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Project Management

SIMULATING PROJECT LIFE CYCLE MAKES FOR BETTER DECISIONS

YOUR TURN Participants played stakeholder roles to understand their needs.

PLAYING GAMES ON THE JOB NORMALLY justifies termination for cause. But a Louisiana chemical-plant expansion is benefiting from the insights gained through a simulation that compressed the project's life cycle into a few days of game play and analysis. Telescoping the time scale helped by revealing the time-delayed consequences of decisions participants made while pursuing their assigned objectives in isolation from other project team members and stakeholders.

Vulcan Chemicals, a business unit of Vulcan Materials Co., Birmingham, Ala., in April 2000 announced the $50-million expansion of its Geismar, La., complex to produce a new feedstock product. Normally, the research and development force pilot-plants the proj-

ect, designs and constructs it. Operations takes it from there, says Don Creehan, Vulcan project manager. "Those three entities have different goals in mind, and if your targets are not consistent, you optimize the individual parts and suboptimize the whole," he says.

Hoping to break that pattern, Vulcan contracted with PracticeFields LLC, a Humble, Texas-based developer of business simulations. In a three-day workshop in April 2000, about 50 people from Vulcan's senior management, engineering group, and plant staff and from the plant's proposed engineer, Pasadena, Calif.-based Jacobs Engineering Group, played a life-cycle simulation that included project scoping through startup.

"Some past projects have come up somewhat short of what our expectations were on a lot of targets. We wanted to focus on how we manage the entire project," says Creehan.

Winston J. Ledet, PracticeFields principal, notes that lower-level staff members often lack an adequate understanding of the interlocking dynamics of a project's different parts. "They could explain what their little piece was, but when it came to making tradeoffs on time and budget, they couldn't tell you what the needs of the other team members, users and other stakeholders were," he says. As a result, they tend to make decisions without considering the impact on the other stakeholders.

The Project Value simulation is based on a computer modeling program called System Dynamics, from the Massachusetts Institute of Technology, Ledet says. It realistically models business systems by giving players feedback on the results of their decisions.

"We look for a pattern of behavior that repeats itself," says Ledet. For example, "project people are incredibly focused on meeting schedule and budget." Modeling that behavior, PracticeFields researchers identified what they call key leverage points, where decisions made or not made have the potential to produce disproportionate results later in the project. A decision to deal with problems as they come up, for example, leaves the project staff reacting to risk rather than managing it on the front end, he says.

The $17,000 simulation exercise consisted of a day of game play followed by a day to analyze the game's lessons and a third to develop action plans to take forward into the project, says Creehan. Declining to specify the savings in cost and time, he says, "We have reaped substantial financial benefits. We will undoubtedly use this process as a model for all future capital projects." ❑

By Thomas F. Armistead