



Training:

Technology Advisory Board Submission and Assessment Process



Agenda



- 8:00 - Welcome and Opening Remarks
- 8:15 - The JGRE Process
 - Process Overview
 - TAB Structure
 - Details of the Process and Timeline
- 9:15 - Training for Concept Submissions
 - Introduction of some basic definitions
- 9:45 – Break
- 10:15 – Training for Concept Submissions (cont.)
 - Example of a Concept Submission
- 11:30 - Additional Information
 - FY09 TAB Schedule
 - Lessons Learned from Initial Collaboration and other important items
- Lunch



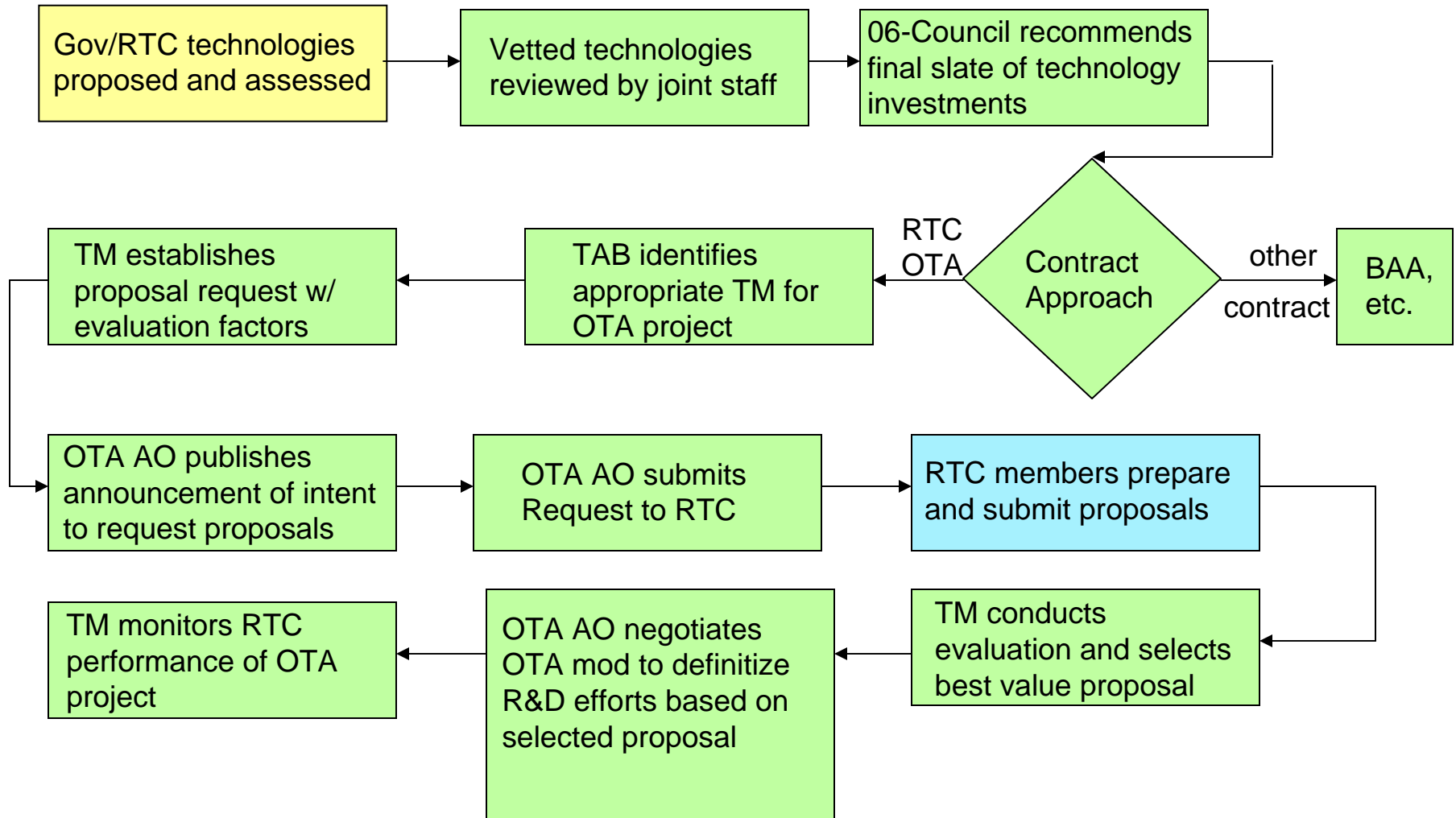
The JGRE Process



-
- **Process Overview**
 - TAB Structure
 - Details of the Process and Timeline



Process Overview





The JGRE Process



-
- Process Overview
 - **TAB Structure**
 - Details of the Process and Timeline



TAB Guidelines

(Members from Industry)



- Represent the RTC (not each individual company)
- Be ready to discuss technology at a level that doesn't compromise IP—share your knowledge
 - Is proposed concept technologically sound
 - Should the start date be adjusted based on technical advances
 - Can it be done in the time suggested and within the proposed cost
- A continuous process beginning in October and lasting through April



FY09 TAB Teams



Ellen Purdy, Andy Dallas, *Co-Chairs*

Battlespace Awareness
P. Mckinney, M Bruch
Co-Chairs

P. Rowe	R. Wade
A. Stentz	B. Smuda
P. DiBitetto	A. Kopeiken

Force Application
A. Mangolis, J Overholt
Co-Chairs

T. Jochem	M. Shields
B. McBride	K. Hacker
R. Finkelstein	L. Martinez

Protection
K. Massey, B. Skibba
Co-Chairs

T. Cable	B. Brezina
C. Jones	B. Griese
D. Theobald	G. Gilbert

Logistics
K. Kirkpatrick, J Lasswell
Co-Chairs

K. Bonner	E. Shoenherr
P. Koon	E. Pacis
F. Oliver	J. Hobson

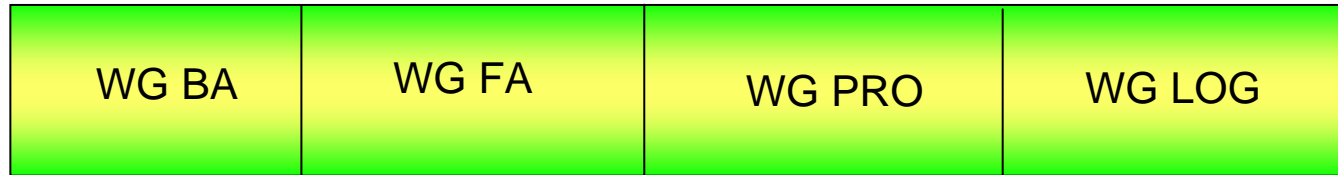


TAB Partnership Approach



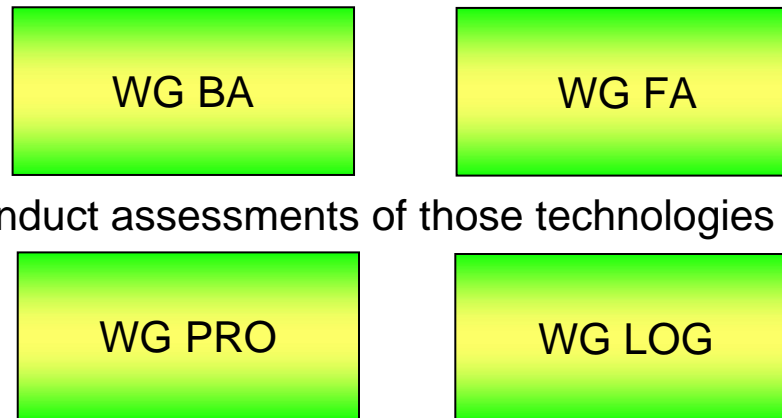
Review Rules of Engagement & Coordinate to eliminate duplication

1

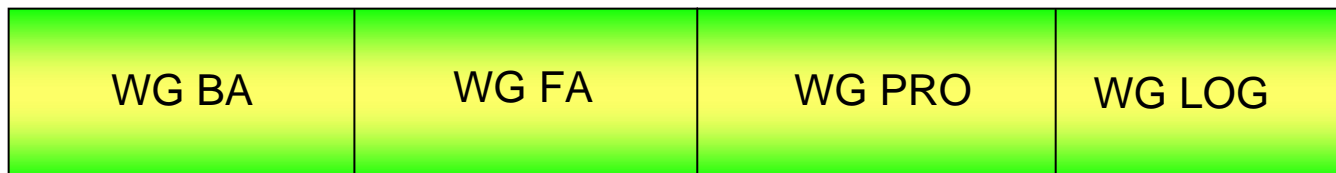


2

Conduct assessments of those technologies in the JCA



3



Single final assessment across WGs – default highest criticality: TAB 1-N List



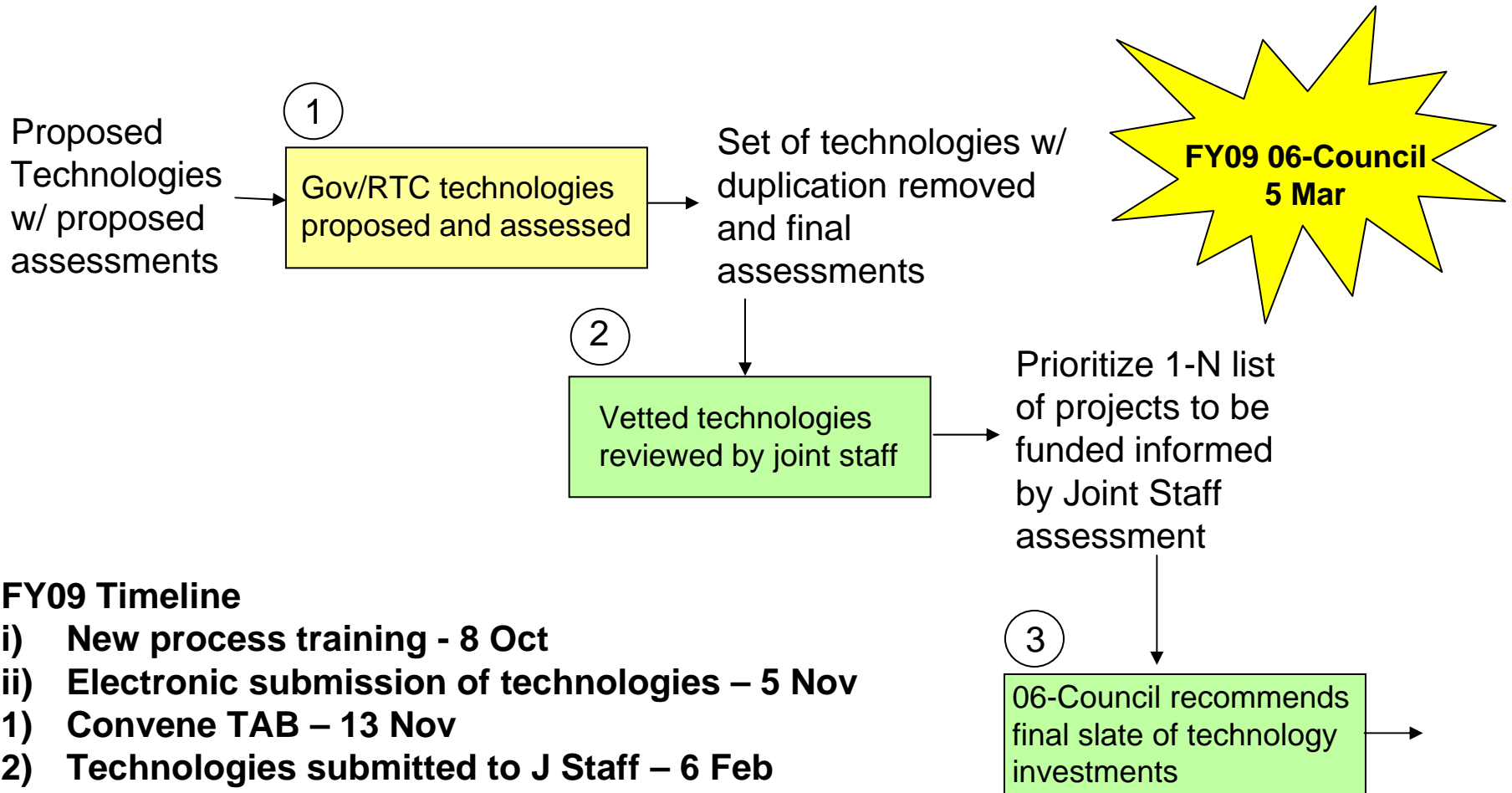
The JGRE Process



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- Process Overview
 - TAB Structure
 - **Details of the Process and Timeline**



Creating the Slate of Funded Efforts

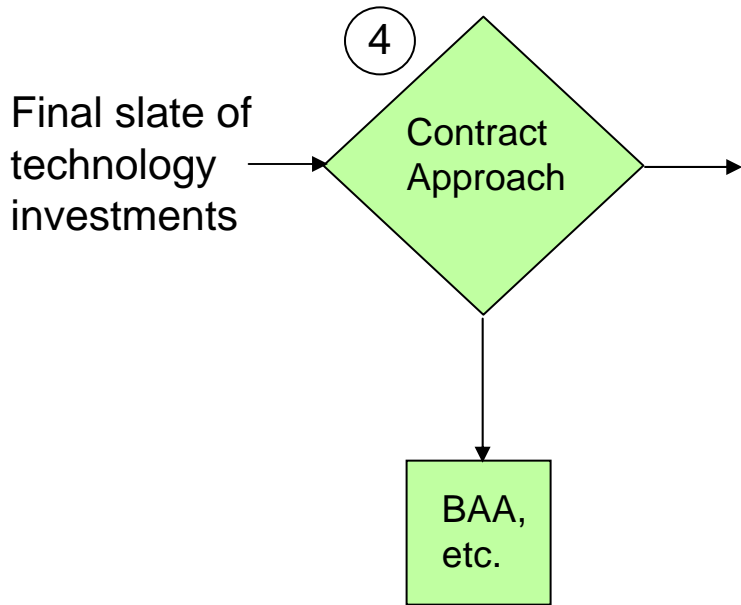


FY09 Timeline

- i) New process training - 8 Oct
- ii) Electronic submission of technologies – 5 Nov
- 1) Convene TAB – 13 Nov
- 2) Technologies submitted to J Staff – 6 Feb
- 3) FY09 06-Council – 5 Mar



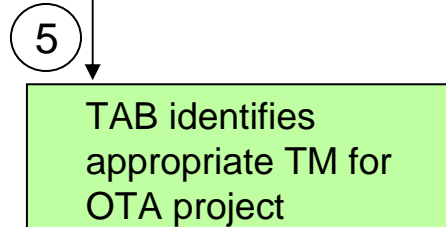
Determining Acquisition Strategy



FY09 Timeline

- 4) Determine Contracting approach – 20 Mar
- 5) Identify appropriate TM – 20 Mar
- TMs submit draft project plans - May

List of technology projects best served by using OTA

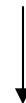


FY08 Timeline

- 5) Identify TMs & coordinate Evaluation Factors – 23 Sept

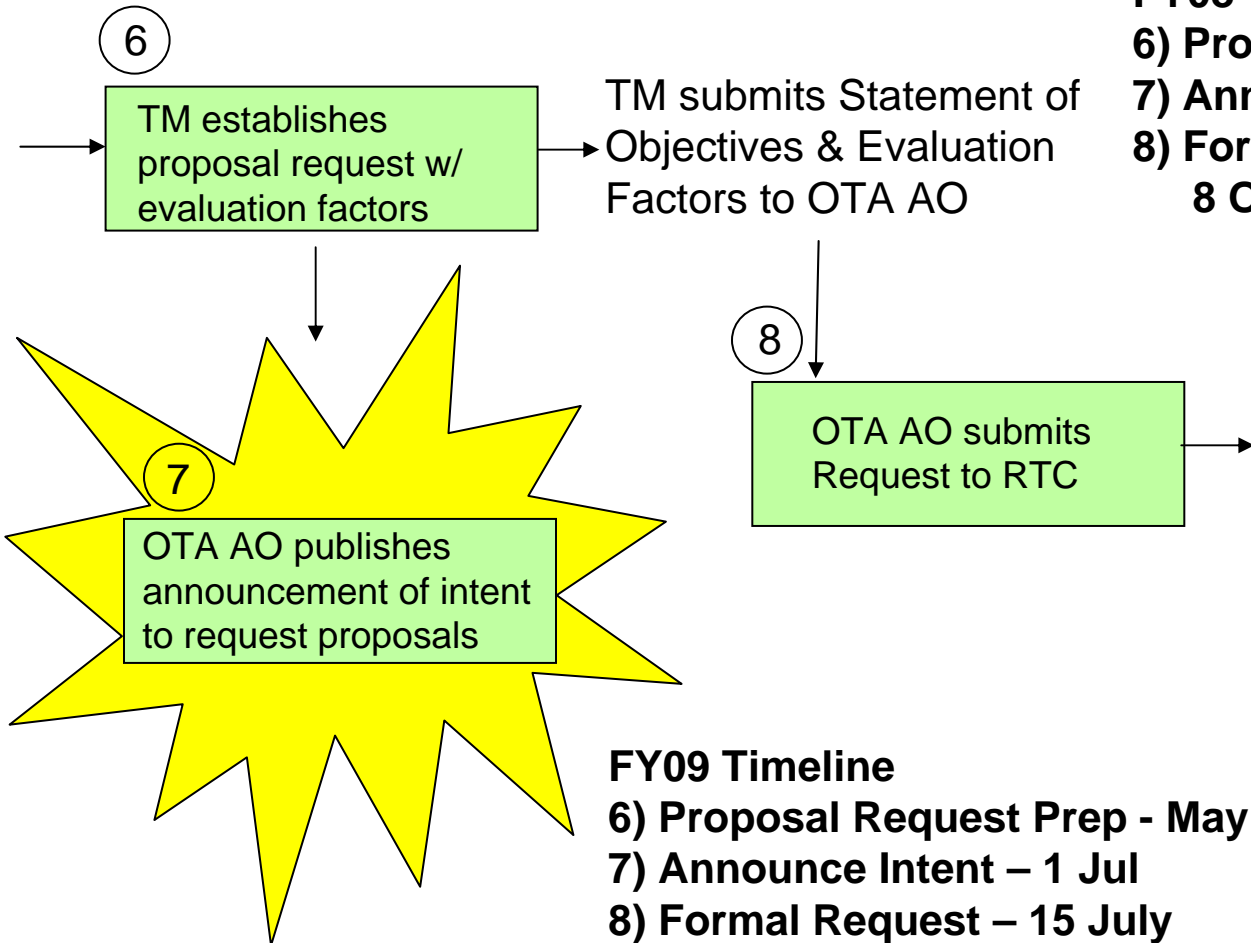


TMs provide draft project plan & cost estimate to administer project to OSD





Preparation of Proposal Request



FY08 Timeline

- 6) Proposal Request Prep - Sept
- 7) Announce Intent – 24 Sept
- 8) Formal Request/Industry Day – 8 Oct

FY09 Timeline

- 6) Proposal Request Prep - May
- 7) Announce Intent – 1 Jul
- 8) Formal Request – 15 July



Proposal Evaluation and Selection



9

RTC members prepare and submit proposals

Proposals from RTC Members submitted by NCMS & vetted for responsiveness by OTA AO

FY08 Timeline:

9) Proposal Submission—18 Dec

10) Proposal Selection—5 Feb

11) Project Plan refinement – 27 Feb

10

TM conducts evaluation and selects best value proposal

Proposal evaluations & selection decision submitted to OTA AO

FY09 Timeline:

9) Proposal Submit – 14 Aug

10) Proposal Selection – 15 Sept

11

TM modifies final Project Plan based on selected proposal



OTA Modification and Project Kickoff



FY08 Timeline

12) OTA Mod – 16 Feb

13) Execution starts 27 Feb

12

OTA AO negotiates OTA mod to definitize R&D efforts based on selected proposal & finalized project plan

Definitized Task Orders for each funded project with specific reporting requirements for each task

13

Funding from OSD based on 419 initiation of MIPR

TM monitors RTC performance of OTA project

Project Execution

FY09 Timeline: TBD



Training for Concept Submissions



- **Introduction of some basic definitions**
- **Example of a Concept Submission**



JCA - Definition



Joint Capability Areas are collections of similar capabilities logically grouped to support strategic investment decision making, capability portfolio management, capability delegation, capability analysis (gap, excess, and major trades), and capabilities-based and operational planning. JCAs are intended to provide a common capabilities language for use across many related DoD activities and processes and are an integral part of the evolving Capabilities-Based Planning process.

Tier 1 JCA is a high-level capability category that facilitates capabilities-based planning, major trade analysis and decision-making.

Tier 2 JCA is a more specific capability category within a parent Tier 1 JCA. Tier 2 JCAs provide sufficient definition to enable the identification of required capabilities.



Joint Capability Areas



Force Application

- Maneuver
 - Maneuver to Engage
 - Maneuver to Insert
 - Maneuver to Influence
 - Maneuver to Secure
- Engagement
 - Kinetic means
 - Non-Kinetic means

Command and Control

- Organize
- Understand
- Planning
- Decide
- Direct
- Monitor

Battlespace Awareness

- Intel, Surveil, and Recon
- ISR Planning & Direction
- Collection
- Processing/Exploitation
- Analysis & Production
- Environment

Net-Centric

- Information Transport
- Enterprise Services
- Net Management
- Information Assurance

Building Partnerships

- Communicate
 - Inform domestic/foreign audiences
 - Persuade partner audiences
 - Influence adversary/competitor audiences
- Shape
 - Partner w/ Govern. & Institutions
 - Build Capabilities/Capacities of Partners & Institutions
 - Provide Aid to Foreign Partners & Institutions
 - Leverage Capacities/Capabilities of Security Establishment
 - Strengthen Global Defense Posture



Joint Capability Areas



Protection

- Prevent
 - Prevent Kinetic Attack
 - Prevent Non-Kinetic Attack
- Mitigate
 - Mitigate Lethal Effects
 - Mitigate Non-Lethal Effects

Logistics

- Deployment and Distribution
- Supply
- Maintain
- Logistics Services
- Operational Contract Support
- Engineering
 - General Engineering
 - Combat Engineering

Force Support

- Force Management
- Force Preparation
- Installation Support
- Health Readiness

Corporate Mgt & Spt

- Advisory & Compliance
- Strategy & Assessment
- Information Management
- Acquisition
- Program/Budget & Finance
- Research & Development
 - Basic
 - Applied
 - Studies



Technology Readiness Levels



Actual System "Flight Proven" through Successful; Mission Operations	9
Actual System Completed & "Flight Qualified" through Test & Demonstration	8
System Prototype Demonstration in an Operational Environment	7
System/subsystem Model or Prototype Demonstration in a Relevant Environment	6
Component and/or Breadboard Validation in a Relevant Environment	5
Component and/or Breadboard Validation in a Laboratory Environment	4
Analytical & Experimental Critical Function and/or Characteristic Proof-of-concept	3
Formulation of Technology Concept or Application	2
Basic Principles Observed & Reported	1



Criticality Rating



Critical-Technology directly and significantly leads to achieving documented capability. Warfighting capability will not be met without this technology.	5
Essential-A significant enabling technology which directly leads to achieving documented capability. Achieving Warfighting capability is at high risk without this technology.	4
Important-Technology is projected to provide significant margin over current Warfighting capabilities and is required to support future force operations.	3
Contributing-Provides some support (either directly or indirectly) to achieving future force capability and/or contributes to maintaining legacy force capabilities .	2
Little to No Value-Value to currently documented future force capabilities is unclear or not supportable.	1



Maturity Risk Rating



Very low degree of difficulty is anticipated in achieving planned maturity objectives	5
Moderate degree of difficulty is anticipated in achieving planned maturity objectives	4
A high degree of difficulty is anticipated in achieving planned maturity objectives	3
A very high degree of difficulty is anticipated in achieving planned maturity objectives	2
The degree of difficulty anticipated is so high that a fundamental breakthrough is required	1



Training for Concept Submissions



- Introduction of some basic definitions
- **Example of a Concept Submission**

Note: The role of the TAB is to evaluate whether the information provided with each concept submission is “reasonable”



Guidelines



- End customers are senior military/civilian officials not technologists
 - How does the concept solve a warfighter need?
 - Describe the deliverable—what is OSD getting
 - The end result has to work in a relevant operational setting
 - How is it faster, cheaper, and better—quantify this
 - BE FOCUSED and to the point.
- Be realistic regarding start date, Period of Performance, and cost
- Need a consistent method for the Technology Committee to evaluate TRL, criticality, and risk
- A number of concepts will be similar (both within industry and government)—need to sort/combine these concepts together



Guidelines (continued)



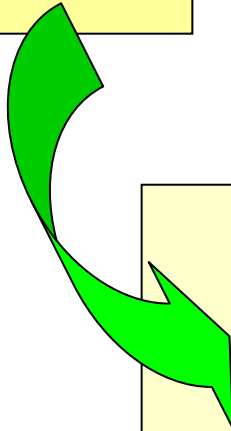
- Be clear and consistent between the length of the effort, projected TRL by year, and the estimated cost per year
- Projects need not run until TRL 6 is achieved



So What Does This Really Mean?



Gov/RTC technologies proposed and assessed



Science and Technology Projects

- A. Name of Initiative/Project:
- B. Executing Organization:
- C. Project Point of Contact:
- D. E-Mail Address:
- E. Phone Number:
- F. S&T Project Description:
 - 1. Narrative describing project
 - 2. Technologies being pursued
 - 3. Joint Capability Area (JCA) supported (payoff)
 - 4. Key objectives with intermediate milestones, capabilities, demonstrations and levels of robustness identified
 - 5. Objectives demonstrated to date
 - 6. Planned ATD(s), ACTD(s), experiments, etc.
 - 7. Rough Order Magnitude (ROM) Funding profile by fiscal year, from initiative start to completion (to include current and planned funds).
 - 8. Technology Readiness Levels by budget year
 - 9. Criticality rating
 - 10. Maturity Risk rating



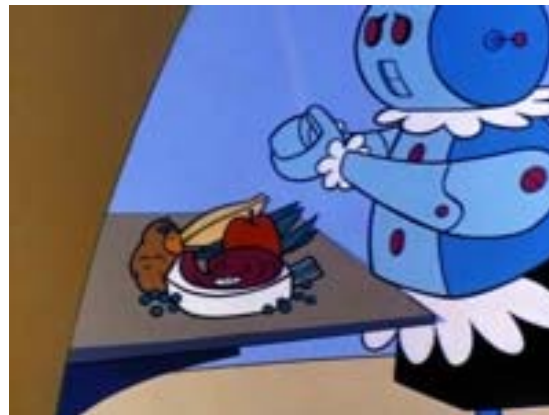
S&T Project Description



1. Narrative describing project:

Explain what the proposed effort is and how it will benefit the warfighter:

e.g. “Robotic Mess Hall” – this effort is intended to address the personnel requirements associated with feeding troops stationed in forward operating bases by allocating meal preparation, serving, and clean-up tasks to an autonomous system. Benefits expected include cost and schedule savings, and ability to re-assign personnel to other mission essential tasks.





S&T Project Description (cont)



2. Technologies being pursued:

Explain the specific component technologies being developed, improved and/or integrated, etc.

e.g. 32 DOF dexterous manipulation, dynamic sense & avoid, interior autonomous navigation, RFID object recognition, open-source software architecture, intelligent environment, human robot interaction algorithms

3. Joint Capability Area (JCA) supported:

Identify JCA for which effort/technology is applicable

e.g. Logistics





S&T Project Description (cont)



4. **Key objectives with intermediate milestones, capabilities, demonstrations and levels of robustness identified**

Explain what objectives will be achieved during key events within the project schedule, as well as what level of advancement is anticipated.

e.g. Objectives:

- **Demonstrate increase in meal preparation throughput from 200 meals per hour to 600 meals per hour during Limited Tech Demo 1**
- **Increase task execution to 60% max speed**
- **Update robot, object, arm (ROA) operating system to enable remaining 60% specified preparation, service and clean-up tasks**
- **Demonstrate remaining 60% specified tasks at 20% max speed during Limited Tech Demo 2**



S&T Project Description (cont)



5. Objectives demonstrated to date:

Explain progress to date.

e.g.

- Demonstrated robot, object, arm (ROA) operating system Build 1.0
- Demonstrated hybrid autonomous & tele-op control
- 40% assigned tasks performed successfully via software application modules
- Tasks performed successfully at 25% max speed





S&T Project Description (cont)



6. Planned ATD(s), ACTD(s), experiments, etc.

Explain current or new start project, programs, risk reduction efforts into which technology will transition

e.g. FY11 Robotics Mess Hall JCTD New Start

7. Rough Order Magnitude (ROM) Funding profile by fiscal year, from initiative start to completion (to include current and planned funds).



e.g.

FY07	\$0.95M
FY08	\$1.2M
FY09	\$1.7M
FY10	\$1.9M
FY11	\$0.97M



S&T Project Description (cont)



8. Technology Readiness Levels by budget year

e.g.

FY07	3
FY08	4
FY09	5
FY10	5
FY11	6





S&T Project Description (cont)



9. Criticality rating

Apply Criticality Metrics to applicable JCAs

e.g. Logistics: 4 - Essential-A significant enabling technology which directly leads to achieving documented capability. Achieving Warfighting capability is at high risk without this technology.

10. Maturation rating

Apply Maturation Risk Rating to effort based on risk associated with maturing the applicable technology(ies) in the specified period of performance

e.g. 4 - Moderate degree of difficulty is anticipated in achieving planned maturity objectives





Additional Information



- **FY09 TAB Schedule**
- Lessons Learned from Initial Collaboration and other important items



FY09 TAB Schedule



Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct
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- ▲ 8 Oct – TAB Process Kick Off/Training
- ▲▲▲ 15 Oct -5 Nov– Electronic Submission of Technologies
- ▲ 13 Nov – Convene TAB
- ▲ 6 Feb – Tech. submitted to JS
- ▲ 5 Mar – FY09 O-6 Council
- ▲ 20 Mar – Determine contracting approach/
ID appropriate TM
- ▲▲ May – TMs submit draft Project Plans
- ▲ 14 May – Coordinate Eval Plan/Factors
- 15 May-12 Jun – Proposal Request Prep ▲▲
- 21 May – SSC/SSG ▲
- 1 Jul – Announce Intent ▲
- 15 Jul – Formal Request/Industry Day ▲
- 14 Aug – Proposal Submission ▲
- 15 Sept – Proposal Selection ▲



Additional Information



- FY09 TAB Schedule
- **Lessons Learned from Initial Collaboration and other important items**



Lessons Learned from Initial Collaboration



- **FY09 TAB process should ensure the following:**
 - Technologies are assessed without bias...e.g. “does not matter who has the good idea”
 - “Service and Corporate identities” are not brought to the WG...only subject matter expertise
 - Technologies should be submitted for consideration across a planning horizon of POM plus 2 years...do not focus on next year to exclusion of remaining years
 - Technologies can range from sub-system “enabling technologies” to TRL 5 prototypes. Technologies at TRL6 and above will not be considered for funding
- **Submitted technologies clearly state value to the DoD**
 - While technical approach is important, if government can not ascertain the contribution of the technology to a warfighter capability, it will not be forwarded to the Joint Staff for prioritization
 - Technology submission should make clear what results from expenditure of funds (e.g. prototype, new software, new hardware, report, etc.)
- **RTC members need to understand that there will be more technologies assessed as having high criticality and high user priority than there will likely be available budget to fund**



Things to Consider



- **FY09 OTA funding process timeline dependant on budget authority & CRA strategy (known once markups complete)**
- **Proposal Request instructions will require each proposal to identify “significant contribution” and/or cost share**
- **06-Council and SSG/SSC will convene earlier in the year than has been the case in the past**
- **Intent is to complete all steps up to award by end of previous fiscal year so that task awards can be implemented as soon as budget authority received**



Other Information



- **For supporting information regarding:**
 - **Technology Concept Form**
 - **Joint Capability Area (JCA) Lexicon**
 - **Description of Technology Readiness Levels**
 - **General Guidelines for Technology Concept Submissions**

visit:

<http://www.roboticstechc.org/conceptIdeaSub.htm>



Backup Slides





Terms of Reference



- **Battlespace Awareness:** The ability to understand the disposition and intentions as well as the characteristics and conditions of the operational environment that bear on National and military decision making
- **Building Partnerships:** The ability to set the conditions for interaction with partner, competitor or adversary leaders, military forces, or relevant populations by developing and presenting information and conducting activities to affect their perceptions, will, behavior, and capabilities.
- **Command and Control:** The ability to exercise authority and direction by a properly designated commander or decision maker over assigned and attached forces and resources in the accomplishment of the mission.



Terms of Reference



- **Corporate Management and Support:** The ability to provide strategic senior level, enterprise-wide leadership, direction, coordination, and oversight through a chief management officer function.
- **Force Application:** The ability to integrate the use of maneuver and engagement in all environments to create the effects necessary to achieve mission objectives
- **Force Support:** The ability to establish, develop, maintain a mission ready Total Force, and provide, operate and maintain capable installation assets across the total force to ensure needed capabilities are available to support National security



Terms of Reference



- **Logistics:** The ability to project and sustain a logistically ready joint force through the deliberate sharing of National and multi-national resources to effectively support operations, extend operational reach and provide the joint force commander the freedom of action necessary to meet mission objectives
- **Net-Centric:** The ability to provide a framework for full human and technical connectivity and interoperability that allows all DoD users and mission partners to share the information they need, when they need it, in a form they can understand and act on with confidence, and protects information from those who should not have it.
- **Protection:** The ability to prevent/mitigate adverse effects of attacks on personnel (combatant/non-combatant) and physical assets of the United States, allies, and friends.