



Designing “Killer Applications” of NCW

A process to support creation and Innovation

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Background

1. Systems Engineering good for:
 - a. Understanding problems
 - b. Gaining agreement on requirements
 - c. Evaluating solutions
2. Software Development good for:
 - a. Developing initial products with incomplete information
 - b. Evaluating solutions with clients
 - c. Determining next step
3. Neither had all the features desired.
 - a. Developing new concepts (2a)
 - b. Identifying opportunities for exploitation
 - c. Understand current instantiation of the problem (1a)
 - d. Evaluating solutions (with clients) (1c, 2b)
 - e. Determine next step (2c)

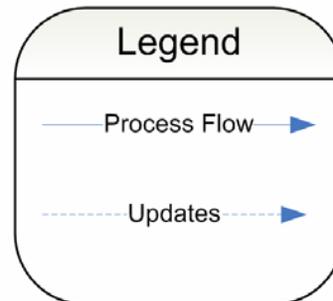
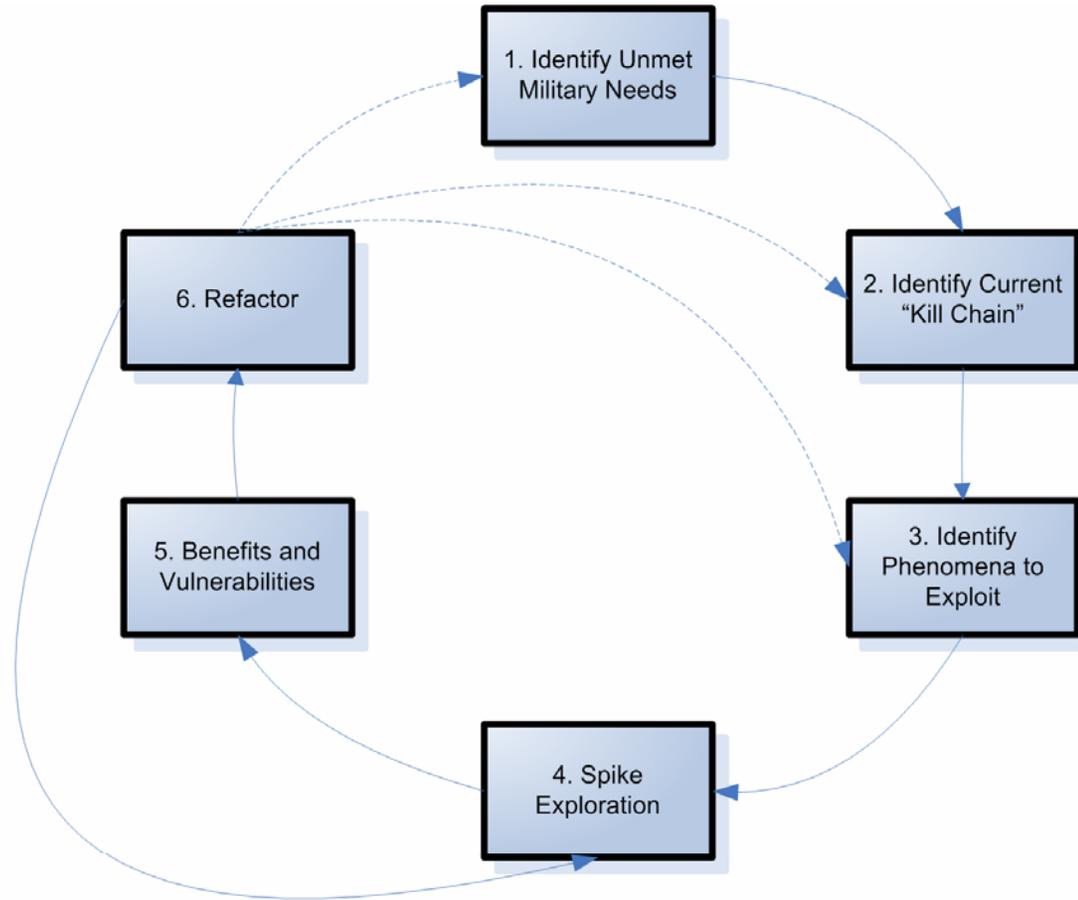
This presentation looks at the activities we performed in three studies looking at opportunities to exploit in the development of new concepts.



Case Studies

- Sensor-to-shooter
- **Real-time Strategic Sensor**
 - The focus of this presentation
- Task force design

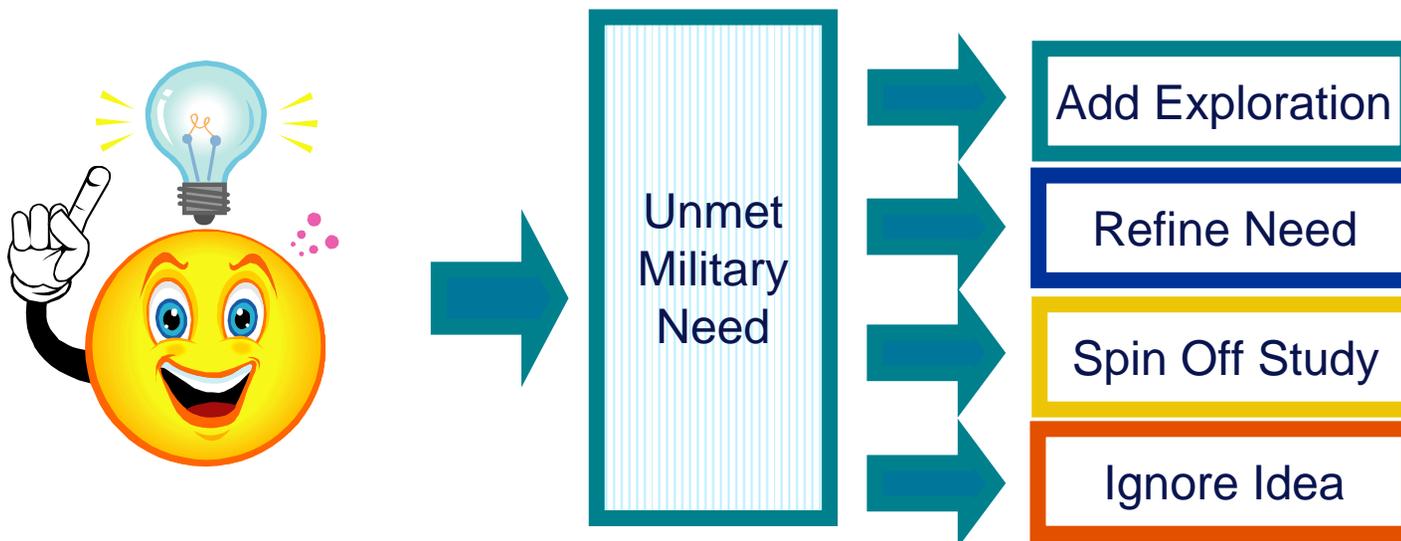
Activities





Unmet Customer Need

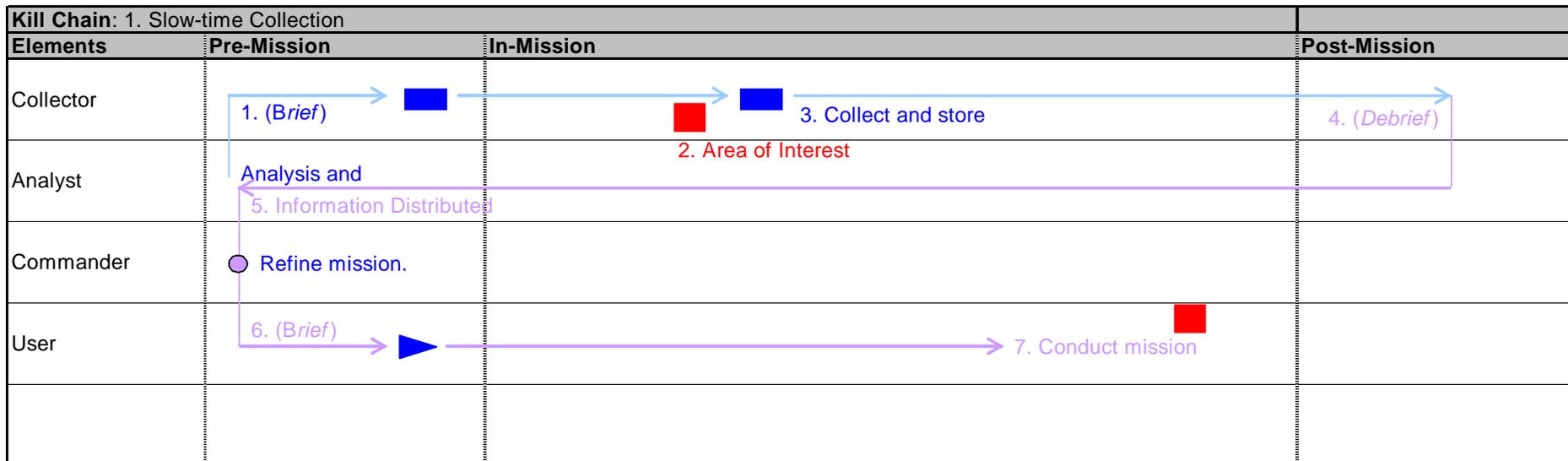
- *Ability to identify hostile forces in NRT so that operations are not delayed; ability to find and locate high mobility targets*
- Not always the starting point
- Focuses researchers and facilitates stakeholder engagement
 - Scope
 - Success criteria
- Normally evolves during the course of the study





Base Kill-Chain

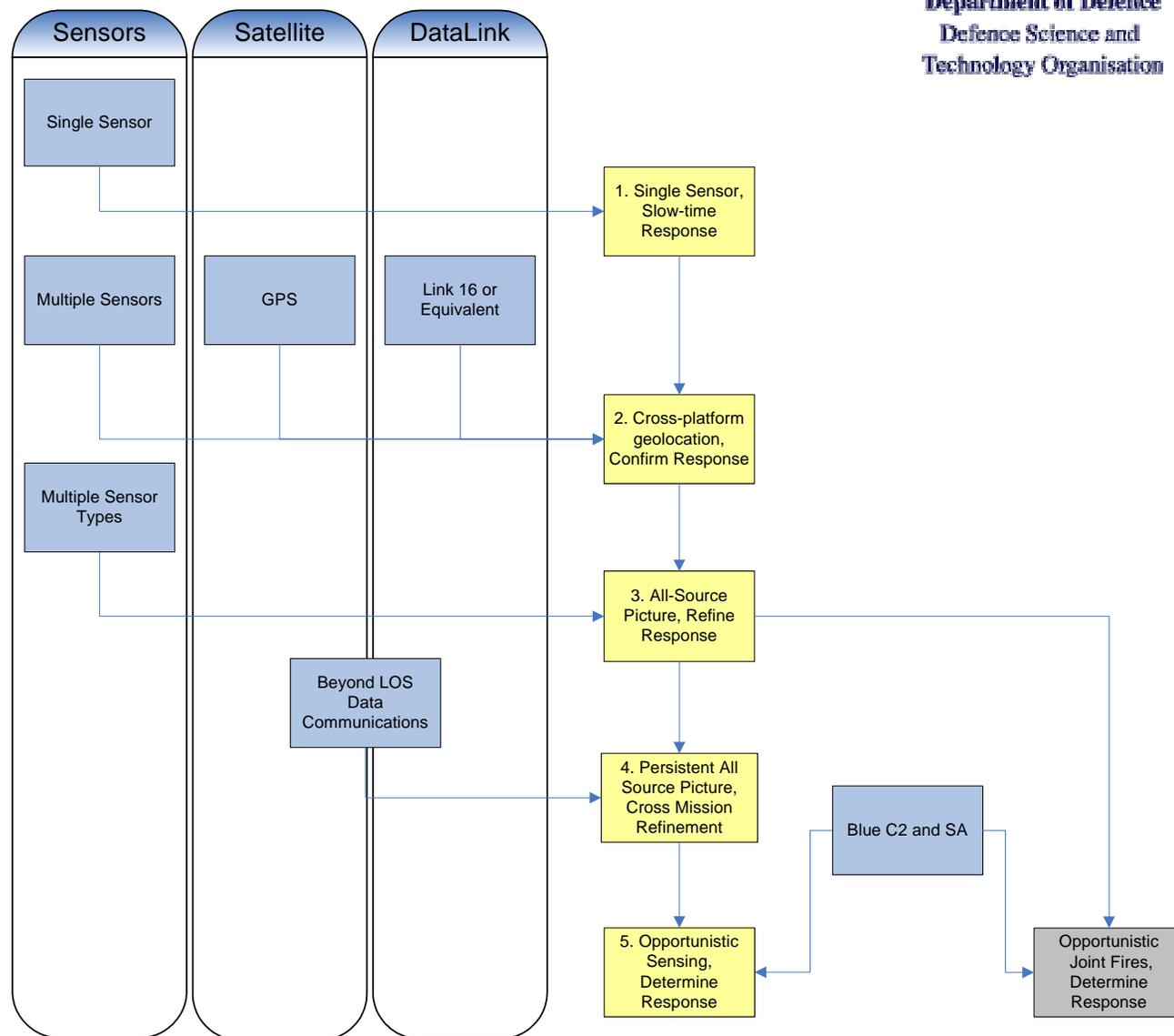
- *Sensor collects data, returns, data is analysed, main mission occurs*
- Captures current way of operating (and deltas)
- Customised to provide required information in one view
 - cf C4ISR AF
- Facilitates discussion with stakeholders





Phenomena to Exploit

- Technology
- Systems
- Platforms
- Information Flows
- Organisational Structures
- Roles
- Processes
- Command and Control Arrangements
- Timeframes
- Products
- Users
- Threats
- Political Alliances
- Budget



Spike Explorations



Australian Government
Department of Defence
Defence Science and
Technology Organisation

- *Where can we place the remote sensing analyst if the sensor is to provide information in near real-time?*
 - Can we place them on the collection platform?
 - Does this overload the operators?
 - Where else can we place them?
 - Can we get the information to them? How?
 - Is it fast enough?
 - Do we need to upgrade the collection platform? Or the sensors?



Benefits and Vulnerabilities

Discovery	Decision to be made
New Concept or Kill Chain	New Spike Exploration; Refactoring
New Exploration	New Spike Exploration
New Unmet Military Need	Refactoring
New Kill Chain Representation	Refactoring
New Benefit or Vulnerability	Refactoring
New Information about one or more Systems, Platforms, Organisations, Technology (or sub-kill-chain – eg timing)	Refactoring
Identification of a new system, platform, organisation or technology.	Refactoring; New Spike Exploration
No discovery	New Spike Exploration



Refactoring

Some examples

- Insertion of new ideas across the landscape
- Removal of ideas that have been refuted
- Decomposing concepts
- Synergising concepts
- Increasing fidelity of kill-chains and discussions
- Changing the context of the study across the body of work



Discussion

- Current status
 - Methodology under development
 - Similar studies yield some similar and some unique kill-chains
- Future plans
 - Conduct further studies and refine the process
 - Examine influence of organisational and human aspects further
 - Introduce other staff to the process (and refine)
 - Consider how to support multiple studies
 - Alternatives to MS Office and Architecture tools