

The examples are endless, but I guess you got the picture. The sweet spot of radical innovation is the one that draws on the strengths of all 4 domains. Some of those combinations may happen spontaneously, but conscious design can enhance their rate of success. That's the main function of the CI Innovation Architecture™, the 4 layers of which are: the social, knowledge, business, and technology innovation. (It is derived from our Community Design Architecture, which is based on 20 years of research and consulting work with innovation communities in various industries.)

Those 4 labels for the 4 kinds of innovation represent distinct domains, families of practices and taxonomies. They are co-related, and yield radical innovation of higher return when they're cultivated as whole. That's why the central issue of fostering and managing radical innovation is how to optimize their interactions for synergistic results.

"Communities span all four domains of innovation architecture at the same time, to some extent," says Erik van Bekkum. That span is one of the factors that make them so naturally an ally to radical innovation. For instance:

When the leadership of the organization treats its CPs as valuable strategic partners (a business innovation), then the innovation pipeline is fed by the communities (a social innovation) connected through intra- and cross-organizational learning partnerships (a knowledge innovation) that are supported by Dynamic Knowledge Repositories (a technology innovation).

In a community that pushes the edge of:

· Social innovation, we could see the emergence of self-organizing “leadership groups” taking responsibility for supporting various aspects of the community’s sustainability, such “keepers of the issues list,” or “idea harvestors”
· *Business innovation*, the signals of success could include the signing of a new kind of strategic partnering agreement with the company’s CKO or “innovation management” leader, that spells out mutual value propositions and conditions of satisfaction

· *Knowledge innovation*, members would be co-developing, and be supported by, a shared ontology of Topic Maps™, or a pattern library of best-known methods in their domain of practice

· *Technology innovation*: members could have a Personal Learning Processor with built-in “expert trails” and other guidance information for turbocharging the members’ self-paced, discovery learning in any domain of practice.

* gathering momentum for a vortex of radical innovation...*
Imagine the "propeller blades" start turning, the wind picks up momentum and creates a vortex of radical innovation in all 4 areas, supported by the combined power of the other three. What would technology innovation look, when the enterprise learns to engage the full power of business, social, and knowledge/learning innovation to support it? What would business innovation look, when the enterprise learns how to put in the service of it the combined power of technical, social, and knowledge/learning innovation?

Creating the conditions for such vortex of radical innovation to arise is the intent that brought CI Innovation Architecture™ to life. It’s been designed to facilitate the synergy of interactions across its 4 domains. When we push the edge of innovation in all those domains, the enterprise will reach high-level of positive feedback across all of its innovation projects. Using those 4 domains of innovation as lenses, we see different things when we look at the whole architecture of radical innovation, through one or another lens. The art of innovation leadership is in the capacity of seeing and treating it as whole, understanding the interdependence of the parts, whilst maintaining a keen sense of what is needed for best results in each domain.
What is an "architecture" and its value proposition

"The science and art of architecture lie in skillfully relating parts to a greater whole, creating a form uniquely appropriate for the exercise of a specific set of functions." Sound innovation management relies on a well-designed architectural framework that integrates the business, social, knowledge/learning and technology innovation into a coherent whole that can inform the parts. The innovation architecture of each firm is different from the one used somewhere else, but the CI Innovation Architecture™ provides some common benefits to all. Innovations in each of its 4 domains may strengthen or weaken each other, depending on how well they’re designed for mutual enhancement and the emergence of multi-dimensional synergies.

For instance, the good health and vibrancy of a firm’s knowledge ecosystem (knowledge/learning innovation) is a strong factor in the success of its business ecosystem (business innovation). But what is the source of a robust knowledge ecosystem? It is the trusted relationships necessary to motivate the sharing of knowledge, including the development of swift trust in new project teams or communities of practice (social innovation).

* The concept of the knowledge ecosystem was popularised widely by Knowledge Ecology Fair '98, and elaborated on in George Pór’s article on "Nurturing Systemic Wisdom through Knowledge Ecology" http://www.co-i-l.com/coil/knowledge-garden/kd/KE.pdf.

The main value proposition of CI Innovation Architecture™ is to accelerate your organization’s innovation cycles. In addition, a well-designed innovation architecture will allow your organization to:

- **Reduce mistakes** in innovation management, which are due to not accounting for the complexity of radical innovation and what is required to harmonize the interaction across its 4 domains.

- **Orient evaluation** of choices and trade-offs among numerous innovation options.

- **Coordinate collaboration** between innovation project team, involved communities of practice members, executive sponsor, facilitator and all those who have a stake in the innovation’s success.

- **Support the co-evolution** of self-organizing "emergence" and deliberative "design" in innovation projects.

**Epilogue**

14 The Web of Inclusion: a New Architecture for Building Great Organizations, by Sally Helgesen
To break out of old patterns of organizing work and innovation requires awareness and courage:

- the awareness that there are major, epochal changes taking place in the world, and only those will be able to sustain consistently high organizational performance who invent or rapidly adopt the new patterns of organizing

- the courage to begin to create a culture of radical innovation supporting and supported by communities of practice, necessary to ensure organizational longevity in the emerging business, social, knowledge, and technical realities.

This paper is part of an unfinished conversation with CP practitioners, innovation thoughtleaders, and CKOs in Europe and North America. It is a snapshot in the conversation that continues in:

  *Value-creation by Communities of Practice*

  *Reducing Obstacles to (Radical) Innovation with Communities of Practice*

  *Collective Intelligence 2.0: Gearing Up for Radical innovation*

1 on 1 exploration with George Pór [gpor@CommunityIntelligence.co.uk](mailto:gpor@CommunityIntelligence.co.uk)
*How to accelerate innovation in your organization and its communities*

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