NASA AMES RESEARCH CENTER

TECHNOLOGY TRANSFER NEEDS & EXPERIENCES

THE NASA RESEARCH CENTER PERSPECTIVE

ANTHONY R. GROSS, CHIEF
ADVANCED SPACE TECHNOLOGY OFFICE
AMES RESEARCH CENTER

PRESENTED AT THE
ITP TECHNOLOGY TRANSFER WORKSHOP
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AGENDA

- INTRODUCTION
- MECHANISMS
- EXAMPLES
- ISSUES & CONCERNS
- CONCLUDING REMARKS

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FUNCTIONS OF THE (NATIONAL AERONAUTICS AND SPACE) ADMINISTRATION

" (3) provide for the widest practicable and appropriate dissemination of information concerning its activities and the results thereof."

from the NATIONAL AERONAUTICS AND SPACE ACT OF 1958, AS AMENDED

INCENTIVES & BENEFITS

- Fulfills NASA Charter
- Contributes to National competitiveness
- Enhances NASA technology by expanding to new applications
  - Space Shuttle Main Engine (SSME)
  - Artificial Heart
- Facilitates NASA flight programs
  - Shuttle Thermal Protection System (TPS)
- Helps advocate NASA programs and budgets

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TECHNOLOGY TRANSFER MECHANISMS

- Formal
  - Reports, Publications & Presentations
    - Professional
    - NASA Tech Briefs
    - NASA Reports
    - NASA Spinoff Magazine
    - Ames Annual Report
  - On-Line/Electronic Systems
    - COSMIC
    - DIALOG
    - RECON
    - NASA SOFTLIB
    - NASABBS
  - Contractor Independent Research & Development (IR&D) Program
  - Small Business Innovative Research (SBIR) Program
  - ACSYNT - AirCraft SYNThesis Institute
- Informal
  - Personal contacts
  - Collaborations
  - Senior Manager Site Visits
- AMTECH - a unique program

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ECONOMICS OF TECHNOLOGY COMMERCIALIZATION

FROM PERSPECTIVE OF EACH CO-ADVENTURER

	RESEARCH	DEVELOPMENT	COMMERCIALIZATION
GOVERNMENT	PRIMARY SPONSOR AND PARTICIPANT	STIMULATE DEVELOPMENT LEADING TO COMMERCIALIZATION	"CUSTOMER"
UNIVERSITY	SOLE PURPOSE FOR EXISTENCE: RESEARCH AND TEACHING	LIMITED PARTICIPATION	TECHNOLOGY LICENSING
INDUSTRY	PRIMARY FOCUS ON PRODUCT-ORIENTED RESEARCH; SOME GOVERNMENT RESEARCH	STRONG DEVELOPMENT EMPHASIS IN-HOUSE AND THROUGH NEW START-UPS	SOLE PURPOSE FOR EXISTENCE: CREATION OF WEALTH

SELECTED EXAMPLES

- Space Shuttle Main Engine (SSME)
  - Application of Computational Fluid Dynamics (CFD) to a problem of internal SSME redesign
  - NASA CFD technology transferred to Rocketdyne Corp.
  - Resulted in Rocketdyne/NASA-developed solution plus development of greatly enhanced Rocketdyne CFD capability

- Artificial Heart
  - Application of NASA CFD technology to modeling and design of an artificial heart
  - Transfer of NASA technology to the non-aerospace sector
  - Joint program with Penn State and Stanford Universities
  - Funded through the Ames Technology Utilization Office

CONCLUDING REMARKS

- Technology transfer is a key element in the successful and effective operation of a NASA research center

- Benefits accrue to both the Research Center and to the recipient organization

- Although there are many examples of successful technology transfer, both within the government and to the commercial sector, the process needs to be strengthened to effectively disseminate and utilize the increasing volume of NASA advanced technology

- Strong, consistent, and visable management support is necessary, on both sides of the technology transfer process, in order for it to be successful