



TARGET Overview

TARDEC Gated Evaluation Track
for Technology Development



TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

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TARGET Process Support

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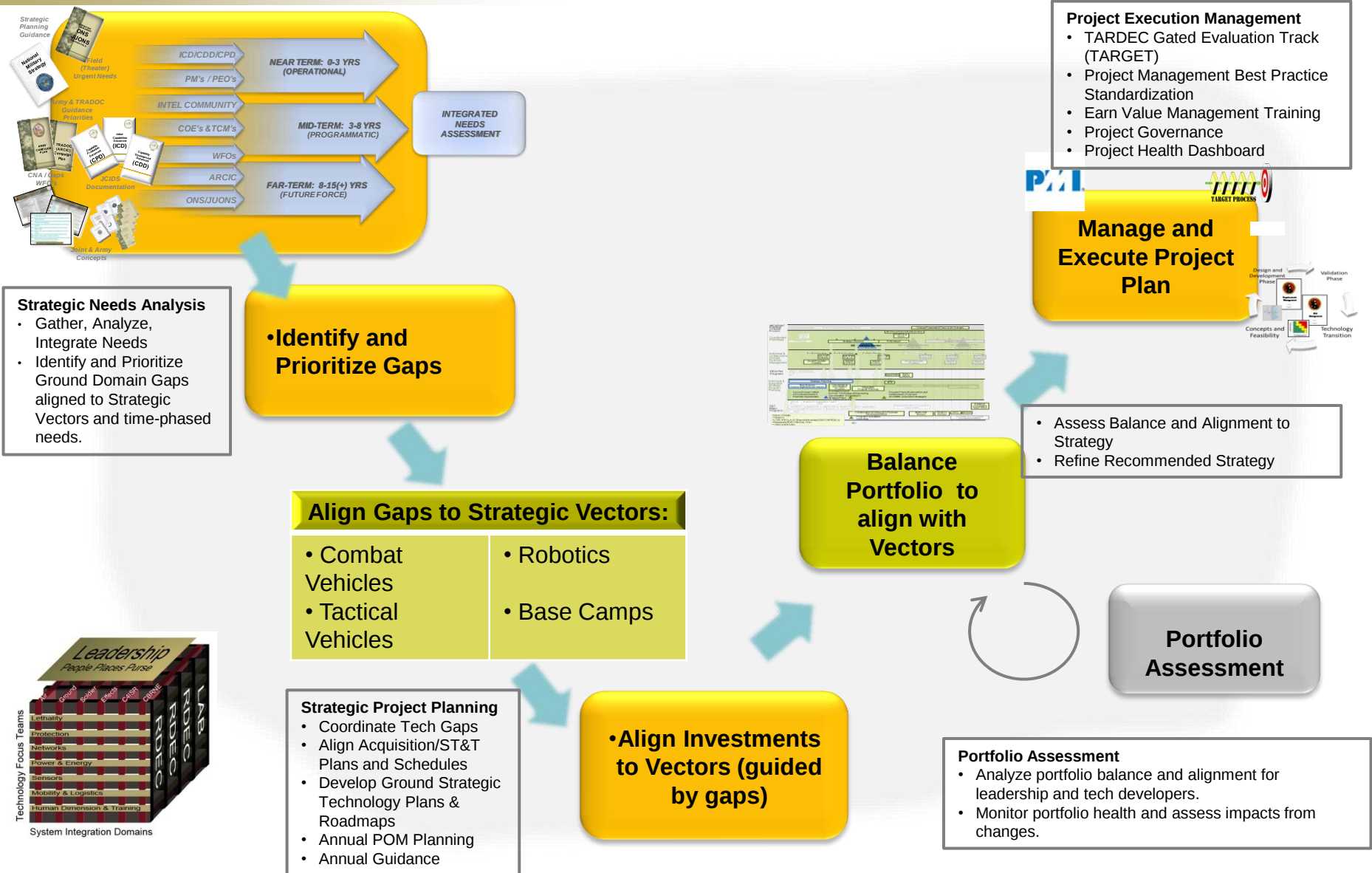
- **Mission**

- Design, implement and sustain an product development system for science and technology development at TARDEC that integrates proven methodologies including project management, systems engineering, design for six sigma applications and tools.

- **Vision**

- Enact a robust, systematic and culturally embedded data driven decision methodology for TARDEC technology development by 2013.





Commercial Best Practices

- US Government Accountability Office; Best Practices: Stronger Practices Needed to Improve DoD Technology Transition Processes, dtd September 2006
- Best Practice Management & SE Practices in the Pre-Acquisition Phase for federal Intelligence and defense agency ; Project Management Journal dtd March 2008
- Product Leadership for the Lean Enterprise; Michael Kennedy
- Product Leadership; Robert Cooper
- Winning at New Products; Robert Cooper
- 3M Design for Six Sigma Training NPI/NTI

MIL-STD/HDBK

- IMP/IMS Preparation and Use Guide, dtd 21 Oct 05 V0.9
- MIL-STD 499B System Engineering
- PEO Command Control & Communications Tactical , Practical guide for leveraging Science & Technology; "Relevant R&D" vs "Science Projects", dtd Feb 2008



DAU Documentation

Guidebooks/Policy

- Defense Acquisition guidebook
- CLE031 RDECOM SE Policy
- Program Managers e-tool kit

Continuous Learning Modules

- CLL015 Business Case Analysis
- CLB016 Intro to EVM
- CLE045 Into to DoD S&T Management
- CLE028 Market Research for Technical Personnel
- CLM017 Risk Management
- CLE021 Technical Readiness Assessment
- CLM 013 Work Breakdown Structure
- CLE003 Technical Reviews
- CLE026 Trade Studies

TARDEC Documents

- ATO-22-3-001 ATO SEP Instructions, dtd 10Dec 08
- Draft ATO Managers Handbook, dtd 26 July 09
- ATO LSS Process Map
- SBIR LSS Process Map

TARGET Maturity Model: Iterative Migration to Desired State

2010

2011

2012

2013



Horizon 1

- Pilot(s)
- 50% Solution
- Few Projects
- Shell w/existing processes
- Intro 2-3 Key data tools
- Introduce gating to management
- Exercise system
- Awareness throughout organization
- Specifics localized to those impacted

Horizon 2

- Introduction of a standardized process
- 60% Solution
- Obvious flaws and failure modes fixed.
- Applied to project (s) within each RBG organizations
- Alignment of SE and PM practices
- Introduce Gating and Event Driven Project Management to Organization.
- Detailed Awareness throughout organization

Horizon 3

- Standard Process Gen II
- 80% Solution
- Industry and DoD best practices integrated
- Applied to all projects within RBG
- DFSS & LSS tools integrated
- Data driven culture & fact based decision making promoted
- Fundamental understanding throughout organization
- Awareness with customers and suppliers

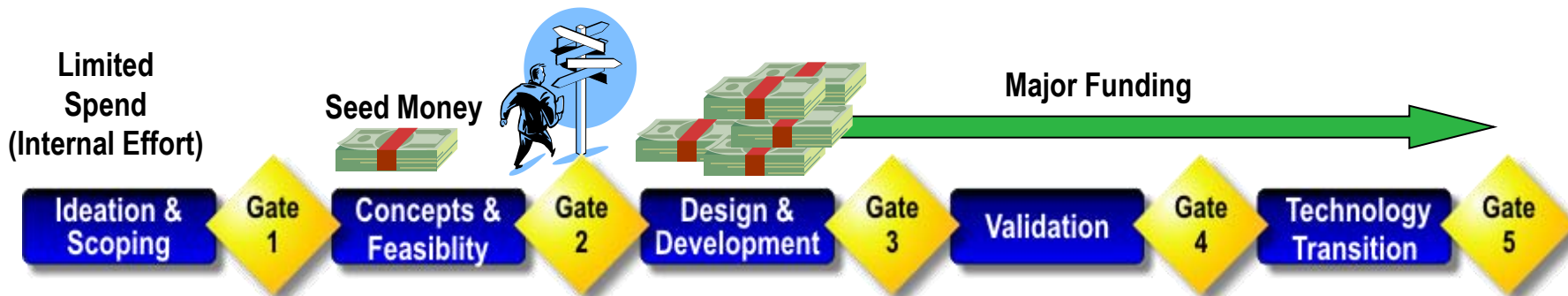
Horizon 4

- Living Process
- 99% Solution
- Best Practice & new tools continuously updated by organization
- Fact based/data driven in DNA of organization
- Expansion & integration with other Army & DoD efforts
- Customers and Suppliers understand and use the system.

TARGET

Science & Technology Gated System

Select Funding Path



Stage 1

- High Level Objectives**
- Alignment of Project with the big ARMY & TARDEC needs and strategy.
 - Understand the current technology landscape-current DoD Projects executing similar mission.

DELIVERABLE:
PROJECT
CHARTER

Stage 2

- High Level Objectives**
- Establish Requirements Baseline
 - Identify Superior Concept and demonstrate technical feasibility
 - Complete TRA/MRA, establish project partners and determine in-house versus contracted Activities

DELIVERABLE:
PROJECT PLAN
Requirements
Baseline

Stage 3

- High Level Objectives**
- Develop a functional prototype that meets project performance objectives.
 - Complete Manufacturing Assessment/ Technology sensitivity assessment

DELIVERABLE:
Prototype
Manufacturing Req

Stage 4

- High Level Objectives**
- Validate performance against customer requirements.
 - Define the operating range and the interface for technology technology.

DELIVERABLE:
Validated Prototype
Operations Report

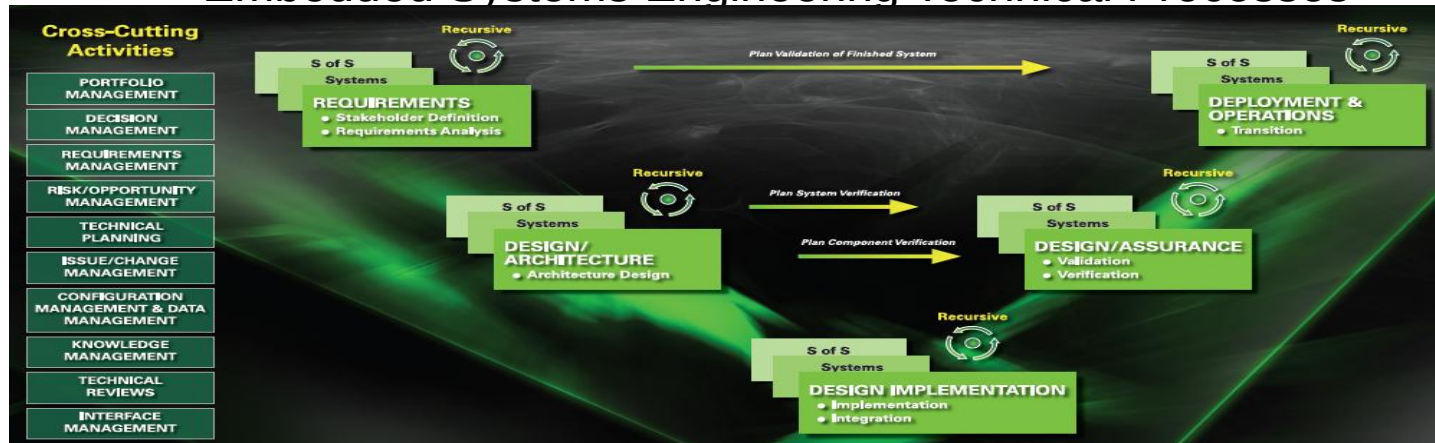
Stage 5

- High Level Objectives**
- Package the technology
 - Complete documentation of development.

DELIVERABLE:
Technology
Support to
Transition



Embedded Systems Engineering Technical Processes



Systems Engineering

DOORS



QFD

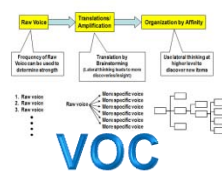


Pugh

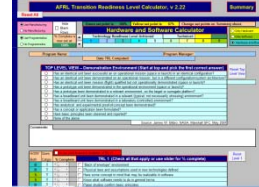


Tools

VOC



TRL/MRL



Technology Roadmaps



Embedded Project Execution Management Processes

- Resource Mgmt, Problem Solving, Tracking/Control, Accountability/ownership, Conflict Management, Strategic Vision, Relationship Mgmt, Business Justification, Process Orientation

Monitoring & Controlling



Initiating

Planning

Executing

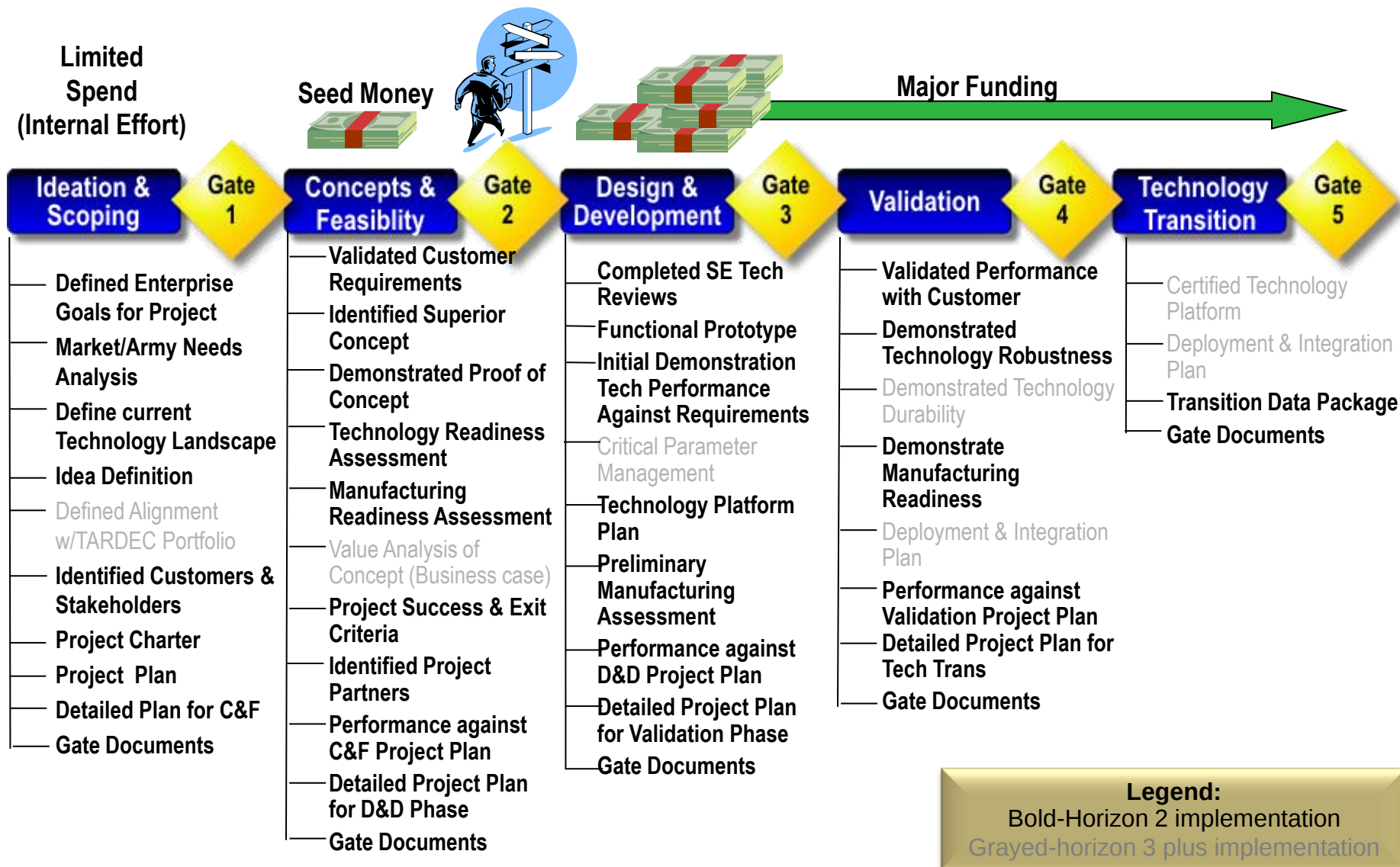
Closing



Enablers
(DFSS, Tools, SW)

Project Management

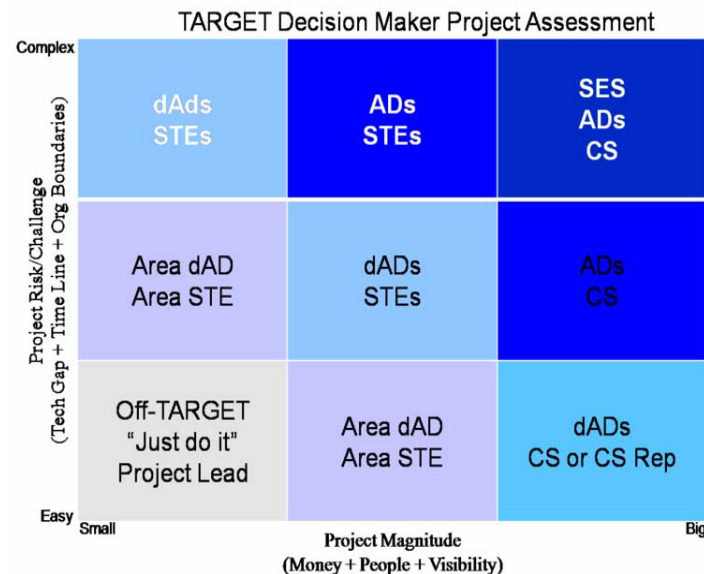
Select Funding Path



- Specific deliverables aligned to each phase activities designed to reduce programmatic risk
- Identify the right amount of data at the right time to facilitate problem identification and solution
- Recommended activities by commercial best practices and GAO
- Windchill should be used to store and document activities/tools used to fulfill the deliverables
- Templates will be designed to provide best-practice information and expectations for each deliverable

- Formalized documents required to be completed and submitted prior to Gate Decision Review
- RDECOM/Systems Engineering required documentation of product development
- Somewhat standard across development system-continuously updating critical information within each phase
- Two Critical Gate Documentations to the project manager
 - Resource requirements for next phase
 - Team Recommended -Gate Decision Authority Score Card
- Data driven documentation based out of the phase deliverables

- Key **decision** points
 - Is the program healthy, valuable, & have a path forward?
 - Are adjustments needed?
 - Is this program still a top priority?
- Decisions driven by data
- Cross functional review committee – reviewers are responsible, accountable, or supply resources
- Three Areas of focus
 - Project Quality Control
 - Problem Prevention
 - Project Fate Decision
- Outputs
 - Approval status & priority status
 - Work plan for next phase
 - Bounding box for team
 - Resource commitment
 - Timeline to next gate
- Decision process requires two parts:
 - Is the program healthy, valuable, & have a path forward?
 - If yes, what is its priority within the portfolio?



Project: LZ Snow Removal System

Gate 1 (I&S→C&F) - Gate Decision Review Score Card

Gate Decision Authority Name: *Joe Gatekeeper*

Gate Pass Rating (R-G-Bk) *R*

Phase Deliverable	Project Team Recommendation		GDA Scoring		GDA Action Tasks
	Gate Risk (R-Y-G)	Data Integrity (1-5)	Performance against "Go" criteria (1-5)	Gate Risk (R-Y-G)	
Defined Enterprise Goals for Project		4	5	G	
Market/Army Needs Analysis		3	4	Y	
Technology Analysis		5		G	
Idea Definition		2			
Defined Alignment with TARDEC Portfolio		1		R	
Identified Customers & Stakeholders					
Project Charter					
Gate Plan					
Performance against I&S Scope					
Detailed plan for C&F					
Ideation & Scoping Gate Documents					
		GDA Overall Score			

Gate Documents

- ☒ Draft overall project plan
- ☒ Detailed Project Plan for Concepts & Feasibility
- ☒ Program Charter
- ☒ Project Proposal Submission Package (Marketing chart & 8 question chart)
- ☒ Project Recommendation
- ☒ Gate Decision Authority Score Card

Project Metrics:

Project Slip Rate	
CCl	
% Spend	

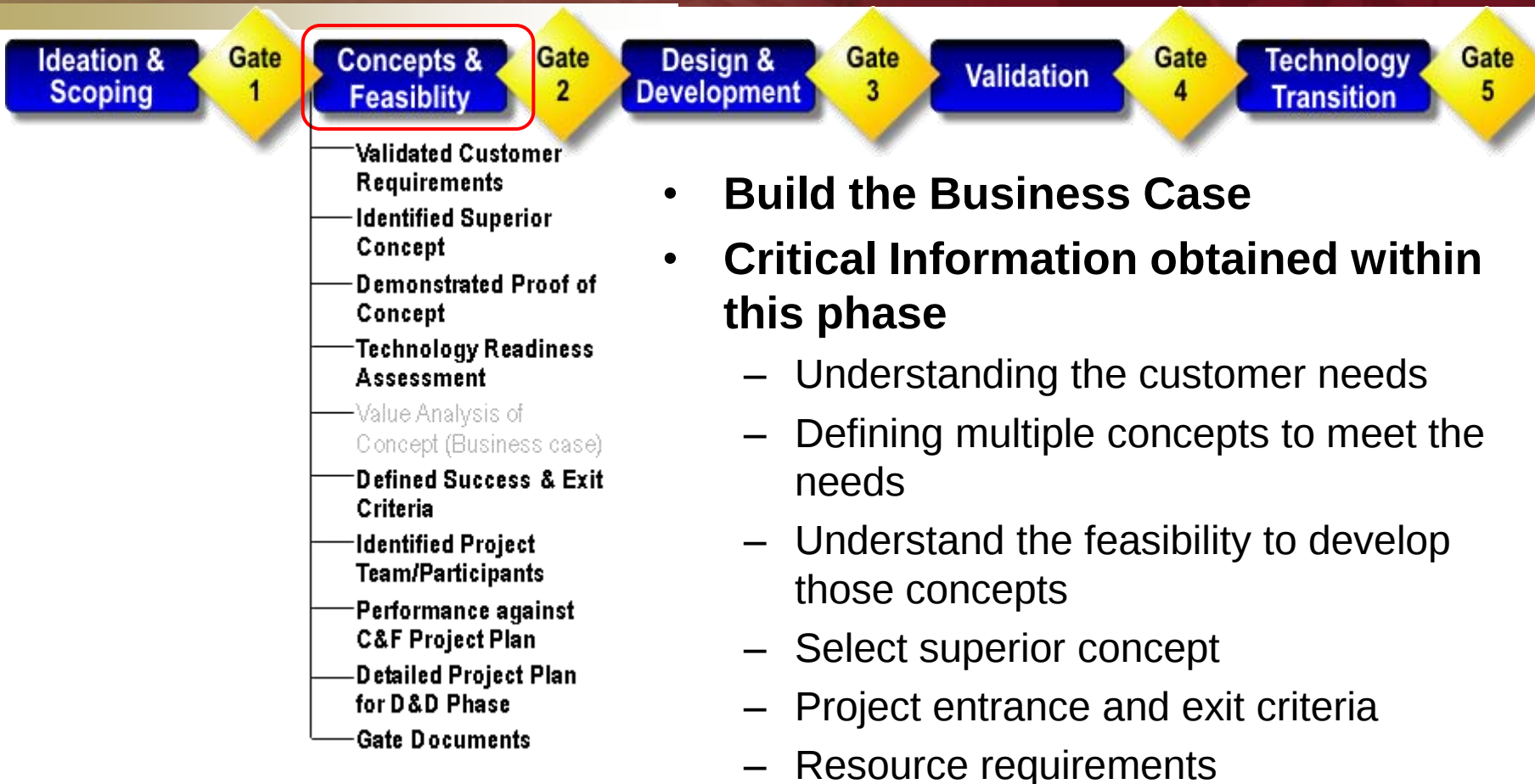
As the gates go, so goes the process – R. Cooper



- **Defined to be the Up Front homework phase**
- **Critical Information obtained within this phase**
 - Project alignment with TARDEC core competencies (Strategic Alignment)
 - Identification of potential customer and stakeholders
 - Technology Landscape (State of Art)
 - Identify high level scope and resource requirements
 - Define Project Magnitude and Project Risks/Challenges
 - Charter

- Defined Enterprise Goals for Project
- Market/Army Needs Analysis
- Technology Analysis
- Idea Definition
- Defined Alignment w/TARDEC Portfolio
- Identified Customers & Stakeholders
- Project Charter
- Gate Plan
- Performance against I&S Scope
- Detailed Plan for C&F
- Gate Documents

NOTE: The defined tasks are identified to be current best practices and may not be all encompassing; additional tasks may be required to resolve the intent of the deliverable and should be documented for others.



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- System Engineering Technical Reviews
- Functional Prototype
- Demonstrated Performance Against Requirements
- Critical Parameter Management Plan
- Technology Platform Plan
- Preliminary Manufacturing Assessment
- Performance against D&D Project Plan
- Detailed Project Plan for Validation Phase
- Gate Documents

- **Defined to be the development of the functional prototype**
- **Critical Information obtained within this phase**
 - Critical parameters that control the ability to meet objectives
 - Manage critical parameters
 - Development of functional prototype
 - Robust design applications
 - Manufacturability assessment

NOTE: The defined tasks are identified to be current best practices and may not be all encompassing; additional tasks may be required to resolve the intent of the deliverable and should be documented for others.



- Validated Performance with Customer
- Demonstrated Technology Robustness
- Demonstrated Technology Durability
- Demonstrate Manufacturing Readiness
- Deployment & Integration Plan
- Performance against Validation Project Plan
- Detailed Project Plan for Tech Trans
- Gate Documents

- **Defined to be the validation phase**
- **Critical Information obtained within this phase**
 - Project deliverable alignment with program objectives
 - Documentation of Technology Readiness Level 6
 - Operating parameters of technology
 - Technology interface
 - Technology deployment

NOTE: The defined tasks are identified to be current best practices and may not be all encompassing; additional tasks may be required to resolve the intent of the deliverable and should be documented for others.



- **Defined to be the hand-off phase**
- **Critical Information obtained within this phase**
 - Transition Data Package
 - Technology form, fit and function
 - Technology documentation

- Certified Technology Platform
- Deployment & Integration Plan
- Transition Data Package
- Gate Documents

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