TECHNOLOGY TRANSFER AND SPACE SCIENCE MISSIONS

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TECHNOLOGY TRANSFER WORKSHOP
SPACE SCIENCE MISSIONS

- PROJECT SCIENTIST ROLE WITHIN NASA:

  PROVIDE SCIENTIFIC LEADERSHIP FOR PROJECT

  PROVIDE SCIENCE GUIDANCE IN RESOURCE ALLOCATION AND TECHNICAL TRADEOFFS

  OVERSEE THE DEVELOPMENT AND IMPLEMENTATION OF A SYSTEM THAT ENSURES THE PROMPT ANALYSIS OF THE DATA AND DISSEMINATION OF RESULTS TO THE SCIENCE COMMUNITY AND PUBLIC AT LARGE.

  REPRESENT THE SCIENCE INVESTIGATIONS TO THE PROJECT OFFICE.

- ROLE OF UNIVERSITIES IN TECH. TRANSFER

MHA-1

TECHNOLOGY TRANSFER WORKSHOP
SPACE SCIENCE MISSIONS

- WHAT ARE THE TECHNOLOGY PROBLEMS IN SCIENCE TODAY ? - "FASTER, CHEAPER, MORE OFTEN" - WILL IT SOLVE THEM ?
- FUNDAMENTAL PROBLEM IS THE HIGH COST OF DOING SIMPLE THINGS, HIGH TECHNOLOGY NOT NEEDED:

  EMPHASIS IS ON "PROCESS" NOT PRODUCT. POOR ACCOUNTABILITY FOR PRODUCTIVITY. EXPENSIVE "SERVICE" STRUCTURES IN PLACE REGARDLESS OF NEED.

  POOR TECHNOLOGICAL RISK ASSESSMENT AND MANAGEMENT. DELEGATION OF RISK EVALUATION TO ORGANIZATIONS WITHOUT VESTED INTEREST IN PRODUCT. INEXPERIENCED WORK FORCE NOW IN PLACE. HAVE TO "REDISCOVER" PREVIOUS TECHNOLOGY.

  PROGRAM DEVELOPMENT CYCLE IS TOO LONG - HARDWARE IS CHEAP, INDECISIONS ARE EXPENSIVE.

MHA-3

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- RIGID CONTRACTUAL ARRANGEMENTS THAT PRECLUDE CREATIVITY AND EFFECTIVE EXCHANGE OF IDEAS. MANAGEMENT AND ACCOUNTING OVERHEAD ARE KILLING THE SMALL, IMAGINATIVE AND PRODUCTIVE RESEARCH GROUPS.
- SCIENCE "YIELD" PER DOLLAR SPENT IS AT AN ALL-TIME LOW. 2-3 MISSIONS/YEAR IN 1966-76 TODAY: ONE MISSION EVERY 5-10 YEARS. TECHNOLOGY TRANSFER IS NOT THE DRIVER.
- HOW MUCH TECHNOLOGY IS TRANSFERRED FROM THE ACADEMIC SCIENCE ENVIRONMENT TO INDUSTRY AS A RESULT OF NASA SPONSORED SPACE RESEARCH? VERY HARD TO ESTIMATE - PROBABLY NOT MUCH. BUT SCIENCE NEEDS TEND TO ACT AS POWERFUL CATALYST FOR TRIGGERING RESEARCH AND DEVELOPMENT EFFORTS IN INDUSTRY.

MHA-4

TECHNOLOGY TRANSFER WORKSHOP
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- ROLE OF GOVERNMENT LABORATORIES IN RESEARCH:

  WHERE EXPERIENCE EXISTS, PROVIDE GUIDANCE TO INDUSTRY IN NON-TRADITIONAL" TECHNOLOGIES (I.E., RADIATION EFFECTS, MAGNETIC CLEANLINESS, EMC/EMI, ETC.)

  PROVIDE A RISK CONTROL/EXPOSURE ENVIRONMENT NOT AVAILABLE TO INDUSTRY (FACILITIES, DEVICES, ETC.)

- PROBLEMS OF CONFLICT OF INTEREST -
  DIRECT SOLUTIONS -

MHA-5

TECHNOLOGY TRANSFER WORKSHOP
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- TECHNOLOGY ISSUES ASSOCIATED WITH SCIENCE:

  SCIENCE IS FUNDAMENTALLY A NET TECHNOLOGY USER - ADAPTED TO RESEARCH GOALS AND NEEDS.

  IN SOME INSTANCES, TECHNOLOGY DRIVER, BUT IT IS RARE.

  "MARKET" IS SMALL AND UNPREDICTABLE, HIGH RISK HIGH VISIBILITY.

  ORGANIZATIONS INVOLVED ARE VERY DIVERSE AND REFLECT A VERY LARGE DYNAMIC RANGE.

- EXAMPLES FROM THE INTERNATIONAL SOLAR TERRESTRIAL PHYSICS PROGRAM: 2000 SCIENTISTS, EIGHT SPACECRAFT, USA, JAPAN, EUROPE, "FSU" INVOLVEMENT.

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