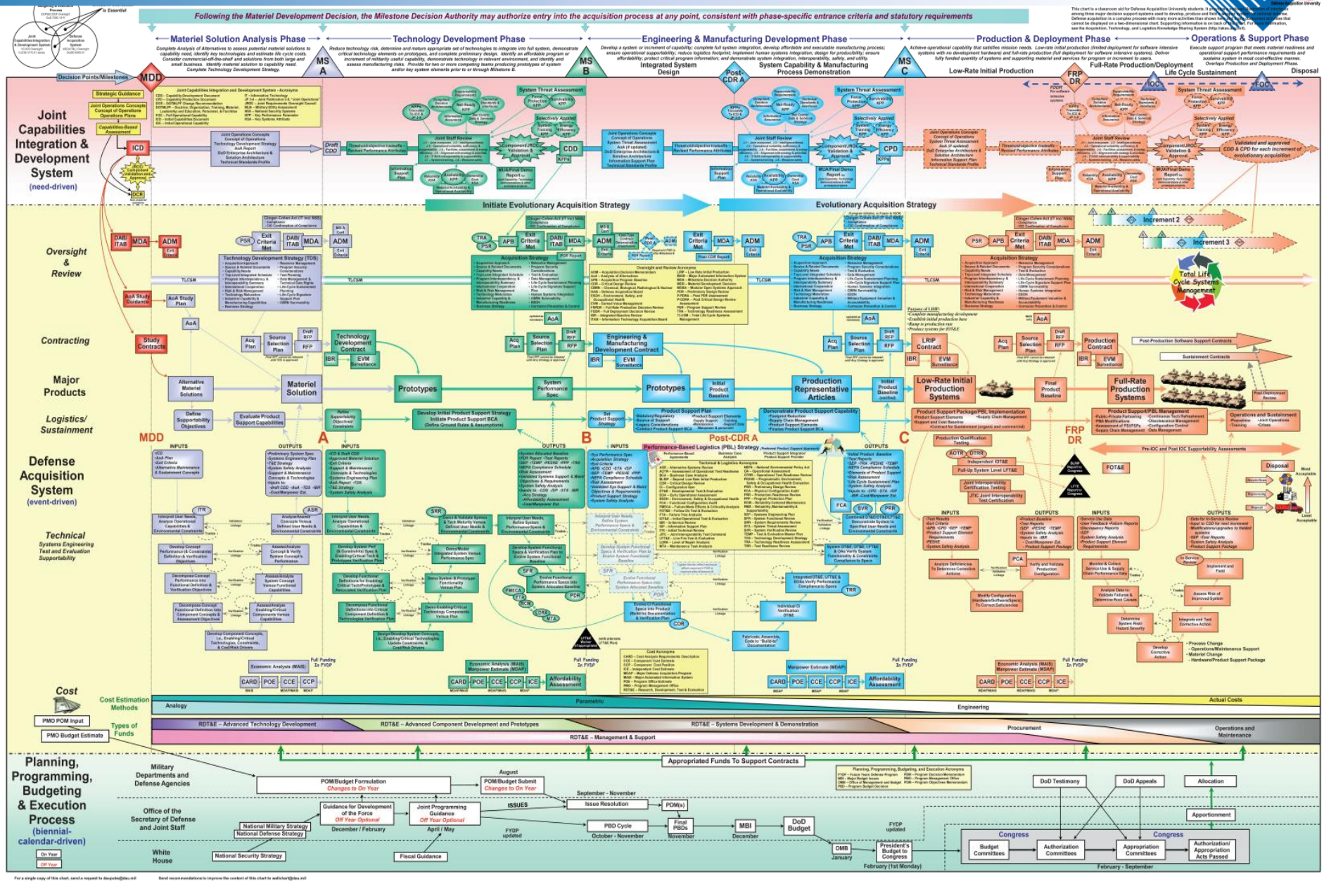
Using Complementary Frameworks for Qualitative Data Collection during OT&E: Piggybacking on Operational Experiments

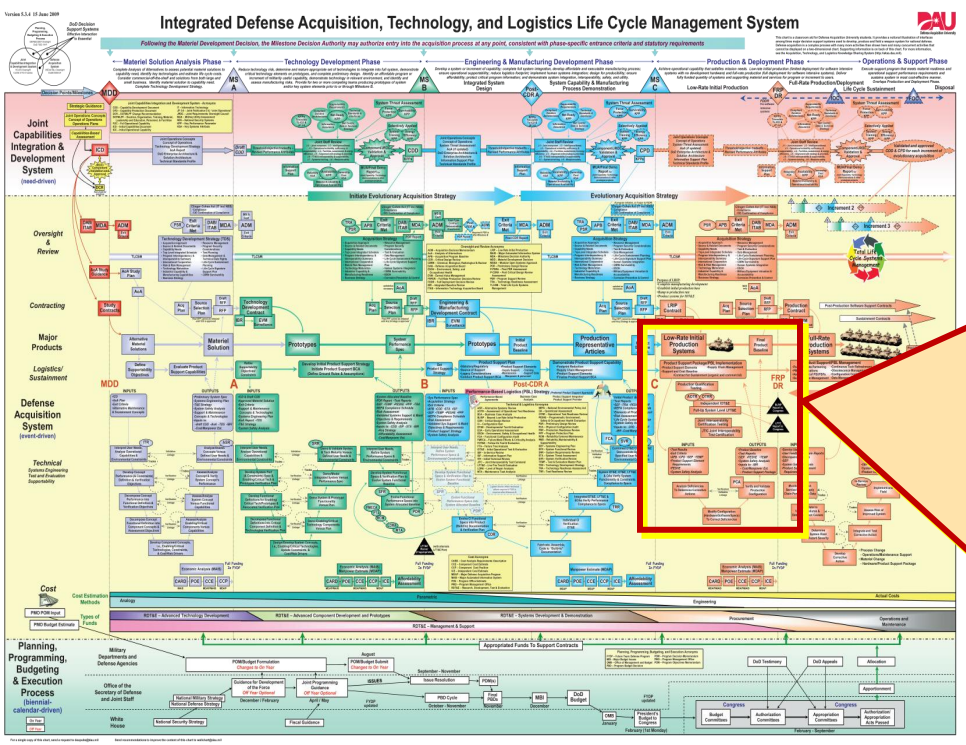
Chiesha Stevens, M.S.
Nancy Heacox, Ph.D.

Pacific Science & Engineering Group
www.pacific-science.com
9180 Brown Deer Road
San Diego, CA 92121
858-535-1661

Integrated Defense Acquisition, Technology, and Logistics Life Cycle Management System



Low-Rate Initial Production Process

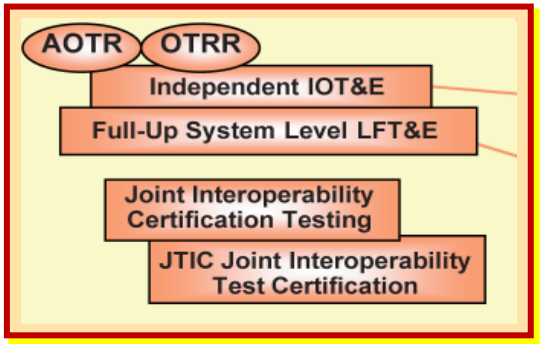


Operational Test and Evaluation (OT&E)

Used to determine the operational ***effectiveness*** and ***suitability*** of a system under realistic operational conditions, including joint combat operations;

- determine if thresholds in the approved Capability Production Document and critical operational issues have been satisfied;
- assess impacts to combat operations;
- and provide additional information on the system's operational capabilities.

Typical users shall ***operate and maintain*** the system or item under conditions simulating combat stress and peacetime conditions.



The DoD OT&E Agencies

The four military departments have each formed operational test agencies that conduct OT&E *independently* of the acquiring organizations.

1. Army Test and Evaluation Command
   - » Operational Test Command (OTC) and
   - » Army Evaluation Center (AEC)
2. Navy Operational T&E Force (OPTEVFOR)
3. Marine Corps Operational T&E Agency (MCOTEA)
4. Air Force Operational T&E Command (AFOTEC)

Piggybacking on Operational Experiments

An operational experiment may be a suitable venue and afford efficiency of the IOT&E testing process

- Operational experimentation may occur as an experimental venue, or in conjunction with an operational exercise already being planned

Benefits:

- Temporary installation on operational platforms – ‘field test’
- Specifically-designed scenarios / test plans – ‘realistic combat conditions’
- Active-duty participants – ‘use by typical military users’
- Performance measurement; data collection, analysis, and evaluation – ‘determining effectiveness and suitability’

Operational Experiments Provide Administrative, Logistics, Data Collection

Administrative processes and resources

- Test design and planning through reporting

Target user populations

Official entrance to operational sites and platforms

- Access to networks at needed classifications
- Support for installation
- Specific needs accommodated as feasible

Test plan management and data collection resources

Independent, objective data collectors

An Integrated Data Collection Process

Assessment Plan

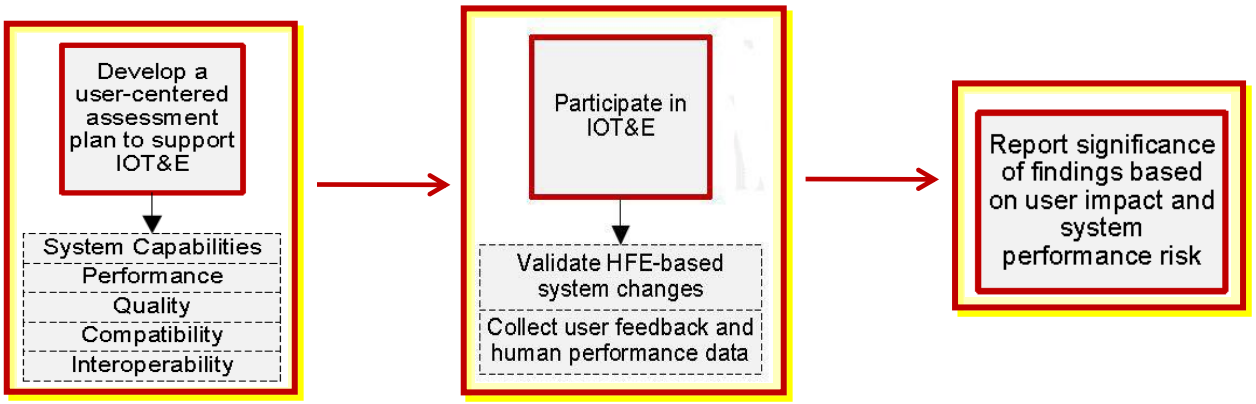
- Determine the system or technology's readiness to participate in the testing

Test Implementation

- Develop work process models for use of the systems or technologies in mission-based operational events

Results Reports

- Provide evaluations as to the operational readiness of each system or technology



A Sampling of Venues

Trident Warrior

- Sponsored by U.S. Fleet Forces Command
- Broad spectrum of technologies; multi-national annual focus

Empire Challenge

- Sponsored by Undersecretary of Defense for Intelligence
- ISR processes & government-sponsored technologies with minimum TRL of 5 or Milestone B

Talisman Saber

- Sponsored by U.S. Military and Australian Defence Force
- Technologies & processes for crisis action planning and contingency response

Valiant Shield

- Sponsored by U.S. Pacific Command
- Cooperative detection, tracking & engagement of units at sea, in air and on land

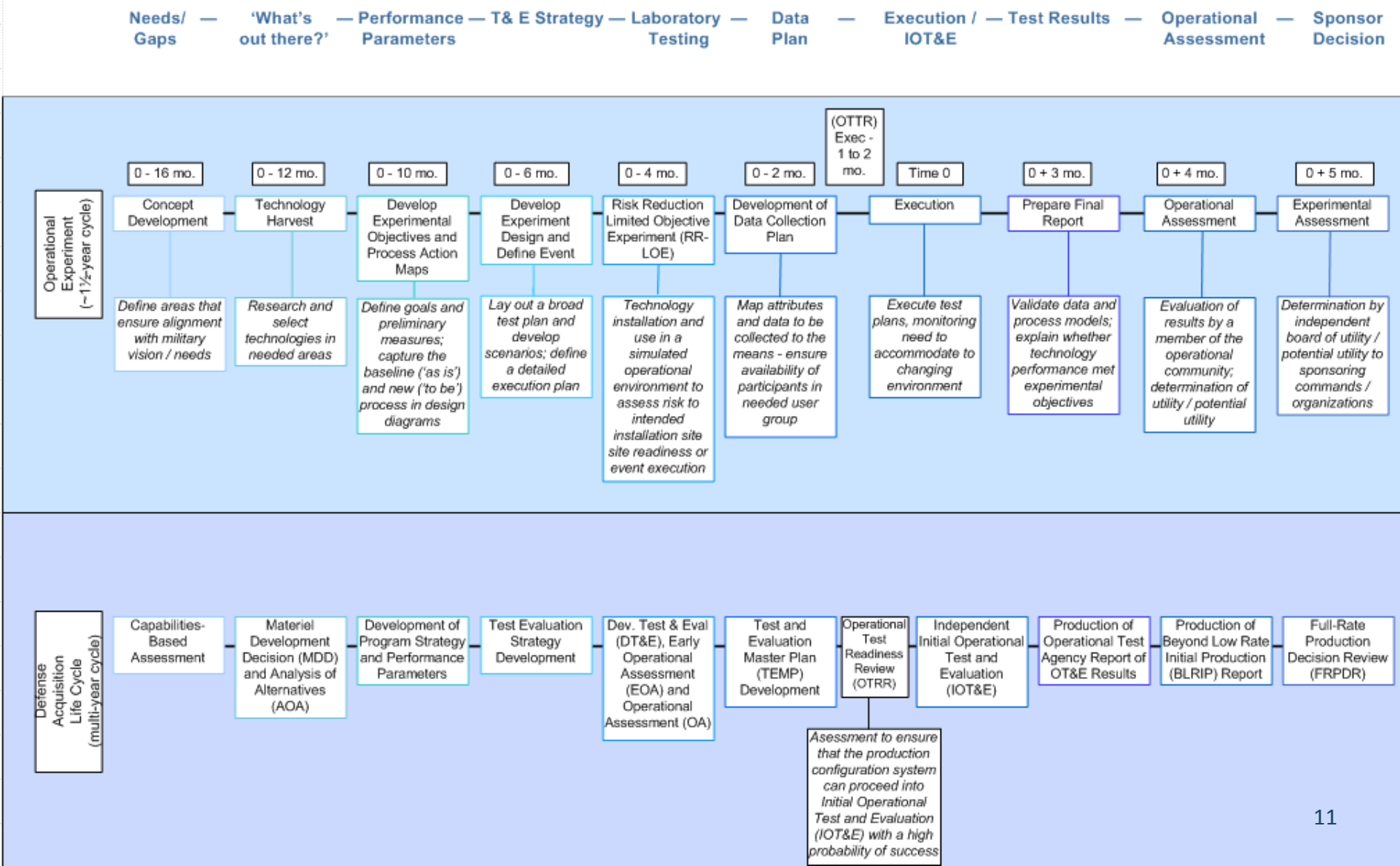
….And many more….

Complementary Data Collection & Analysis

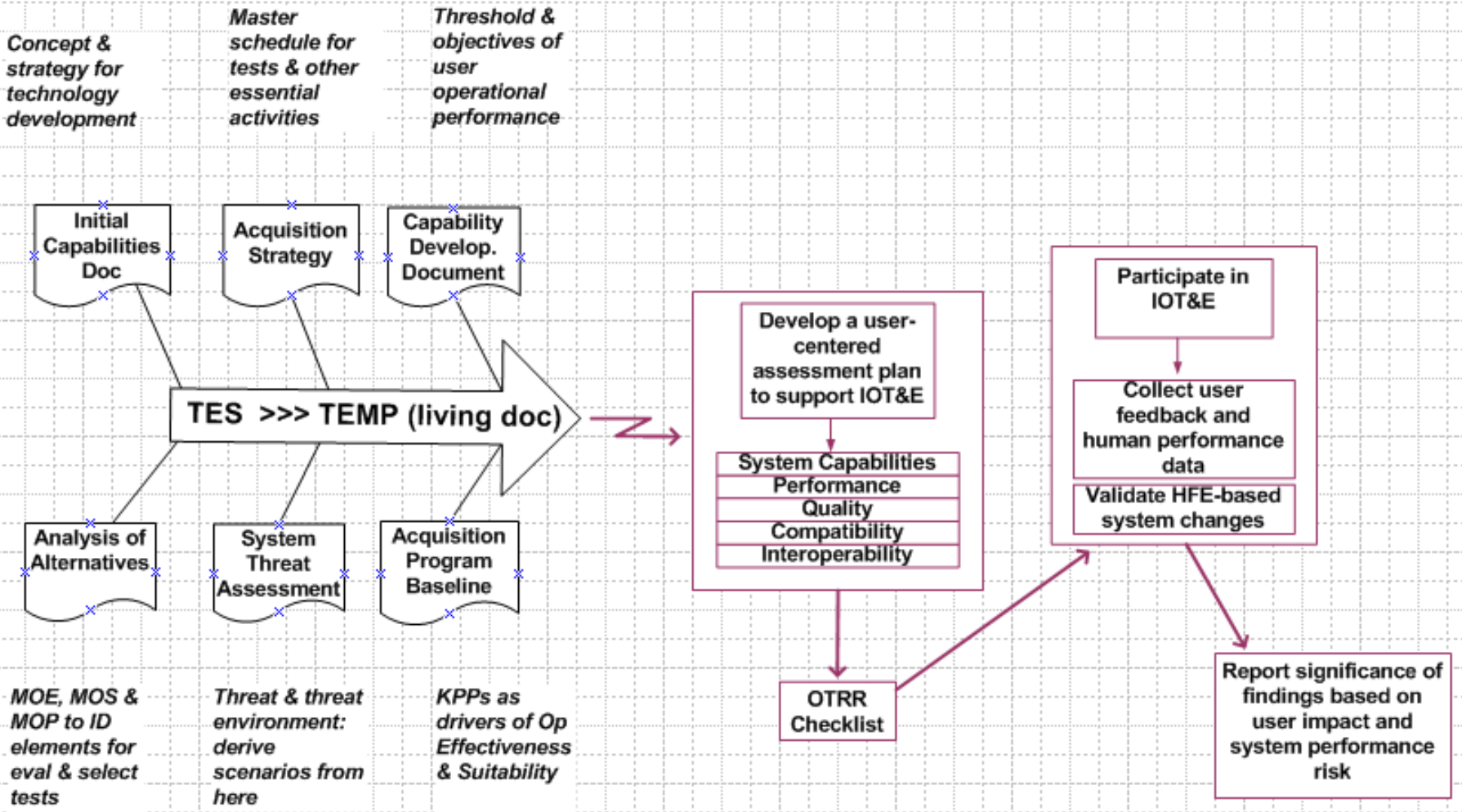
Operational experiments require – or can accommodate – the strict data collection requirements of IOT&E

- Specification of essential system attributes to be tested
  - » Key Performance Parameters (KPPs)
  - » Experimental question, with attributes, related to operational capability
- Specification of measures
  - » Measures of Effectiveness (MOEs) and Measures of Suitability (MOSs)
  - » Criteria
- Specification of method
  - » Quantitative or qualitative
  - » Coordination via test plan (location / activity / timing)
  - » Multi-method for corroboration
- Specification of analysis
  - » Tests / Comparisons to be performed

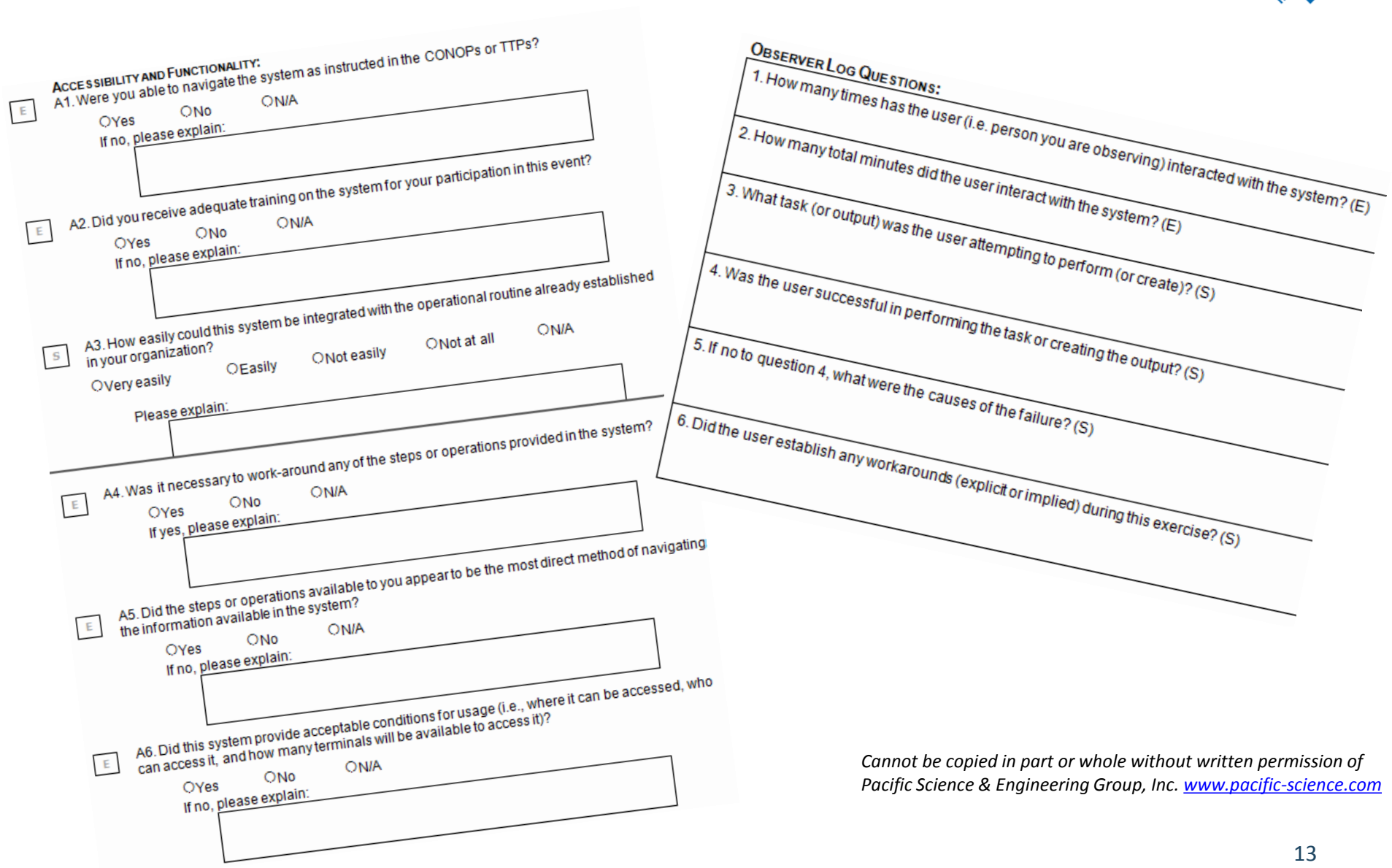
Parallel Activities: Acquisition Cycle & the Operational Experiment Cycle



Acquisition Cycle Source Document Content Used for Op Ex / IOT&E Test Plan



Example of Qualitative Templates – Building Blocks for Operational Experimentation



ACCESSIBILITY AND FUNCTIONALITY:

E A1. Were you able to navigate the system as instructed in the CONOPs or TTPs?
○Yes ○No ○N/A
If no, please explain:

E A2. Did you receive adequate training on the system for your participation in this event?
○Yes ○No ○N/A
If no, please explain:

S A3. How easily could this system be integrated with the operational routine already established in your organization?
○Very easily ○Easily ○Not easily ○Not at all ○N/A
Please explain:

E A4. Was it necessary to work-around any of the steps or operations provided in the system?
○Yes ○No ○N/A
If yes, please explain:

E A5. Did the steps or operations available to you appear to be the most direct method of navigating the information available in the system?
○Yes ○No ○N/A
If no, please explain:

E A6. Did this system provide acceptable conditions for usage (i.e., where it can be accessed, who can access it, and how many terminals will be available to access it)?
○Yes ○No ○N/A
If no, please explain:

OBSERVER LOG QUESTIONS:

1. How many times has the user (i.e. person you are observing) interacted with the system? (E)
2. How many total minutes did the user interact with the system? (E)
3. What task (or output) was the user attempting to perform (or create)? (S)
4. Was the user successful in performing the task or creating the output? (S)
5. If no to question 4, what were the causes of the failure? (S)
6. Did the user establish any workarounds (explicit or implied) during this exercise? (S)

Summary

T&E professionals can leverage operational experiments to efficiently fulfill requirements for IOT&E

- Operational experiments provide a management process foundation and materiel resources
- Acquisition cycle documents and reports match with needed operational cycle documentation – minimal reworking for participation
- IOT&E requirements for test components – venue, scenario, operators, customized and objective data collection – can be met
- Event execution can be overseen by operational test agency personnel for validation to the Director of Operational Test and Evaluation

For more information, please contact:

Pacific Science & Engineering Group
Chiesha Stevens
ChieshaStevens@pacific-science.com
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