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Dryden's Innovative Partnerships Program Office presents ...

Inventor Training

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Course Overview

Purpose | Familiarize you with tech-transfer policies and procedures

Objectives

- Understand the importance of tech transfer
- Understand the fundamentals of the tech transfer process
- Understand your role in that process

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Testing Your Knowledge

NTR

eNTRe

IPP Office

OPC

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Technology Transfer

What it is?

Why it's important?

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Tech Transfer: *What it is*

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NASA Policy and U.S. Law

- Top-down agency commitment to technology transfer
- National Aeronautics and Space Act of 1958 (as amended)
 - "To provide for the widest practicable and appropriate dissemination of information concerning its activities and results thereof."
- Stevenson-Wydler Technology Innovation Act of 1980 (P.L. 96-480)
 - Requires federal agencies to have a formal technology transfer program
- Bayh-Dole Act of 1980 (P.L. 96-517)
 - Permits universities, not-for-profits, and small businesses to obtain title to inventions developed with federal funding
- Federal Technology Transfer Act of 1986 (P.L. 99-502)
 - Makes tech transfer a responsibility of every federal laboratory scientist and engineer
 - Establishes CRADAs

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Tech Transfer: *What it is*

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IP Management (Spin-Out)

Finding new applications for NASA innovations

- Agriculture
- Energy
- Environment
- Manufacturing
- Medicine
- Transportation

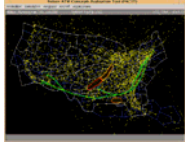
... and many other areas

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FACET (Future ATM Concepts Evaluation Tool)

- Flexible Air Traffic Management (ATM) simulation environment for exploring, developing, and evaluating advanced ATM concepts. Operates in a playback, simulation, live, or hybrid modes on a laptop computer.
- Applications
 - Aircraft self-separation
 - Integrated aircraft and space launch vehicle operations
 - Aggregate flow models of the NAS
 - Reroute conformance monitoring (deployed in the FAA's operational ETMS system).
- Outcome
 - Adoption by the FAA, airlines, universities, and numerous companies
 - Flight Dimensions International, leading vendor of aircraft situational displays, integrated FACET with their highly successful Flight Explorer product.
 - 2006 Software-of-the-Year Award Winner

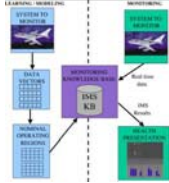


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IMS (Inductive Monitoring System)

- System health monitoring software that learns system behavior from data.
- Applications
 - RASCAL UH-60 Blackhawk Helicopter
 - Equipment and business system monitoring for chemical, pharmaceutical, pulp & paper, food processing, and other industries
- Outcomes
 - InStep Software incorporating IMS into its flagship product, eDNA, and distributing it as separate module with added features
 - iSagacity planning IMS-based products to provide early warning and diagnostics for both industrial and commercial applications



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WRAP (Wildfire Research and Applied Partnership)

- NASA and Google collaborating to develop geospatial tools, systems and processes
 - Remote sensing with autonomous modular sensor
 - Deployment of ground, aerial (UAV's), and orbital assets
 - Integration of weather data (images and maps)
 - Distributed data communication
- Applications
 - Disaster awareness, planning, response, and recovery
 - Real-time monitoring of wildfires
- Outcome
 - Working with the US Forest Service, NASA Dryden, State of CA, and FAA
 - Disaster Response Project demonstrated the applicability of unmanned aircraft systems (UAS) technology as a new tool for research and disaster management
 - Improved situational response




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Infusion (Spin-In) Partnerships

- Using outside innovations to help solve NASA problems
- The buy-vs.-make decision
- Access to expensive equipment/facilities
- Complementary expertise
- Reuse or modification of NASA initiated technology
- Spin-back as commercial product
- Joint development for dual use

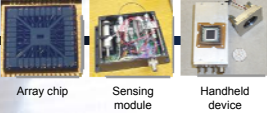
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High-Performance Chemical Sensors

Nanoshield Corporation

Reimbursable Space Act Agreement



- **Problem:** Current NASA air monitoring sensors on shuttle costly to maintain and difficult to calibrate accurately
- **Purpose:** Collaboration to develop miniaturized, solid-state chemical sensors as low-cost, high-sensitivity replacements
- **Applications**
 - NASA: air monitoring on the shuttle, space station, and future Crew Exploration Vehicle (CEV)
 - Nanoshield: Homeland Security for hydrogen peroxide detection and medical diagnostic applications for type 1 diabetes acetone detection

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Microbial Pathogen Detecting Biosensor Platforms and Devices

Early Warning, Inc.

Reimbursable Space Act Agreement



- **Problem:** Identify trace amounts of disease causing microorganisms such as bacteria, viruses, protozoa, metazoa, or fungi in drinking water
- **Purpose:** Collaboration to develop new generation of biosensor with microfluidics, chemical reagents, heater, electrodes, and harsh environment packaging to be used as component in a biochip
- **Applications**
 - NASA: pathogen monitoring and biomarker detection in NASA's space exploration missions
 - Early Warning: family of products for environmental and food processing, homeland security, and possibly medical

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Skin Radiation and Lunar Dust Toxicity Studies

Johnson & Johnson
Consumer Companies

Nonreimbursable Space Act Agreement


- Problem:** Understand effects of ionizing radiation and lunar dust on human skin, and development of tools for estimating vulnerability and risk of skin damage caused by these effects
- Purpose:** Collaboration to develop predictive, diagnostic, or monitoring technologies for development of protective agents to prevent damage or therapeutic agents to treat damage
- Applications**
 - NASA: set lunar dust standards for habitat and spacesuits, design lunar dust requirements life support systems and medical operations
 - Johnson & Johnson: products for slowing effects of aging on skin or novel pharmaceutical agents for skin protection

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Tech Transfer: *Why it's important*

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Benefits for NASA



- Increases the benefits of the space program
- Helps expedite the achievement of Space Exploration and Science goals
- Frees up funds for R&D on NASA-only solutions
- Saves money (cheaper to buy than invent)
- Generates revenue through royalties

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Tech Transfer: *Why it's important*

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Benefits to You



Program/project benefits

- Interact with companies, universities, other agencies
- Advocate for your programs/projects
- Meet performance appraisal criteria

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Tech Transfer: *Why it's important*

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Benefits to You



Program/project benefits

Recognition


- NTR recognition
- Space Technology Hall of Fame
- R&D 100 Award
- FLC Award for Excellence in Technology Transfer

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Tech Transfer: *Why it's important*

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Benefits to You



Program/project benefits

Recognition

Financial awards from NASA

- Automatic: Patent application, software release, NASA Tech Briefs awards (\$350 to \$1,000)
- By application: Invention and Contributions Board Awards (up to \$100,000)

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Tech Transfer: *Why it's important*

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Benefits to You



Program/project benefits

Recognition

Financial awards from NASA

Royalties

- NASA can license its patented technologies and software
- Payments for use
 - License fee
 - Running royalty (e.g., % of net sales)
 - Minimum royalty

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