NASA Failure Detection and Prevention Program: Risk Identification and Management Tools -

Risk Balancing Profiles (RBP)
Defect Detection and Prevention (DDP)

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FDP Program

- Failure Detection and Prevention Program (FDPP) - new program begun in FY99, funded by NASA Office of Safety and Mission Assurance (Code Q)
- Jointly performed between JPL, GRC, GSFC
- Goal is to develop tools that will aid in the identification and management of technical risk
- Developing three primary tools/products:
  - Risk Balancing Profiles
  - Defect Detection and Prevention (DDP) Tool
  - Assurance Effectiveness Guidebook
  - *These tools will be combined into one tool by Sept. 2000*
The Challenge

Limited Resources

Mission Requirements
(Tens)

Decision Space

Failure Modes
(Hundreds)

Preventions
Analyses
Controls
Tests
(Hundreds)

Residual Risks

Mission

• The Challenge

  » With limited resources, how is a balanced risk management approach selected to control the residual risk to mission success caused by the presence of known potential failure modes?

• The Approach

  » Develop tools which address residual risk as a function of various risk control options. Options exist at the planned activity level and in the degree to which potential failure modes are addressed

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Risk Balancing Profiles

- A tool that aids in the development of assurance program plans
- Provides a mechanism for identifying technical performance risk associated with program content
- Aids in identifying mitigation possibilities corresponding to residual risk
- Assists assurance program planning by:
  - enabling the identification of specific risk areas correlated to the chosen program content
  - identifying areas to be discussed with subject experts to further refine program
  - resulting in rationale for chosen program content and accepted risk
  - providing a tool to balance risk and resources rationally
Selected program is based on balance of available resources and acceptable risk, influenced by mission requirements and characteristics
Contact Information

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