

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

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Main Points of Paper

1. Virtual Worlds will be a transformative technology for businesses over the next 5-10 years. They will create a new technology platform for collaboration inside the firm and between firms and their partners. This will incorporate social networking and gaming into Internet and change it into a 3D collaboration platform.
Virtual Worlds are immersive 3D environments using Internet technology that can include participants (avatars) in many locations who can easily interact with each other and experience events and objects as though they are real (augmented reality).
2. Virtual Worlds add the element of collaboration to other Internet or business tools and have the potential to make traditional applications that are used by “isolated” individuals or work groups accessible to groups of collaborators. This builds on a legacy of massive multiplayer online games (MMOGs), avatars, and social networking.
3. The transformative nature of Virtual Worlds turns on its ability to serve as a collaborative platform where applications are brought together not only through social networking and Service Oriented Architectures, but also by offering access to cloud computing, virtualized data sources, and next generation networks.
4. One innovation of Virtual Worlds is tying social networking to Internet technology. The result is a platform that firms can use to enhance collaboration in their own enterprises and between enterprises. This takes advantage of new skills in the workforce because of extensive student experience with MMOGs and Virtual Worlds.
5. This evolution can lead to new types of firms and industries. Firms may become modern “guild organizations” because they amass specialized knowledge and can apply it to specific projects or tasks. Industries will become “fourth wave” because they depend almost exclusively on information technology to produce services and goods.
6. Nations that promote the growth of these new technologies could give their firms first mover advantages in the marketplace. Cultural shifts in the business world may take time and first movers could capture new markets before other firms can serve them. In addition, the infrastructure to support rapid access to cloud computing, virtualized data sources and next generation networks will take time to deploy. Early moves to create this infrastructure might also offer national economies important advantages.
7. There are already examples of early business efforts to use Virtual Worlds. 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 2-3 years.

8. Policy Recommendations: Government policy should focus on the fact that the U.S. will compete based on its ability to develop collaborative skills, not traditional business skills. Innovative policies should help corporations bring in 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.

Promoting the transformation will require policies that generate the following results:

- Heighten the awareness of business, labor, educators, and federal, state, and local politicians and authorities concerning the importance of Virtual Worlds and the collaborative enterprise to the economic competitiveness of the nation. The recently created National Center for Research in Advanced Information and Digital Technologies can be a source of new research in this area.
- Address the need for a technical infrastructure that can support Virtual Worlds and the collaborative enterprise and enhance the technology base of the U.S., particularly the use of open platforms and open standards.
- Encourage corporations, business networks, and industry associations to adopt the use of Virtual Worlds and intensive compute resources. Tax benefits might be offered to firms that adopt Virtual World environments, including tax credits for businesses that invest in collaboration technologies and explore how they can improve the processes to create new products and services.
- Provide economic development agencies with opportunities to work together to help firms and networks of firms adopt and deploy Virtual Worlds and intensive compute resources and that also help firms to insure their deployment and use in communities left behind. These agencies could identify opportunities to work together to help firms and networks of firms adopt and deploy Virtual Worlds and intensive compute resources—with special assistance and incentives for deployment in areas that have been left out of the economic mainstream.
- Assist business and government with identifying the measures that help firms and government agencies evaluate how well they are doing in adopting Virtual Worlds and intensive compute resources.
- Identify the education and training that employees and businesses will need if they are to successfully work as collaborative enterprises with Virtual Worlds and intensive compute resources. This could include initiatives to improve the digital and social networking skills of employees so that they can work with collaborative environments such as Virtual Worlds. This might be part of new programs sponsored by federal agencies, such as the Department of Labor, and state training agencies.
- Promote the international collaboration of U.S. businesses with foreign firms through the use of Virtual Worlds and compute-intensive resources.