Social Networks and Virtual Reality as Environments for Business Development and Globalization

1. **Goal:**

To develop a white paper that describes the landscape of social networks and virtual worlds and clarifies the enhanced value propositions of these environments for business development and globalization. To provide an understanding of the current and potential benefits, as well as the constraints imposed by cultural, technological, and business trends and realities that must be dealt with in order to achieve sustainable strategic benefits

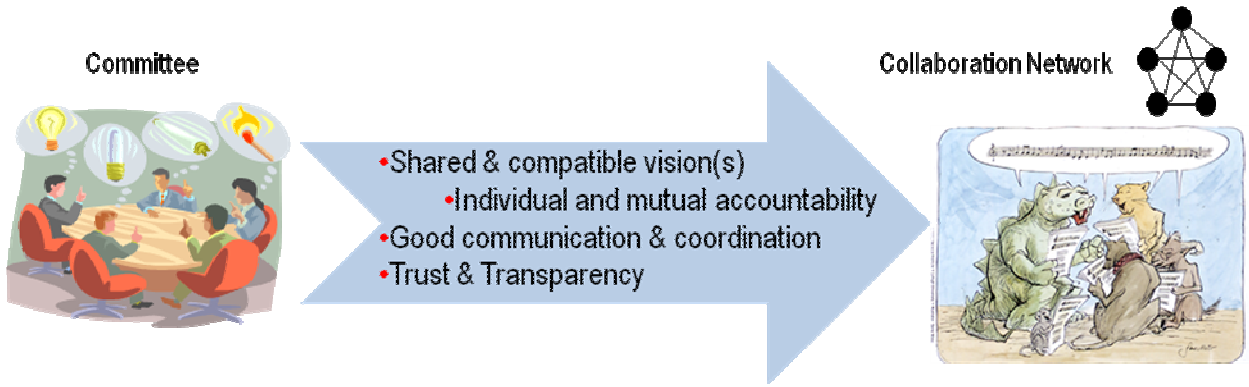
2. **Background:**

It was as an outgrowth of a recent graduate course on "Open Innovation Networks" that we began to see the need for a white paper on how industry can benefit from social network software such as "Facebook " and virtual environments like "Second Life". This realization grew out of studying how companies like Proctor and Gamble, Cisco, IBM and Air Products were beginning to use social networking tools to gain competitive advantage by extending and enhancing the effectiveness of intra- and inter- enterprise collaboration.

As we talked with more and more professionals about this, we found the concept of Social Networks and Virtual Reality as Environments for Business Development and Globalization to be intuitively appealing. Many of these people, however, felt a need for clarity in understanding what was evolving, what others were doing, and what the business and technological capabilities and constraints might be. We were challenged by several industry executives to develop a white paper on this and converged on the goal as written above.

3. **Observations:**

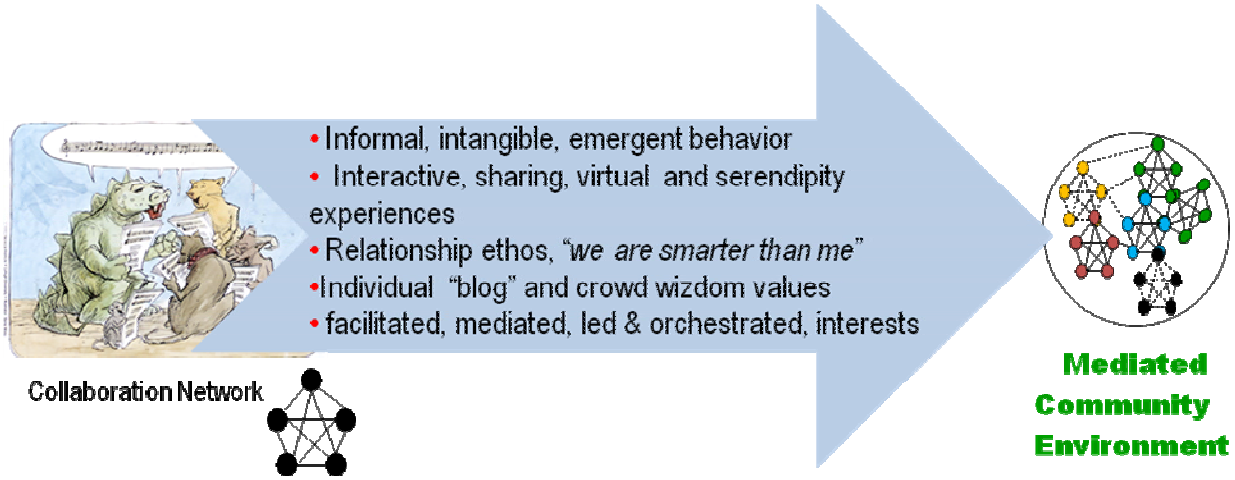
The transition from a loosely structured committee of individual contributors into a collaborative team is an important factor in productivity, particularly in organizations operating in the knowledge/service economy. For clarity in understanding our white paper we call the transformation of a committee into a collaboration team a phase transition. There are of course many tools to support focused collaborative environments and training methodologies, and we are still learning. The picture below is meant to suggest some of what we know about this transition.



We believe a second phase transition is now possible. In this case we see the transformation from very focused collaboration networks with specific goals and objectives into being part of a larger community. This larger community is made up of many networks—some tightly coupled and focused like a collaboration network while other parts of the community have weak links between strongly linked sub-networks. Think of a collection of networks with similar but different tasks, expertise, etc. Even more importantly, many networks in the community have informal links (i.e., they don't appear on organizational charts) but in which significant value is created, and in fact without which value creation would in many cases be severely impeded. See the work of Verna Allee (www.vernaallee.com) on value mapping for an explanation and demonstration of this. But perhaps the most important observation about communities is that some networks are not only informal and intangible, but are bound by common interest. Their roots lie in chat rooms, forums, etc. But their evolution is phenomenal. We are of course talking about social networks (MySpace, Facebook, …), professional networks (LinkedIn, Plaxo Pulse, …), and shared community content development networks (Wikipedia, Del.icio.us, YouTube, "we are smarter than me"). The list is not complete, and should also include, podcasts, blogs, etc. Finally we have the shared experience networks of people in various virtual worlds like Second Life.

We observed that a few companies are experimenting successfully with these tools, for enhancing business productivity, innovation, etc. Two of the most obvious driving factors are the need to stay in touch while geographically distributed, and the expectations of the current generation of people entering the workforce in terms of how they communicate.

In our first three weeks on the task we have studied the business applications of social networks, like Facebook and MySpace, analyzed the business uses of LinkedIn, and examined many business uses of Second Life. In addition we are examining articles, books, and conducting interviews with experts to learn more. Our first tentative conclusion is pictured below again as a phase transition. We believe an appropriate name for the collection of activities we are trying to understand is a **"community environment"**.



Our observation is that community environments can be mediated, facilitated, and led directly and indirectly in certain circumstances. In many of the cases we have examined thus far, the business

value has come from exactly that process. We are at this point calling it a "**mediated community environment"**. But we mean to include all forms of providing direction. We point out that the mediation does not impact the whole community, but appropriate constituents, and that those constituents often self select, such as in answering a question put to a community.

By the phrase **mediated community environment** we are referring to the collection of networks—formal and informal, social and professional. We are at the beginning of this process and seek more active participation and support.

4. **Value focus and constraint:**

The industrial users are bottom-line focused; they seek not new methodologies, but enhanced and sustained value creation. The paper will include mini case examples of what leading companies are now doing. In addition an integrated view of future business applications will be extrapolated from emerging trends, interviews with business leaders, technology experts, and related sources. The white paper will have two sections.

- The first section will use the integrated future view to develop a variety of alternative business-based scenarios for value generation and the constraints which must be overcome. This section is directed at the reader who seeks a conceptual understanding and will focus on clarifying value propositions, constraints and innovation challenges
- The second section will focus on explaining the technological and cultural implications of what is emerging and is in place today. This section is aimed at the technology, human resources, and operational business readers. It will cover the driving forces behind the technology and cultural changes taking place, and provide perspectives on what is being done and what needs to be done. For example, this section will discuss the high level technology integration and interface requirements to enable the scenarios described in section one. This section will also include the literature review, interview summaries, and other source materials used in developing the white paper.

5. **Methodology:**

The white paper will be developed in a mediated community environment with an inner core of industry representatives, facilitated by professors, and supported by students. The core team will be facilitated by a few professors or research engineers (the facilitators) whose task it will be to facilitate and guide the process to completion. A network of advisors will participate through interviews, site visits, publications, or interactions in social networks and virtual environments. An outer core network will contribute by providing feedback periodically. When the project is 1/3 complete, the core team will invite a broad base of industry, and technology professionals to a briefing where the current ideas will be shared and critical feedback and comments will be sought. Similarly at the 2/3 complete mark we will again report on our progress and seek feedback on directional corrections and suggestions for enhancement. Finally when the white paper is complete we will distribute it to the outer core network.

The inner core team will review and provide feedback on research objectives as set by the facilitators. The facilitators will direct the student researchers and manage the white paper production. Research activities include but are not limited to:

a. Literature review and summary evaluation of current capabilities and limitations. What are the generic principles with respect to our goals and objectives?

b. Identify and interview other technology experts (not on our core team) to understand current capabilities, constraints, current research objectives and the state of the art.

c. Site visits and interviews with industry executives and their technology teams at companies using these technologies. Some possibilities are IBM, Cisco, and Second Life host Linden Lab.

d. Interviews and site visits with organizations that have an interest in using social networks and virtual reality technologies and environments in enhancing business effectiveness to better understand and document the potential benefits and constraints.

e. Using the tools we are investigating to enhance the research. We will use cyberspace tools to establish a network environment for the people on our inner, advisor and outer cores. We will also explore using Second Life, wiki tools, and document sharing methodologies.

In particular, we are seeking to better understand and communicate practical future enhancements to a business' ability to accomplish tasks like the following. Note, we expect this list to grow and change as the white paper research takes place:

1. To deploy virtual teams and utilize virtual resources to overcome geographic and organizational constraints in collaboration networks;

2. To innovate and manage operations using networks both inside and outside the firm;

3. To stimulate productivity through synergy and serendipity [informal interactions];

4. To enhance the effectiveness of global communications, collaboration and competitiveness [formal interactions];

5. To provide appropriate tools to the new generation of employees entering the work force, and provide training and educational opportunities for the other generations of employees as needed,

6. To more effectively find, evaluate and integrate capabilities that cross organizational boundaries;

7. To make more effective use of knowledge in, for example, strategic and tactical decision making, product development, and research; and

8. To determine new and continuing global growth opportunities.

In addition, we will include the following practical constraints (and others as we learn of them) by seeking:

9. To identify limitations imposed by current business thinking and practice;
10. To determine the degree to which the distinctive requirements of social networking and virtual world software in business require technological changes from the existing social networking and virtual world systems;
11. To determine the impact on success of social networking and virtual world deployment on employee characteristics and generation, and to identify methodologies for impacting the cultural success barriers;
12. To identify the unique technological challenges in ensuring a proper degree of security and privacy, taking into account legal liability and ethical imperatives;
13. To identify the technological challenges which business may choose to impose in deploying these methodologies, in addition to security, privacy, and legal compliance;
14. To identify the constraints unique to generational cultural differences in conducting business using these new environments;
15. To identify the degree to which existing technology and current research can meet these needs; and,
16. To identify areas for new research initiatives in computer science and related technologies to provide enhanced value to meet emerging business needs and goals.

6. Invitation to Organizations

Please consider joining our community. On behalf of our Lehigh professors and students as well as our colleagues at other locations we invite you and or your organization to join us. There is a strong need for organizations that can provide modest funding of $20,000 and support for a summer intern. The intern does not need to work at your organization, but that is possible. We are calling such organizations our sponsors, and we will work to make sure that your people are integrated in our efforts, and that you have early and good access to our research findings, students, professors and our community. We seek to interview key people in your organization to understand your views, expectations and thoughts regarding the business value of a mediated community environment. We plan to work with sponsors on pilot demonstration projects, tool and environment analysis, etc.

Our sponsors are invited to be active members of our community, meet with us periodically (we think about once a month), and participate in our cyber-enabled community.

Frankly we seek your help in knowing how we can earn your sponsorship, and are ready, willing and able to customize our interactions with sponsors.

We gratefully acknowledge the support of the Pennsylvania Infrastructure Technology Alliance (PITA) for seeding the white paper effort, and Air Products for confirming their role as our first Industry Sponsor. We hope to have about fifteen industrial sponsors. Please contact one of our faculty members to learn more about participating.

Finally some individuals and organizations will be able to participate, but cannot at this time be sponsors for reasons we cannot control. We will actively and gratefully accept their participation, guidance and advice. We will of course work with sponsors to make sure they have the leverage and advantages they need to benefit from their sponsorship.

In closing we are seeking sponsors, expert advisors, and organizations or individuals who would like to interact with us. We are as we speak deploying an electronic environment in which we will mediate our community. Please make every effort to get involved if you are as curious or passionate about this idea as we are. Professors Roger Nagel and Brian Davison are acting as our facilitators. Please contact one of them, or any of our faculty to take the next step.

Our professors, their departments and email are listed below

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