Management of External Requirements on Projects: How Parent Organizations Can Help

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Introduction

- Requirements on projects from external sources are increasing
- Projects expend limited resources to manage and implement external requirements
- Project parent organizations can and should assist projects in managing external requirements
  - JPL experiences in managing external requirements on projects
  - Projects need a voice in determining how parent organizations manage external requirements

Sources of External Requirements on Projects

- Examples of requirements promulgated by parent organizations:
  - Project engineering processes
  - Project management processes
- Examples of requirements promulgated by organizations external to the parent organization
  - Technical standards
  - Accounting requirements
  - Environmental requirements
  - International treaty requirements

Sources of External Requirements on Projects, cont'd

	TYPES OF EXTERNAL REQUIREMENTS, AND EXAMPLES	
SOURCES	**TECHNICAL**	**PROGRAMMATIC**
Parent Organizations	System Resource Margins (mass, volume, power, and thermal)	Project status reporting, project life cycle gate products
Industry Organizations	Technical Standards: IEEE electrical interface standards	ISO, CMMI
Government	National Environmental Protection Act of 1968: chemical release limits	Export Control Act: limits dissemination of project technical and programmatic information
International Treaty	Planetary Protection, Orbital Debris control/mitigation	

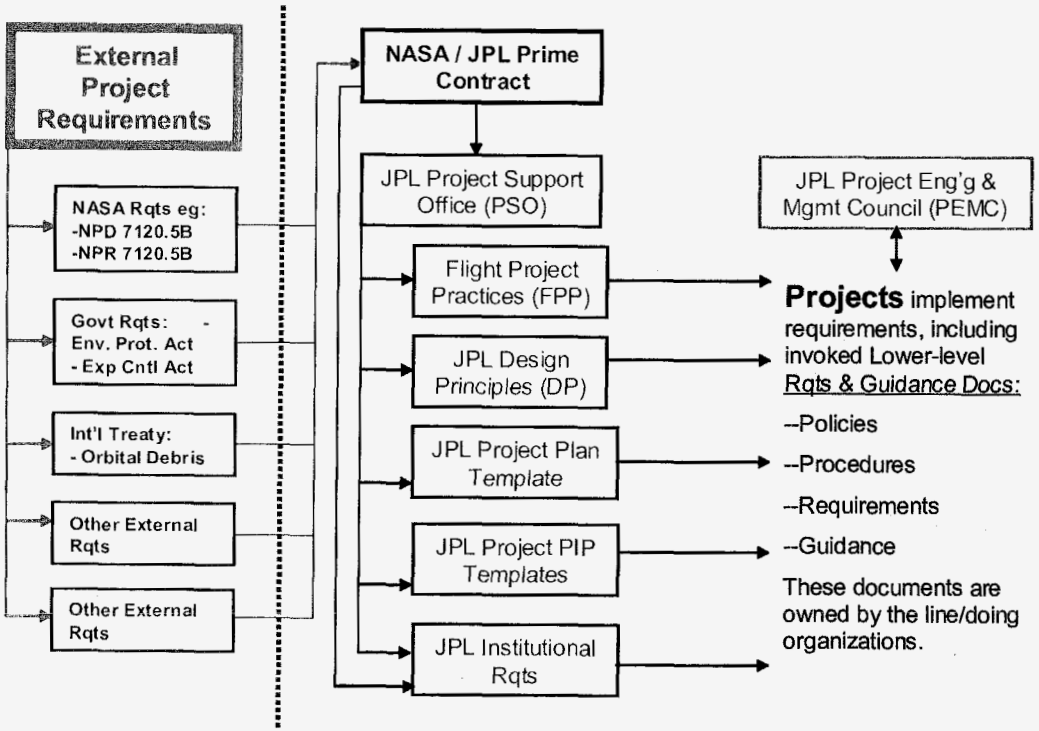
Managing External Requirements: JPL Experiences

- JPL implements external requirements levied by federal, state, and local governments
  - NASA, JPL's prime sponsor, levies many technical and programmatic requirements on projects
- JPL units are assigned responsibility for flowing down and implementing the requirements-they are the Subject-Matter Experts (SMEs)

Managing External Requirements: JPL Experiences, cont'd

JPL

JPL External Requirements Flowdown to Projects



Managing External Requirements: JPL Experiences, cont'd

20.5B ection	7120.5B Requirements ("Shall" statements verbatim titles & text)	FPP Rev 5	JPL Requirements Document	7120.5B Rqmt Disp
0	**Project Mgmt Process and Functional Rqmts**			
.c	All NASA projects, regardless of their size, shall execute the formulation subprocess, addressing all requirements, to provide high confidence that the project is ready to proceed into implementation.	5.2 Preamble, 5.2.1,		OK
.d	If necessary, agreements (Program and Project Plans) shall be modified, and approved in accordance with the approval subprocess.	5.1.5, 5.1.6, 5.2.3, 5.2.6, 5.22	• Project Implementation Plan Template, Rev. 1 *(DocID 60774)—Section1.4: Plan Change Management*	OK
.1.1	**Project Planning** … The project manager shall assure that the project team is staffed with personnel with the appropriate skills, abilities, and experience to execute successfully the project.		• Project Manager, Rev. 4 *(Role Statement)* (DocID 15774)	OK
.1.2	As part of the project control activity, the project manager shall establish oversight and reporting systems which integrate the cost, schedule, and technical performance of the project.	5.9		OK
.1.3	To accomplish project planning, the project team shall perform the following:			
.1.3	a. As applicable, develop and incorporate concepts, mission development strategies, acquisition strategies, implementation plans, space operations service agreements, launch services agreements, and other internal agreements, and management plans into a preliminary Project Plan (see Appendix E.4.).	5.2.5	• Project Plan Template, Rev. 1 *(DocID 60352)*	OK
.1.3	b. Identify project LCC elements, schedule, risks and performance baseline and refine throughout the formulation subprocess (see Paragraphs 4.2 and 4.4).	5.9.2.2, 5.9.2.6, 5.9.3.2, 5.9.3.3		OK
.1.3	b. *continued*: Each Project with an estimated NASA LCC greater than $150M shall support the NASA CFO in preparing an Independent Life-Cycle Cost Estimate (ILCCE, certified by the CFO and delivered to Congress.	5.9.2.5		OK

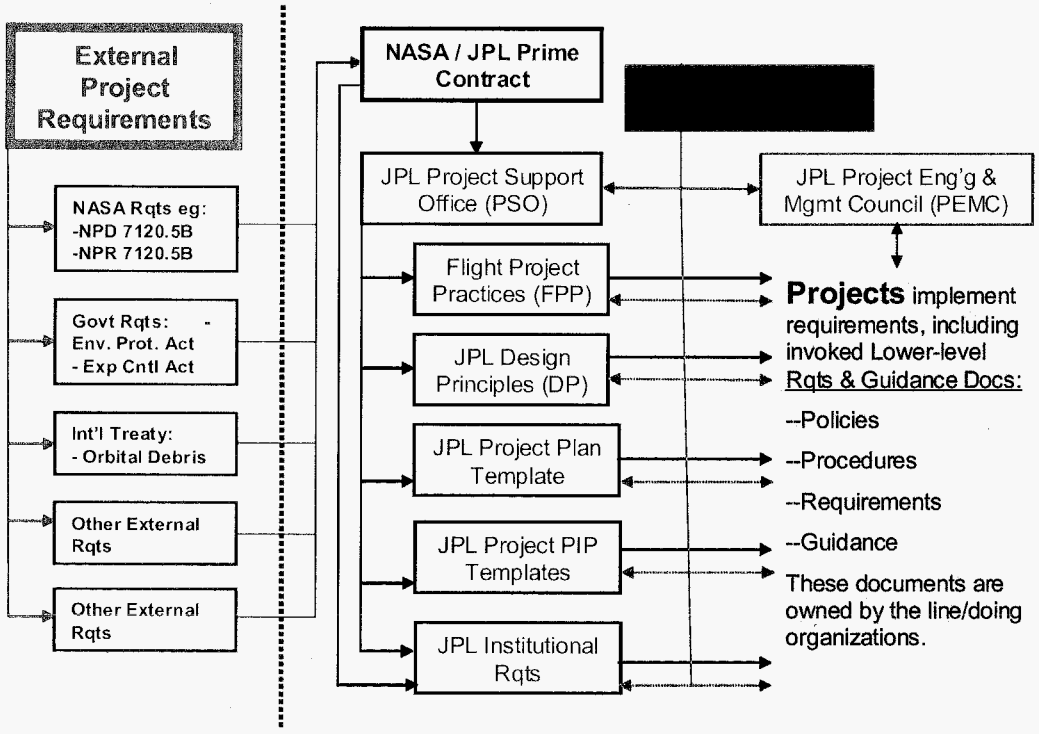
Managing External Requirements: JPL Experiences, cont'd

- Projects have a key role in flowing down and implementing external requirements
  - SMEs are the leaders in their area of responsibility, but must solicit and respond to project inputs on how external requirements are being flowed down and implemented
  - This includes push-back on new external requirements

Managing External Requirements: JPL Experiences, cont'd

JPL

JPL External Requirements Flowdown to Projects



Summary and Conclusions

- External requirements on projects will continue to increase in number and complexity
- Implementation of external requirements consumes a significant portion of project resources
- Parent organizations can reduce project costs to implement external requirements

Summary and Conclusions, cont'd

- Mitigation strategies:
  - Assign responsibility to a specific institutional unit for identification of external requirements on projects
  - Empower the institutional unit to enlist the assistance of other units in managing external requirements for projects
  - Enlist the assistance of units possessing the appropriate expertise to identify, define, flowdown, and implement the external requirements, for example technical, legal, business management
  - Ensure a strong voice for projects in the flowdown and implementation of external requirements