Payload Operations Integration Management

Operations Integration Milestones and Payload Operations Integration Function (POIF) Responsibilities

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Agenda

- Operations Integration Phase Support
- Operations Integration Management
  - Payload Operations Integration Function (POIF) Purpose and Goals
  - Definition of Operations Lead (Ops Lead)
  - Discussion of the Operations Integration support provided to the PD through phases 2-4
- Contact Information

How to Get New Research Onto ISS
◄ A 5-Phase Template ►
Summary

PHASE 1: SPONSORSHIP

Funding Sources

Points of Contact

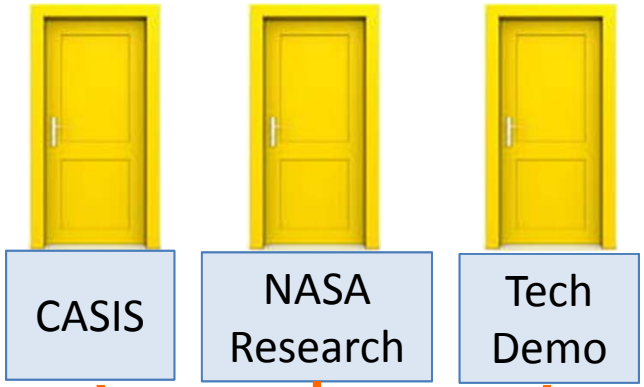
PHASE 2: STRATEGIC PLANNING

PHASE 3: TACTICAL PLANNING

PHASE 4: OPERATIONS

PHASE 5: POST-FLIGHT

Payload selected by research sponsor



CASIS | NASA Research | Tech Demo

Selected for funding

Entry point to Research Integration Office (OZ)

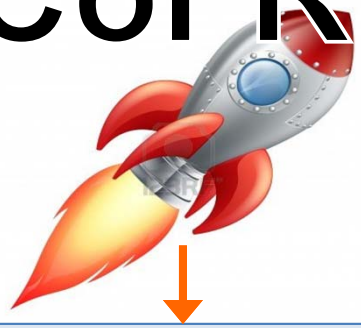
"Strategic" payload
- RIM/PIM assigned
- Payload Integration Agreement
- ***Ops Assessment***
- ***PDR, CDR***
- Phase 0/I/II Safety
- ***Displays***
- HW/SW ICD

Manifest by RPWG
- Integration into research plan
- Cold stowage plan
- Prioritization
- Hardware readiness
- ***IDRD Annex 5***
- ***POIF engaged!***

Bold italic underline indicates POIF participation

"Tactical" payload
- ***Crew procedures***
- ***Planning***
- ***Ops products***
- ***Crew training***
- ***Ground training***
- ***Ground interfaces***
- Informed consent and BDC

CoFR!



Operations
- ***Changes***
- ***Anomalies***
- ***Science return***

ISS Payload Operations Integration Function (POIF): Purpose, Goals, and Objectives

- **PURPOSE**

  To provide crew and ground personnel training, flight activity planning, and flight operations to ensure successful payload operations on the Earth to Orbit Vehicle (ETOV) and ISS

- **GOALS & OBJECTIVES**
  - Perform the training, planning, and ops integration for ISS Managed Earth to Orbit Vehicle (ETOV) Payloads and ISS NASA Payloads
  - Perform station-wide payload planning and data management
  - Provide certified flight operations products
  - Provide certified personnel to support real time payload operations
  - Certification of Flight Readiness to the ISS Program for flight operations products and certified ground support personnel

PAYLOAD OPERATIONS INTEGRATION FUNCTION (POIF) INTERFACES

Payload Developers and Principal Investigators

- Define science objectives
- Provide operations requirements to POIF specialists
- Represent your payload's requirements

ISS Research Office (OZ)

- Research plan development (RPWG)
- Integrate and prioritize NASA and IP payload requirements
- Payload manifesting
- Research Integration Manager (RIM)/Payload Integration Manager (PIM)
- Lead Increment Scientist (LIS)

POIF

- Implement documented processes to develop and integrate operations products
- Represent NASA payloads to Mission Operations Directorate (MOD) systems team members

Mission Operations Directorate (MOD)

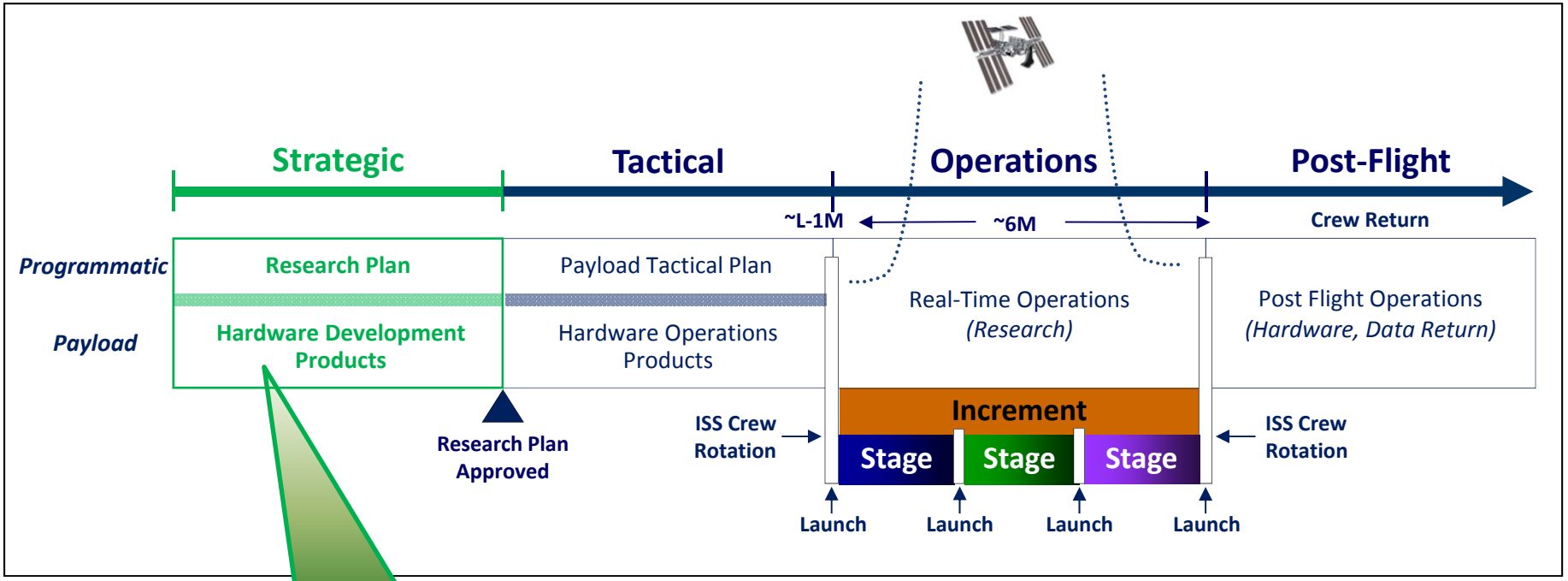
- Overall ISS integration, both systems and payloads
- Crew safety
- Vehicle health
- Implement ISS Program integrated priorities

OPERATIONS INTEGRATION MANAGEMENT

- Through phases 2-4, the POIF Operations Lead provides service functions for Payload Developers in the development and integration of operations products, crew and ground team training, support in the development of planning requirements, and near real-time operations preparation

Operations Lead	
Operations Nomenclature for payload hardware	Assist PD with development of Payload Regulations and Flight Rules
Crew Procedures – Ops Lead may author if PD desires	Ground Support Personnel Training
Crew Training – Ops Lead may certify as instructor if PD desires	Product Reviews
Coordination of Planning Requirements with POIF Payload Activity Requirement Coordinator	Overall Point-of-Contact for POIF related questions

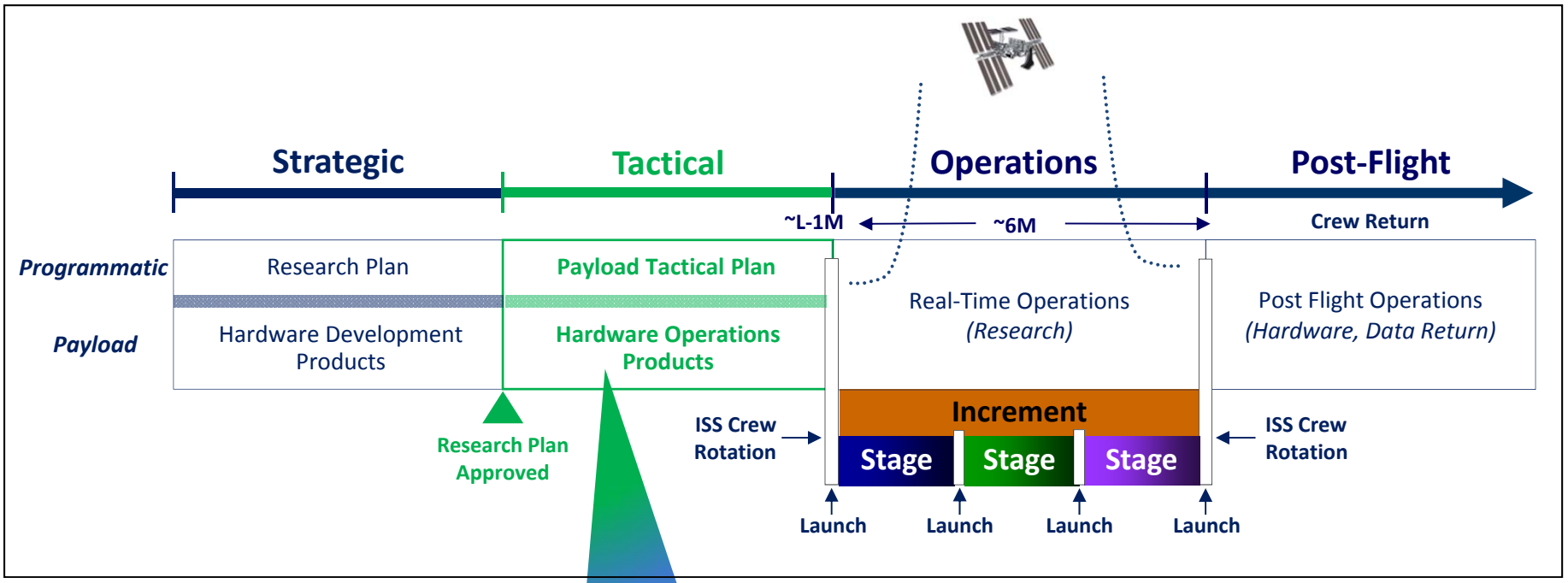
PHASE 2: STRATEGIC PLANNING



POIF Support

- Participation in PDR/CDR
- Review of Payload Interface Agreements
- Support Operations Feasibility Assessments
- Support PD in the development of Crew Displays
- Provide input to PIM Schedule

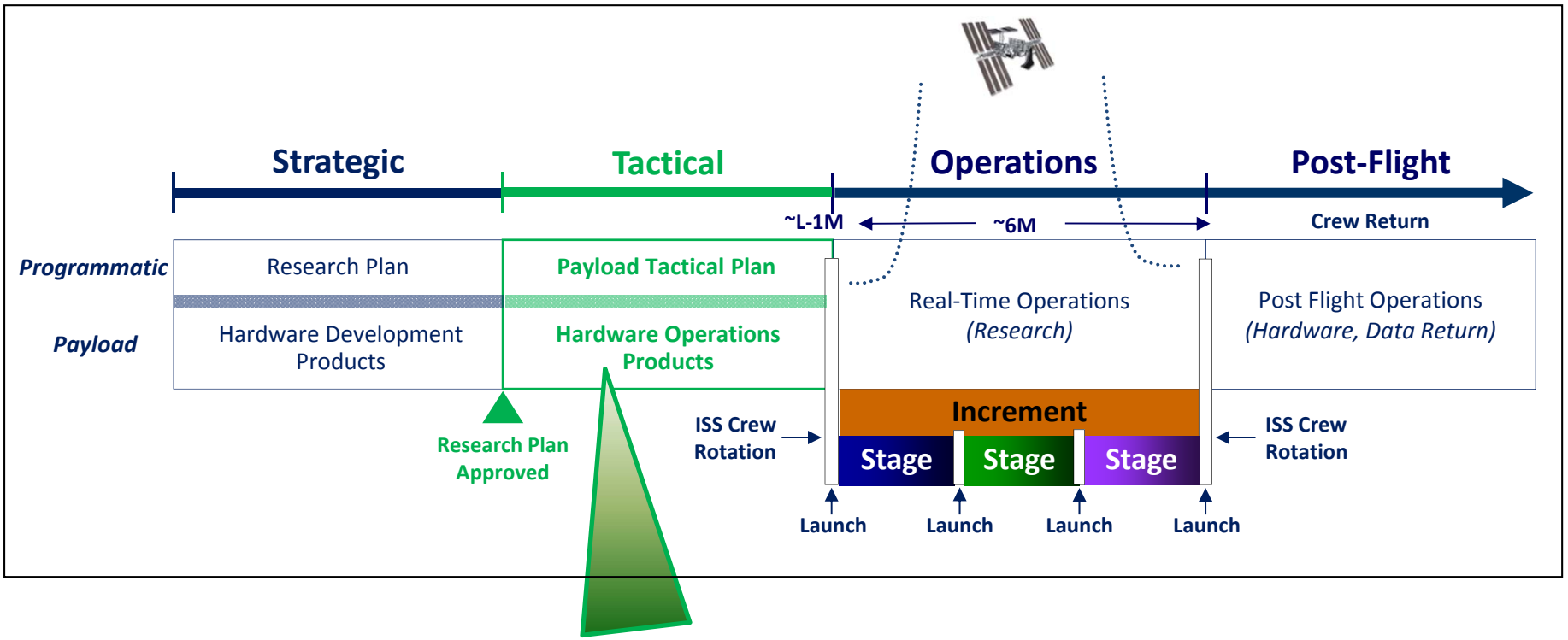
PHASE 3: TACTICAL PLANNING



Payload Developer Inputs

- Participate in Training Strategy Team
  - Crew and GSP Training
- Train and certify your operations team
- Provide inputs to Operations Products
  - Crew/Ground Command Procedures
  - Planning Requirements
  - Payload Regulations/Flight Rules

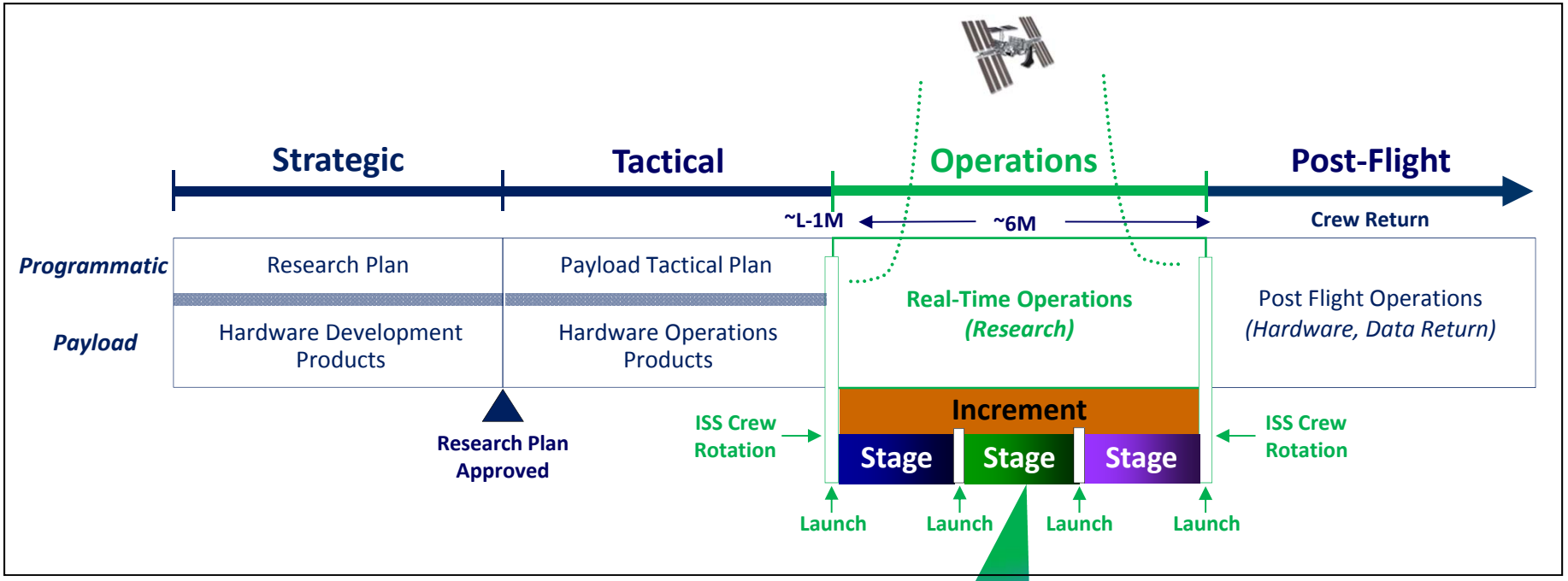
PHASE 3: TACTICAL PLANNING



POIF Support

- Lead Training Strategy Team Discussions
  - Certify as Crew Training Instructor, if desired
  - Provide Operations Interface Training for PD Operations Team
- Develop and Baseline Operations Products
- Represent Payload Operations requirements to MOD
- CoFR Operations Product and Training readiness to support flight operations

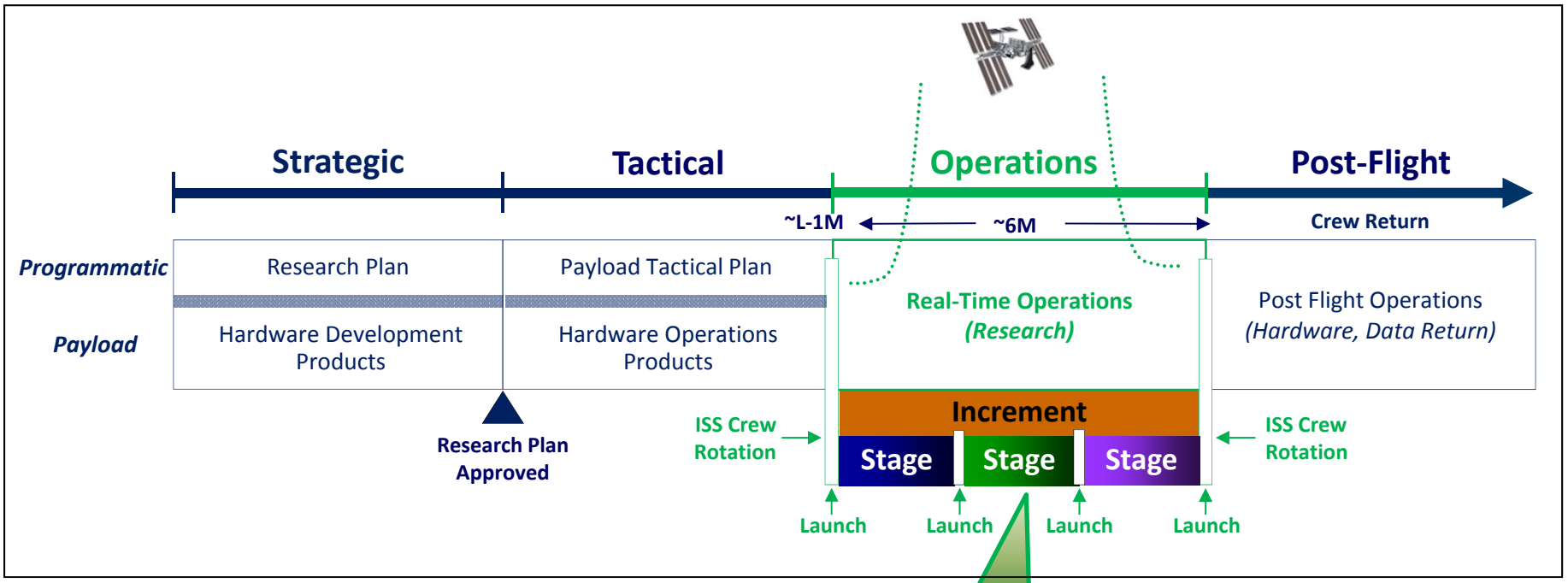
PHASE 4: OPERATIONS



Payload Developer

- Support Real-Time (e.g., Console Operations)
- Maintain cognizance of timelines for the operations of your payload
- Respond to Crew questions
- Command and Control of your payload
- Anomaly Resolution
- Submit Operations Changes to payload requirements

PHASE 4: OPERATIONS



POIF Support

- Provide 24x7 Console Staffing
- Integrated Mission Timeline Development and Data Management
- Manage resource availability to support payload operations
- Command and Control of Payload Facilities and Payload Support Systems
- NASA Payloads Voice to ISS Crew
- Support PDs in Anomaly Resolution
- Enforce compliance with established safety requirements, flight rules, and payload regulations

PAYLOAD OPERATIONS INTEGRATION CONTACT

Our job is to help the PD be successful!

Carmen S. Price

Manager
Payload Operations Integration Function (POIF) Manager
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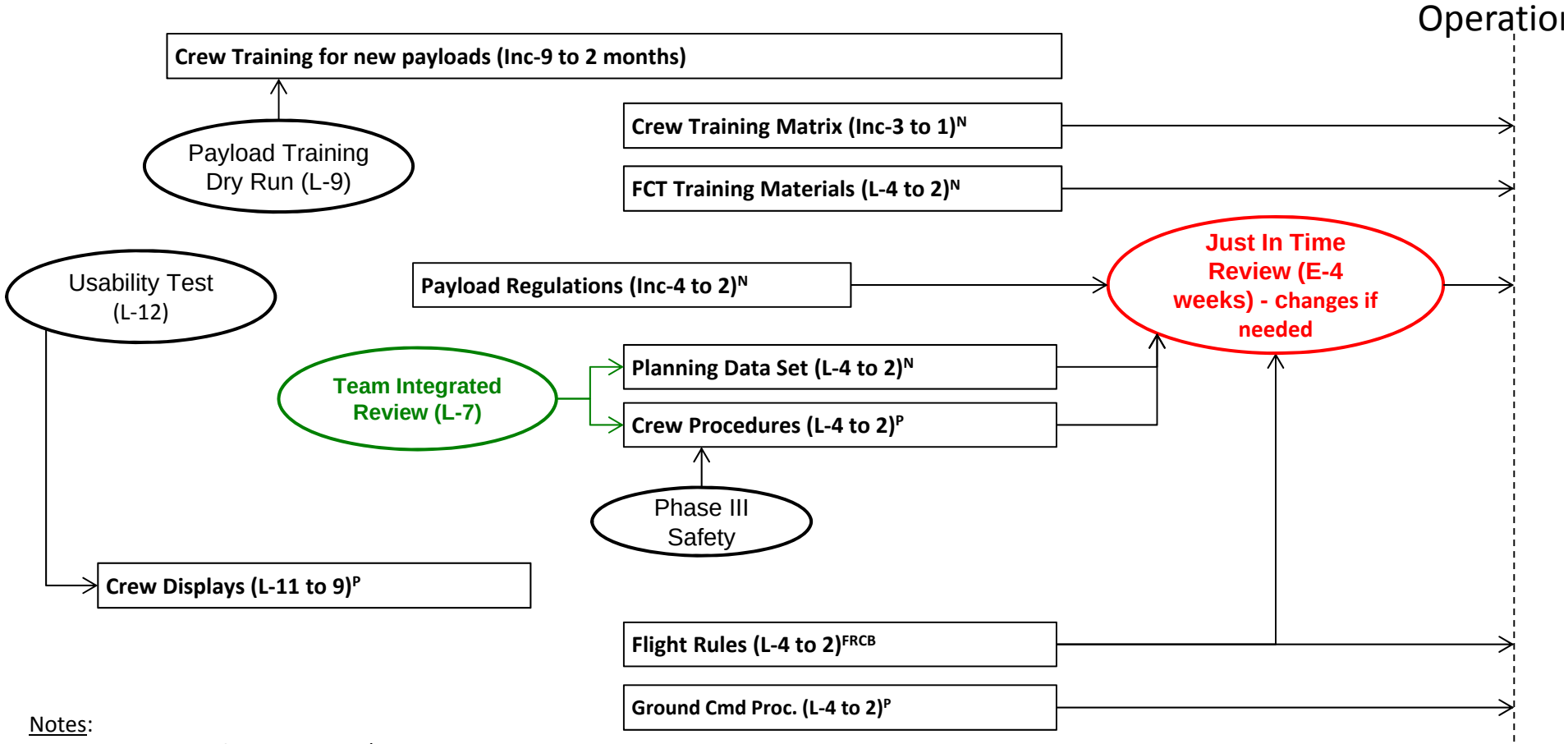
"Evolving the ISS into a well-run laboratory, in high demand, with widely recognized value."

Back Up

ACRONYMS

AES	=	Advanced Exploration Systems
ASI	=	Agenzia Spaziale Italiana
CASIS	=	The Center for the Advancement of Science in Space
CSA	=	Canadian Space Agency
DoD	=	Department of Defense
ESA	=	European Space Agency
HEOMD	=	Human Exploration Operations and Mission Directorate
ISS	=	International Space Station
JAXA	=	Japan Aerospace Exploration Agency
JSC	=	Johnson Space Center
NIH	=	National Institutes of Health
NSF	=	National Science Foundation
NSPIRES	=	NASA Solicitation and Proposal Integrated Review and Evaluation System
OCT	=	Office of the Chief Technologist
SMD	=	Science Mission Directorate
STMD	=	Space Technology Mission Directorate
tbd	=	To be determined
Tech. Dev.	=	Technology Development
USDA	=	United States Department of Agriculture

Payload Operations Product Baseline



Notes:

- All milestones for ECR review/baseline are in months EXCEPT the JIT Review
- Milestones are **typical** of new payloads; some baseline earlier and some baseline later
- Most milestones for payloads are tied to that payload's launch
- NPOCB baselined items denoted with superscript "N", USPODFCB baselined items denoted with "P"