

Validating NextGen Operational Concepts: Challenges & Successes

Kristina Carr
Concept Development & Validation Group
November 5, 2009



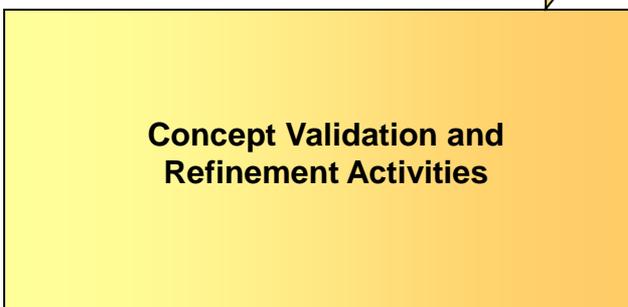
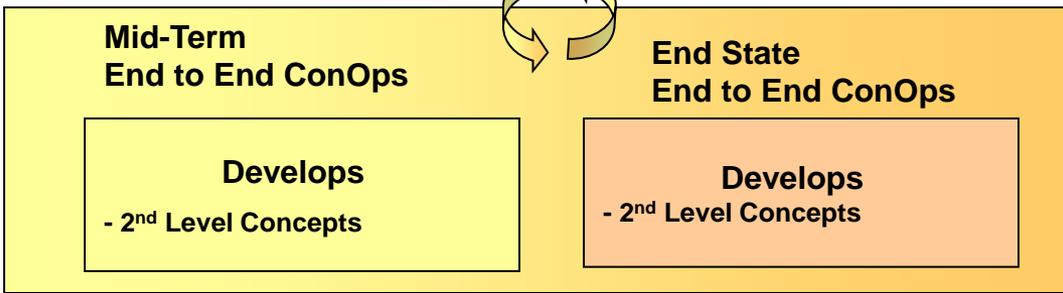
Federal Aviation
Administration



CD & V Process: External

ATS CD&V Group Concept Development and Validation

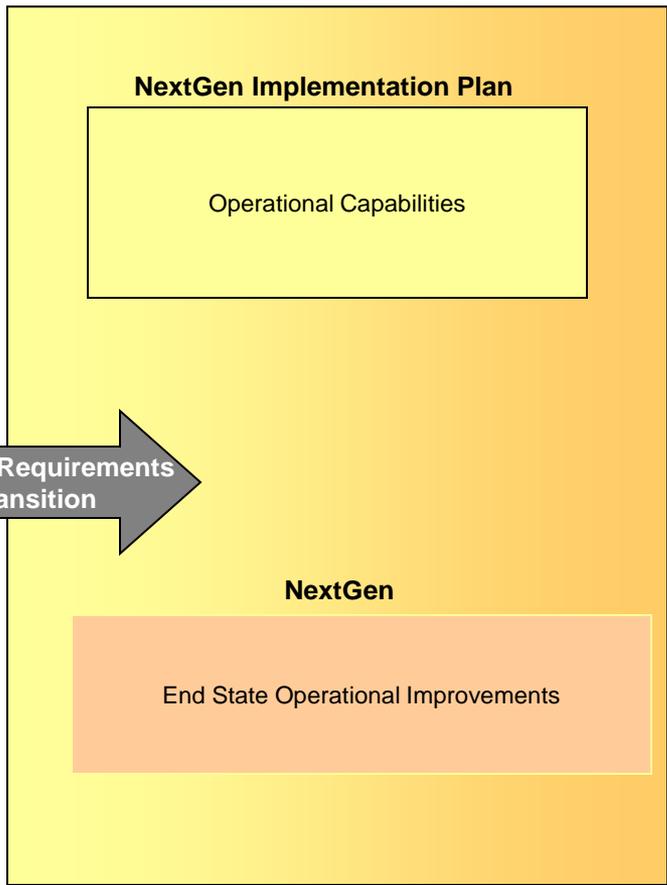
JPDO Concept of Operations for NextGen
FAA's NextGen Implementation Plan



- ATO-W
- ATO-E
- ATO-T
- ATO-R
- AIR
- AFS
- Non-FAA Sources

Feedback from Service Units

Service Units



Defined...

Concept Development

is characterized as the process that describes, evaluates, and prepares a proposed capability, technology or procedure for Investment Analysis (IA). It includes the definition and analysis of alternatives, the investigation of their feasibility, and ultimately the selection of one or more concepts to be pursued.

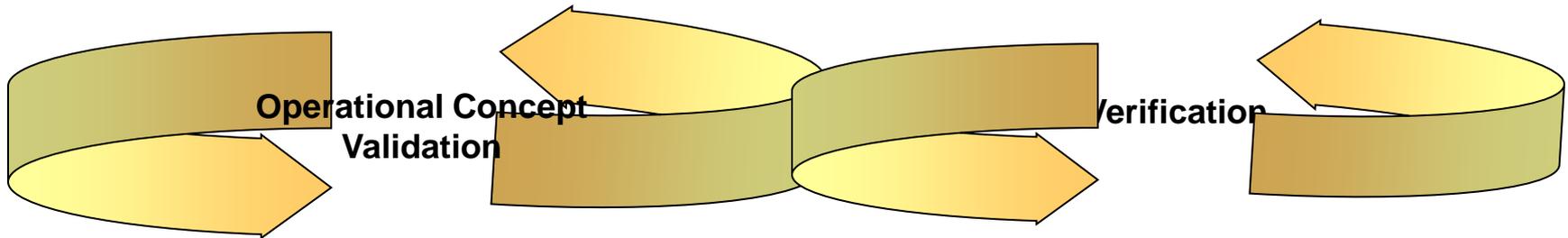
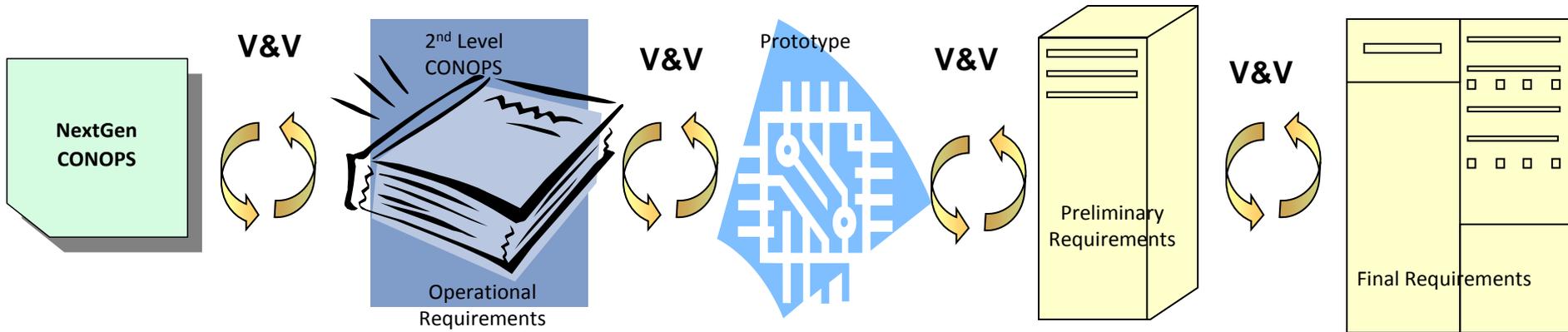
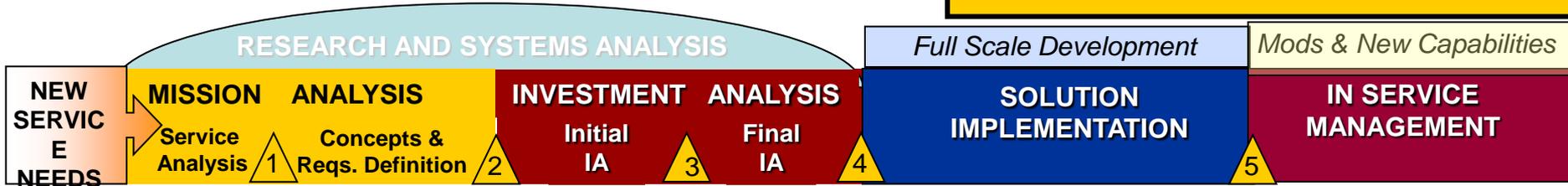
Concept Validation

a set of activities that help quantify and qualify the operational feasibility (performance, behaviors and cost) and expected benefits for a given concept.

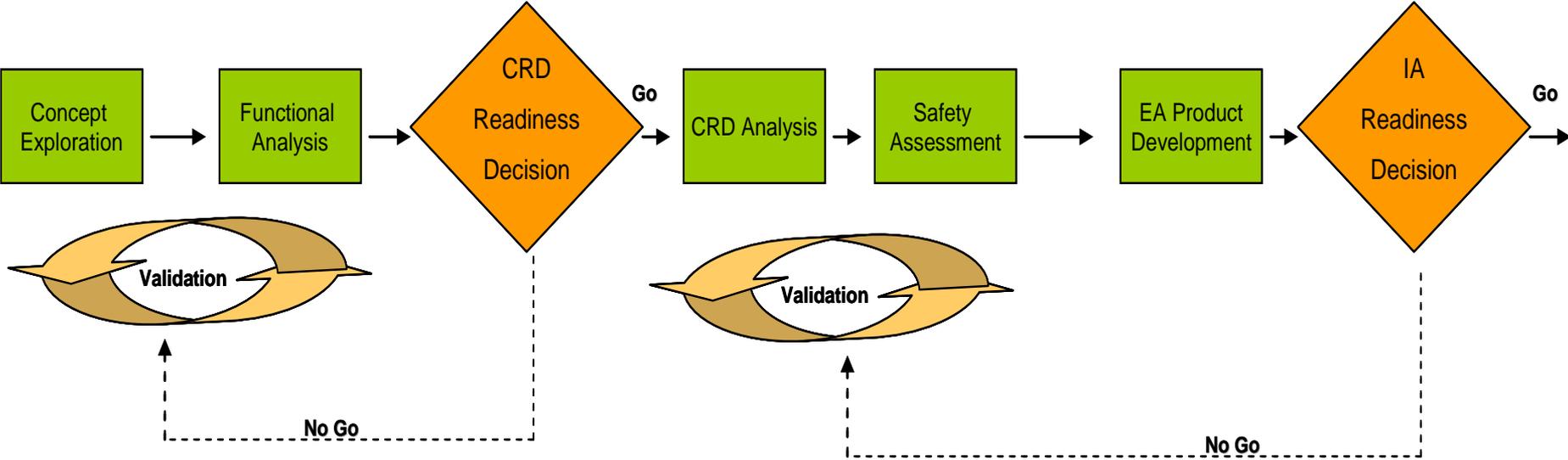


V&V: 2 Perspectives

- 1. Mission Need Decision :KEY
- 2. Investment Analysis Readiness Decision
- 3. Initial Investment Decision
- 4. Final Investment Decision
- 5. In-Service Decision



CD & V Process: Internal



Validation ➔

- Paper studies
- Knowledge Elicitation
- Cognitive Walkthroughs
- Real-time human-in-the-loop (HITL) studies (part-task and end-to-end)
- Fast-time simulation studies
- Field Demonstration
- Modeling
- Rapid prototyping
- Human Performance Modeling



Challenges

- Measures of Success- *how do we define success of validation?*
- Scale of NextGen – *how do we validate across concepts?*
- Participants – *how do we ensure study participants are reflective of tomorrow's workforce*
- Personnel – *how do we best distribute the development and validation activities among our resources*



Successes

3D Path Arrival Manager

Gate-Gate Time Based Flow Management

Integrated Arrival/Departure Airspace

Automated Conflict Resolution Advisories

High Altitude Airspace

Staffed NextGen Tower

Data Communications

Multi-Sector Planner



Thank you for listening.

