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Office of
Aeronautics,
Exploration and
Technology

Workshop Conclusions Technology Transfer and the Civil Space Program

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NASA

National Aeronautics and
Space Administration

WORKSHOP OBJECTIVES

● WORKSHOP OBJECTIVES INCLUDED:

- REVIEW THE INTEGRATED TECHNOLOGY PLAN (ITP) AND CIVIL SPACE RESEARCH AND TECHNOLOGY PLANNING, AS WELL AS CURRENT CIVIL SPACE TECHNOLOGY TRANSFER ACTIVITIES
- DEVELOP A COMMON FRAMEWORK FOR ANALYSIS AND DISCUSSION OF THE PROBLEM
- IDENTIFY GENERAL ISSUES, SPECIFIC TECHNOLOGY TRANSFER BARRIERS AND OPPORTUNITIES FOR IMPROVEMENT
- IDENTIFY CURRENT & POTENTIAL ROLES IN TECHNOLOGY TRANSFER
- ASSESS EXPERIENCES AND OPTIONS ACROSS A BROAD RANGE OF PARTICIPANTS, AND IDENTIFY ALTERNATIVES FOR ACTION

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and The Civil Space Program

WORKSHOP PARTICIPANTS

- **NASA**
 - OAST, OAST/Space Technology Directorate, OAST/HPCC, OAST/NASP
 - Office Of Commercial Programs
 - NASA Field Centers: LeRC, LaRC, JPL, GSFC, JSC, MSFC, SSC, KSC
- **GOVERNMENT**
 - Department of Commerce (Tech., Space)
 - Department of Transportation (Space)
 - Department of Energy (Tech., Space)
 - Department of Defense (SDIO, USAF, ONT, DDR&E)
 - DOE Labs (SNLA, LANL, ORNL, INEL)
 - DOC Organizations (NIST, NOAA)
 - Office of Management and Budget
 - Congressional Budget Office
- **EXTERNAL**
 - Boeing
 - Rockwell
 - Lockheed
 - McDonnell Douglas
 - General Dynamics
 - GE & GE Aerospace
 - Allied Signal, Inc.
 - David Sarnoff Research Center
 - 3M/National Media Laboratory
 - Grumman
 - TRW
 - Futron
 - Hughes
 - Aerospace Industries Association
 - University of Texas, Austin
 - George Washington University
 - University of Florida (RTTC)
 - National Technology Transfer Center
 - Johns Hopkins University (APL)
 - Harvard/Smithsonian Center for Astrophysics
 - Electric Power Research Institute
 - Chemical Waste Management, Inc.
 - PSI
 - BDM
 - Martin Marietta

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and The Civil Space Program

WORKSHOP RESULTS SUMMARY

- **THE WORKSHOP WAS A "SUCCESS"**
 - EACH OF THE WORKING GROUPS PROVIDED SIGNIFICANT NEW INSIGHTS
 - A CONSENSUS WAS REACHED ON SUMMARY FINDINGS AND RECOMMENDATIONS FOR A "PLAN OF ACTION"
- **SOME OF THE RESULTS OF THE WORKSHOP ARE SUMMARIZED IN A MATRIX. IT PROVIDES CURRENT OR POTENTIAL MECHANISMS DISCUSSED AT THE WORKSHOP MAPPED INTO:**
 - (1) TECHNOLOGY TRANSFER SECTORS (E.G., NASA TO NASA, GOVERNMENT TO GOVERNMENT, ETC.), AND
 - (2) AREAS OF TECHNOLOGY TRANSFER STRATEGIES (E.G., INFORMATION & COMMUNICATIONS, INSTITUTIONAL, ETC.)
- **IN ADDITION, STRUCTURAL (OR PROCEDURAL) FACTORS ARE LISTED WHICH CUT ACROSS MULTIPLE SECTORS AND STRATEGY AREAS**

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and The Civil Space Program

STRATEGIES AND MECHANISMS SUMMARY MATRIX

	COMMUNICATIONS	INSTITUTIONAL	COORDINATED R&T	DIRECTED INVESTMENT
TRANSFER WITHIN NASA	STRATEGIC PLAN'G (ITP) SYSTEMS ANALYSES	GUEST RESEARCHERS GUEST 'PROFESSORS'	DEMONSTRATIONS FLIGHT EXPERIMENTS TECH*TRANSFER PILOT EXPERIMENTS	GUEST INVESTIGATORS
TRANSFER WITHIN THE GOVERNMENT	SPACE TECHNOLOGY INTERDEPENDENCY GRP PLANNING COORD. DATABASES	TRANSFER-FOCUSED INSTITUTIONS	FACILITY UPGRADES DEMONSTRATIONS FLIGHT EXPERIMENTS	SPACE TECHNOLOGY INTERDEPENDENCY GRP JOINT R&T (WITH NASA)
TRANSFER WITH THE AEROSPACE INDUSTRY	PUBLICATIONS R&D REVIEWS SYSTEMS STUDIES	CLEAR TECH*TRANSFER CHARTER SBIR PROGRAM R&T FACILITIES POLICY TECH*TRANSFER TRAIN'G	DEMONSTRATIONS FINANCIAL INCENTIVES CONTRACT R&D TECH*TRANSFER FUNDS	PERSONNEL EXCHANGE
TRANSFER WITH THE GENERAL ECONOMY	INFO. ON COMMERCIAL TECHNOLOGIES WORKSHOPS RFPs INQUIRY SUPPORT	TRANSFER-FOCUSED INSTITUTIONS: EXAMPLES: NIDL, NML, AMTECH SDIO/MMC OPTICS LAB NTTC, RTTCs	SPACE QUALIFICATION OF COMMERCIAL TECH. CRADA'S TECH*TRANSFER FUNDS	DIRECT TECHNICAL ASSISTANCE
STRUCTURAL FACTORS	REWARDS PERSONNEL ISSUES/POLICY INTELLECTUAL PROPERTY RIGHTS		TECH*TRANSFER MEASUREMENT PROCUREMENT PRACTICES STANDARDS	

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and The Civil Space Program

SUMMARY FINDINGS

PRINCIPAL FINDINGS

- TECHNOLOGY TRANSFER, INCLUDING THAT SUPPORTING U.S. COMMERCIAL COMPETITIVENESS, NEEDS TO BE A MISSION OF NASA AND CIVIL SPACE PARTICIPANTS FROM ALL SECTORS
 - THIS IMPLIES A NEED FOR BOTH NEAR-TERM ACTIONS AND A LONG-TERM COMMITMENT TO TECHNOLOGY TRANSFER EFFORTS

- A COMMITMENT MUST BE MADE TO PLAN TECHNOLOGY TRANSFER INTO SPACE R&T EFFORTS — INCLUDING:
 - POTENTIAL RESOURCES
 - MEASUREMENT SYSTEMS
 - SENIOR MANAGEMENT FOCUS
 - CUSTOMER INVOLVEMENT
 - PERSONNEL TRAINING

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and The Civil Space Program

SUMMARY FINDINGS (CONTINUED)

ADDITIONAL FINDINGS

- TECHNOLOGY TRANSFER REQUIRES MEANINGFUL CUSTOMER INVOLVEMENT EARLY AND THROUGHOUT THE TECHNOLOGY DEVELOPMENT PROCESS
 - INCLUDING ALL TYPES OF 'CUSTOMER' (E.G., INDUSTRY)
- THERE IS A REQUIREMENT TO PROVIDE REAL INCENTIVES/REWARDS TO MOTIVATE TECHNOLOGY TRANSFER (AT ALL LEVELS OF THE ORGANIZATION, AND WITHIN ALL SECTORS)
- THERE IS A NEED TO FOCUS MANAGEMENT ATTENTION AT ALL LEVELS ON REMOVING TECHNOLOGY TRANSFER IMPEDIMENTS, INCLUDING PERSONNEL, ORGANIZATIONAL, LEGAL FACTORS, AND PROCUREMENT PRACTICES
 - ORGANIZATIONS MUST AGGRESSIVELY PURSUE IMPROVED COMMUNICATIONS RELATED TO TECHNOLOGY TRANSFER (BETWEEN ALL SECTORS)
- THERE IS A NEED FOR CLEAR POLICIES (AND MECHANISMS, AS APPROPRIATE) TO IMPLEMENT 'BRIDGING' EFFORTS — INCLUDING DEMONSTRATIONS, FLIGHT EXPERIMENTS, AND REQUIRED FACILITIES DEVELOPMENTS

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and The Civil Space Program

WORKSHOP SUMMARY: OPTIONS FOR ACTION

- ALL PARTICIPANTS TO REVIEW WORKSHOP RESULTS WITH APPROPRIATE MANAGEMENT WITHIN PARTICIPANT'S ORGANIZATIONS
- CONSIDER OPPORTUNITIES FOR A FUTURE FORUM AND/OR MEETING ON TECHNOLOGY TRANSFER OF THE SAME (ADDITIONAL) ORGANIZATIONS
- CONSIDER CREATION OF TECHNOLOGY TRANSFER TEAMS WITHIN PARTICIPATING ORGANIZATIONS (E.G., TECHNOLOGY TRANSFER "PROCESS IMPROVEMENT TEAMS" APPROACH)
 - COULD INCLUDE AN INTERAGENCY "TIGER-TEAM" ON THE SUBJECT
- CREATE A WORKING "NETWORK" SPANNING THE SECTORS INVOLVED IN TECHNOLOGY TRANSFER TO FACILITATE CONTINUING COORDINATION
- REVIEW WORKSHOP RESULTS WITH THE NASA/OAST SPACE SYSTEMS TECHNOLOGY ADVISORY COMMITTEE (SSTAC) AND OTHER ADVISORY GROUPS (INCLUDING NAC, NRC, OTHERS)
- SEEK FORMAL, EXTERNAL REVIEW OF WORKSHOP RESULTS WORKSHOP (INCLUDING GROUPS SPECIALIZING IN POLICY EXPERTISE)

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and The Civil Space Program

WORKSHOP SUMMARY: REPORT PLAN

- DRAFT WORKSHOP REPORT IS DUE TO THE PARTICIPANTS IN 45 DAYS OR LESS (STARTING ON MARCH 19, 1992)
- PARTICIPANTS WILL REVIEW AND RETURN COMMENTS WITHIN APPROXIMATELY THREE WEEKS FROM THE TIME THEY RECEIVE THE FIRST DRAFT
- GOAL: WORKSHOP REPORT WILL BE PUBLISHED WITHIN 120 DAYS

Technology Transfer

and The Civil Space Program

