Risk Assessment System

A SOFTWARE SYSTEM FOR NASA RISK EVALUATION PROVIDED A BASIS FOR A NEW FAMILY OF SPINOFF SOFTWARE TOOLS

With today's complex systems, there is increasing need for tools that provide quality analysis and help management track the intricate process of risk assessment. To that end, Lockheed Engineering and Sciences Company developed, under company funding, a software system for evaluating risks; the system was subsequently enhanced under NASA funding and it became known as FEAT, for Failure Environment Analysis Tool. FEAT uses directed graph — or digraph — models to provide information on cause and effect if a set of failure events occurs.

FEAT served as the basis for a family of spinoff software tools based on digraph model methodology developed by DiGraphics, Inc., Houston, Texas. The company's "flagship" product is the Diquest Analyzer, which uses digraph models to answer two questions about system failures: What happens to a system if a particular event happens? And what are the possible causes of the event?

The digraph model uses circles and arrows to indicate the propagation of failure effects throughout a system, capturing all the failure interactions within and between subsystems. A particular failure event is chosen via a "point and shoot" graphic interface. The results are displayed on a color highlighted schematic familiar to the user.

As a design tool, the Diquest Analyzer helps reviewers understand what redundancies have been built into a system and where weaknesses need to be protected or designed out.

DiGraphics was founded in 1991 by James Miller, original designer of the FEAT technology as a Lockheed employee; Mike Austin, senior programmer for FEAT during its Lockheed/NASA evolution; and John Reed, who brought extensive marketing experience to the team. In the ***accompanying photo***, Miller is at right, Austin at left and Reed in the center.

They introduced the Diquest Analyzer in 1992, with initial focus on safety organizations in the chemical industry for risk assessment, design evaluation and change management. More recently, the technology has found application in operations monitoring, diagnostics and training of new personnel. ●

133