

Technology and Market Structure of Virtual Network Games

We cannot see the future, of course, but there are a number of technological innovations that are relevant to gaming, that are also fairly easy to see coming. Currently, access to gaming involves some sort of access to computing technology, and access to gaming that can earn money involves access to a shared, persistent, physical computing environment, specifically a virtual world. The technology supporting virtual worlds is advancing so quickly that it would be foolish to describe the next generation in any detail. Suffice it to say that there are large, lucrative industries working energetically on different dimensions of the environment that virtual worlds thrive in.

These industries produce three items of interest, namely, connections, interface and content. Developments in connections include the internet and, increasingly, wireless communications. Development of interfaces includes voice command, head-up displays and body motion detection (computer-controlling gloves, gaze readers). Developments in content include the supply side of the market for games, where annual revenues have grown beyond Hollywood box office revenues. All three industries are expanding at a rapid rate. Whatever emotional experiences people seek, it may become possible, in the near future, to effortlessly connect to a virtual world that provides that experience at fairly low cost. Kurzweil argues that the explosion of computing power alone may be sufficient to change the daily course of life.

Since these developments all involve networks, they may seem to suggest a monopolistic market structure. If economic life online involves getting your email and hanging around with friends, there will be positive externalities with respect to the sheer size of the virtual world one visits. If I spend my time on Rubi-Ka, while you spend your time in Albion, we cannot talk to one another, and we cannot do things together. Thus, our time in virtual worlds is more valuable if everyone we know is in the same world. Moreover, if two worlds compete and one has more players than another, wouldn't everyone have an incentive to join the larger world, so as to enjoy the larger network of society, communication and entertainment that it affords? Might such network externalities lead to a domination of this market by one player? For example, some network games such as *lotro gold*, *runescape gold*, *guild wars gold* etc.

There are reasons to expect, however, that this market is not likely to be monopolized. First, there seems to be a great diversity of tastes for the different features of a world. Mr. Bird may want to be on Pluto, while Mr. Castronova prefers medieval Britain. One of the major attractions of life mediated by avatars is the anonymity it affords, and anonymity requires a person to have exit options: other worlds to escape to if one's reputation in this one gets unpleasant. Perhaps a savvy game developer could make a world so large and varied as to provide the essential minimum level of entertainment and anonymity to a sufficiently large number of people, so that membership in that one world becomes optimal for all. This seems unlikely, however, given that there is a marginal cost to creating and maintaining game content. Moreover, there are no economies of scale on the supply side to match the increasing returns on the demand side (Liebowitz and Margolis, 1994). Production of game content and its maintenance are both labour-intensive activities. One could perhaps increase production of content by allowing other producers (say, by opening game code to the public), but continued control of the world being created would be problematic. On the whole, it seems very unlikely that one developer could produce a world big enough to monopolize the market.

A second reason involves congestion. Virtual worlds are virtual because they are online, but they are worlds because there is some physicality to them. Avatars take up space. If a world has a certain amount of entertaining content in it, that content will almost always be subject to some kind of congestion effect. The cool monsters are in the Dungeon of Befallen, but if tens of thousands of us go there to hunt them, none of us will have a good time. Sometimes the only way to reduce congestion is to add content, but this, again, is labour intensive. There will also be congestion effects related to connection speeds and bandwidth.

A third reason that the market will probably not be dominated by a few companies can be found in the many competitive strategies that are available even now, but have not yet been exploited by new entrants. For example, the current set of developers have managed to impose huge switching costs on players by structuring gameplay around the time-intensive development of avatar capital. A player starts the game with a weak avatar, but gameplay gives the avatar ever-increasing powers. As power increases, the avatar is able to take more advantage of the game world, to travel farther, do more things, see more people. A person with a high-level avatar then faces a high hurdle in switching games, because in the new game he will start out poor, defenceless and alone again. This situation definitely locks in the game's player base, but it is also open to defeat by any number of schemes to reduce the switching costs. Surprisingly, no competitor to a current game has offered new players the opportunity to start their avatars at a higher level of wealth and ability if they can provide evidence of a high level avatar in another game. On the other hand, two games (*Ultima Online* and *Dark Ages of Camelot*) now offer methods to effectively start out ahead: in *Ultima*, you can directly buy your levels; in *Camelot*, you can start a new avatar at level 20 if you have already gotten one to level 50. These strategies help companies discourage the buying and selling of avatars outside the game, perhaps at a cost to the atmosphere within the world. In sum, what appear to be strong lock-ins and switching costs in the game market today may not be as strong as they seem; when savvy competitors appear, the player bases will generally be at risk. For example, some network games such as *lotro gold*, *runescape gold*, *guild wars gold* etc.

A final argument against a monopolization tendency comes from the nature of the content itself. Games are art, for the most part, and markets for artistic output exhibit a great deal of churn due to herding effects and the star phenomenon (MacDonald, 1988). If a company designs a better game, it will attract players. And while it is true that development costs can be significant, it will always be possible to produce a fun virtual world for a tiny amount of money and then scale it up as it becomes more popular. Whatever network externalities, supply-side returns to scale, and barriers to entry may exist in the market for virtual worlds, they seem insufficient to produce domination by a single company. The distribution of populations in virtual worlds is perhaps less like a natural monopoly market than a club goods market. Populations will sort according to the services, ambience, and fees of

the various worlds. Virtual worlds will compete, as clubs do, but their size will be limited by congestion effects and by the marginal cost of increasing the scale of the world.

This analysis allows a tentative answer to the first question of the study: in the medium-term future, the online multiplayer gaming market will probably consist of a number of large, densely populated worlds, with varying degrees of portability between them. The worlds will generate large revenue streams and will occupy many hours of human time, some of it considered play, some of it considered work. The hours that people devote to games will result in the accumulation of stocks of digital capital goods. These objects will have considerable economic value. Given the expected growth in connectivity, interface technologies and content, there is reason to believe that this digital capital stock may eventually become quite large.

These considerations then lead to the next set of questions: If virtual worlds do become more important, how will this affect the real Earth economy?

About the Author

David ZHENG is the CEO of <http://www.gamegoldmoney.com> . A company specialized in buying and selling all kinds of game gold such as [lotro gold](#), [runescape gold](#), [guild wars gold](#) etc.

Source: <http://www.onlineearnings.net>