

The Technical Cooperation Program Joint Systems And Analysis Group

Strategic Plan and Roadmap^{1, 2}

The JSA Strategic Plan

The JSA vision...

"Harnessing the science of systems and analysis to lead TTCP with ideas and concepts that enhance future defence capabilities."

To achieve its vision, the JSA has identified three *Strategic Thrusts* consistent with its mandate as described in the Group's Terms of Reference. For each Thrust, the Group has committed to a number of *Priorities* and associated *Stretch Objective*, each with a 3-5 year horizon. These Strategic Thrusts, Priorities and Stretch Objectives provide the basis by which the Group examines the direction, balance and effectiveness of its work program.

Strategic Thrusts

- ?? Championing Joint and Land Systems: to identify, experiment with and assess the effectiveness, relevance, and capability impact of emerging systems concepts and architectures, and of the relevant enabling technologies, in performing military missions relying on joint/combined operations or land operations;
- ?? Modernizing Defence Processes: to develop, improve and promote capabilities in the fields of operational and systems analysis and systems engineering as they support defence modernization processes and related decision making, particularly through the development and use of advanced modeling and simulation techniques; and
- ?? Enabling TTCP Synergies: to contribute to other TTCP Groups by promoting cross-Group awareness and cooperation in critical technologies and systems which ultimately support joint/combined operations, and by ensuring availability of the analytical, simulation and knowledge management tools needed to conduct their work effectively.

Priorities and Stretch Objectives

¹ The *JSA Strategic Plan and Roadmap* are management tools for assisting the Group's National Representatives, its Subordinate Element membership, the NAMRAD Principals, and the Washington Deputies in maintaining an appropriate perspective on the Group's priority undertakings with a 3-5 year planning horizon. The Strategic Plan and Roadmap are reviewed and updated during the Group's Annual Meeting in consultation with Subordinate Element representatives, where progress against current objectives is reviewed and new tasks debated and prioritized.

² The *JSA Strategic Plan and Roadmap* complement the Group's other principal management tool, its *Master List of Issues*. In the course of its business, the Group regularly identifies, discusses and acts upon diverse issues affecting the context and content of collaborative activities both across the TTCP Groups and within the JSA itself. The Master List provides a concise summary of the various issues under consideration by the Group, and of their status.

1. *Championing Joint and Land Systems:*
 - 1.1. Emerging Concepts: to identify, experiment with and assess important emerging ideas and concepts of potential high impact on future defence capabilities, in partnership with other TTCP Groups.
 - 1.2. Joint Systems/System-of-Systems Measures of Merit: to develop and/or advance methodologies that enable the assessment of performance of emerging systems, from the “system” comprising small combatant units through joint systems and systems of systems, in the context of the future environment.
 - 1.3. System Challenges for the Future Combat in the Land Environment: through experimentation, to advance the warfighter's understanding of new system concepts for enabling mission effectiveness in future combat in the land environment, including the land/air battle.
 - 1.4. Capturing the Information Needs/Drivers for Joint/Combined Operations: to advance the understanding of the information needs and drivers affecting mission success for coalition operations across the spectrum of conflict.

2. *Modernizing Defence Processes:*
 - 2.1. OA Tools and Methodologies for Joint/ Combined Operations: to identify, share and develop improved OA tools and methodologies to assist the nations' decision makers, particularly at the strategic and operational levels, in preparing for and conducting joint/combined operations in the new strategic context.
 - 2.2. Systems Engineering for Defence Modernization: to advance the science of systems engineering to increase the effectiveness, efficiency and affordability of the processes by which new/improved defence capabilities are conceived, acquired and managed.
 - 2.3. M&S Enablers for System/Concept Experimentation and Acquisition: to advance the nations' capabilities to exploit advanced M&S technologies in conceiving, evaluating and acquiring new systems, system-of-systems and operational concepts.
 - 2.4. Strategic Planning for Coalition Operations: to develop mutual understanding of how to include the implications of coalition operations in individual nation's own force structure and planning processes and to develop together appropriate methods and tools to support these processes.

3. *Enabling TTCP Synergies:*
 - 3.1. Access to the Nations' Systems/Technology Forecasting Forums: to foster access by the TTCP community to national wargames, technology seminar games and related workshops that support the conception of new joint systems and systems-of-systems.
 - 3.2. M&S Enablers for TTCP Collaboration: to facilitate the nations' use of advanced M&S technologies so as to increase the cost-effectiveness of TTCP collaborative research programs.
 - 3.3. OA Tools and Studies Quality Assurance: to contribute to the quality of OA tools used and studies conducted within the TTCP nations.

The JSA Roadmap: July 2002 to June 2005

The JSA Roadmap establishes the linkages between the JSA Strategic Plan, the tasks and milestones of the JSA and its Subordinate Elements, and the issues being pursued via its Master List of Issues. The Roadmap has a horizon of 1-3 years and is updated annually.

Strategic Thrust 1. Championing Joint and Land Systems: to identify, experiment with and assesses the effectiveness, relevance, and capability impact of emerging systems concepts and architectures, and of the relevant enabling technologies, in performing military missions relying on joint/combined operations or land operations.			
<i>Priority and Stretch Objective</i>	<i>Active ML Issue</i>	<i>TP/AG</i>	<i>Key Results and 1-3 Year Milestones</i>
1.1. Emerging Concepts: to identify, experiment with and assess important emerging ideas and concepts of potential high impact on future defence capabilities, in partnership with other TTCP Groups.	ML-0102 ML-0001 ML-0004 ML 0201	JSA-TP-3 JSA-AG-10 JSA-AG-11	<p>??<i>Future Logistics</i>: Examine the linkages between warfighting capabilities and logistics systems within the context of future methodologies for assessing warfighting concepts. (Oct 2004, TP3)</p> <p>??<i>Improve understanding of emerging joint warfare concepts and the related modeling issues.</i> (TP-3)</p> <p>??<i>Distributed Intelligent Systems</i>: Explore emerging Distributed Intelligent Systems technologies and report on their impact on future systems/operations (June 2003, AG-11)</p> <p>??<i>Effects-Based Operations</i>: Identify methodologies and technologies to support effects-based operations (June 2003, AG-10) Feb 2002 workshop held to share concepts, methodologies and tools on the area of Influenced/Virtual Networks in support of EBO, as a focus for collaboration over the next two years</p> <p>??Develop EBO concept paper and hold EBO collaborative exercise on virtual networks (June 2004. AG-10)</p> <p>??<i>Technology- Based Warfighting Concepts for Dismounted Units</i>: Explore evolutionary and disruptive technologies using conventional (e.g. simulation and abstract (e.g. agent based distillation) methods to formulate concepts of future dismounted land force operations for experimentation assessment and report (June 2004, TP-5)</p> <p>?? <i>Workshop on Analysis of Disease and Non Battle Injuries in (Nov 2002 (TP-3))</i></p> <p>??<i>Workshop on Future Technologies for Joint Warfare (Mar 2003 (TP-3))</i></p>
1.2. Joint Systems/System-of-Systems Measures of Merit: to develop and/or advance methodologies that enable the assessment of performance of emerging systems, from the “system” comprising small combatant units through joint systems and systems of systems in the context of the future environment.	ML-0101 ML-0103 ML-0201	JSA-TP-1 JSA-TP-3 JSA-TP-4 JSA-TP-5 JSA-AG-12	<p>??Deliver a validated set of tools and methodologies for optimizing land combat vehicle “system-of-systems” effectiveness (June 2003, TP-1) The methodology has been defines and applied to test cases to validate. Supporting models have been identified, but future work needed to address gaps</p> <p>??Compare and seek improvement in methods and approaches for war-fighting experiments as the first activity in support of the SELAB concept (June 2003, AG-12)</p> <p>??Evaluate the common dismounted combatant tool-set to identify capabilities and deficiencies in warfighting and OOTW in urban environments and report (June 2004, TP-5)</p>
1.3 System Challenges for	ML-0203	JSA-TP-1	??Conduct a user’s “way ahead” workshop on

<p>Future Combat in the Land Environment: through experimentation, to advance the warfighter's understanding of new system concepts for enabling mission effectiveness in future combat in the land environment, including the land/air battle.</p>	<p>ML-0205</p>	<p>JSA-TP-5 JSA-AG-12</p>	<p>TRACES (Terrain/ Rotorcraft Air Combat Evaluation System) model (Oct 2002, TP-1) ??Develop a COBP on Methods and Approaches for War-Fighting Experimentation (June 2004, AG-12) ??Develop a Project Arrangement to facilitate collaborative work in the area of innovative protection against novel weapons. (Jun 03 2003, TP-5) ??Produce a 'Code of Best Practice' manual for Warfighting Experimentation, complete survey on current practices and identify experimentation event. (June 2004 -AG-12)</p>
<p>1.4 Capturing the Information Needs/Drivers for Joint/Combined Operations: to advance the understanding of the information needs and drivers affecting mission success for coalition operations across the spectrum of conflict.</p>	<p>ML0104</p>	<p>JSA-TP-1 JSA-TP-3 JSA-TP-4 JSA-TP-5 JSA-AG-10</p>	<p>??Define the high-level information drivers that determine success/utility of the Coalition Recognized Picture (Mar 2003, TP-1 and TP-3) ??Examine whether the emerging discipline of Knowledge Management offers the potential to improve mission success, especially in the intelligence arena and how to establish collaboration to this end (June 2003, JSA) ??Examine and progress an understanding of both the cultural issues that arise in Information Operations and the issues surrounding the analysis of Virtual Networks (June 2003 AG-10 and TP- 3). ??Examine the application of systems engineering for developing an unambiguous, real-time tactical picture to support offensive and defensive operations amongst coalition and allied nations (Apr 04, TP-4)</p>
<p>Strategic Thrust 2. Modernizing Defence Processes: to develop, improve and promote capabilities in the fields of operational and systems analysis and systems engineering as they support defence modernization processes and related decision making, particularly through the development and use of advanced modeling and simulation techniques.</p>			
<p><i>Priority and Stretch Objective</i></p>	<p><i>Active ML Issue</i></p>	<p><i>TP/AG</i></p>	<p><i>Key Results and 1-3 Year Milestones</i></p>
<p>2.1 OA Tools and Methodologies for Joint/ Combined Operations: to identify, share and develop improved OA tools and methodologies to assist the nations' decision makers, particularly at the strategic and operational levels, in preparing for and conducting joint/combined operations in the new strategic context.</p>	<p>ML-0101 ML-0102 ML-0001</p>	<p>JSA-TP-3 JSA-TP-5 JSA-AG-12</p>	<p>??Examine and progress OA tools that address both the cultural issues that arise in Information Operations and the issues surrounding the analysis of Virtual Networks (Dec 2002, TP-3 and AG-10). Consider that possibility of a pan-TTCP technology-assessment exercise to enable future logistics concepts ((June 2003 TP3). ??Complete the porting and deployment of the CAEn small-unit wargame across the TTCP nations (Sep 2002 TP5). ??Conduct a workshop on the evaluation of C4ISR systems(March 2003, TP3) ??Progress extending the application of Intelligent Agents to simulation and war-gaming, including CAEn, IUSS and ModSAF. (June 2003, TP-1 and TP- 5). ??Identify and priorities the modeling requirements needed to evaluate future technologies and concepts in the urban environment as an extension of the work completed by NATO AC225/LG3 WGE4 and NATO UO 2020. (Dec 2003 TP-5)</p>
<p>2.2 Systems Engineering for Defence Modernization: to advance the science of systems engineering to</p>	<p>ML-0204 ML-0205</p>	<p>JSA-TP-2 JSA-TP-4</p>	<p>??Assess the feasibility of implementing advanced acquisition concepts proposed by acquisition enhancement initiatives such as System of Systems methodologies, Simulation Based Acquisition,</p>

<p>increase the effectiveness, efficiency and affordability of the processes by which new/improved defence capabilities are conceived, acquired and managed.</p>			<p>Integrated Digital Environments, Life Cycle Planning and Evolutionary Acquisition (Nov 2002, TP-4) ??With the US Future Offensive Capability as a focus highlight best practices in emerging system-engineering concepts for acquisition. (Apr 2003, TP-4) ??Prepare a “way ahead” paper on SoS issues for safety critical software. Workshop in Mar 2003 (TP4) ??Prepare baseline definition document for coalition Systems engineering Process linked to CIAP (May 2003 (TP4)</p>
<p>2.3 M&S Enablers for System/Concept Experimentation and Acquisition: to advance the nations' capabilities to exploit advanced M&S technologies in conceiving, evaluating and acquiring new systems, system-of-systems and operational concepts.</p>	<p>ML-0101 ML-0002 ML-0205</p>	<p>JSA-TP-2 JSA-AG-12 JSA-TP-5</p>	<p>??Continue collaboration with HUM Group for improved modeling of human performance (July 2003, TP-2 and July 2004, TP- 5). ??Implement the M&S Roadmap for enabling experimentation in system-of-systems (July 2003, TP-2) ??Conduct a second workshop to examine the M&S issues surrounding OOTW scenarios (Dec 2002, TP-2) ??Examine M&S issues in support of war-fighting experiments, in conjunction with AG-12 (June 2003, TP-2) ??Implement the work on software agents and agent-based distillations to enhance the dismounted combatant tool-set and report progress (June 2004, TP-5) ??Conduct a workshop to examine trials methods and data collection processes in synthetic and real environments related to dismounted combat operations (Jan 2003, TP- 5) ??Hold exploratory meeting on C3I-simulation Interoperability with BFTT/1412, Land/SIMCI, UK Combat Readiness and CA effort in linking training with C3I systems (Mar 2003 TP2)</p>
<p>2.4 Strategic Planning for Coalition Operations: to develop mutual understanding of how to include the implications of coalition operations in individual nation's own force structure and planning processes and to develop together appropriate methods and tools to support these processes.</p>	<p>ML-0101</p>	<p>JSA-TP-3</p>	<p>??Conduct a workshop to compare national approaches and to advance understanding of capability-based force development (June 2002, TP-3) ??Develop a Code of Best Practice on the use of Soft Methods in support of strategic planning (June 2003, TP-3)</p>
<p>Strategic Thrust 3. Enabling TTCP Synergies: to contribute to other TTCP Groups by promoting cross-Group awareness and cooperation in critical technologies and systems which ultimately support joint/combined operations, and by ensuring availability of the analytical, simulation and knowledge management tools needed to conduct their work effectively.</p>			
<p><i>Priority and Stretch Objective</i></p>	<p><i>Active ML Issue</i></p>	<p><i>TP/AG</i></p>	<p><i>Key Results and 1-3 Year Milestones</i></p>
<p>3.1 Access to the Nations' Systems/Technology Forecasting Forums: to foster access by the TTCP community to</p>	<p>ML0201 ML0202</p>	<p>JSA-TP-1 JSA-TP-3 JSA-TP-5 JSA-TP-4</p>	<p>??Pursue TTCP participation in the US Focused Logistics Wargame (FLOW) series (Oct 2003, TP-3) ??Conduct a cross-TP and cross-Group tutorial and workshop on Concepts of Use of Space Assets (to</p>

<p>national wargames, technology seminar games and related workshops that support the conception of new joint systems and systems-of-systems.</p>			<p>include surveillance, TMD and communications) and techniques for Analysis of Effectiveness. (Dec 2002, TP-3) ??Examine TTCP role in nations efforts to address CT issues within current defence and civil frameworks (June 2003 JSA) ??Create an INCOSE Technical Group on 'Defence Modernization' and sponsor a Panel on " Systems Engineering Process for a Coalition Integrated Air Picture:</p>
<p>3.2 M&S Enablers for TTCP Collaboration: to facilitate the nations' use of advanced M&S technologies to increase the cost-effectiveness of TTCP collaborative research programs.</p>	<p>ML-0103 ML-0002 ML-9905</p>	<p>JSA-TP-2 JSA-AG-12</p>	<p>??Enable the release of critical M&S tools to the TTCP nations (on-going). ??Prototype the use of advanced distributed M&S in cost-effective international cooperative research and develop "how-to" strategies for dissemination in TTCP (July 2003 TP-2). ??Evolve a taxonomy in preparation of a best code of practice in Methods and Approaches for War-fighting Experimentation (June 2003, AG-12)</p>
<p>3.3 OA Tools and Studies Quality Assurance: to contribute to the quality of OA tools used and studies conducted within the TTCP nations.</p>		<p>JSA-TP-3</p>	<p>Conduct annual peer reviews of national methodologies and studies in agreed areas (on-going) – reviews planned for 2002 include US theatre model JWARS and UK model SABRINA (TP-3) Delayed to late 2002 early 2003 ??Promote the exchange and comparisons of national OA tools (on-going).</p>
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