

# Theater of tomorrow

University's Decision  
Theater gives decision-makers  
a glimpse of the future

By **Chris Vaughan**

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ick Shangraw can show people the future. And if they don't like it, he and his colleagues can show them a different

future. Shangraw, ASU's vice president of research and economic affairs, is also the executive director of ASU's Decision Theater. This facility combines expert knowledge, computer simulation and video presentation in a way that helps decision makers understand and shape the future.

"We are all concerned about the future and where it's taking us," Shangraw says. "What we do is deal with those concerns in a systematic way, using visualization tools to speed the process by which people understand the problems and come to agreement."

Decision Theater is part of ASU's Global Institute of Sustainability and is located in the Brickyard complex in downtown Tempe. The facility can provide up to 250 people with a 260-degree wraparound visuals on seven high definition video screens.

To the skeptical, the Decision Theater seems like a room with a lot of sleek, big-screen TVs. The important difference between this and a simple theater, though, is what goes behind and in front of those screens.

The Decision Theater combines visualization tools with computer simulation and expert research



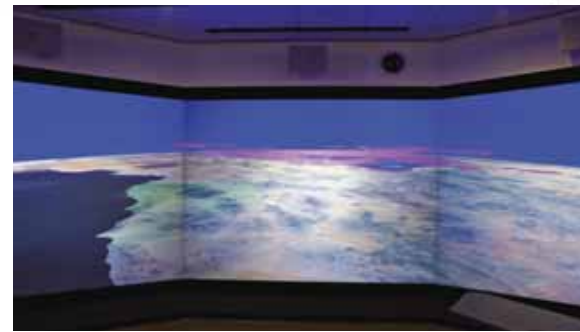
opinion. What those screens can show are accurate representations of various future scenarios. For instance, it can show the Phoenix skyline, urban spread, and demand for water and utilities, in 10, 25 or 50 years under various assumptions.

The other factor that sets apart ASU's Decision Theater is audience participation. The theater combines the visualization and simulation capabilities with collaboration tools. "Everyone gets a laptop, and they can vote or provide input to various scenarios," Shangraw says.

Many universities have scientific visualization centers where researchers use visual technologies to explore the outcomes of their

research, Shangraw says. These centers let bioscientists unravel DNA chains, aerospace engineers look at fluid dynamics models, geologists look at subsurface geological formations, etc. Shangraw notes that the Decision Theater is more focused on policy visualization, which combines (and sometimes simplifies) the scientific visualization into a format that can be digested by policy makers. "We use simulation to look at alternate scenarios and then use collaboration technology to help reach consensus," he says. "None of the university scientific visualization centers use this approach."

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is bring together not get together stakeholders and decisionmakers rather than just scientists," Shangraw says. "That is a fundamental shift in approach, one that changes how people think about and discuss problems."

The technology is particularly useful for problems that have a scientific or technical core, and where there

are a lot of stakeholders involved, Shangraw says. This includes most of the big problems that we face as a society, he adds. So far, the Decision Theater has been used to look at urban planning, health management, and homeland security issues, for instance.

"Most of the time when you have disagreement, it is because people are operating under different assumptions," many of which are unspoken, Shangraw says. The Decision Theater allows decision makers to make those assumptions explicit, to alter them, and to visualize and provide feedback on the possible outcomes.

"It's really incredible when you have a group of people who are disagreeing and they start to understand the assumptions on which they are disagreeing, and are then able to move beyond that," Shangraw says. "It's almost like magic."

Shangraw believes that in the near future, the technology will become inexpensive enough that multi-screen simulation environments will be ubiquitous in businesses, schools and the government. Before that happens, though, the work being done at ASU's Decision Theater will lay the groundwork for how that technology is used.

"What we are doing is preparing the way for five or ten years from now, when everyone will have these screens and be asking how to best use these tools," he said.

*Chris Vaughan is a freelance science writer based in Menlo Park, Calif.*



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