



Athena Alliance

Exploring the promise and pitfalls of the global information economy

Virtual Worlds and the Transformation of Business: Impacts on the U.S. Economy, Jobs, and Industrial Competitiveness

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Executive Summary

Virtual Worlds—immersive and collaborative environments on the Internet—also referred to as Web 3D, are likely to transform the global business environment. Developed out of online games, social networking, and Web services, Virtual Worlds benefit from several technologies that enhance their usefulness, including massively scaled games, avatars, cloud/on-demand/grid computing, on-demand storage, and next-generation networks.

The convergence of these technologies in a new Virtual World “ecosystem” will change the way businesses operate. By creating immersive environment platforms accessible through mobile and other handheld devices, Virtual Worlds bring powerful computing, data analysis, and decision-making tools to employees of firms of any size.

Virtual Worlds not only elicit customer-generated information and ideas, they enhance collaboration within and between businesses. These platforms facilitate a wide range of business activities and opportunities, such as training and education, product and service development, marketing and strategy creation, and finance exchange that can be executed in new, interactive environments. By enriching and deepening collaboration within and between firms, Virtual Worlds can transform U.S. businesses in the modern era. This vision—now plausible with current and ever-evolving technology—sees the modern corporation operating and receiving knowledge and inputs from suppliers, employees, and customers in wholly new ways. It also provides for the emergence of highly specialized very small firms that can combine to create innovative products when opportunities for these exist. This offers a vision of a modern guild-like aspect of the economy.

For the past few decades, business organizations have integrated new technologies into their operations using structures to capture new knowledge and innovations. Several authors have

argued that the corporation should move toward the collaborative enterprise, which incorporates the Internet more fully.

Here we argue that online social networking and Web 2.0 platforms are likely to transform core business operations and interactions with suppliers, customers, and supporting services. Virtual World platforms that form the core of a new corporate operations ecosystem will not only allow for horizontal and vertical interactions but will expand the essential business, partner, and management linkages that enhance productivity over the long term.

Virtual World environments promote such changes by helping enterprises develop new products in concert with suppliers as well as with specialized “expert firms” or individual entrepreneurs. In these immersive, collaborative environments, corporate executives and other employees can bring computer simulations and robust databases into Virtual Worlds supported by high-speed, next-generation networks. This allows a wide range of businesses, manufacturing concerns, and services to see the results of business decisions in real time. For instance, banks can visualize analyses of equities data or of options prices and make rapid decisions about where to direct investments.

In some cases, this tool will expand the modern corporation; in others, it will lead to greater specialization. For example, one scenario envisions a multi-industry conglomerate that acquires or merges with companies in related industries and their suppliers and operates in major parts of the economy. A new conglomerate emerges, for instance, to serve both the aerospace and auto industry and includes suppliers that were once independent of final producers.

Another scenario might result in a modern “guild system” wherein firms employ extensive Virtual Worlds technology to foster collaboration both inside and outside the firm. These expertise-based firms will be far more capable of amassing specialized knowledge than other, more traditional suppliers or service firms. They also will be better positioned to team up with other “guild system” firms to respond to large projects or to jointly address significant technical challenges. These modern guild firms might be similar to large consulting firms or to today’s highly specialized supplier firms like KPMG, Cadence Design, or Mentor Graphics, although we assert they’d go even further. We might call them “extremely agile” corporations that can quickly and effectively acquire new products and recognize new benefits from technological innovation and services development.

These emerging collaborative enterprises will use existing Virtual World and social networking technology to form new ecosystems that are three-dimensional immersive environments that can be secured behind a firewall either online or within the corporation’s intranet system or in secure extranets that are outside of corporate firewalls.

The evolution of the Internet to Web 3D or fully functional Virtual Worlds will require extensive use of cloud/on-demand/grid computing, on-demand storage, and next-generation networks. These three technologies will allow businesses to take compute-intensive processes, such as product design, investment decisions, and daily business problems, and bring them under the control of a wide range of corporate executives. This will enable business

collaboration on a heretofore-unimaginable scale and scope. Furthermore, embracing these three new technologies makes it possible for corporations to make the social networking organization the central tool for integrating supplier and partner expertise into their own operations, either temporarily or permanently. This will transform both manufacturing and services-oriented businesses and the U.S. economy as a whole.

Some of these Virtual World technologies are used in business today. Several Virtual World sites have millions of registered users; the total number of users is expected to grow to one billion worldwide by 2017. As of May 2008, IBM's Virtual World connected at least 6,000 active employees. Sulake's Habbo Hotel has nearly 100 million registrants and 10 million unique monthly visitors. Linden Lab's Second Life reported 12 million registrants and about one million active users. IBM, Cisco, and other firms are using Virtual Worlds for training and conferences. Cigna has established health groups for counseling. Aerospace and auto firms are using virtual cars and planes in their design and testing groups. Oil firms are using virtual models to evaluate new wells. We expect these examples to become more numerous in the next two to three years.

The rise of the collaborative enterprise that is likely to result from the successful deployment of Virtual World technologies will usher in a new era of business. It will change the way firms compete with one another for customers in both goods and services industries.

It is our firm belief that if our nation accelerates the development and maturation of Virtual Worlds, it will encourage a more collaborative and enterprising form of business. This will lead to greater innovation, sustained productivity, and competitive growth in the world economy.

It will also create challenges. The ability of manufacturing, service, and knowledge-based businesses to find whatever inputs they need regardless of their geographical location poses a specific trial. Virtual Worlds could engender new forms of outsourcing or place the United States at a competitive disadvantage if firms around the world were faster to adopt Virtual Worlds than their U.S. counterparts.

Thus, the need for the United States to move quickly is great. There are a number of policy areas that can be pursued to foster the development and utilization of these tools. These include policies to heighten the awareness of the importance of Virtual Worlds and the collaborative enterprise to the economic competitiveness of the nation; address the need for the technical infrastructure; encourage adoption of these collaborative tools and deploy these tools everywhere, including in communities left behind; and promote the education and training that employees and businesses will need if they are to successfully work as collaborative enterprises.

Government policy should focus on the fact that the U.S. will compete based on its ability to master collaborative skills less reliant or even in contrast to those traditionally used in business today. Innovative policies should encourage corporations use social networking practices. Changes in the tax code could encourage investment in collaboration skills, networks of collaborative enterprises, and a new collaborative infrastructure. The federal

government and states should also promote policies to promote faster development of cloud computing, scalable data storage, and open networks. They should also develop innovative training programs that educate businesses and employees about how to use collaborative technologies and integrate them into traditional disciplines.

With the right policies in place, companies and workers can use the tools of Virtual Worlds to transform the United States into a collaborative, enterprise-driven economy. As a result, this new phase of business can potentially create millions of well-paying jobs for the people of the United States and sustain American prosperity for years to come.

The full report can be downloaded from the Athena Alliance website at www.athenaalliance.org/pdf/VirtualWorldsandtheTransformationofBusiness.pdf.

About Athena Alliance

Athena Alliance is in the vanguard of identifying, understanding, analyzing, and educating on the information, intangibles, and innovation (I3 or I-Cubed) economy. Information, knowledge, and other intangibles now drive economic prosperity and wealth creation. The economic rules have changed; public policy has not caught up. Policymakers are grappling with the urgent need to frame policy questions in light of the changing economic situation. Athena Alliance helps close that gap through activities to reshape the debate and craft new solutions. For more information, see www.athenaalliance.org.