

FAA Process for Concept Development

Presented to: Friends and Partners in Aviation Weather

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Federal Aviation
Administration



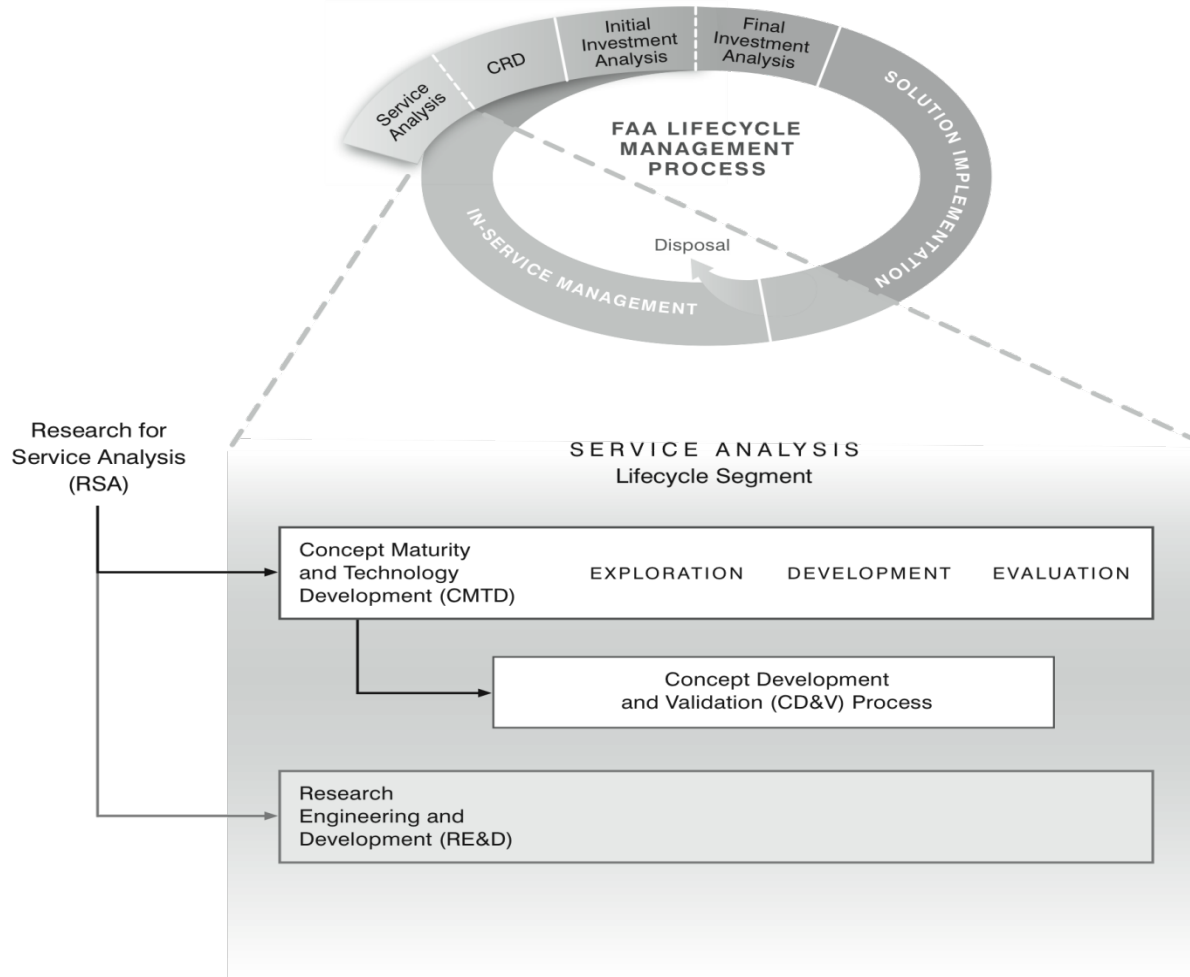
Developing Concepts in the FAA

- **The FAA has a process for how an operational concept is developed to a level at which it can be transitioned from research to implementation**
 - Acquisition Management System Guidance for Concept Maturity and Technology Development
 - Concept Development and Validation Guidelines, Sept. 2011
- **Concept Steering Group (CSG) oversees governance process to validate operational needs, and identify, prioritize, and evaluate research and development efforts to inform agency investment decisions**
- **Concept of Operations** (IEEE Standard 1362-1998)
 - An operationally oriented description of user's needs, including qualitative and quantitative characteristics, that communicates how the system is expected to operate in its environment.



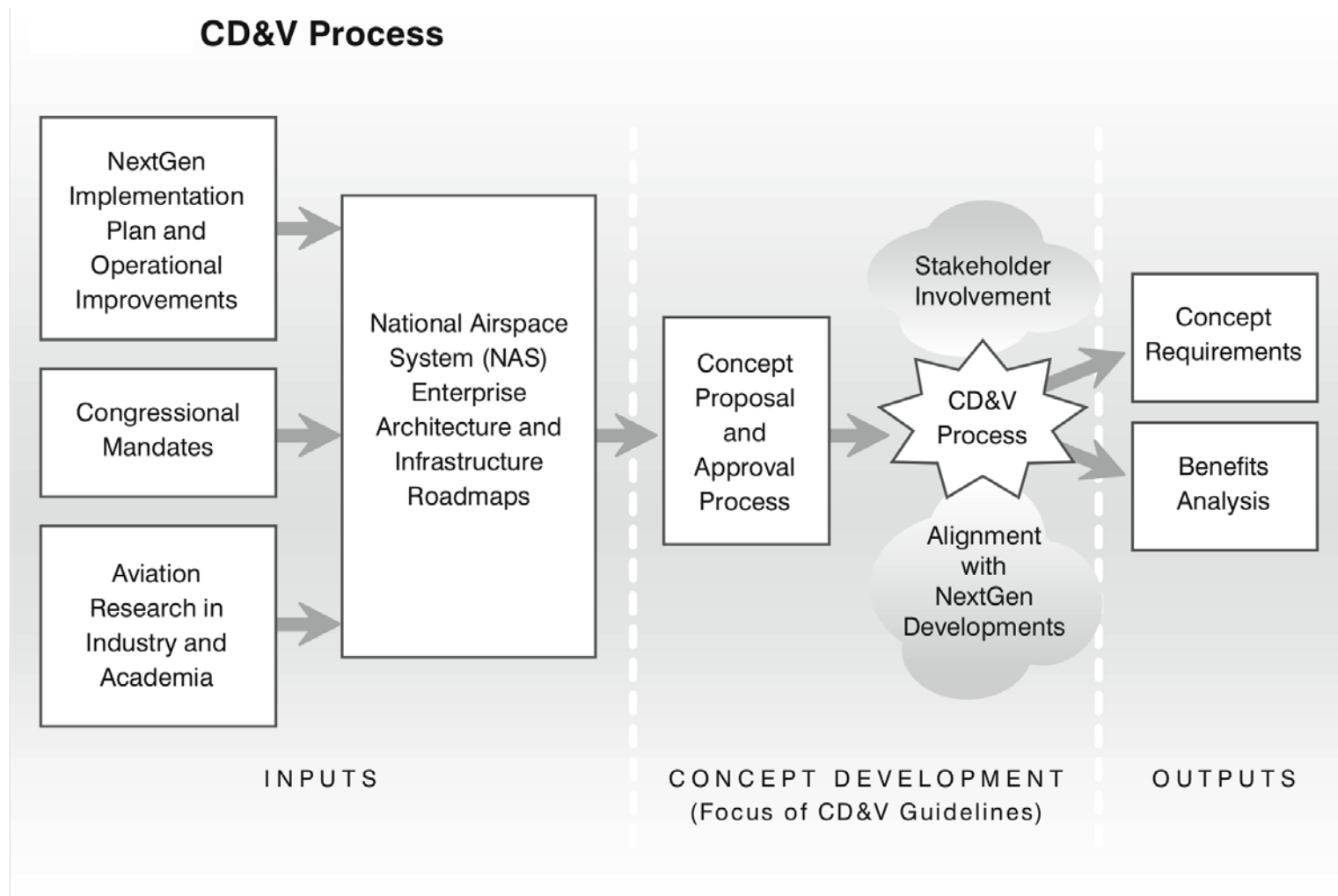
Defining New Service Needs

Acquisition Management System



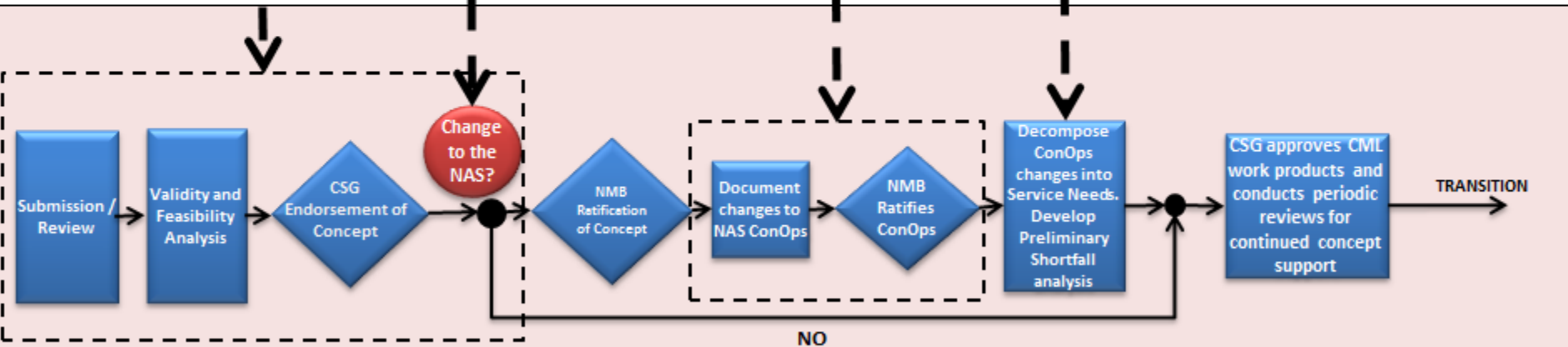
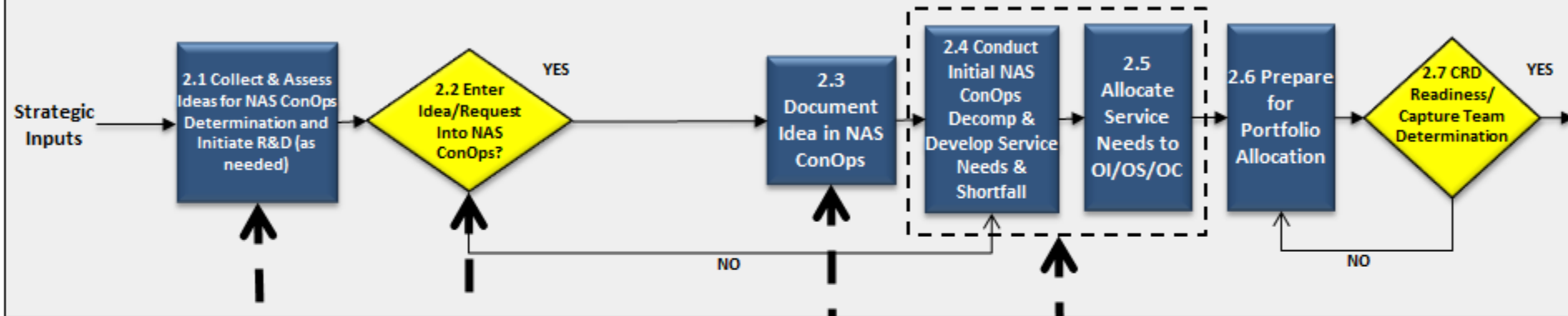
Concept Development & Validation

CD&V Process



CSG Alignment with I2I

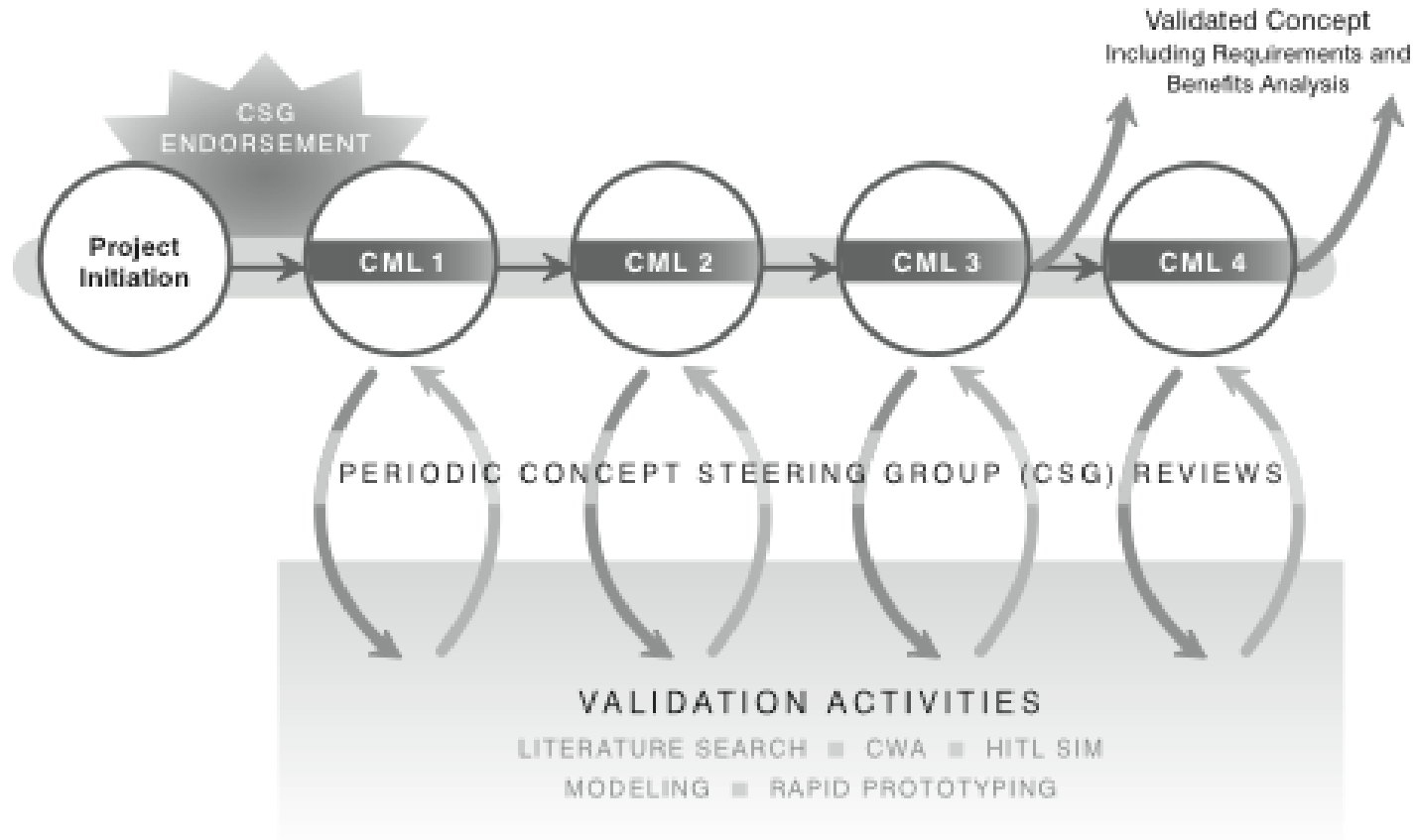
SERVICE ANALYSIS PHASE OF THE I2I PROCESS



GENERALIZED FLOW OF CSG OVERSIGHT

July 30, 2012

Concept Maturity Levels (CML)



Concept Development and Validation

		CML 1	CML 2	CML 3	CML 4
ACTIVITIES	PROJECT INITIATION <ul style="list-style-type: none"> Analyze NAS EA and Infrastructure Roadmaps Analyze Related ConOps Coordinate with Stakeholders Determine Concept Maturity 	<ul style="list-style-type: none"> Literature Review Paper Studies KE CWA Modeling Part-task Simulations 	<ul style="list-style-type: none"> CWA KE Modeling HITL Simulation 	<div style="text-align: center;">POSSIBLE TRANSITION ↑</div> <ul style="list-style-type: none"> Scenario Development Modeling HITL Simulation Benefits Analysis Safety Analysis Functional Analysis Requirement Analysis 	<div style="text-align: center;">TRANSITION ↑</div> <ul style="list-style-type: none"> Modeling HITL Simulation Field Trials Benefits Analysis Safety Analysis Functional Analysis Requirements Analysis
WORK PRODUCTS	<ul style="list-style-type: none"> Concept Proposal Project Charter Resource Planning Document (RPD) Project-Level Agreement (PLA) 	<ul style="list-style-type: none"> Documented Research Issues Initial ConOps 	<ul style="list-style-type: none"> ConOps Research Management Plan (RMP) Test Reports & Validation Reports Validation Briefing Preliminary Safety Impact Assessment (SIA) 	<ul style="list-style-type: none"> RMP ConOps Validation Reports Functional Architecture Preliminary Concept-level Requirements Benefits Analysis Safety Analysis (OSED, OHA) 	<ul style="list-style-type: none"> RMP ConOps Validation Reports Concept-level Requirements Functional Architecture Benefits Analysis Safety Analysis (OSA, SRMD for Live Trials)
EXIT CRITERIA	<ul style="list-style-type: none"> Concept proposal endorsed by CSG Approved Project Charter Approved RPD 	<ul style="list-style-type: none"> Concept Described in a Draft ConOps 	<ul style="list-style-type: none"> Approved RMP Approved ConOps 	<ul style="list-style-type: none"> ConOps Updated and Approved Preliminary Concept-Level Requirements Approved Preliminary Benefits Analysis 	<ul style="list-style-type: none"> Final ConOps Approved Final Concept-level Requirements Approved Benefits Analysis



Summary

- **Achieving NextGen requires a well-defined and repeatable process for concept development & evaluation**
- **Comprehensive assessment addresses the many factors involved in Air Traffic Management (ATM)**
 - Key Performance Areas
- **Benchmarking helps determine to what extent the performance of the proposed concept meets its objective**
- **Concepts are evaluated as part of Service Analysis and Concept and Requirements Definition**

