CASE STUDY

Saving Time, Money, and Resources

Raytheon Systems Enhances Collaboration with Virtual Reality

Boston, MA

What do missile defense, cybersecurity, cutting edge weaponry, and mission planning all have in common? They are all results from Raytheon's innovative electronics, systems integration, and capabilities in the military and defense market. A world leader in defense, civil government, and cyber security, Raytheon strives to protect and defend American citizens using the most innovative solutions and technologies.

Raytheon's Integrated Defense Systems Unit (IDS) specializes in air and missile defense. Their portfolio of weapons, sensors, and integration systems support clients—including the US Missile Defense Agency and the Department of Homeland Security—through air and missile defense systems, radars, and naval ship operating systems. In 2013, the international company began looking for ways to optimize their processes and further differentiate themselves as a leader in innovation. The resulting technology investment has resulted in millions of saved dollars, countless hours in product development processes, and enhanced collaboration capabilities.

A Challenging Process

Imagine a dozen or more engineers each armed with three or four drawings of a new product. They come together in a conference room for an all-day session to compare designs, pursue new innovations, and discover deeper insights to determine what proof-of-concepts to push along the design cycle. These engineers jot notes and ideas on sticky notes, and post them all around the room during these brainstorming sessions.

Invariably, this strategy could result in nonoptimal designs. Engineers could miss design efficiencies, designers could finalize

Objectives

- Enhanced collaboration during DFMA (Design for Manufacture and Assembly)

- Enable remote collaboration with off-site experts

- Bring stakeholders and specialists together

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incomplete drawings, and teams ultimately could waste time and money optimizing physical prototypes. Quickly realizing the vast opportunities to improve the design process, Raytheon began exploring advanced visualization solutions to augment the engineering and proof-of-concept processes.

Optimizing Collaboration and Designs through CAVE2 Technology

Raytheon's challenge was only just beginning. Not only did engineers need a better way to collaborate during design and manufacturing reviews, mobile and remote specialists and stakeholders needed to participate in streamlined collaboration sessions. Raytheon partnered with Mechdyne to identify and clearly define their goals before focusing on technology solutions.

When forward-thinking enterprises focus on their goals and workflows, the resulting technology solution acts as a catalyst for future results. After in-depth analysis and workflow discussions, Raytheon and Mechdyne identified a CAVE2 as the solution for their goals. issues, and continuous improvement.

The 320-degree CAVE2 immerses 15-20 engineers in their designs with nearly 76 million pixels worth of clarity. During the Design for Manufacture Assembly (DFMA) process, engineers can easily work in 2D and 3D depending on their needs.

The CAVE2 can also present in "Hybrid" mode, allowing the team to independently control both 2D and 3D on opposing sides of the space. Mechdyne's Meeting Canvas, an AV/IT-based software solution, ties it all together by showing multiple documents, drawings, video, and other sources on the screen simultaneously.

Today, major design and manufacturing reviews can be reduced by several hours or even days. This became possible because Raytheon quickly developed a process to fully leverage the CAVE2. Even skeptics hesitant to change process and embrace advanced technology realized they had better access to critical information. Instead of missed optimizations and reworking physical prototypes, engineers and designers walk away with a better understanding of how a design will work. Users quickly make changes, visualize data, and collaborate with colleagues interactively, all in real-time.

Business Engagement in the CAVE2

Raytheon saw the success of the CAVE2 during design reviews, and knew the technology could be further leveraged throughout the organization. Raytheon invites multiple entities to the CAVE2 for additional business engagements, including customer and supplier visits, business development opportunities, STEM and community outreach, and model-based reviews.
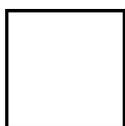
Raytheon's Success and Return on Investment

Not only have Raytheon users experienced maximized collaboration sessions both internally and externally, they have recorded massive cost and efficiency savings. The organization achieved their ROI goal in half the time expected and saw significant cost savings. But that's not all - through an intricate tagging system, leadership has been able to track efficiency and prove that design and manufacturing reviews are 20 percent more efficient with the CAVE2.

About Mechdyne

Mechdyne is one of the world's leading providers of innovative visual information technologies. Mechdyne bends technology to our will in ways that transform complex data into insights and ideas. To ensure our clients succeed, Mechdyne provides comprehensive, customized solutions that include consulting, software, technical services, and hardware integration.