n the new era of globally dispersed operations, increasing travel costs, and the ever-growing need for real-time decision-making, organizations should look for new, immersive technologies for distance collaboration. Virtual environments can provide flexible, cost-effective, and efficient ways for distributed team members, partners, and customers to connect just as they would in the real world.

A virtual world is an online, immersive 3D simulation of a real or fantasy world, populated by avatars. The environment has graphically rich user-generated and user-maintained content (see the “Elements of a Virtual World” sidebar). Each avatar is a pictorial representation of a human participant, engaged in individual explorations or group collaborations. Through their avatars, participants can navigate, explore, create, and communicate in the virtual space as if it were an extension or augmentation of the real world—but without its physical limitations and risks. Participants can thus explore complex, abstract concepts and partake in potentially dangerous activities without the constraints of the real world. They can observe personal space, eye contact, appearances, emotions, and gesturing. More importantly, activities and their effect persist even after participants have logged off.

Existing or custom-built virtual worlds can be a comprehensive forum for collaboration, reflection, and extended learning experiences. Remote and distributed users can attend team meetings, virtual courses, and corporate events, walking or even flying through virtual spaces. They can speak via microphones, share documents, watch presentations, create objects, and participate in virtual simulations, all while experiencing a sense of togetherness.

Distributed Collaboration and Training

Distributed teams are challenged by the lack of face-to-face interaction, informal office discussions, and team building that help establish rapport. Virtual worlds can offer an affordable alternative for team development, providing direct communication, emotional engagement, and social interaction. Geographically dispersed team leaders and members can work across boundaries, conducting meetings with real-time presentations, role-playing scenarios, and case-study discussions. Through virtual team-building and leadership activities, organizations can reflect on their teams’ work and help team members develop deeper ties despite the distance.

Organizations with distributed employees can also benefit from virtual training. As avatars, the trainees can participate in virtual lectures, simulations, and interactive skills-development activities, and conduct virtual presentations in a way similar to how such activities are conducted in real life. Participants from different geographical locations can explore content, procedures, and demonstrations,

Elements of a Virtual World

The following four features are critical to virtual worlds:

- GUIs that provide a realistic environment, where participants can visualize their interactions;
- real-time interaction through navigational avatars that gives participants a sense of presence;
- the ability to coexist, so participants can collaborate on ideas and create and share content; and
- persistence, which ensures continued existence despite the participants’ login status.
and perform problem-solving and decision-making activities. Through virtual simulations, they can practice new processes or learn to operate complex mechanisms and robots in safe, realistic replicas of real-world environments.

**Global Corporate Events**

Virtual environments can bring together hundreds of distributed employees and partners for business meetings and corporate events. This can help organizations maximize attendance and facilitate relationships while reducing travel, venue, and meeting costs. They can also benefit from additional productivity gains, because participants can right away return to regular office tasks after the event.

Business-oriented, roundtable discussions can be hosted to extend existing partnerships through collaboration and brainstorming. The feelings of physical presence and togetherness can be creatively enhanced through virtual vote areas where participants can actually walk around and step to vote on discussion items. Virtual conferences hosted for employees or business partners can retain keynotes and highlights, panel discussions, and experts’ chats for future viewing. Through representational contexts, the event participants can be engaged in activities impossible in the real world—such as walking through a particle, a computer, or a data-center of the future.

**Enhanced Marketing**

Using an avatar as a spokesperson in a virtual world can enhance marketing communication and brand management through vivid, immersive, multimodal social interactions. Such spokes-avatars can serve as business or brand representatives, personal shopping assistants, or recommendation and persuasion agents. Virtual interactions with these avatars can increase customers’ perception of being connected with other people and having a first-hand experience.

Consumers shopping in a virtual mall or attending a virtual tradeshow can view and explore products and their packaging just as in a real-world store or convention center. Conducting research on consumers’ behavior and preferences can also be simplified, because changes in virtual set-up can be done instantly and at no cost.

Virtual worlds are not the answer for every collaborative challenge. A thorough analysis is critical for determining if they are a suitable medium for specific goals and functional requirements. Currently, virtual-world development costs are high and preparation activities—such as creating avatar accounts and learning to navigate through the environment—can be time-consuming. In addition, real-world events, such as computer or connection problems, can disrupt the immersion experience, and the virtual activities might not be intuitive for all participants.

However, with emerging technologies such as augmented reality, mixed reality, and improved mobile technologies, virtual worlds will increasingly be used to conduct business and socialize. Eventually, participants will be spending less time setting up accounts, customizing their avatars, and learning to navigate in virtual spaces. Avatars will be able to reproduce the actual human look, and through real-time sensors, they will be able to express feelings and gestures. When interacting with other avatars and objects, participants will be able to feel, smell, and taste the virtual world around them.

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