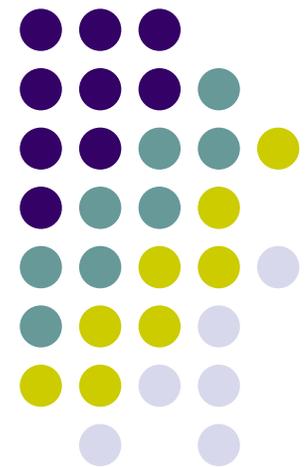


Office of Hydrologic Development

Hydrologic Operations & Service Improvement Process

Description



Hydrologic Operations & Service Improvement Process (HOSIP)

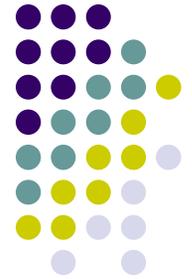


- OHD's Science Infusion & Systems Engineering Process
 - Requirements Based Research, Analysis & Development
 - Supports All Hydrology Laboratory Research & Development
 - Encourages Innovative Research & Architecture Consistency
 - Built on Attainable Science & Software Engineering Processes
- Adaptation by HL Leadership of NWS Operations & Service Improvement Process (OSIP)
 - OSIP is NWS Implementation of the NOAA-mandated Requirements Management Process
- Complies with OSIP & NOAA Mandates
- Proactive Measure to Influence OSIP Definition



HOSIP Assumptions

- Does Not Address Budget & Resource Issues
- Communication Essential Between & Among Group Leaders & Branch Chiefs
- Collaboration on Functional Disciplines May Cross Branches & Organizations
 - Reviews & Decisions Include Functional & Line Cooperation
 - Group Leader or Branch Chief Responsible for Gate Review Depends on Discipline of Project



Requirements Are

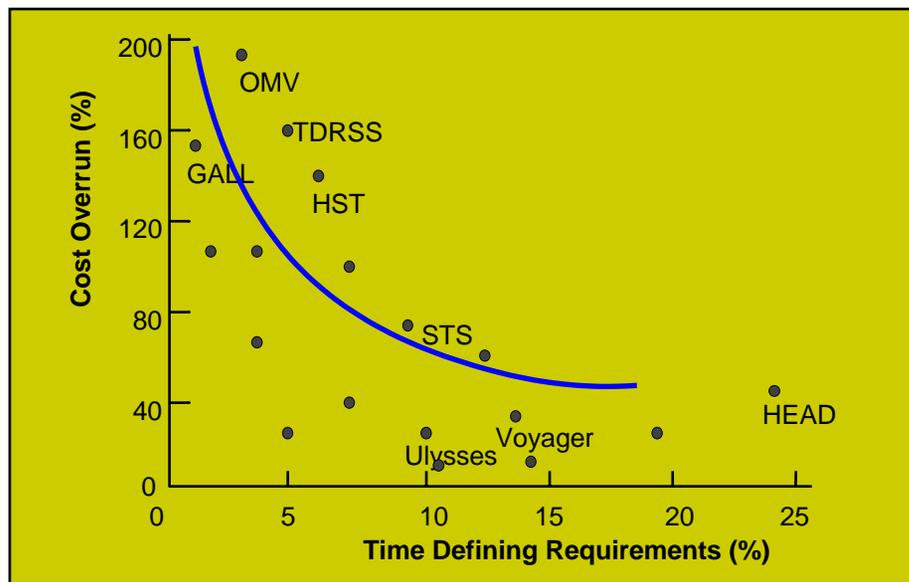
- Capabilities to be Provided to Customers
- They Should be:
 - Prioritized
 - Grouped by Function
 - Definitions of What is Needed, Not How to Accomplish What is Needed
- Documented to Obtain Agreement Before Starting
- Managed to Allow Change Tracking



Why Requirements

- Define What We are Going to Do Before We Do it
- NOAA Mandating Change to Requirements Based Process
- Requirements Based Process Proved to be More Effective & Less Costly

NASA 1990 Study



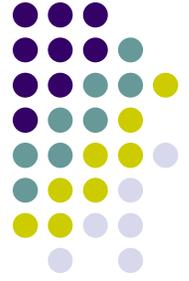
- *The More Time Spent in Requirements, the Less Likelihood of Cost Overrun, Rework, & Failure*



Motivation to Establish a Process

- 2002 Survey Feedback Action Report Recommendation
 - Establish Process
 - Enforce Process
- Coordinate with External Partners
 - Universities
 - Contractors
 - Other NOAA Labs
- Eliminate, or at Least Minimize, Rework
- NWS is Defining a Requirements Management Process per NOAA Mandate

HOSIP



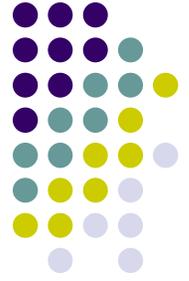
- Framework for All Activities Covering All Hydrology Lab Group & E2E Project Work
- Already In Use on Some Projects
 - E2E HOSIP Project Examples
 - RCA
 - Distributed Hydrologic Modeling
 - Group HOSIP Project Example
 - RFC Forecast Verification Application
- Adapts a Recognized Process to What We Actually Do
- Will be Tuned Through Experience
- Defines Useful Documentation Templates



HOSIP is

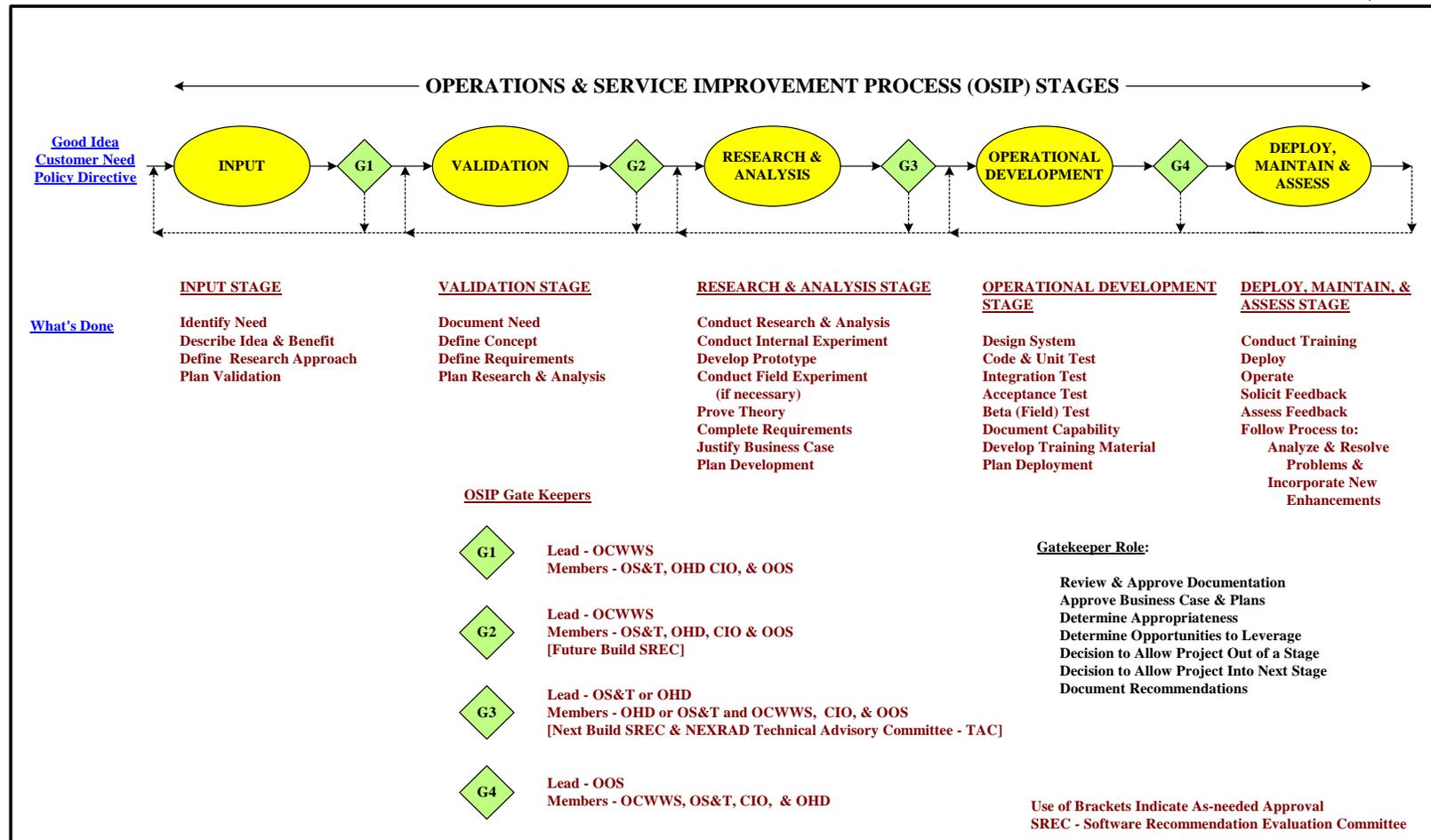
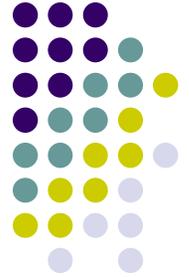
- Monitored & Enforced by Hydrology Lab Leadership Using Metrics & Procedures Established by the Science Infusion, Software Engineering Process Group (SISEPG)
- Management's Responsibility, Not the SISEPG
 - Questions & Feedback Should be Provided to & Acted on by HL Leadership
- A Living Process That Will be Fine Tuned to Help OHD Meet Objectives
 - With Less Rework & Problems
 - More Economically
- Not Intended to Address All Management Issues, i.e., Budget, Human Resources, Priorities

SISEPG

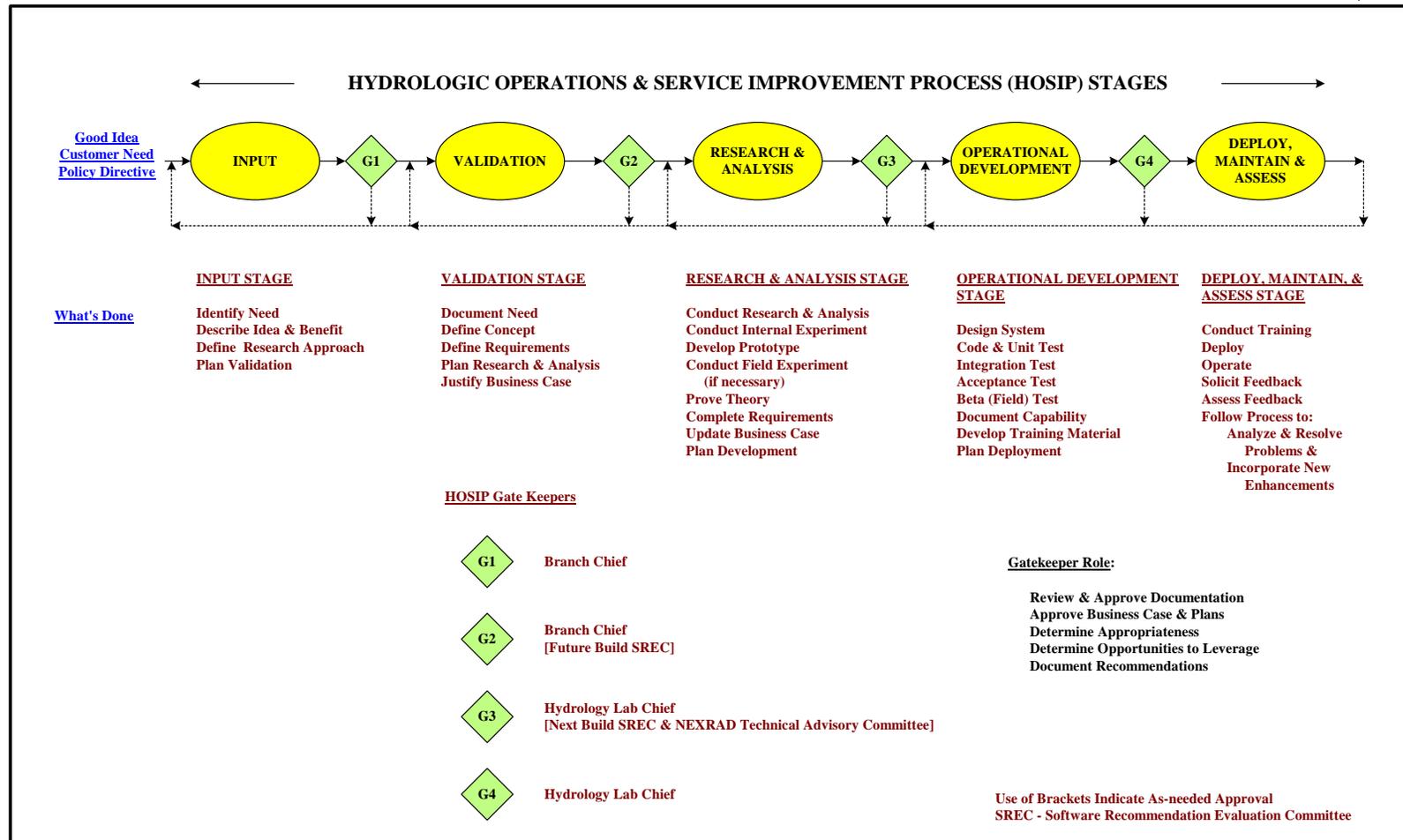


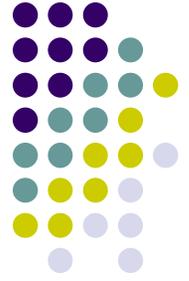
- Mentored by Hydrology Lab Leadership
- Defines the Standards, Procedures, Documentation Templates, Checklists & Tools Used for HOSIP
 - Quality Assurance Procedures, Checklists, & Metrics
 - Configuration Management Tools
 - Design & Development Tools Such as Dynamic Object Oriented Requirements System (DOORS) or TeamWork
- Evaluates the Effectiveness of those Procedures, Checklists, & Tools
- Tunes the Standards, Procedures, Documentation Templates Checklists, & Tools
- Staffed by Practitioners Who do the Work
- Ongoing Function - Membership is Rotated

Operations & Service Improvement Process (OSIP) - NWS



Hydrologic Operations & Service Improvement Process - OHD





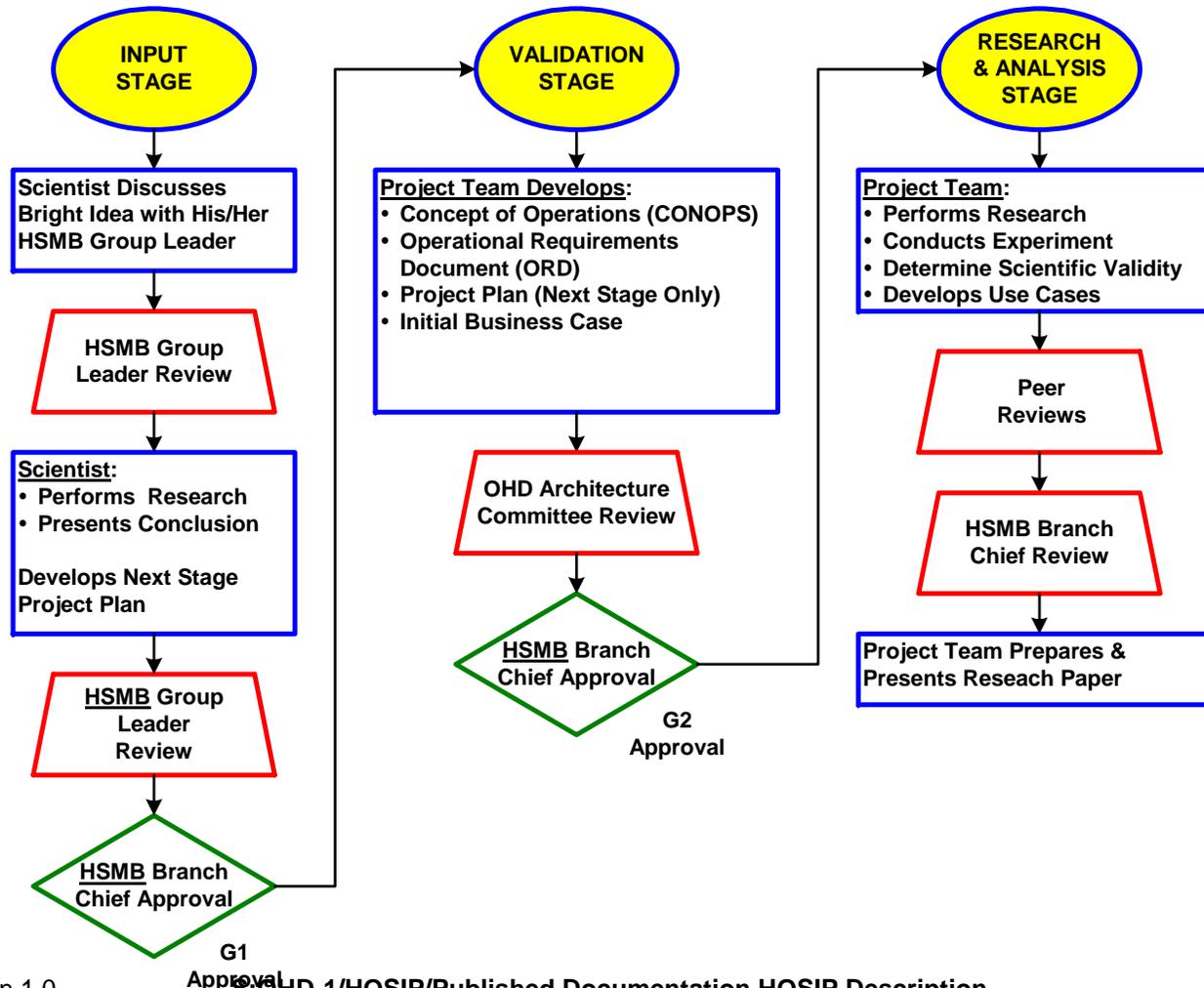
OSIP or HOSIP?

OHD Management Case-by-Case Decision Based on:

- Architectural Impact
 - Technical
 - Information/Data
 - Business
 - Applications
- Policy or Mission Change

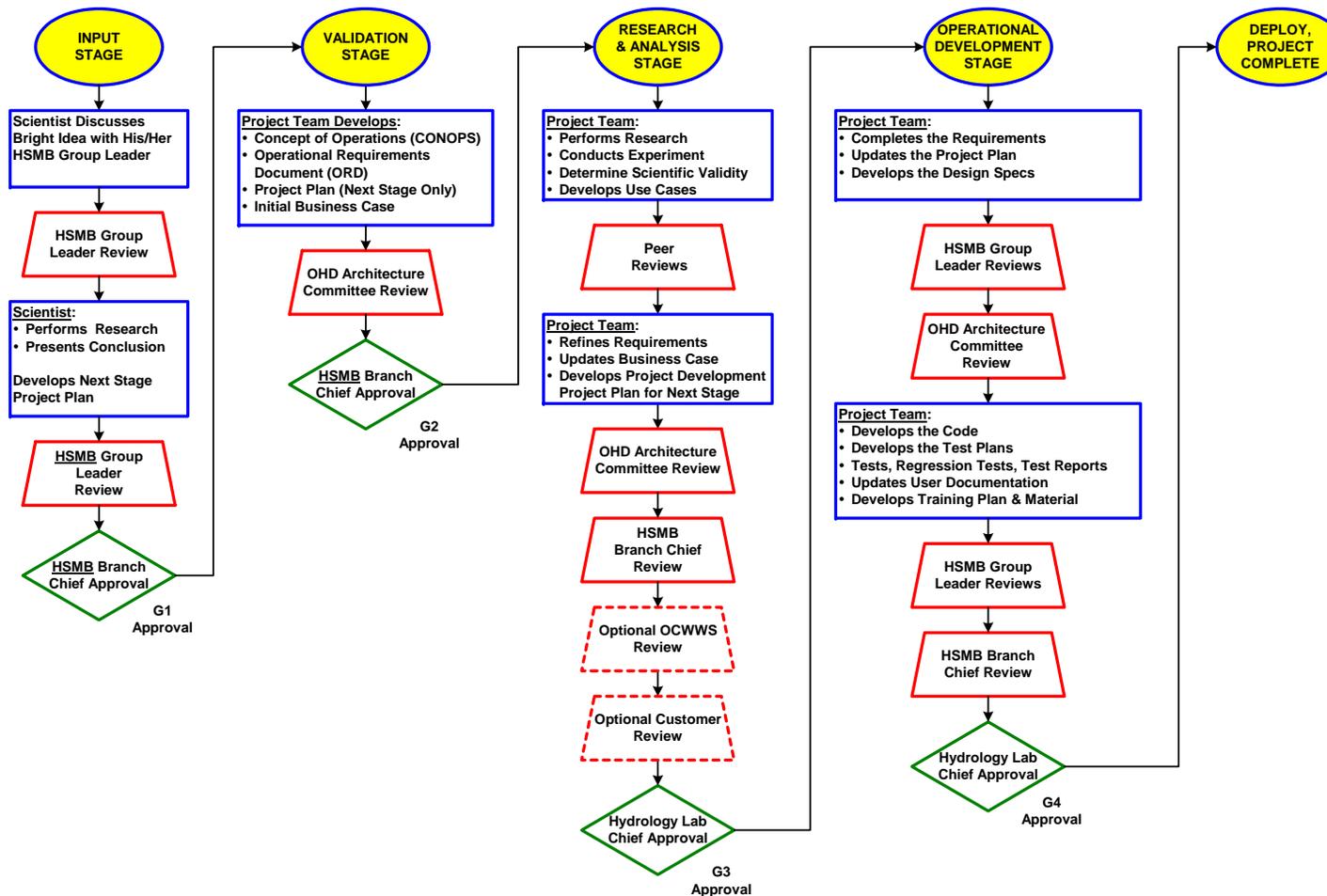


Typical HSMB Research Project



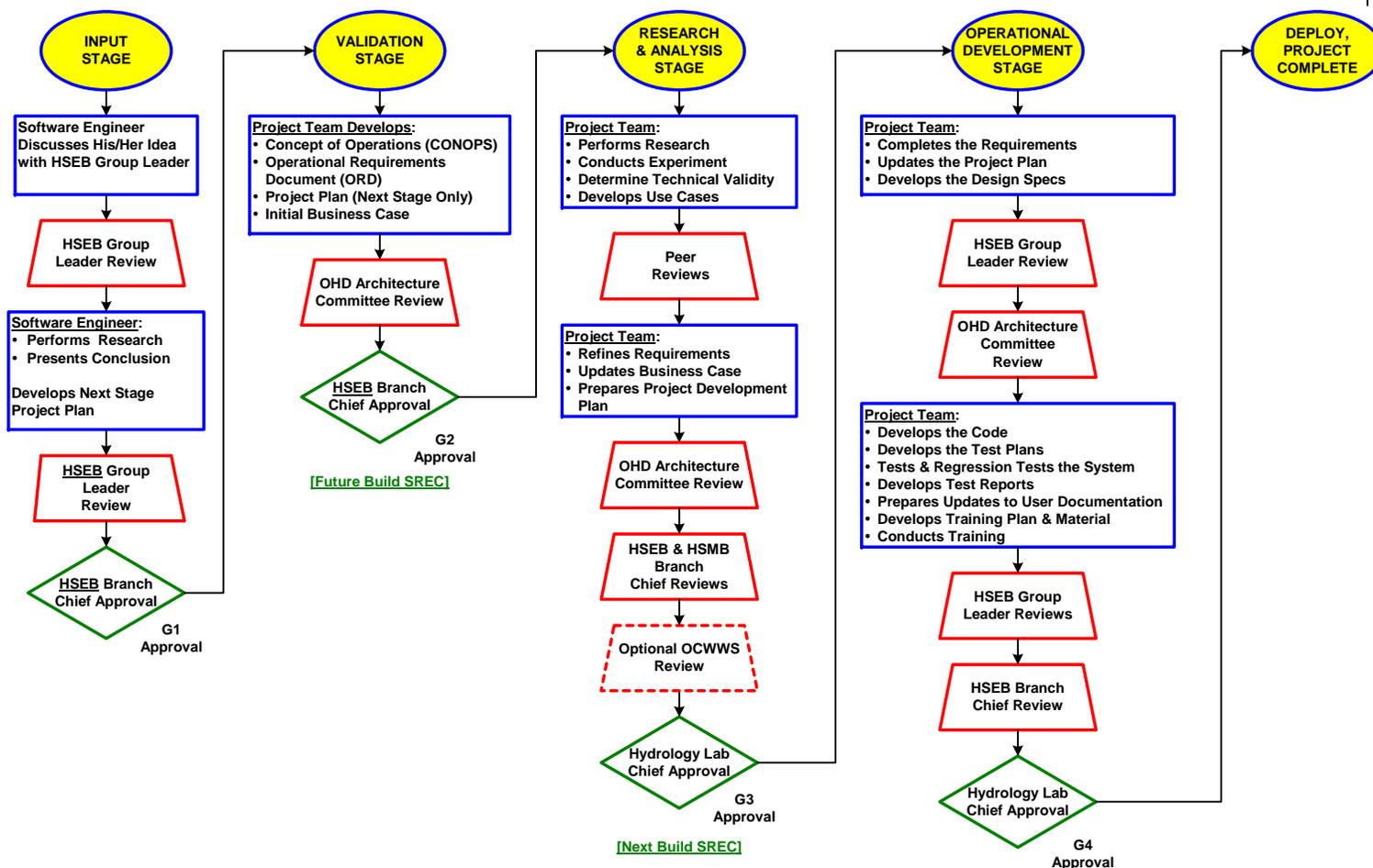


Typical HSMB R&D Project

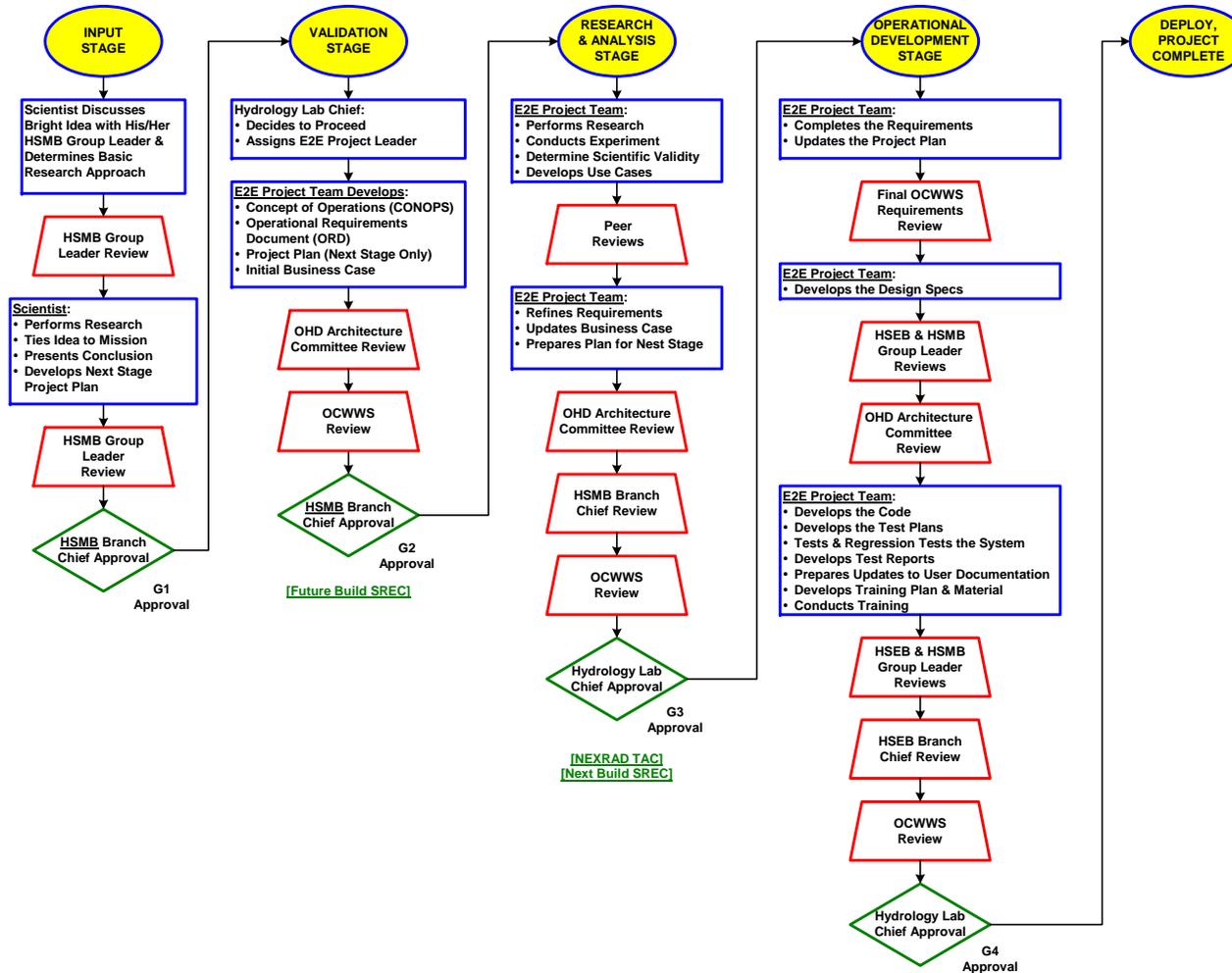
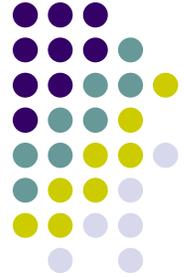




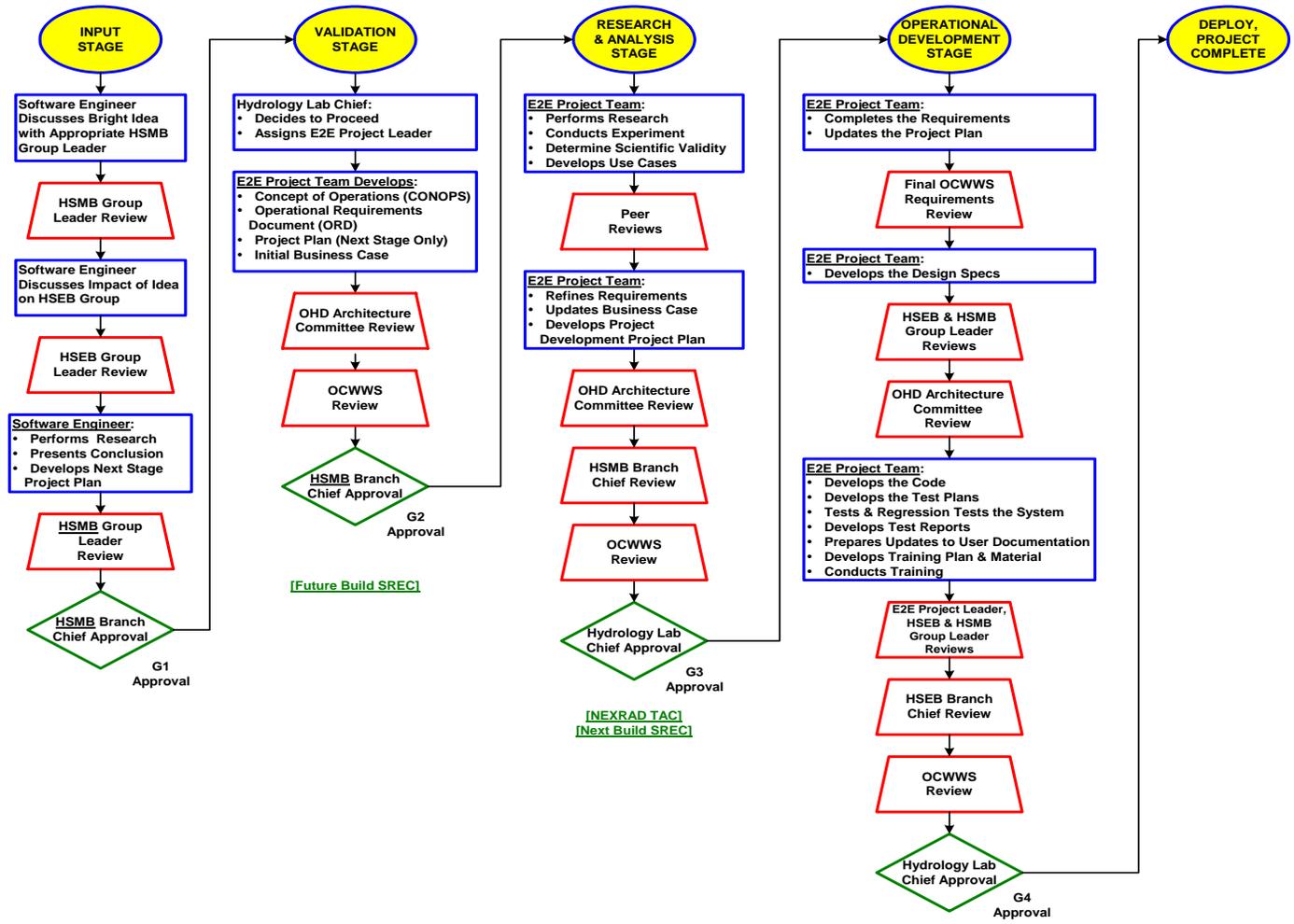
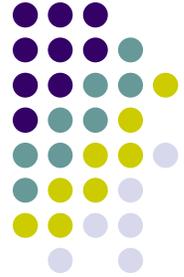
Typical HSEB Technology Project



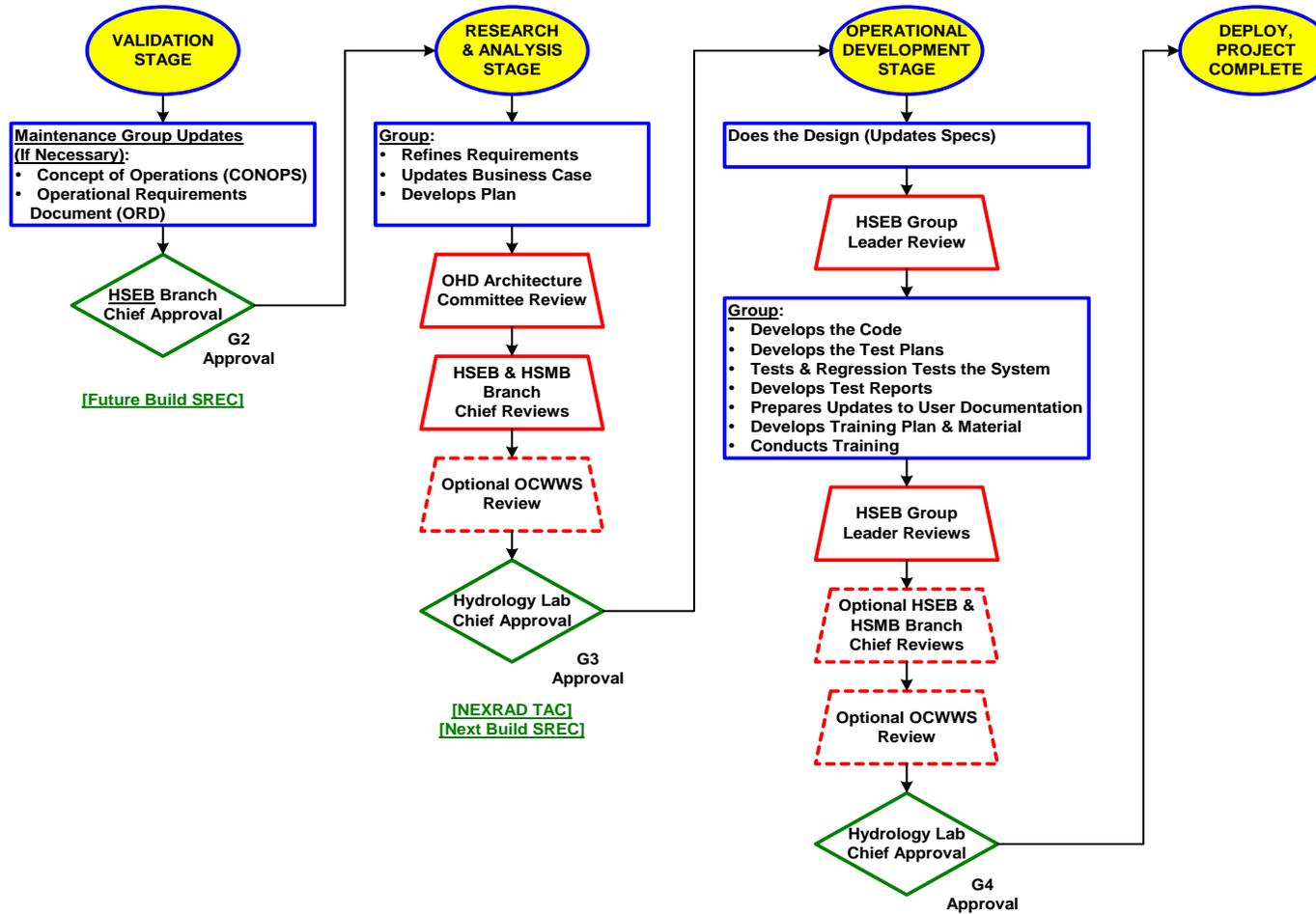
Typical E2E Project Initiated by an HSMB Scientist



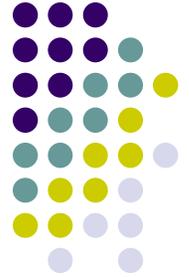
Typical E2E Project Started by a Software Engineer



Typical Maintenance Project (Example – DRs)



Glossary



Process	High Level View of Procedures OHD Will use to Meet Operations & Service Improvement Objectives
Procedure	Step by Step Activities to be Followed to Implement Process
Metrics	Measures of Process Effectiveness
Templates	Guidelines for Documentation
Checklists	Lists of Items to be Reviewed to Ensure Quality of Process
Standards	A Set of Minimum Guidelines or Constraints for a Particular HOSIP Product
HOSIP Product	Document or Code