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LARGE SPACE SYSTEMS TECHNOLOGY AND REQUIREMENTS*

James M. Romero
National Aeronautics and Space Administration
Washington, D.C.

*Viewgraphs only; original figures not available at time of publication.

NASA SPACE EMPHASIS

- ☒ RECONSTITUTE SHUTTLE CAPABILITY
- ☒ MAINTAIN SPACE STATION MOMENTUM
- ☒ RESOLVE SCIENCE MISSION BACKLOG

AND

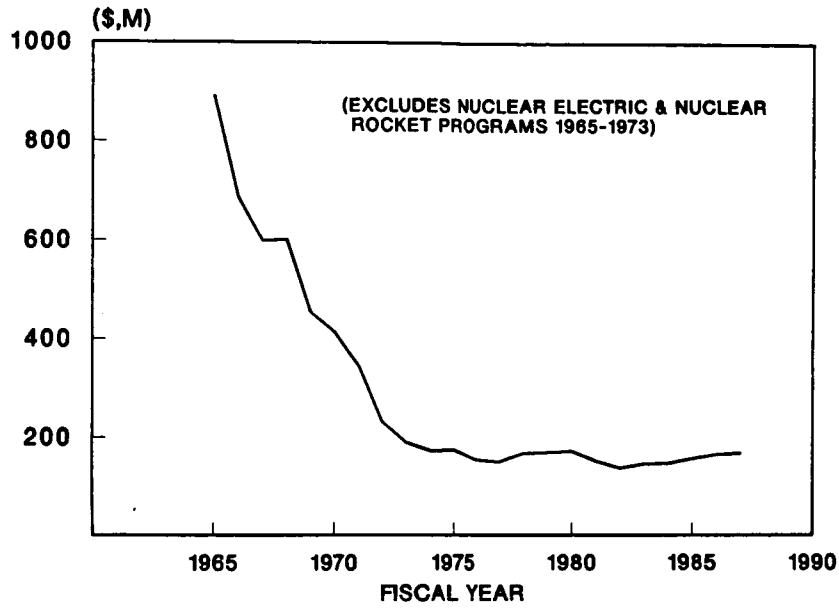
- ☒ REBUILD TECHNOLOGY BASE

STATE OF TECHNOLOGY

- ☒ TECHNOLOGY BASE IS DEFICIENT
  - LIVING OFF PAST
  - TECHNOLOGY NO LONGER LEADS WITH SOLUTIONS... IT CHASES PROBLEMS
- ☒ EXPECTATIONS EXCEED WHAT TECHNOLOGY CAN DELIVER
- ☒ U.S. LEADERSHIP CHALLENGED
- ☒ DECLINE OF NASA EXPERTISE

SPACE R & T FUNDING TREND

(CONSTANT FY 87 DOLLARS)



CIVIL SPACE TECHNOLOGY INITIATIVE

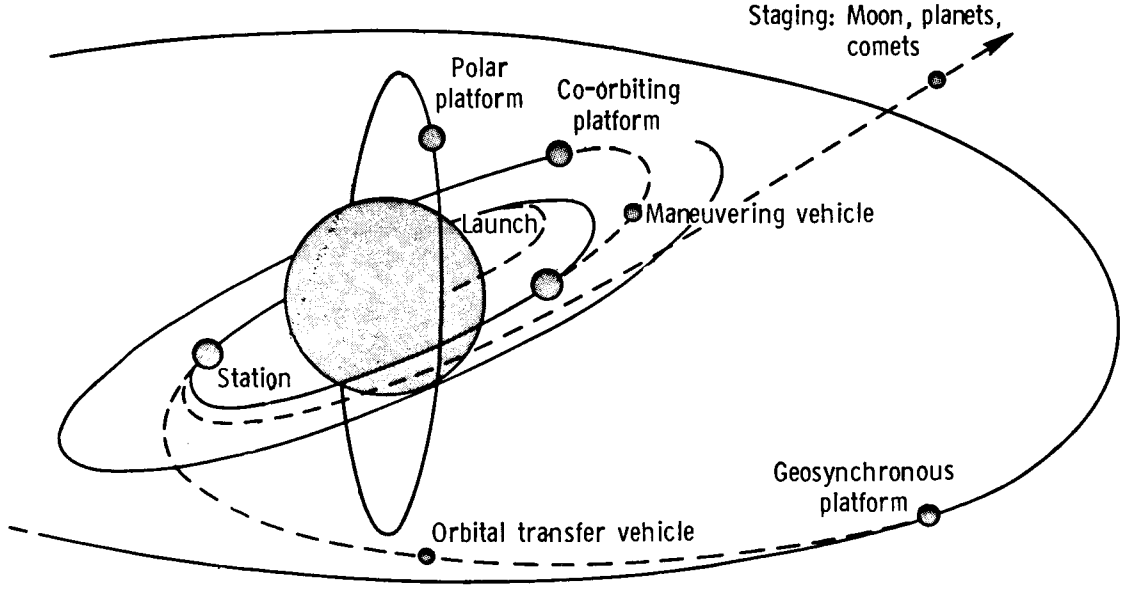
FOCUSED THRUSTS
TO REMEDY GAPS
IN TECHNOLOGY BASE
TO ENABLE HIGH PRIORITY PROGRAMS

CSTI FOCUS

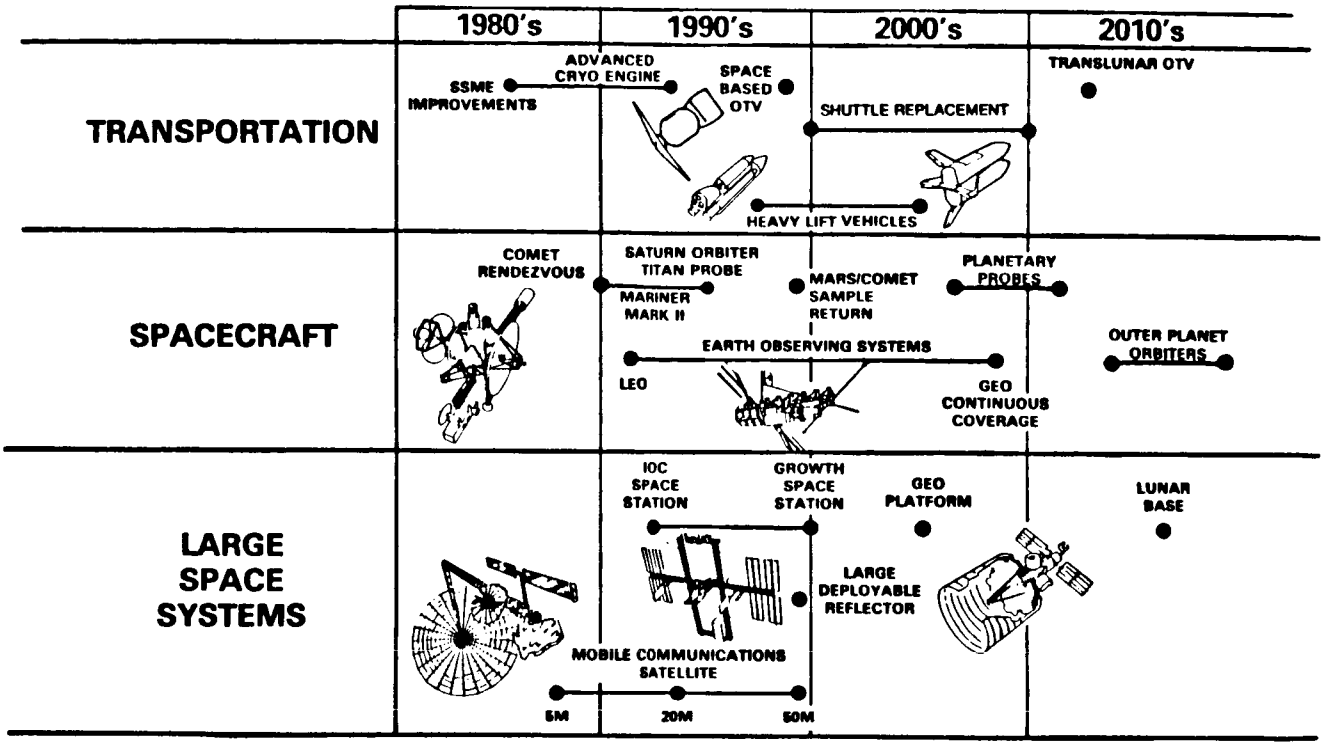
- **PROPULSION**
  - EARTH-TO-ORBIT
  - ORBIT TRANSFER
  - BOOSTER TECHNOLOGY
- **VEHICLE**
  - AEROASSIST FLIGHT EXPERIMENT
- **INFORMATION SYSTEMS**
  - SCIENCE SENSOR TECHNOLOGY
  - DATA: HIGH RATE/CAPACITY
- **LARGE STRUCTURES AND CONTROL**
  - CONTROL OF FLEXIBLE STRUCTURES
  - PRECISION SEGMENTED REFLECTORS
- **POWER**
  - HIGH CAPACITY
  - SPACECRAFT
- **AUTOMATION AND ROBOTICS**
  - ROBOTICS
  - AUTONOMOUS SYSTEMS

OAST RESPONSIBILITY IS TO DEVELOP TECHNOLOGIES

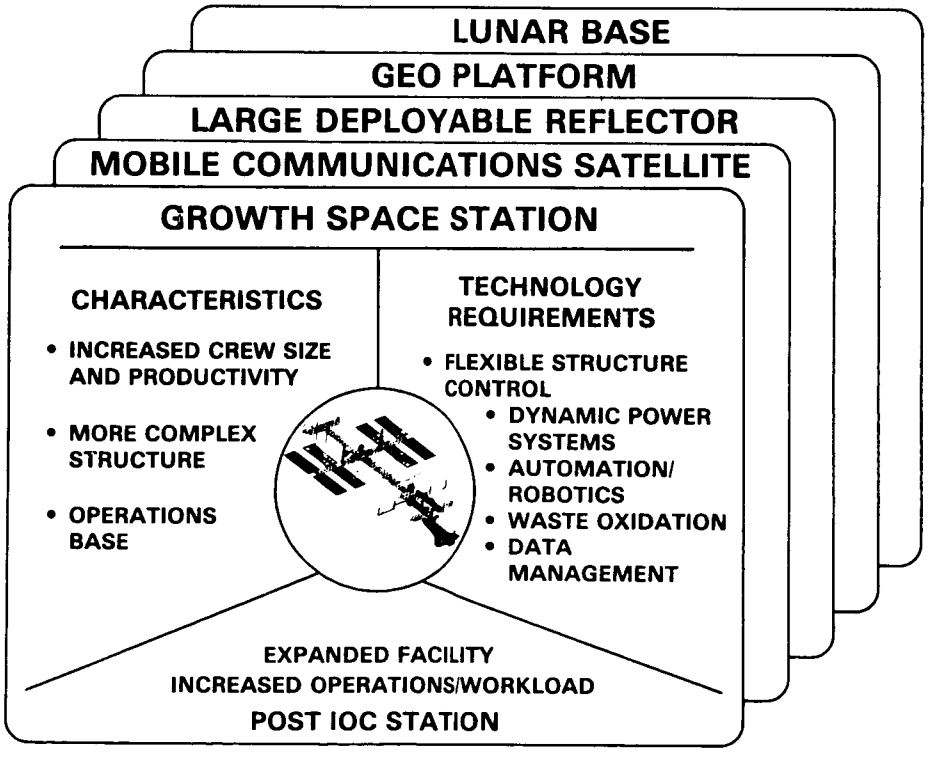
THAT WILL ENABLE OR ENHANCE FUTURE NATIONAL MISSIONS



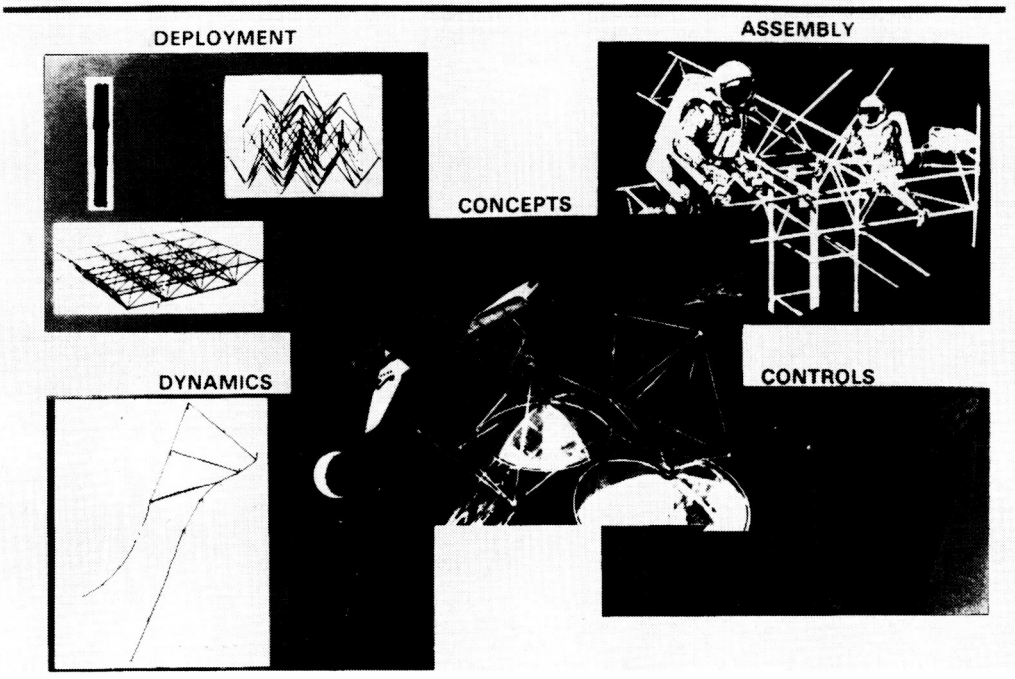
PROGRAM FOCUS ON DRIVER MISSIONS



LARGE SPACE SYSTEMS



LARGE FLEXIBLE STRUCTURES AND THEIR CONTROL



LARGE HABITATS

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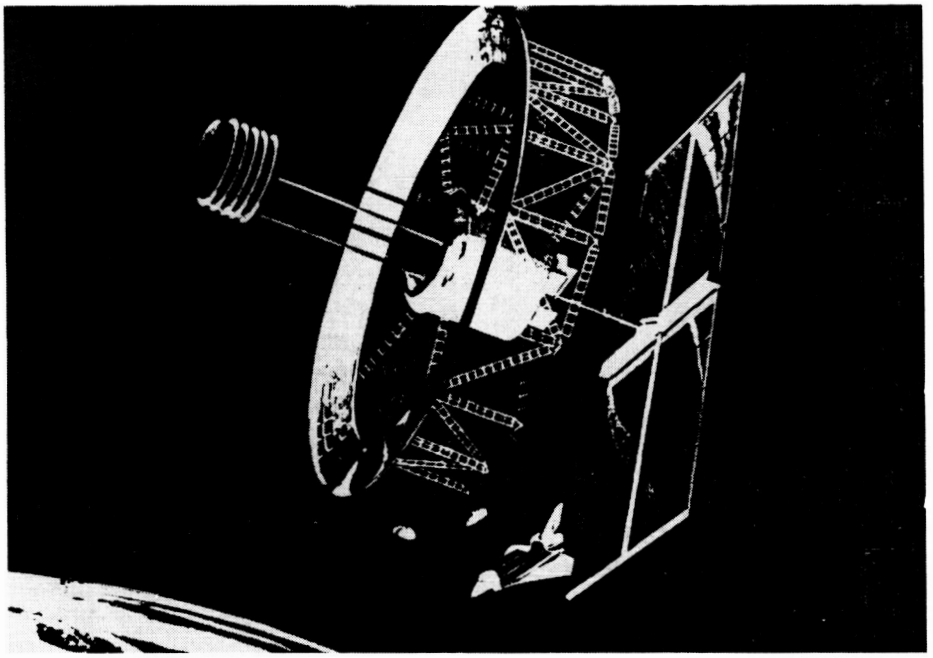
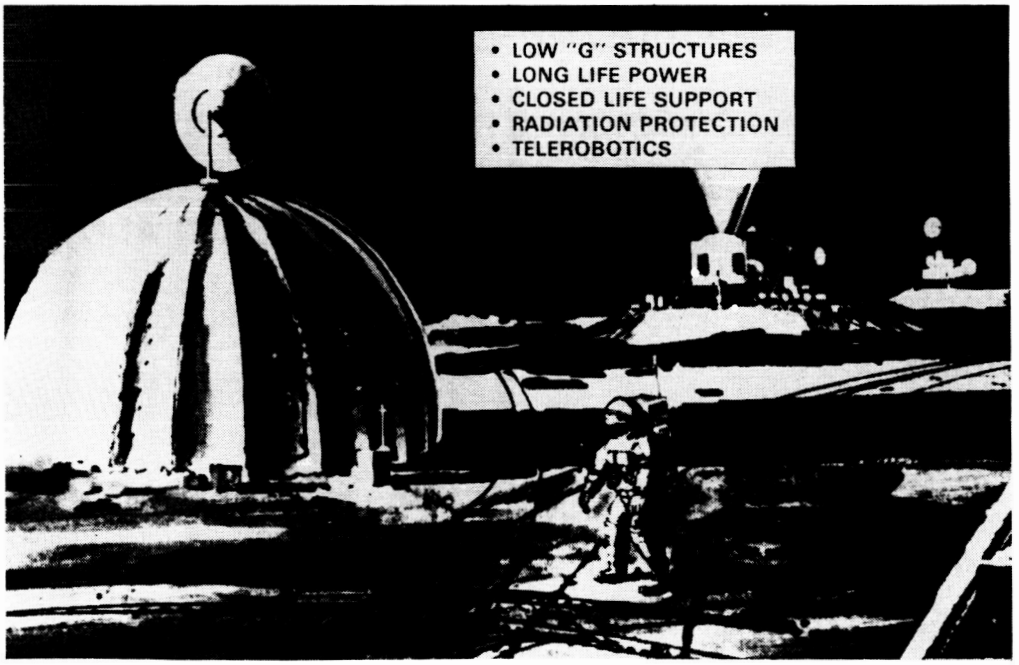
OF POOR QUALITY

LARGE DEPLOYABLE REFLECTOR



LUNAR BASE TECHNOLOGIES



IN-SPACE TECHNOLOGY EXPERIMENTS

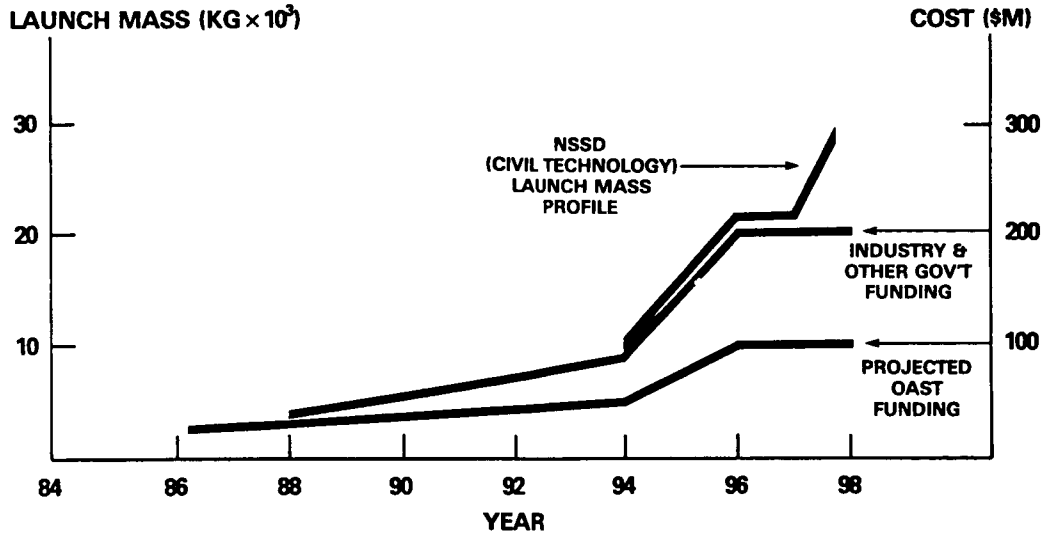
AN EXPONENTIALLY EXPANDING PROGRAM DRIVEN BY THE CONVERGENCE OF:

USER NEEDS	&	SPACE FACILITIES
• RESEARCH - MATERIALS - FLUIDS - DEVICES - STRUCTURES, CONTROLS • DEMONSTRATION - PROOF OF CONCEPT - ENGINEERING DEMO - FLIGHT QUALIFICATION		• SHUTTLE - PAYLOAD BAY - MID-DECK - CANNISTERS - HITCHHIKERS • SPACE STATION - INTERNAL PAYLOADS - EXTERNALLY MOUNTED - TECHNOLOGY LAB. MODULE - PLATFORM BASED

IN-SPACE R & T APPROACH

- ☒ ESTABLISH OAST AS NATIONAL FOCAL POINT FOR IN-SPACE R&T
- ☒ COORDINATE USER COMMUNITY REQUIREMENTS AND PLANS
  - WORKSHOPS
  - SYMPOSIA
- ☒ STIMULATE COOPERATIVE VENTURES
  - OUTREACH
  - GUEST INVESTIGATOR

IN-SPACE EXPERIMENT PROGRAM POTENTIALS



WHAT A STRONG TECHNOLOGY PROGRAM BUYS

- ADDED TECHNOLOGY OPTIONS
- INCREASED MISSION CAPABILITIES
- ADDED MISSION OPPORTUNITIES
- REDUCED DEVELOPMENT AND OPERATING COSTS