



Human Exploration and Development of Space (HEDS) Technology/Commercialization Initiative

for the

Space Resources Roundtable (II)

Golden, Texas

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Advanced Projects Office

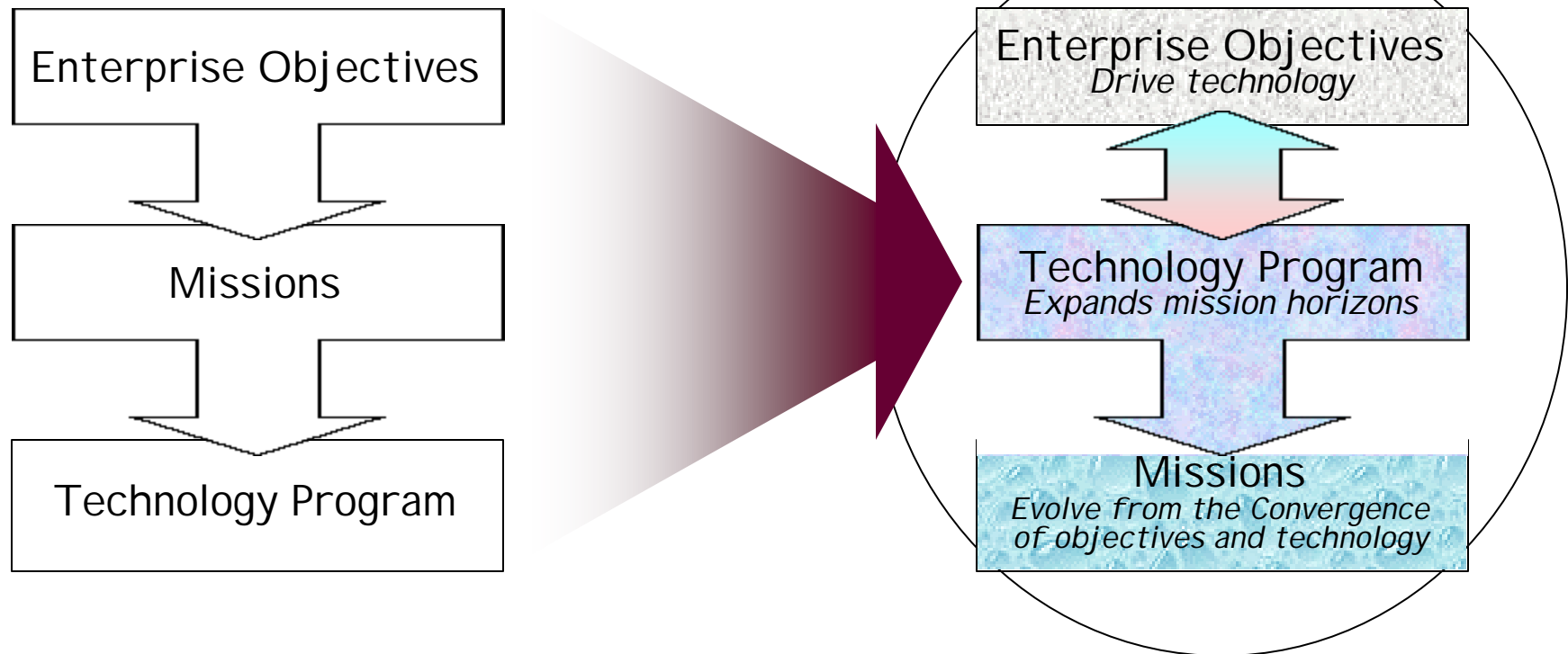
Office of Space Flight



The Shift in Overall Agency Technology Strategy

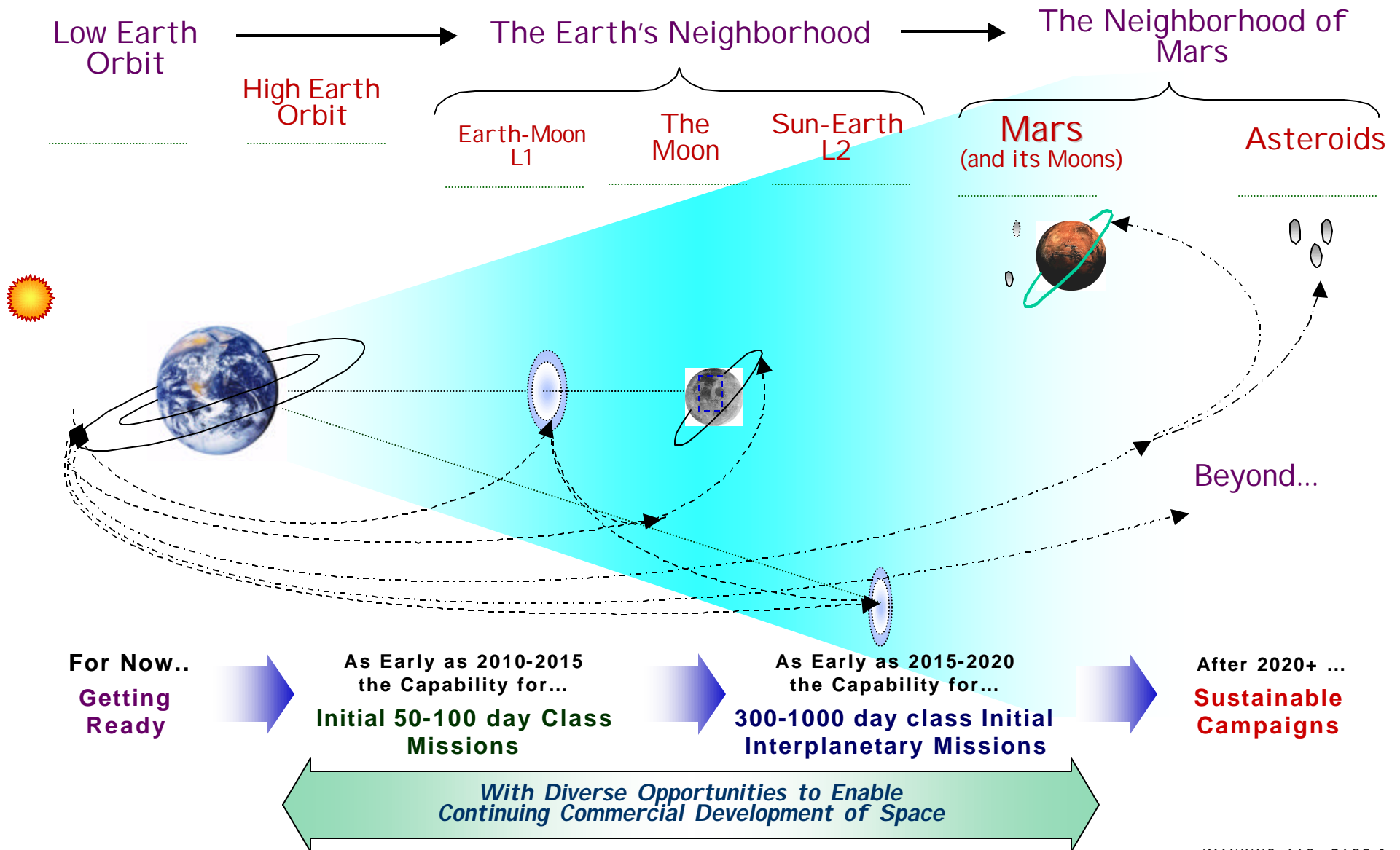


A Shift From Technology Derived From Missions
to
Missions Enabled by Technology



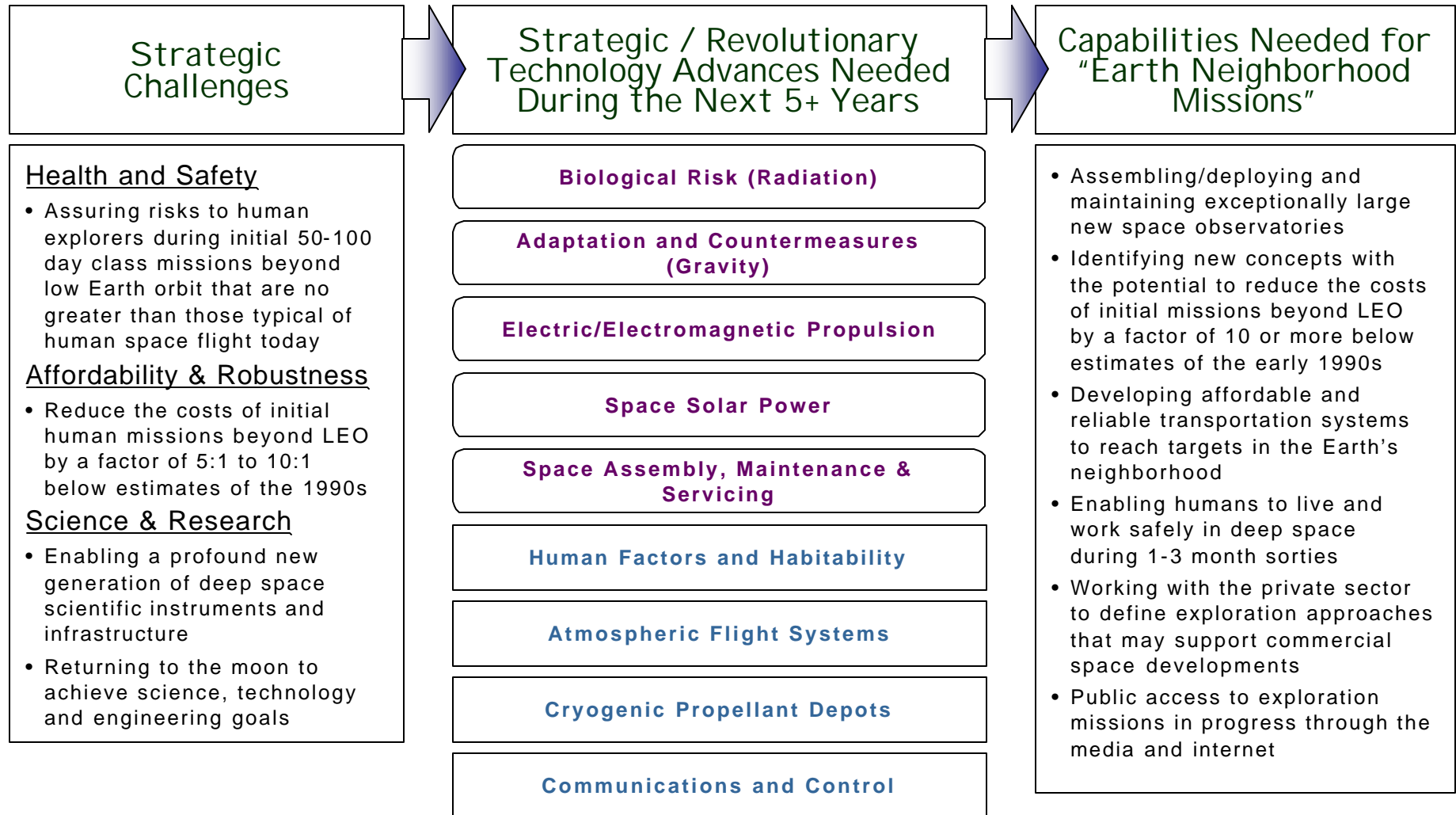


Human/Robotic Exploration and Development of Space New HEDS Strategic Plan: Phased Exploration & Discovery



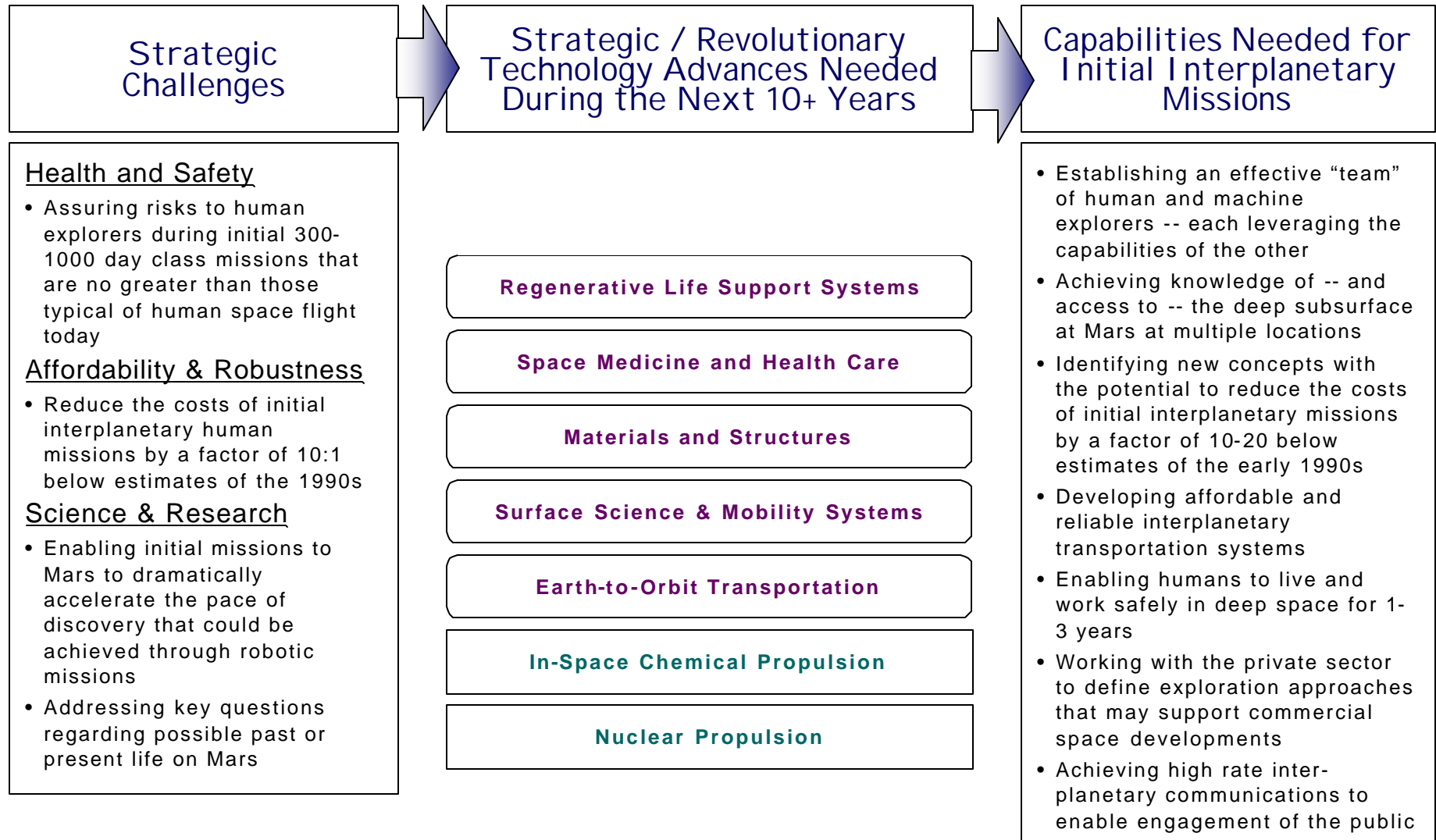


Human/Robotic Exploration and Development of Space Strategic Challenges for Earth Neighborhood Missions



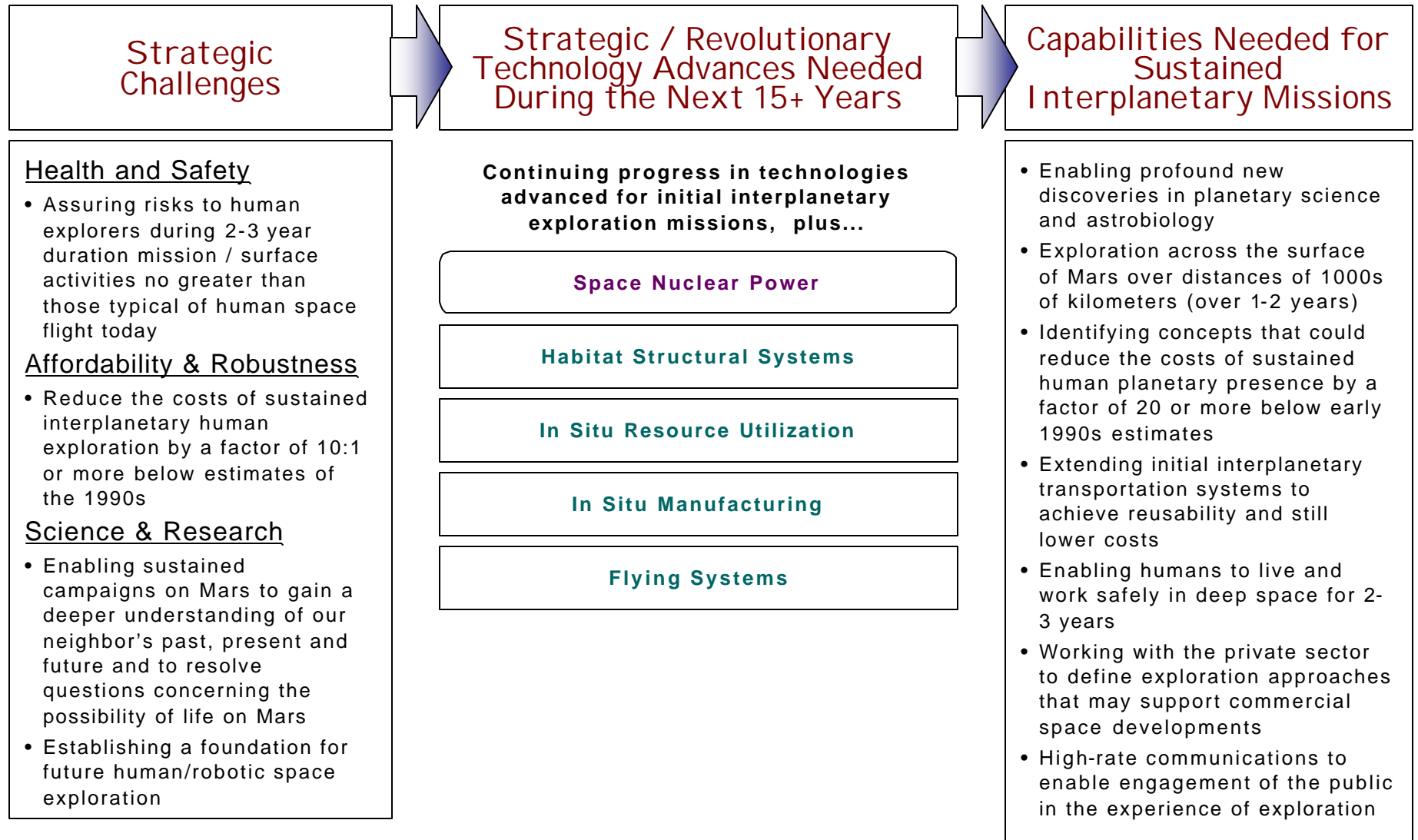


Human/Robotic Exploration and Development of Space Strategic Challenges for Initial Interplanetary Missions





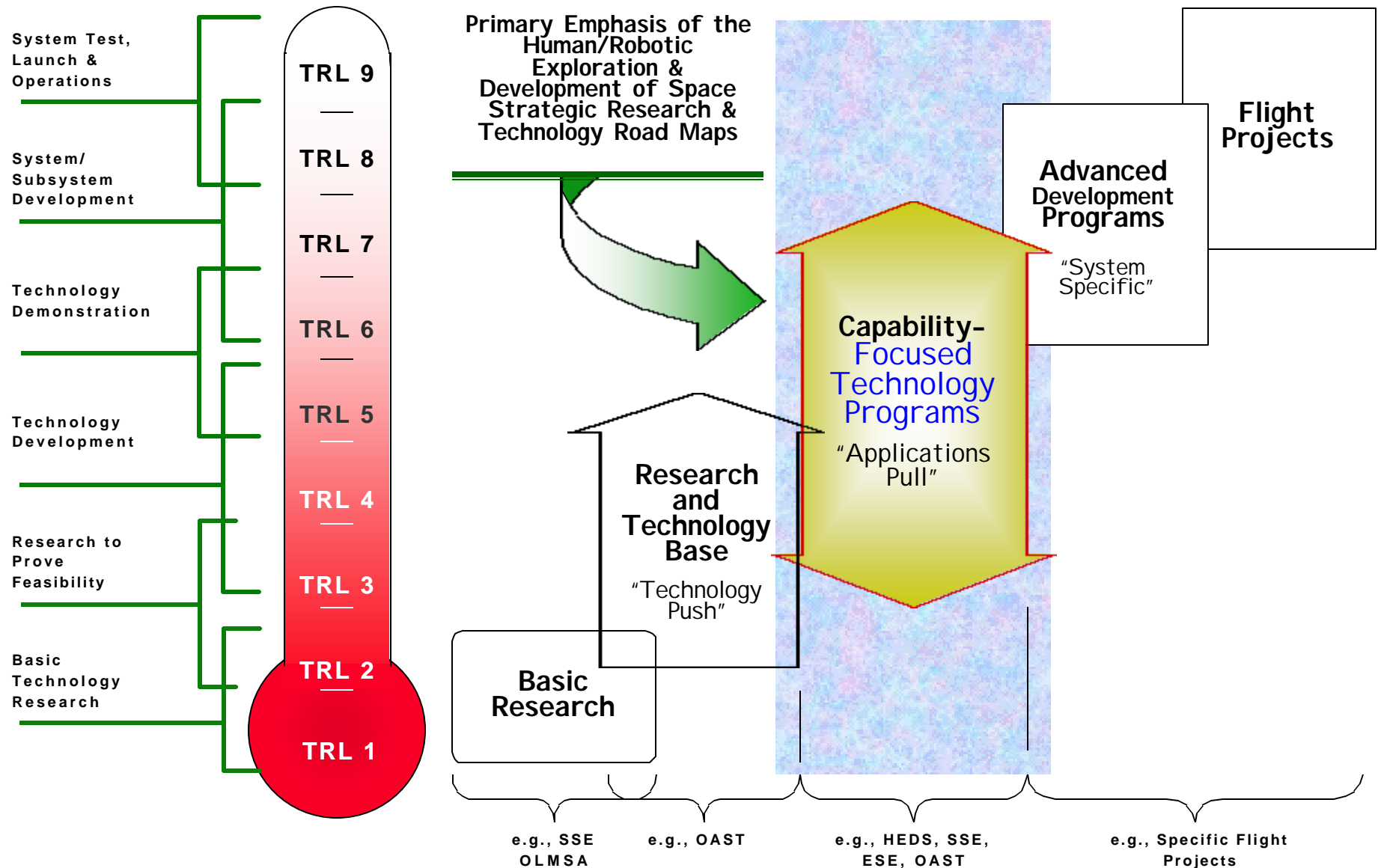
Human/Robotic Exploration and Development of Space Strategic Challenges for Sustained Interplanetary





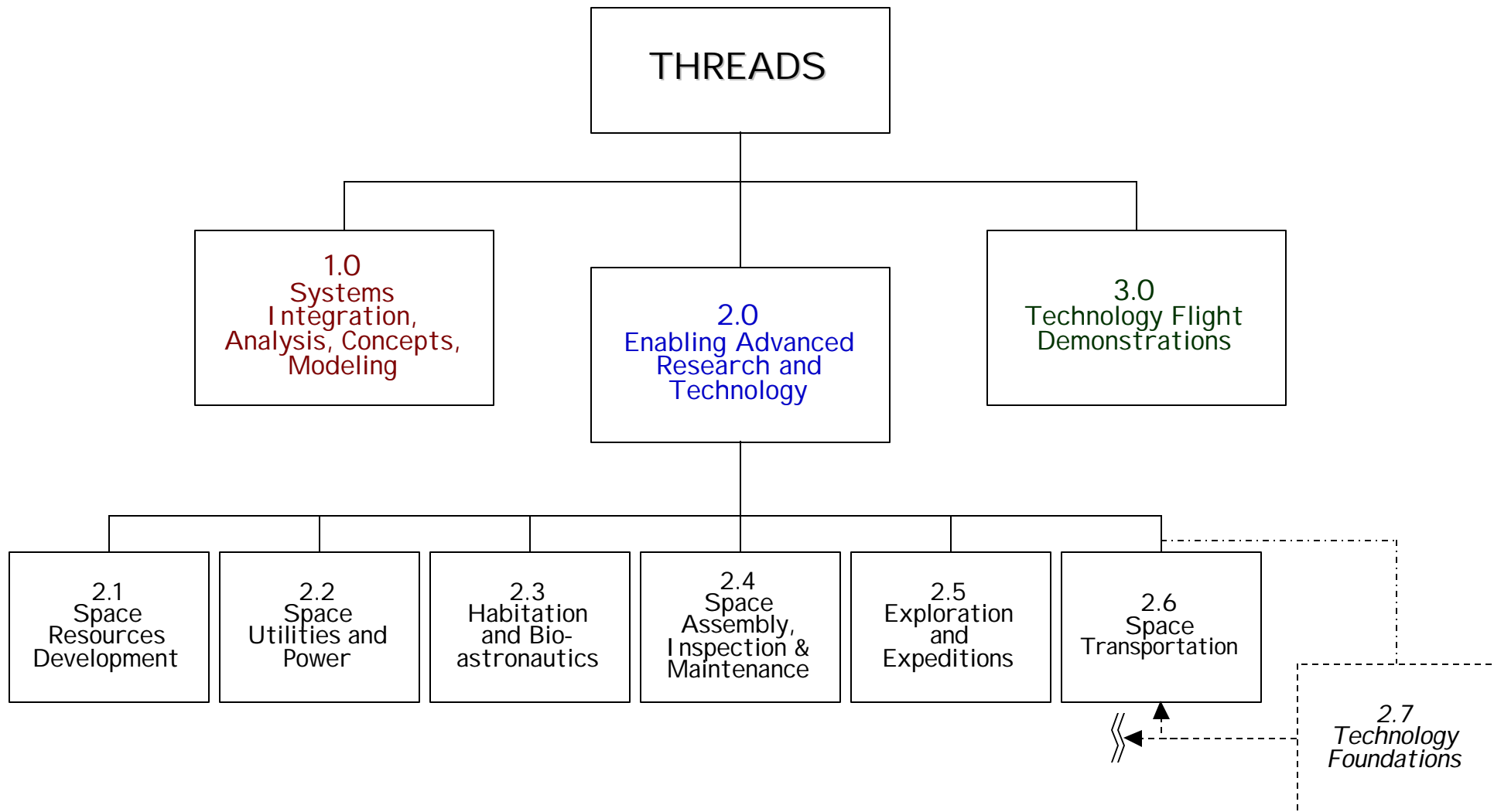
Technology for Human/Robotic Exploration and Development of Space

THREADS Strategic R&T Road Maps Focus



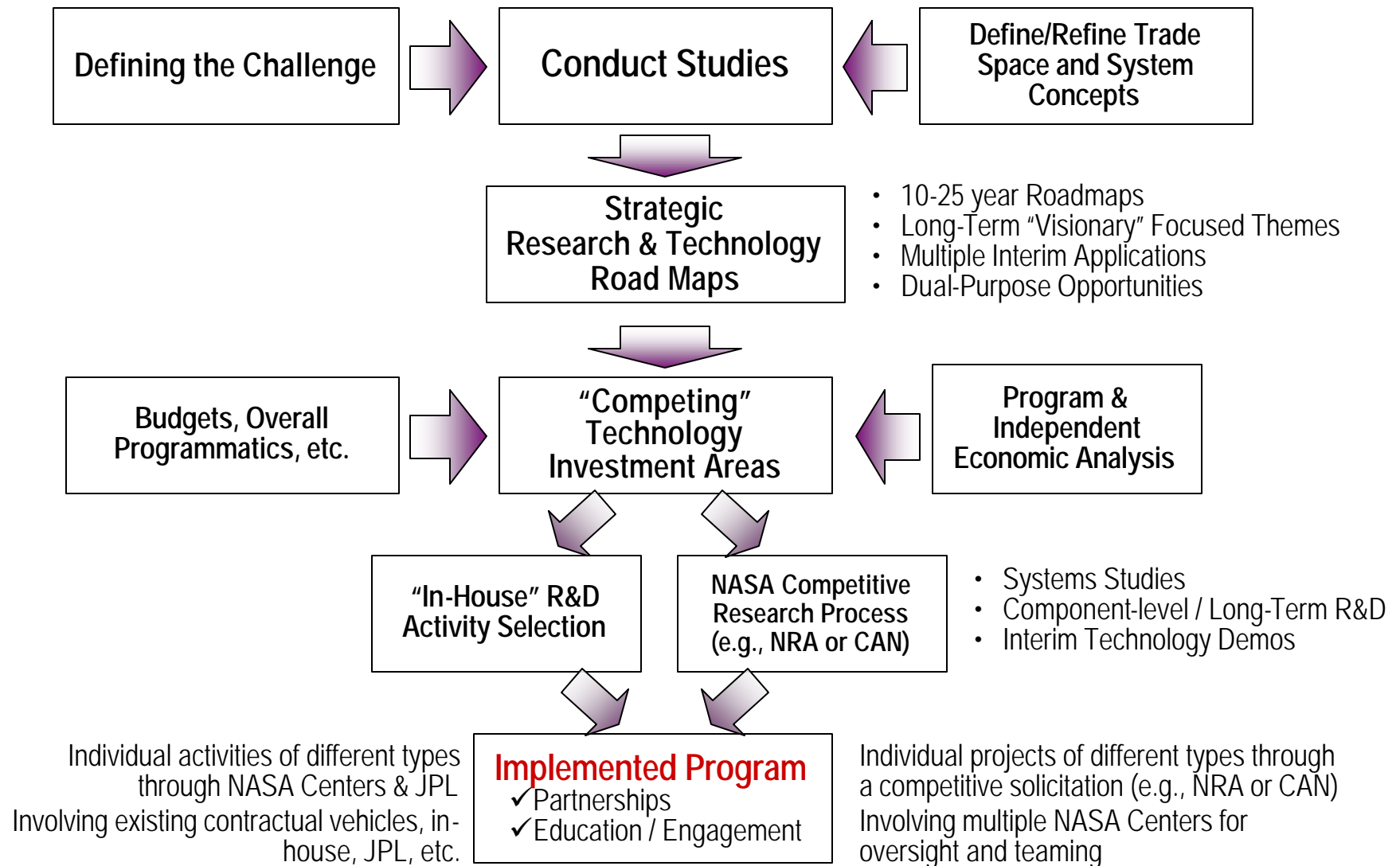


Technology for Human/Robotic Exploration and Development of Space Work Breakdown Structure





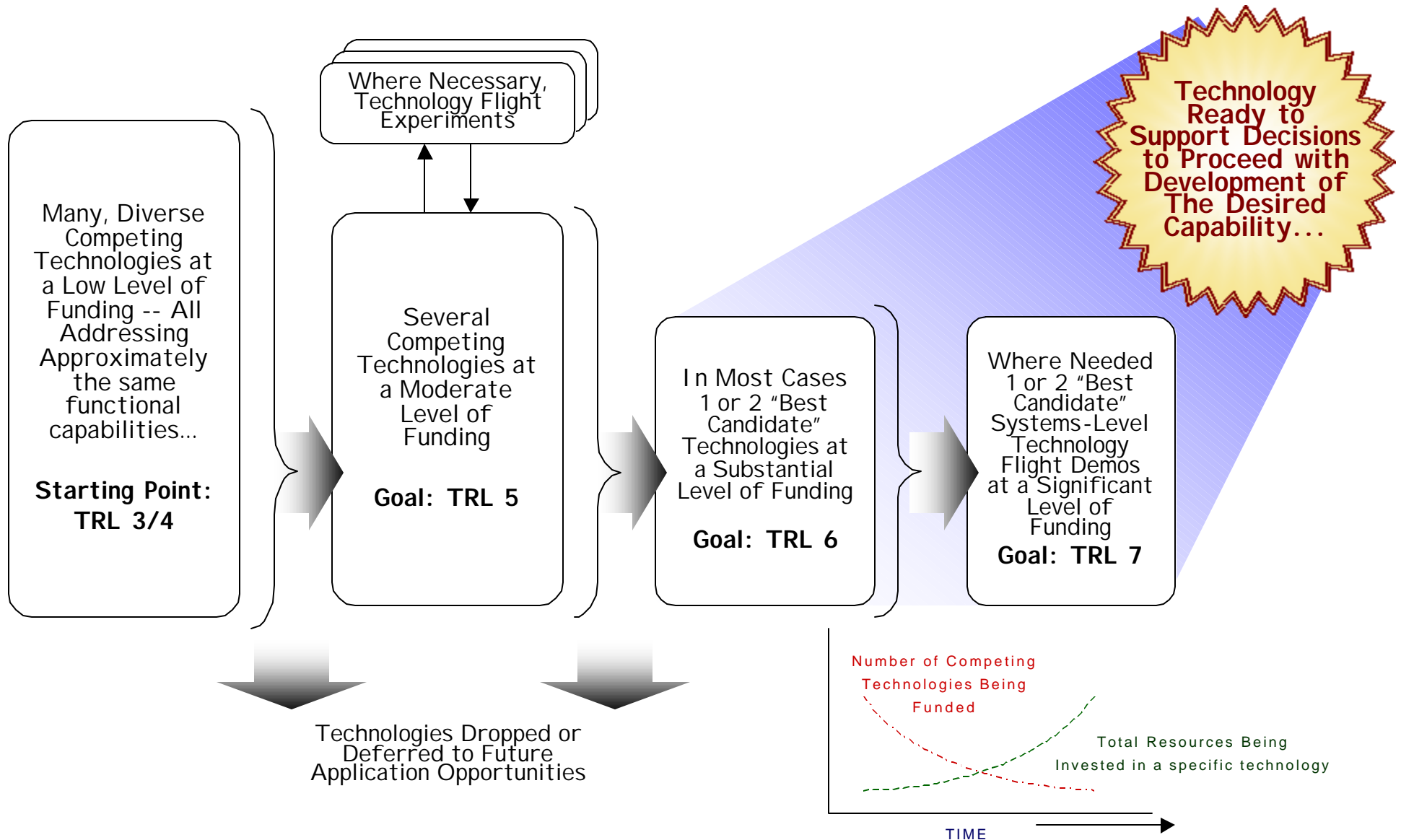
Technology for Human/Robotic Exploration and Development of Space Annual Road Map / Program Re-Formulation Process





Technology for Human/Robotic Exploration and Development of Space

Competitive R&T Enabling Revolutionary Capabilities





Technology for Human/Robotic Exploration and Development of Space

The Role of HTCI



The HEDS Technology / Commercialization Initiative (HTCI) will:

- Support future decisions regarding Human Exploration and Development of Space
 - ✓ Including planning for safe, affordable and effective future initiatives, programs and projects vis-à-vis prospective advances in science and discovery, human exploration and commercial development of space
- Emphasize development and validation of highly innovative technologies and systems that open up options for HEDS
- Consider commercialization to enable synergistic exploration and commercial developments of technology, systems and infrastructures
- Identify technologies needed for HEDS from other R&D programs -- resulting in strong partnerships to accomplish HEDS goals ... both within NASA (e.g., with OSS and OAT), with industry, and internationally

The HTCI will involve three types of activities:

- Systems Analysis/Advanced Concepts
- HEDS-Enabling Advanced Research and Technology, and
- Flight Demonstration Projects – including Small Missions

In addition, “cross-cutting” efforts will be made in Education and Outreach, and in the creation of Industry-Government Partnerships

The Strategic Scope of the initiative is necessarily broad -- However, detailed investments will be made in the context of available resources



HEDS Technology/Commercialization Initiative Planned Types of Activities



Systems Analysis/Advanced Concepts/Technology Road Mapping

- Formulate new approaches / advanced concepts using breakthrough technologies
- Guide technology investments through Systems Analysis, Modeling, Architecture Studies
- Focus efforts on HEDS Goals/Objectives through Forums/Workshops/Studies, etc.

HEDS-Enabling Advanced Research & Technology

- Emphasize increased safety, reduced risk & costs, enabling new opportunities
- Address HEDS-unique advanced technology requirements
- Pursue competitively selected projects
- Leverage other resources, including NASA, other governments, and industry partnerships (with a 50% cost share goal for industry)

Technology Flight Experiments / Demonstrations

- Pursue multiple technology flight demonstrations and experiments, and definition of candidate small missions
- “New Millennium-type” Flight Demonstrations for Robotic Missions and on the International Space Station
- Discovery program-type approach, allowing for different targets/objectives with broad goals
- Competitively selected (50% cost share goal)

Education & Engagement Strategy

Identify scientific quests/technology challenges

Every element/activity should have an education & outreach component

Commercialization Strategy

Integrated with every activity through competitive/cost share approach