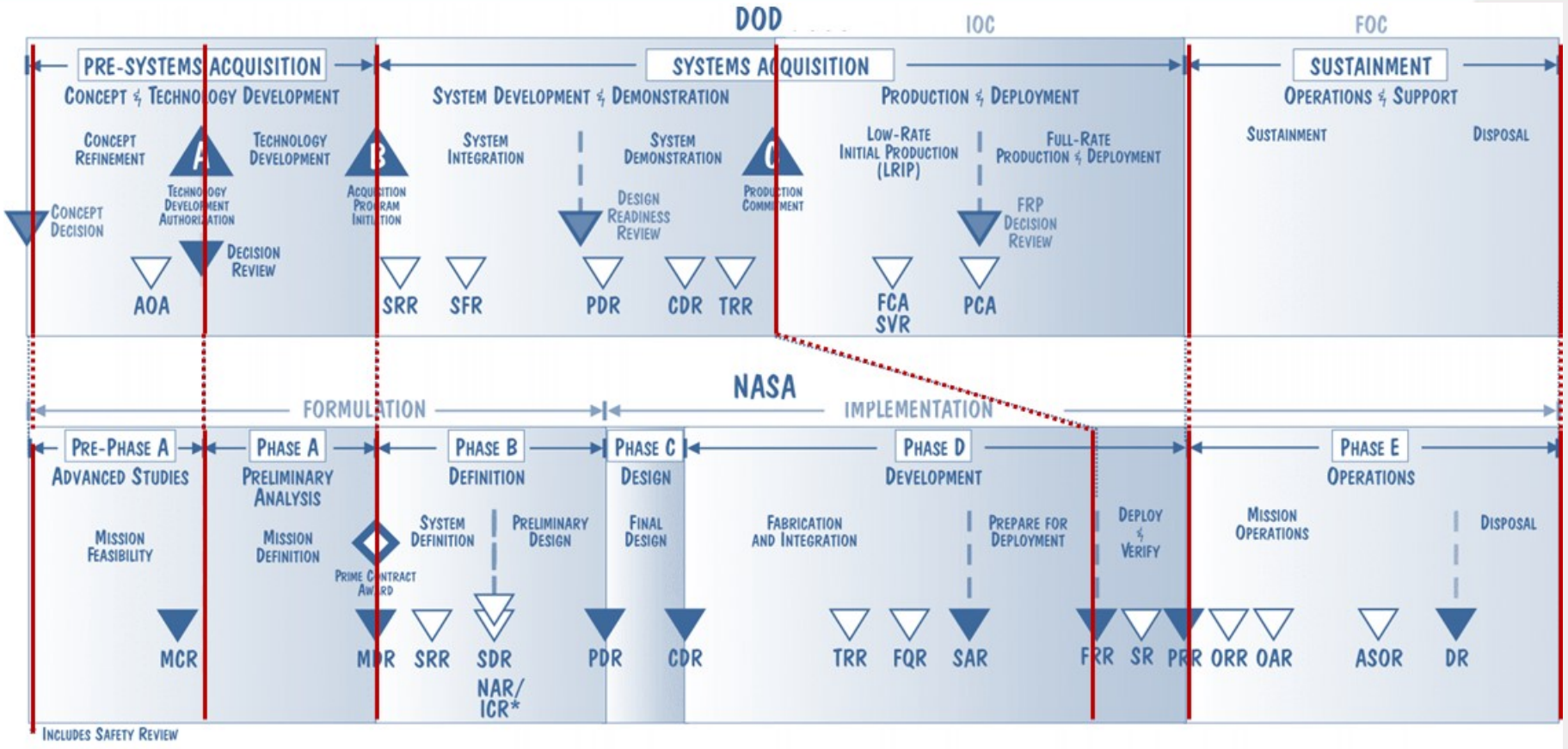
Modeling Throughout the Product Life-Cycle

Session: Digital System Integration (DSI) Across a Full Lifecycle

AIAA
Systems Engineering Technical Committee

System Life Cycle



AOA	Analysis of Alternatives	IOC	Initial Operational Capability	SAR	System Acceptance Review
ASOR	Annual Systems Operations Review	MCR	Mission Concept Review	SDR	System Design Review
CDR	Critical Design Review	MDR	Mission Design Review	SFR	System Functional Review
DR	Decommissioning Review	NAR	Non-Advocate Review	SR	Safety Review
FCA	Functional Configuration Audit	OAR	Operational Acceptance Review	SRR	System Requirements Review
FOC	Full Operational Capability	ORR	Operational Requirements Review	SVR	System Verification Review
FQR	Formal Qualification Review	PCA	Physical Configuraion Audit	TRR	Test Readiness Review
FRR	Flight Readiness Review	PDR	Preliminary Design Review		
ICE	Independent Cost Review	PRR	Production Readiness Review		

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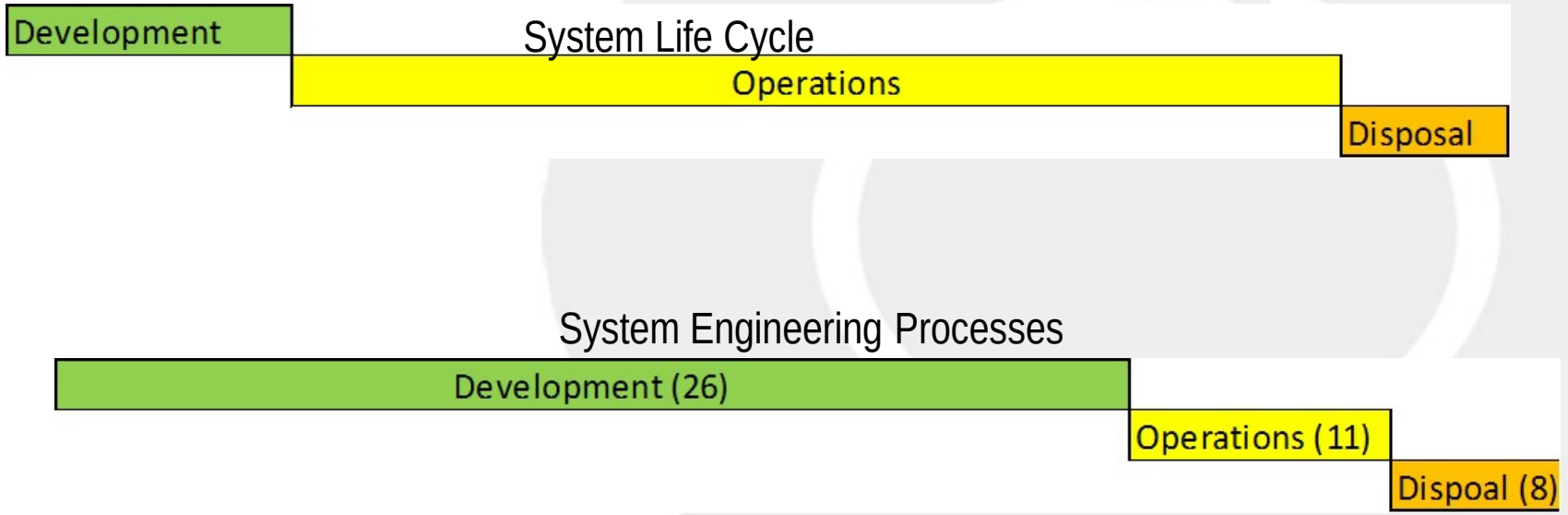
Systems Engineering is Development Focused

Pre-Phase A: Advanced Studies	Phase A: Preliminary Analysis	Phase B: Definition	Phase C: Design	Phase D: Development	Phase E: Operations	Phase F: Decommissioning
Stakeholder Expectations	Stakeholder Expectations					
Business or Mission Analysis	Business or Mission Analysis					
Technical Requirements Definition	Technical Requirements Definition	Technical Requirements Definition	Technical Requirements Definition			
	Logical Decomposition	Logical Decomposition	Logical Decomposition			
Architecture Definition	Architecture Definition					
	Design Solution Definition	Design Solution Definition				
System Analysis	System Analysis	System Analysis	System Analysis	System Analysis	System Analysis	System Analysis
Product Implementation	Product Implementation	Product Implementation	Product Implementation	Product Implementation		
		Product Integration	Product Integration	Product Integration		
			Product Verification	Product Verification		
			Product Validation	Product Validation	Product Validation	
				Product Transition	Product Transition	
Technical Planning	Technical Planning	Technical Planning	Technical Planning	Technical Planning		
	Requirements Management	Requirements Management	Requirements Management	Requirements Management		
	Interface Management	Interface Management	Interface Management	Interface Management		
Technical Risk Management	Technical Risk Management	Technical Risk Management	Technical Risk Management	Technical Risk Management		
	Configuration Management	Configuration Management	Configuration Management	Configuration Management		
	Technical Data Management	Technical Data Management	Technical Data Management	Technical Data Management		
	Technical Assessment	Technical Assessment	Technical Assessment	Technical Assessment		
Decision Analysis	Decision Analysis	Decision Analysis	Decision Analysis	Decision Analysis		
					Operation	
					Maintenance	
					Supply	
						Disposal
Acquisition	Acquisition	Acquisition			Acquisition	Acquisition
		Quality Assurance	Quality Assurance	Quality Assurance	Quality Assurance	Quality Assurance
		Infrastructure Management	Infrastructure Management	Infrastructure Management	Infrastructure Management	Infrastructure Management
		Portfolio Management	Portfolio Management	Portfolio Management	Portfolio Management	Portfolio Management
		Human Resource Management	Human Resource Management	Human Resource Management	Human Resource Management	Human Resource Management
		Quality Management	Quality Management	Quality Management	Quality Management	Quality Management
		Knowledge Management	Knowledge Management	Knowledge Management	Knowledge Management	Knowledge Management

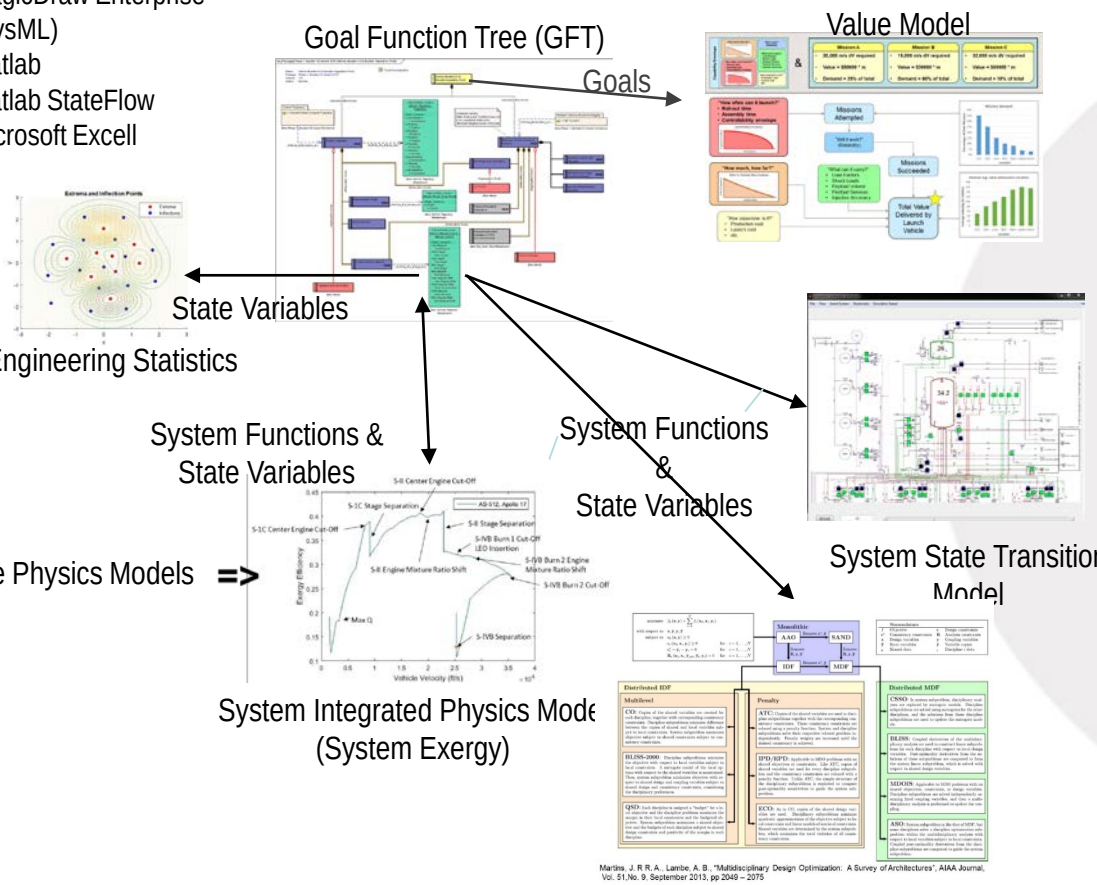
System Life Cycle is Operations Focused



System Understanding

- System Models Contain an Understanding of the System

- MagicDraw Enterprise (SysML)
- Matlab
- Matlab StateFlow
- Microsoft Excell



- Allow systems engineers to:
  - Maintain Information in an integrated form through out system life cycle
  - Communicate Information between system life cycle phases

System Knowledge Transport Medium

- System Models provide the transport medium of system knowledge through the life cycle phases