Ian Hughes MBCS CITP, Feeding Edge Ltd and BCS Animation and Games Developer SG Chair, examines how games technology can help business.

When I started my career in technology, over 20 years ago, video games were not something that anyone really felt comfortable admitting on their CV. However games are now a very technology-focused multi-billion pound industry. Gaming has morphed and changed over the years and now touches everyone’s lives. The boundaries of what is and what isn’t a game are not very clear-cut any more.

Very often people assume that because a technology has come from the gaming industry, and is used in entertainment, anything else built using it must therefore be simply playful and not business-related. I am often asked to give talks with the proviso warning ‘make it relevant to businesses.’

Gaming technology can help any business; after all, the gaming industry has to design code and test products, release them across multiple platforms, and increasingly maintain a live 24/7 service online.

If we remove any of the mentions of technology and ask a business if they are happy with the quality of communication across their company and with customers we can start to open up some new thinking. Do all the meetings and teleconferences work perfectly? What we have at the moment is not ideal, is it? There are better ways, things to try? These things rely on technology and connectivity already in place.

I have been working in virtual environments – metaverses – over the past few years. They generally feature several attributes that appear to make them game-like. Firstly, they are on the computer screen. Secondly, when logged on you appear as an avatar (generally a human-shaped digital representation) in the shared virtual space with other people. Thirdly, you can move around in the environment and talk or type to others near you.

Clearly those basic elements are ones that are shared by ‘shooter’ based games like Modern Warfare and kid’s environments like Club Penguin. So it is understandable to feel a degree of fear that such environments in the workplace may be inappropriate.

Consider one of the virtual world projects for Imperial College: http://www1.imperial.ac.uk/surgeryandcancer/divisionofsurgery/research_themes/virtualworlds/. IVOPS used the public virtual world of Second Life. This environment contains all sorts of different places and people, rather like the real world or the web. In our particular area we had a digital version of a hospital ward and a virtual patient. The project’s aim was to allow doctors to effectively run a situation through by the numbers. Hence they logged on, entered the environment and were presented with a patient with a specific set of symptoms. The doctor made decisions, sent for tests and dealt with the scenario. Choices changed depending on what was seen and heard in the environment such as the patient’s heart rate and breathing cadence. It was similar in concept to a flight simulator, the virtual environments that train all pilots; certainly not a game.

The virtual world was an expression of the state of the patient and of the data in the scenario flow. The actual data model was
held outside of the virtual world in another system. This allowed for a comparison of a web text and radio button front end for the scenario to be compared with a virtual environment, i.e. two different views and controllers for the model. Scores, recall and impact were measured as more effective when using the virtual environment than the text-based version. In addition observers could be present in the virtual environment, seeing how things progressed. This led to further scenarios in follow-on projects that were about teams of people working together. This teamwork was useful when building the project. We could build the environment and some of the interaction live with other members of the team present, as we were all in there. It was less of a build-and-ship method and instead completely interactive and iterative.

Humans are physical, spatial beings. Much of our memory is based around where something happens and what is around us at the time. Now consider a typical business teleconference—a disembodied conversation at your desk or in your car. There are very few cues for the human brain to latch onto as to ‘where’ things happened. You can’t see the people around you. You don’t sit at certain places around a desk. All body language is filtered out. It is the technology of the telephone that is filtering the human communication experience. Yet that is regarded as the current state of the art? One solution that is suggested is a video conference. Whilst better than disembodied voices, the rigidity of a camera tends to remove yet more body language from many people. Virtual worlds add some context and visual cues to a standard office meeting. The principle works for any sharing of information. Avatars and rooms are still not the complete answer, but they form a significant stepping stone to finding even better ways to share at a distance.

A communication medium such as a 3D immersive, avatar-based environment offers voice and instant messaging text, but also provides an added visual location, allowing people to also see who both is at the meeting and have an appreciation of a location or place for the meeting.

The simplicity and effectiveness of the presence of others in an environment with you during a business meeting often is swamped by an apparent culture shock and confusion of such applications. Generally an objection to the complexity of movement in a 3D environment is raised. However this is the sort of objection people had to mice and windowing systems. Most people adjust very quickly to navigating a 3D environment. After all most of us do that on a daily basis in the physical world. When it is not about fast reactions and specific games skills, but actually about being present, many of those fears subside.

The technology of these environments is also very accessible. Just like regular web applications a server is generally involved with some persistent storage on that server. Client applications then attach to that server in real-time using internet protocols. There are up and coming web-based game clients such as Unity3d http://www.unity3d.com that are used in project like The Coaches Center http://thecoachescenter.com. This provides services to sports coaches to attend shared classes to gain education certification and gather in sports-related environments without having to travel far away from their athletes.

There are completely open source environments available like Opensimulator. http://www.opensimulator.org. It is up to the administrator of the server as to where and who can access it, from intranet to a shared global server. Multiple servers can be combined to provide larger areas. The work and creativity is in what you put in that environment.

A common mistake is to assume that any virtual environment needs to be built with a very high quality set of models, matching the real world and aiming for cinematic quality. In some circumstances that makes sense. Treating the environment as an immersive whiteboard, where those at the meeting create simple representations of ideas as they discuss them, works in a similar way to a real office whiteboard meeting. Clearly a meeting around a real-life whiteboard is not about the drawing skills of those with the pens.

Games developers knew very little about these freeform virtual worlds until the phenomena that is Minecraft http://www.minecraft.net hit. Minecraft was not built by a large development team; it was pretty much a bedroom-coded application. It was released as an unfinished test on the web and people downloaded it and got talking about it. They then also started to contribute financially to aid its development. It evolved based on the feedback from users.

Minecraft has a deceptively simple look to it, not a shiny multi-surface rendered experience, but a simple world made of blocks. The randomly generated blocks world can then be explored by the player, digging into the world to find precious limited resources. Once those resources are found they can be combined or crafted into other useful items in the games context. This can be played as a game, with perilous challenges, or as a peaceful relaxing hobby. It can be a single player experience, but worlds can be turned into shared multiplayer servers. This is where it gets interesting.

In a shared environment where there are limited resources, people have to be aware of one another’s motivations. Negotiations have to occur on what is being built and used. When moving in 3D space, negotiating and communicating in a shared digital environment, etiquette and collaboration all start to surface. It becomes a place to learn digital literacy through experience. It has led to a company called MinecraftEdu http://minecraftedu.com creating a teacher-and-classroom-based modification to Minecraft. Getting kids to work on projects and ideas in an interesting, shared, 3D environment helps them deal with and rehearse lots of complex issues they will face in later life.

Minecraft is not simply Lego in 3D as it actually has mechanical devices and elements of electronic circuits that can be combined to build complex machinery. Much of our working life is actually spent in isolation. Very few people work on things together. Teamwork is a business aspiration, but is often not synchronous. Passing PowerPoints to one another and word docs is common-place. Technology exists to work on documents live together. Virtual environments are an extension of that concept.

At its heart this is not actually about technology. That is a relatively simple component. It is about people and how they can communicate. It works well when people, regardless of level or department, interact across a business. So are you ready for the future of human communication as this evolves further? Are you ready for the next generation already raised on games, online social communication and working in shared virtual environments to be able to grow in your business environment with these tools?