

Business Process and Model Innovations Involving “Open Innovation” Threats or Opportunities?

**A White Paper in the Corporate Innovation Series from the Farrell Center,
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1. INTRODUCTION. This white-paper uses so-called “Web 2.0¹” technologies as a metaphor to explore the tensions that arise when an enterprise engages with external communities for innovation. There is certainly a major discontinuity occurring as static Web presences, typical of “traditional” corporate Web sites, become a place for real-time, dynamic and collaborative environments where both internal and external users interact in largely unconstrained “social groups”. Enterprises must now ask themselves which competencies they need in order to gain, rather than lose, competitive advantages when interacting with these external fluid groups. Ignoring these developments is no longer an option.

The opportunities arise through the ability to tap into a much larger source of intellectual assets for innovation which not only improve current business processes but can uncover and enable entirely new business models. On the other hand, threats are perceived from a) losing the ability to control how these assets can turn against the corporation, b) exposing plans and proprietary information unwittingly to competitors, and even c) potential leakage of data that might be construed as illegal under the confines of the Sarbanes-Oxley and other legislation governing publicly traded corporations.

Open innovation communities such the Linux and Apache software initiatives have been well documented. However, true open innovation of this type creates a paradox for both existing and new companies intending to be profitable, sustainable and attractive to investors. If there is no private ownership of intellectual property, and the results of innovation are freely available to competitors, then how can these innovations be “monetized” within the framework of a traditional corporation? Are there “hybrid” or “partial” open innovation models that can be exploited? Or must an enterprise develop specific execution capabilities to gain from an open innovation environment? This paper is intended to stimulate discussion on these issues.

2. MARKET AND BUSINESS DRIVERS. CEO’s want business growth and business agility within their companies and their eco-systems. The Economist’s 2006 survey of 500 CEO’s concluded that increasing market share, increasing revenues and the overall acquisition of new customers were the most important CEO considerations for the next three years². This is a significant change in CEO thinking from 2002, when cutting costs was the top CEO consideration.

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¹ Web 2.0 and its different components have challenged definition. For the purpose of this paper, we attach an appendix which attempts to define an acceptable vocabulary.

² *CEO Briefing, Corporate Priorities for 2006 and Beyond*, The Economist Intelligence Unit, 2006

Gartner Group predicts that by year-end 2007, one third of large companies will have some form of Web 2.0 enabled business. It states "...as the Web recovers from the "Trough of Disillusionment" following the dotcom era, excitement is increasing among IT and business managers about the use of Web 2.0 technologies.³" They also suggest that CEO's are looking for creative innovation not only in products and services, *but also in business models.*

In contrast to earlier Web presences, a Web 2.0 application is dynamic and gets more useful and valuable the more people consume and remix or 'mash' it together with other Web 2.0 applications. Consumers are already utilizing Web 2.0 sites with increasingly useful tools and often creating an exponential growth effect. In the consumer world, Digg⁴ and Wikipedia are typical Web 2.0 companies.

Comment [SC1]: Any alternative?

3. EARLY EXPERIMENTS - Business Process Improvements. According to a recent McKinsey survey, executives are showing widespread but careful interest.⁵ Initial experimentation is more likely to focus on improving existing processes rather than radically changing fundamental business models. Examples include:

- Using Web services to tie together multiple steps across legacy systems⁶,
- Promoting collaboration between employees, partners, and suppliers⁷,
- Networking via peer-to-peer networks for more efficient information distribution⁸.

Specific examples of business process improvement are:

Advertising: General Motors has been running promotions inviting customers to create advertisements for the Chevy Tahoe brand. The customers visit a Web site where they can choose a video clip, add sound, text, create sequences, and publish the result as a complete advertisement. However, such public interactive spaces can also be turned against the hosting company. Recently a number of anti-SUV customers used this platform to create ads about global warming, to protest the war on Iraq, and to demean the product. This has resulted in numerous news articles and remarkable on-line traffic. While this violates most brand managers' rules-of-thumb, General Motors is leaving all but the profane up on the site. This repositions them as unafraid and honest, and allows the traffic to continue unabated. This is an example where the opportunity and threat sides of the debate can challenge a traditional "closed" corporate culture to retract its efforts when control over the community is lost.

Tensions: GM gains access to a large source of intellectual capital and market information, but concurrently opens itself up to widespread public

³ *Predicts 2007: Web 2.0 and Consumerization Forge into the Enterprise*, Gartner Group, November 2006

⁴ Digg is a community-based popularity Web site with an emphasis on technology, science, politics and entertainment. It combines social bookmarking, blogging, and syndication with a form of non-hierarchical, democratic editorial control. News stories and Web sites are submitted by users, and then promoted to the front page through a user-based ranking system. (www.digg.com)

⁵ *How Businesses are using Web 2.0: A McKinsey Global Survey*, The McKinsey Quarterly, March 2007

⁶ *Business Embracing Web2.0*, Business Week, March 23rd, 2007

⁷ *Corporate America Wakes Up to Web 2.0*, ZDNet, June 26th, 2006

⁸ *Peer to Peer Goes Corporate*, Wall Street Journal, February 13th, 2007

criticism of the company. It remains to be seen whether the corporate culture will impose a retraction of this experiment.

Possible competencies required: Developing a corporate culture willing to learn and adjust to consumer back-lash and establishing a creative PR and advertising department.....

New Product Innovation: **Dell** has a Web site to elicit general information from external communities at www.ideastorm.com. At this site, users are invited to submit ideas, comment on others, and interact with other users in an attempt to access innovation, but more in the context of a marketing research exercise rather than really exploring new innovations. A visit to this site exposes both the opportunities and possible threats to Dell. Clearly new product features and ideas might be uncovered, but being a public space, these ideas are also available to competitors monitoring the content. In addition, the site has an onerous intellectual property agreement for participants which demands users to provide their ideas for free, to guarantee that they are original and do not infringe on others' IP, and to hold Dell harmless should they be challenged on that point. This "contract", in itself, indicates that Dell sees this initiative as a means of gaining market insight and not really to access valuable innovation. Any really valuable idea is likely to be withheld by the onerous IP declaration and is an indication that Dell may be more concerned with the perceived threats rather than potential opportunities.

Tensions: These arise from the creation of cooperative innovation teams whose output can readily be accessed by competitors or even emergent companies. Further, the onerous one-way IP agreement, designed to protect the company, may actually drive the best innovators into the arms of competitors.

Possible competencies required: Relaxing of legal constraints, more risk taking, improved absorptive capacity for external innovations, distribution and brand power.....

4. WEB 2.0 AND BUSINESS PROCESS INNOVATION. With very few exceptions, we are not observing any *innovation* even in business processes. The following innovative examples in business process improvements using combinations of Web 2.0 technologies indicate how many opportunities may exist for companies willing to experiment. In large organizations, it is the Sales and Marketing departments that appear to be the early adopters of new Web 2.0 applications and services within the enterprise⁹. For the purposes of stimulating thought and discussion, consider the following potential ideas for business process improvement that are disruptive, provide immediate value to the user, have "The Long Tail" characteristic, and increase in value over time through network effects as they are used or shared by more and more people.

Comment [SC2]: Be consistent with capitalization or not.

⁹ Another potential area for early adoption of Web 2.0-based technologies in the enterprise is logistics and supply chain management. Given the problem space, by its very nature spanning multiple business partners, time zones, economies, geographies, and data sets, mashups here would seem to be an obvious productivity enhancement to deliver automation and provide additional insight and visibility into the business.

- *Sales Territory and Upsell Analysis*: Peer-to-peer network with Collaborative Filtering and a mash-up.

Amazon's or Netflix's "People who purchased/rented this also purchased/rented this...." can be invoked to generate an application that connects the order management system (Oracle, SAP etc), the CRM system, and customer service. The application combines or "mashes-up" customer order information, support issues, etc. and creates patterns of buying behavior for a product portfolio. This data is then mashed-up with a sales person's territory providing the sales person with analysis of his or her territory for new up-sell and cross sell opportunities suggested by the system. The application should also support user ratings and feedback of the suggestions and support sharing of the application with other sales people and partners etc. The application should allow the user to upload new opportunities mined within the application to a standard CRM system.

Tensions: Traditional sales force compensation mitigates against sharing of leads in this way, particularly with partners.

Possible competencies required: Maintaining a creative HR department, ability to retrain salesforce, and "open-to-change" IT and Legal departments.....

- *Reference Selling Application or "Shared Reference Trading"*: Peer-to-peer networks, mash-up and auctioning.

For companies with products that have "crossed the chasm" and customers are "the late majority", reference selling is a powerful strategy to reduce sales cycles and increase overall productivity. Today the customer reference programs are typically managed by marketing and not sales. Successful sales reps typically "own" by their own references and 'trade' them with their peers. A mini application would mashup CRM data (contacts, opportunities), existing reference data, order data, support data, and industry data to provide a simple shared reference database. The application would support a "give a reference to get a reference" community model or even an "auction to purchase" model. Sales people would rate references, add specific real time information about the reference, comment on use (maybe set limits etc). The sales rep would look for a reference, give or sell one to get one, engage the reference through the originating sales person and provide feedback on the reference call closing the loop.

Tensions: Even more so than the previous example, sharing opportunities with competitors requires a significant change in management motivations and risks loss of proprietary information to direct competitors.

Competencies: Top level leadership support for open innovation, open legal and IT departments, HR flexibility and ability to retrain salesforce to share rather than protect contacts.....

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RFP/Proposal/Presentation collaboration and Shared Library: Social network, mashup, RSS Feeds.

For companies with complex products, CRM falls short in understanding and assisting in the collaborative processes sales teams use to create winning presentations, proposals, and RFPs etc. CRM provides little collaboration support nor do companies have a shared library of resources (content, people and process). The application would allow a sales rep to create a shared space with status (prospect, opportunity, won/lost etc). Within the space the sales user can access a shared library of previous proposals and start from an existing one, or create a new proposal or use from shared templates. The sales user can invite the most relevant people (expertise, location) and/or people they know (social networking) to help them create the proposal. The application will trade ease of use for complex function. The application would mashup data from a hosted collaboration suite, CRM, LinkedIn, desktop search, RSS feeds, and many other services.

Tensions: This application may require sharing of sensitive information with partners and competitors, even to the level of financial data and resources raising competitive and even legal ramifications (for publicly-traded companies especially).

Possible competencies required: Developing a creative and open legal department.....

5. BUSINESS MODEL INNOVATION.

Web 2.0 social networks can be used successfully to create entirely new business models. Many of these encompass so-called inverse common mechanisms.¹⁰ Here are some stimulating examples. They are illustrative and not comprehensive:

Threadless: (www.threadless.com) invites users to design T-shirts on a tool-kit template on its Web site. Amateur designers vie for winning the best design in regular competitions which are judged by visitors to the site. Winning designs are then manufactured by Threadless' subcontractors, the designer getting a small fee, and more, importantly, peer recognition.

Tensions: As this company becomes more financially successful, the sources of intellectual property may "rebel". Thus the company must carefully balance rewards and profits. Going public may exacerbate this problem and therefore limit the sources of capital.

Possible competencies required: Flexibility of senior management, close monitoring of stakeholders, willingness to quickly adjust business models.....

Pearson's wiki business book: The publisher¹¹ is collaborating with the University of Pennsylvania's Wharton School and the Massachusetts Institute of Technology's Sloan

¹⁰ See for example: The Inverse Commons - A Discontinuity in Business Models, an earlier paper in this series.

¹¹ M. Bulkeley, The Wall Street Journal, November 16, 2006;

School on a book exploring how businesses can use online communities, consumer-generated media such as blogs and other online services – see www.WeAreSmarter.org. Using a wiki format, consultants and executives contribute for free to the book. Paid ghost writers turn the wiki into a 120-page + business book aimed at the fast-growing airport bookstore market – targeted selling price, \$25.99 with no royalties due to the authors! Over a thousand contributors have indicated interest to participate.

Tensions: If this model is seen to be highly successful initially, the best authors may choose not to participate due to lack of remuneration and rework to the traditional business model, or compete by setting up their own collaborative on-line publishing company.

Possible competencies required: Willingness to be open to contributors regarding accounting practices, establishing a responsive and creative legal department, flexibility in business model adjustment and response to market, quality control, compensation practices both internal and external, market knowledge and distribution power.....

P&G's Woman's network: Procter & Gamble over the last few years¹² has undertaken a major cultural shift from being driven by internal innovation, to actively engaging and encouraging external networked innovation. The company is recruiting up to 600,000 housewives through its Web site www.vocalpoint.com to help market its products through viral marketing and to provide feedback on new innovations. In return for much greater reach and impact, the company is giving up control of the marketing message, relying on its community of customers/marketers to craft their own message in the most appropriate fashion. It only accepts “members” with appropriate personal profiles that indicate their ability to network and influence others.

Tensions: P&G is attempting to control the members of its community to align with its own market research and marketing needs by restricting membership through its sign-in process. However, it is not difficult to “trick” this process thereby opening up this “captive” community to competitors and also lobbying groups that may wish to criticize the company; or competitors wishing to gain insight. Whether the company is able to solve the paradox of retaining a “closed and supportive” group while accessing open innovation remains to be seen.

Possible competencies required: Monitoring performance and membership quality of the social group, willingness to treat the group

¹² Connect and Develop: Inside Procter & Gamble's New Model for Innovation, Larry Huston, Nabil Sakkab, HBR, Mar, 2006

honestly and provide feedback, innovation absorptive capacity for external innovations, willingness to share more internal idea with external groups, creative legal department, brand power.....

User Innovation Input: P&G’s Vocalpoint site is designed primarily to promote viral marketing and to get feedback on internal innovations. Virtual networks of this type can be used for external innovation too. Von Hippel¹³ and others have researched the innovative capacity of “lead-users”, customers that have a passion for a product of service and see improvements, or even entirely new product concepts. Before the use of the Web to enable communities to develop and interact spontaneously, these lead-users worked largely on their own. Even so, whole new product categories were “bootstrapped” by these innovators, including snow-boards, and other “extreme” products. However, according to research by von Hippel and others, industrial products have also benefited admirably from user innovations:

Product Categories	% Major Innovation from Users	Researchers
Scientific and Medical Instruments	77%	Von Hippel 1976
Semiconductor Industry	67%	Von Hippel 1977
Pultrusion Processes	90%	Lionetta 1977
Petroleum Processing	43%	Enos 1962

What is different today, however, is the ability to tap into *communities* of users innovating on the Web. These user communities can be sought actively by an enterprise, or may develop entirely without any corporate stimulation. The Dell example above is an example of corporate stimulation of a community whereas: www.niketalk.com is a community forum that innovates new ideas for Nike. Users go so far as to actually design completely new products, with detailed construction drawings. Nike does not acknowledge the value of this site but surely it is avidly monitored by the company, and, of course, its competitors. There are also similar sites devoted to product improvements around the Newton and the iPod, failed and successful Apple products respectively. Again they are completely unrelated to Apple, yet may be adding significant value to the company.

Comment [SC3]: A discontinuity here.

Tensions: Nike and Apple have a hands-off attitude to the social groups that have formed independently around their products. They provide no information or guidance. This may reduce the value of innovations provided to this group and indeed make them more valuable to competitors. In so doing they have no way of gaining any IP rights.

Possible competencies required: Heightening absorptive capacity for external innovations, establishing a creative legal department, brand power.....

¹³ See for example, “Democratizing Innovation” Eric von Hippel, MIT Press, 2005

Two major companies that have completely embraced net-based social networks of users are Lego and Ducati, so much so the Web is not an “add-on” activity as we have seen with Dell, GM and P&G, but is now centric to the strategy and culture of the corporations.

Lego integrates both users and user ideas into their corporate New Product Development (NPD) efforts by using self-design tool-kits for use by “Adult Fans of Lego” (AFOL’s) some of whom may be invited to be members of an internal development team. Lego is also considering allowing innovators to license certain rights to Lego’s core products and actually manufacture and market new, niche products through affiliated, partly user-owned companies. This table taken from a study by Antorini in 2005 shows the categories of user innovations that have emerged from Lego’s new strategy:

Type of User Innovation	% of Total
Computer related add-ons	14.8
Building techniques	13.4
Novel Play themes	24.6
Novel Physical Products	47.2

Of the total, over 7% are considered “first-of-type” or radical innovations. For AFOL’s to be able to innovate effectively, Lego made the decision to disclose much of its product and manufacturing knowledge to the user community. Again, such a decision cannot be taken lightly, as the data can be extremely valuable to existing or potential competitors,¹⁴ and the threat/opportunity argument must be considered.

Tensions: Lego’s external innovation groups are providing more good ideas for growth than the company can manage. It must decide therefore whether it allows these ideas to escape, perhaps creating new competitors, or sets up new business entities that are jointly owned with the inventors and which share IP and resources.

Possible competencies required: Openness and creativity from senior management and the legal department, absorptive capacity towards external innovation, brand power.....

Ducati, a major publicly traded Italian manufacturer of motorcycles has completely changed its organization to one where a “FAN” of the Ducati community is seen as THE major asset of the company. This community of 160,000 is involved in many aspects of the company’s planning including marketing, product design, advertising, sales and even servicing. In order to underpin the necessary change in corporate culture, the terms “marketing” and “customer” have been superseded by “community” and “fan”. No decision about new product designs and launches as well as their engineering is made until the FAN community has the opportunity to voice their inputs constructively which

¹⁴ Other examples of companies that have decided to provide free use of proprietary know-how in order to encourage communities to engage with them to create growth such as Amazon, Google etc. can be found in “Wikinomics”, Tapscott and Williams, Portfolio Press, 2006.

are then taken seriously by the Ducati executives. The Ducati Web site has a “café” where FANS are invited to share “principles and ideas that make your bike work”. FANS interact through Blog discussion groups, interactive polls, and direct feedback sessions. Customers can share technical knowledge regarding servicing, ways of improving performance, etc. The company runs competitions to “design your dream bike” and is extending this to sub-components too. Even innovation valuable to other market sectors, yet using Ducati technology has emerged including a coffee machine and an artificial heart!¹⁵

Tensions: Ducati has decided to provide extensive proprietary information to its external innovation network, information that might be very valuable to competitors.

Possible competencies required: Maintaining customer loyalty, absorptive capacity for external innovations, brand power, fast execution in new products.....

7. SUMMARY AND DISCUSSION POINTS . This paper has outlined the shift that has occurred in the Internet from being a one-way information delivery and access tool, to a platform for social interaction and collaboration under the general term of Web 2.0. Originally, Web 2.0 applications were rapidly explored by the consumers; however a number of these methods are now finding their way into the corporate world, initially for business process *improvement* but more recently in business process *innovation* and even radical shifts in business models. These developments are challenging existing enterprises in how they interact with open innovation communities. Questions such as “how much proprietary information are we willing to share?”, “how much control do we require over these new social groups?”, “what internal competencies must we develop to benefit from open innovation?”, “which hybrid models of open innovation can we use whereby we can gain access to large communities of innovators while maintaining the ability to compete?”

There are clearly advantages. Enterprises have a lower cost way of interacting and learning about their customer needs and trends. They can also tap into large and often passionate and engaged communities of user-innovators for sources of new product and service ideas and even viral sales networks. All these advantages, of course, come with caveats: corporate executives fear loss of control – communities can easily turn from being supporting to being highly detrimental. Stimulating public communities may provide closely guarded information and innovations to competitors; or even worse, allow information to leak that could expose the company and its executives to threats under the legislation governing public traded companies and their disclosure procedures.

Yet it seems that some companies are starting to embrace intimate engagement with external Web communities in a way that had radically changed the way that they exact business and modify their corporate culture. Please let us hear your views about these issues.

¹⁵ Research by Prandelli 2006

- a) What competencies are necessary to benefit from innovation communities?
- b) How threatening are these perceived particularly by IT and legal departments?
- c) What level of data are enterprises willing to make public in order to help these communities provide greater benefit?
- d) What do you see as the major opportunities and threats coming out of Web 2.0? and similar dynamic and scalable technologies?

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Appendix: Web 2.0 Technology and Terminology ©2007

This appendix provides more in depth notes on technology trends, Web 2.0 definitions, and terms, as well as a short discussion on Communities, Collaboration and Communication, referred to in total as “social networks”.

Technology Trends:

Since the mid-eighties we have been through two major technology revolutions that affected the way software was developed and delivered, and we are well on our way to a third. The first, represented by PC's and client server computing, forever changed the way people work. In the second, the Web increased access to information and created new communication channels. We are now advancing through the third technology revolution, commonly referred to as Service Oriented Architecture (SOA). Once again the business tools are changing. Inflexible monolithic applications are transforming into service-based, business-driven solutions that evolve with the changing requirements of the organization. Software solutions are more and more frequently delivered as a service instead of something that is installed on a company's internal IT infrastructure. The emergence of Web services and the maturation of the Web from its first incarnation to its second – a platform for application development and widespread collaboration- is now referred to as ‘Web 2.0’.

This term has been defined by many people, with perhaps the broadest definition coming from M. R Rangaswami of Sandhill.com. He states, “Enterprise 2.0 is a new set of technologies, development modes and delivery methods that are used to develop business software and deliver it to users. Andrew McAfee from Harvard Business School, credited with the term “Enterprise 2.0”, has defined it as “... the use of emergent social platforms with or between companies, customers and suppliers¹⁶.” His Enterprise 2.0 paper talks more specifically about collaboration and the emergence of tools for cross functional team-based knowledge work.

Web 2.0 Definition:

The term Web 2.0 does not imply a new Web. This next generation of the Web refers to a new set of available services that allow people to access, collaborate, and share information in a new way. The more explicit synonym "Participatory Web" may serve the definition better: emphasizing tools and platforms that enable the user to tag, blog, comment, modify, augment, select from, rank, and generally talk back to the contributions of other users, other Web sites and their data and event streams. Wikipedia¹⁷, itself a Web 2.0 application, defines the term ‘Web 2.0’ as:

¹⁶ *Enterprise 2.0 The Dawn of Emergent Collaboration*, MIT Sloan Management Review, Spring 2006

¹⁷ *Wikipedia* is a free, open content online encyclopedia created through the collaborative effort of a community of users known as Wikipedians (www.wikipedia.com)

- The transition of Web sites from isolated information silos to sources of content and functionality, thus becoming computing platforms serving Web applications to end users
- A social phenomenon referring to an approach to creating and distributing Web content itself, characterized by open communication, decentralization of authority, freedom to share and re-use, and "the market as a conversation"
- A more organized and categorized content, with a far more developed deep-linking architecture
- A shift in economic value of the Web, possibly surpassing that of the dotcom boom of the 1990s

Web 2.0 Terms:

Software developers provide a set of tools that allow participatory applications easy to assemble. Here are some of the terms used to describe these applications:

A *mashup* is a Web site or application that combines content from more than one source into an integrated experience. New value can be created from the combined content that's been 'mashed up.' A mashup can impact productivity, improve personalization, and provide new utility in a fraction of the time it would traditionally take to deliver similar functionality. A typical example is the combination of GoogleMaps® with other data such as weather forecasts, real-estate transactions etc. In order for these to function requires Google to open up its map data with standard interfaces for common use, of course.

A *wiki* is a Web site that allows visitors to add, remove, and otherwise edit and change content, typically without the need for registration. It also allows for linking among any number of pages. This ease of interaction and operation makes a wiki an effective tool for mass collaborative authoring.

A *blog* is a user-generated Web site where entries are made in journal style and displayed in a reverse chronological order. Blogs often provide commentary or information on a particular subject, such as food, politics, or local news; some function as more personal online diaries. A typical blog combines text, images, and links to other blogs, Web pages, and other media related to its topic. There are now search engines specializing on accessing the so-called Blogosphere¹⁸

A *widget* (or control) is an interface element that a computer user interacts with, such as a window or a text box. Widgets can be small applications, a utility, or a part of a larger application. Widgets are often packaged together in widget toolkits. Programmers use widgets to rapidly build graphical user interfaces for new collaborative applications.

¹⁸ See for example www.blogpulse.com

RSS (Really Simple Syndication) is a family of Web feed formats used to publish frequently updated digital content, such as blogs, news feeds or podcasts. Users of RSS content use programs called feed 'readers' or 'aggregators': the user 'subscribes' to a feed by supplying to their reader a link to the feed. The reader can then check the user's subscribed feeds to see if any of those feeds have new content since the last time it checked and if so, retrieve that content and present it to the user.

Tool-kits are coordinated sets of 'user-friendly' Web hosted design tools that enable users to develop producible custom products themselves via iterative trial and error. These should be contrasted with *mass configurators* which allow customers/users to select components to build a customized product, e.g. the Dell on-line order site. Tool-kits challenge user communities to solve problems allowing open-ended solutions and hence encourage rather than suppress innovation.

Communities, Collaboration and Communication:

A social network is a social structure made of nodes, which are generally individuals or organizations. It indicates the ways in which they are connected through various social familiarities ranging from casual acquaintance to close familial bonds. The term was first coined in 1954 by J. A. Barnes¹⁹. The maximum size of social networks tends to be around 150 people (Dunbar's number²⁰) and the average size around 124²¹. The first social networking Web site was Classmates.com, which began in 1995. Company of Friends, the online network of Fast Company, the pre-eminent "new economy" business magazine, launched shortly after in 1997 and introduced business networking to the Internet. Other sites followed, including SixDegrees.com, which began in 1997, Epinions, which introduced the circle of trust in 1999, followed by European equivalents Ciao.com, Dooyoo and ToLuna.

It was not until 2001 that Web sites using the Circle of Friends online social networks started appearing. This form of social networking, widely used in virtual communities, became particularly popular in 2002 and flourished with the advent of a Web site called Friendster. There are over 200 social networking sites. The popularity of these sites rapidly grew, and by 2005 MySpace was getting more page views than Google. Google has a social network called Orkut, launched in 2004. Social networking began to be seen as a component of Internet strategy at around the same time and in March 2005, Yahoo launched Yahoo! 360°, their entry into the field. Social networks can also be organized around business connections, as in the case of LinkedIn.

The rapid growth of more specialized Web connected social networks and the ready availability of software tools to create and manage such networks will have a major

¹⁹ *Class and Committees in a Norwegian Island Parish*, Human Relations

²⁰ Dunbar's number is a value significant in sociology and anthropology. Proposed by anthropologist Robin Dunbar, it measures the "cognitive limit to the number of individuals with whom any one person can maintain stable relationships". Dunbar theorizes that "this limit is a direct function of relative neocortex size, and that this in turn limits group size ... the limit imposed by neocortical processing capacity is simply the number of individuals with whom a stable inter-personal relationship can be maintained."

²¹ *Social Network Size in Humans*, Hill, R. and Dunbar, R. 2002. Human Nature, Vol. 14, No. 1

impact on enterprises. For our purpose, it is the power of Web 2.0 technologies to enable participation and interaction between an enterprise and external social networks that will impact corporate innovation in new ways. According to Linus Torvald, the founder of the open-source community for the development and enhancement of Linux, "...given enough eyeballs, all bugs are shallow". Before giving some specific examples, it is worthwhile to discuss the emergence of self-forming on-line communities.

Consumers have already embraced virtual communities and collaboration and they are now a key part of their lives. For example, teenagers and young adults typically visit communities such as MySpace.com or YouTube.com every day of their life. High-school students routinely collaborate to complete their homework assignments, dividing the work between them to complete it more quickly and with less effort. Inside the enterprise today, the average knowledge worker typically participates in 10 communities, and in 30% of these, there are participants from outside the organization. Employees are already using broad social network whether or not their enterprises know about or support these choices. Within 10 years, 80 percent of the work performed by employees will be collaborative rather than solo efforts²².

Communities are important tools for learning, collaborating, innovating and sharing information, inside and outside the organization. Wikis, blogs, and special-interest groups are all ways to create and share information and experiences. Enterprises must realize that owning a community is a source of information. For example, Google mines their communities to discover exactly what interests the participants and then uses that information to push specifically targeted (and paid for) advertising at users. Organizations can effectively mine Web communities to find out what people think of their own products or those of their competitors. This might be regarded as a form of "institutionalized snooping," but it is a key principle of Web 2.0.

Communities can also provide new ways to solve problems. For example, predictive markets cast a problem into the form of a stock market and then let the community trade virtual "stock" to express their opinions. Such mechanisms can be used to predict sales, the outcome of elections and other such issues. Through the exploitation of collective intelligence, communities can be used to throw large numbers of community members at a problem.

Communities are often sources of trusted knowledge. It has been said that "markets are a conversation²³" and it is becoming increasingly important for enterprises to be actively participating in these conversations. Enterprises must attempt to discover which communities, customers and prospects use to gather information about them and their products. Although this can be advantageous, enterprises must also understand that their ability to subsequently influence, let alone control, those communities is severely limited.

Communities offer new ways to create products. The Open Source Development movement is the best-known collaborative community development process in the world,

²² *Enterprise 2.0 The Dawn of Emergent Collaboration*, MIT Sloan Management Review, Spring 2006

²³ See definition of Web 2.0 on Wikipedia (www.wikipedia.com)

and many businesses now use open-source products every day. Willing participants often devote substantial personal time and resources to these projects — and they don't get paid — so they must clearly see a personal benefit in community membership. Community-created products and services are a key element of Web 2.0. Communities and collaboration are empowering individuals, and as people learn and innovate, they change their expectations of organizations, and these same people are all employees in some enterprise somewhere. Individuals have discovered the power of communities, and they will never go back. Organizations will start to lose total control of their business models as communities redefine them. Over time, communities and collaboration will transform the Web into a self-segmenting market space, making traditional views of how to define, delineate, analyze and penetrate markets obsolete overtime.

Communicating with customers via podcasts, with partners about new product development via a RSS feed, and with legal advisors via a blog on regulatory issues is all increasingly common. Enterprises are now experimenting with access to Web based communities to better understand their markets, customers' needs and trends as well as to tap into sources of innovation.

Acknowledgements:

The author is extremely grateful for numerous insightful conversations and sharing of information with colleagues within the Farrell Center at Penn State, the Institute for Entrepreneurship and Innovation at the Economic University in Vienna, and numerous business correspondents from the Venture Capital sector, as well as small and large company realms.

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