



# Decision Analysis and Resolution

*Tailorable Decision Analysis & Resolution process and tools for enterprise wide application*

*Enabling the American Warfighter to Dominate the Battlefield!*



# Outline



- Introduction
- ARDEC Systems Engineering
- Decision Analysis and Resolution (DAR)
- DAR Process
- Tailored application of DAR to Technical Trade Study
- Benefits

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# ARDEC Background



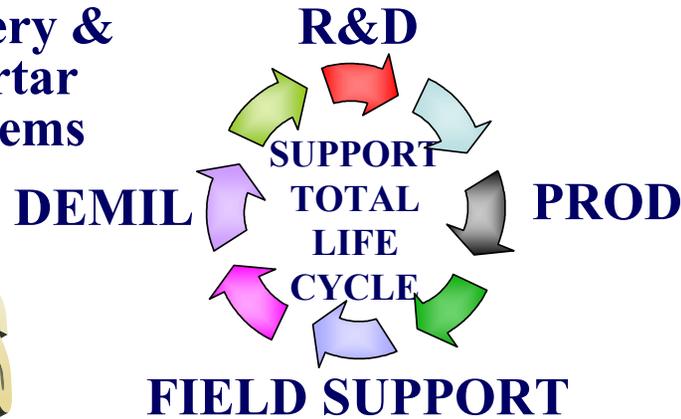
**Artillery & Mortar Systems**



**Advanced Fuze Technologies**



**Special Operations Weapons & Demolitions**



**Advanced Explosives & Warhead Development**



**Combat Vehicle Armaments & Fire Control**



**Logistics R&D**



**Non-Lethal Technologies**



**Future Small Arms**

**PROVIDING OVER 90% OF THE ARMY'S LETHALITY...**



# Introduction

- ARDEC Systems Engineering (SE) Division
  - Established from ARDEC re-organization to focus on disciplined systems engineering

“System Engineering objectives provides the integrating technical process to define and balance system performance, cost, schedule, and risk.”

-Michael W. Wynne

*Acting Under Secretary Of Defense  
20 Feb. 2004*

- System Engineering (SE) Process needed a consistent and effective process for making fact based decisions.

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# Decision Analysis and Resolution Definition

- Analyze possible decisions using a formal evaluation process that evaluates identified alternatives against established criteria.

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# Decision Analysis and Resolution Impact

- Inconsistent DAR processes may...
  - Cause delays/bottlenecks when reviewers inquire how the decision came to being.
  - Raise the learning curve of new IPTs (must agree on common ones).
  - Not reach the best achievable solution.



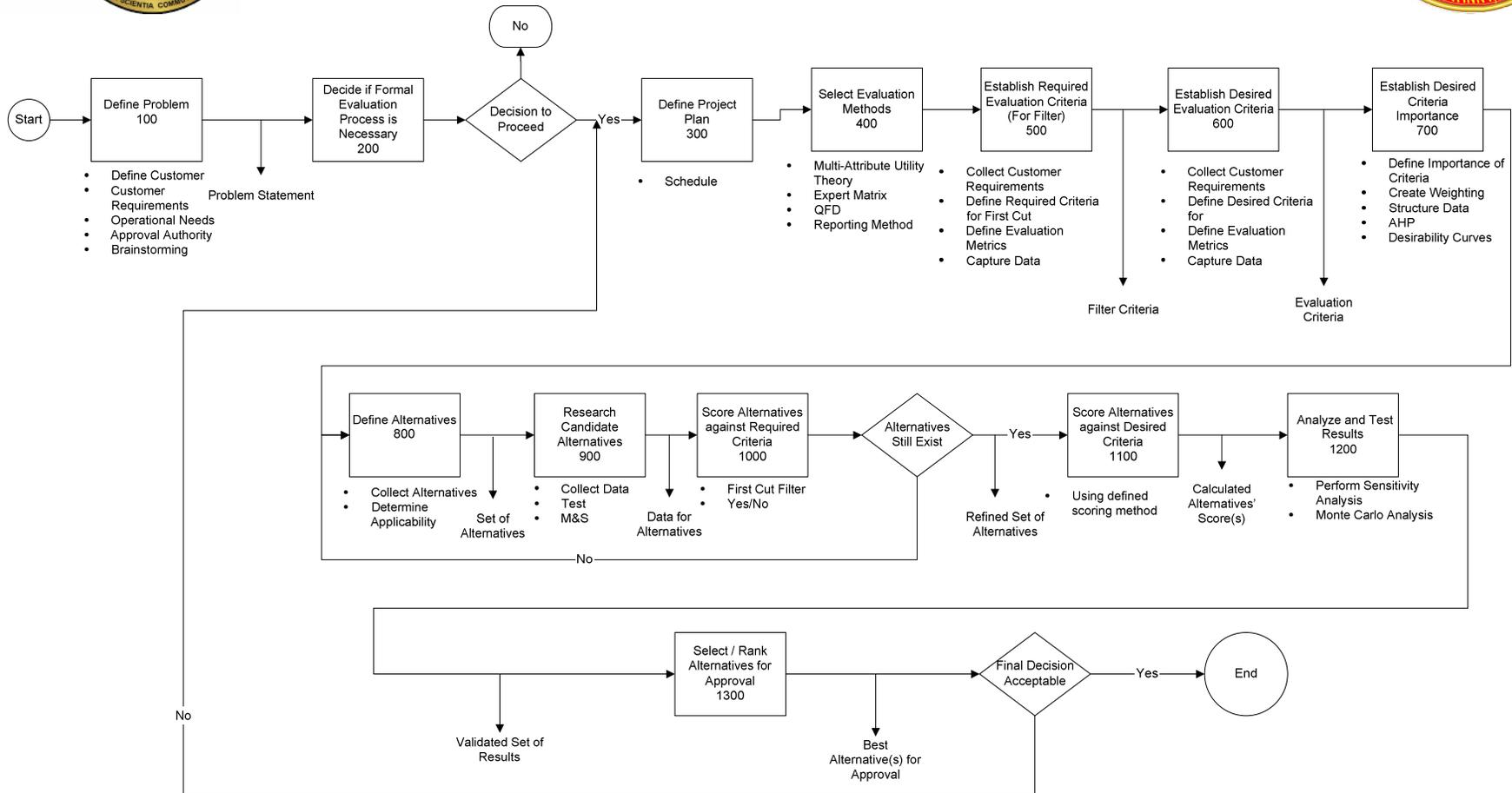
# Approach

- Used as Six-Sigma Green Belt Project – Major Initiative at ARDEC to use Lean/6-Sigma
- Methodologies/Tools Used
  - Brainstorming
  - Process Map
  - Voice of the Customer
  - FMEA
  - Quality Function Deployment
  - Product Selection Matrix

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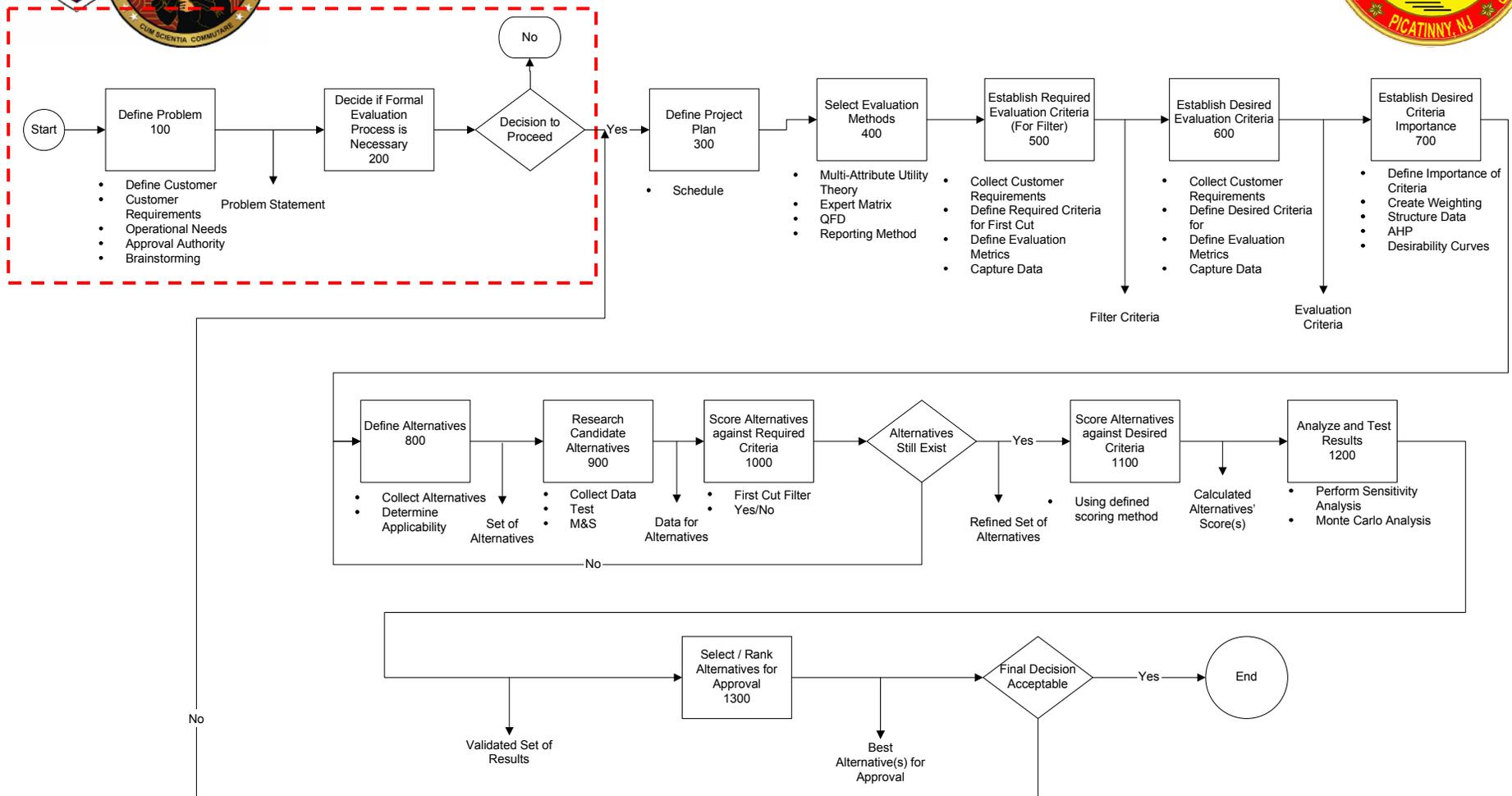
## Level 1 Decision Analysis and Resolution Process



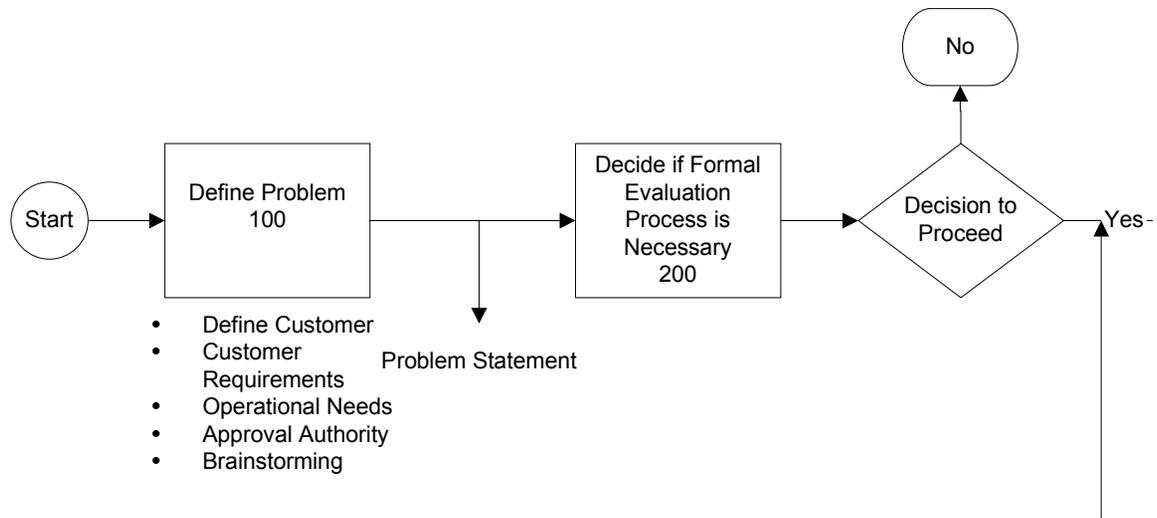
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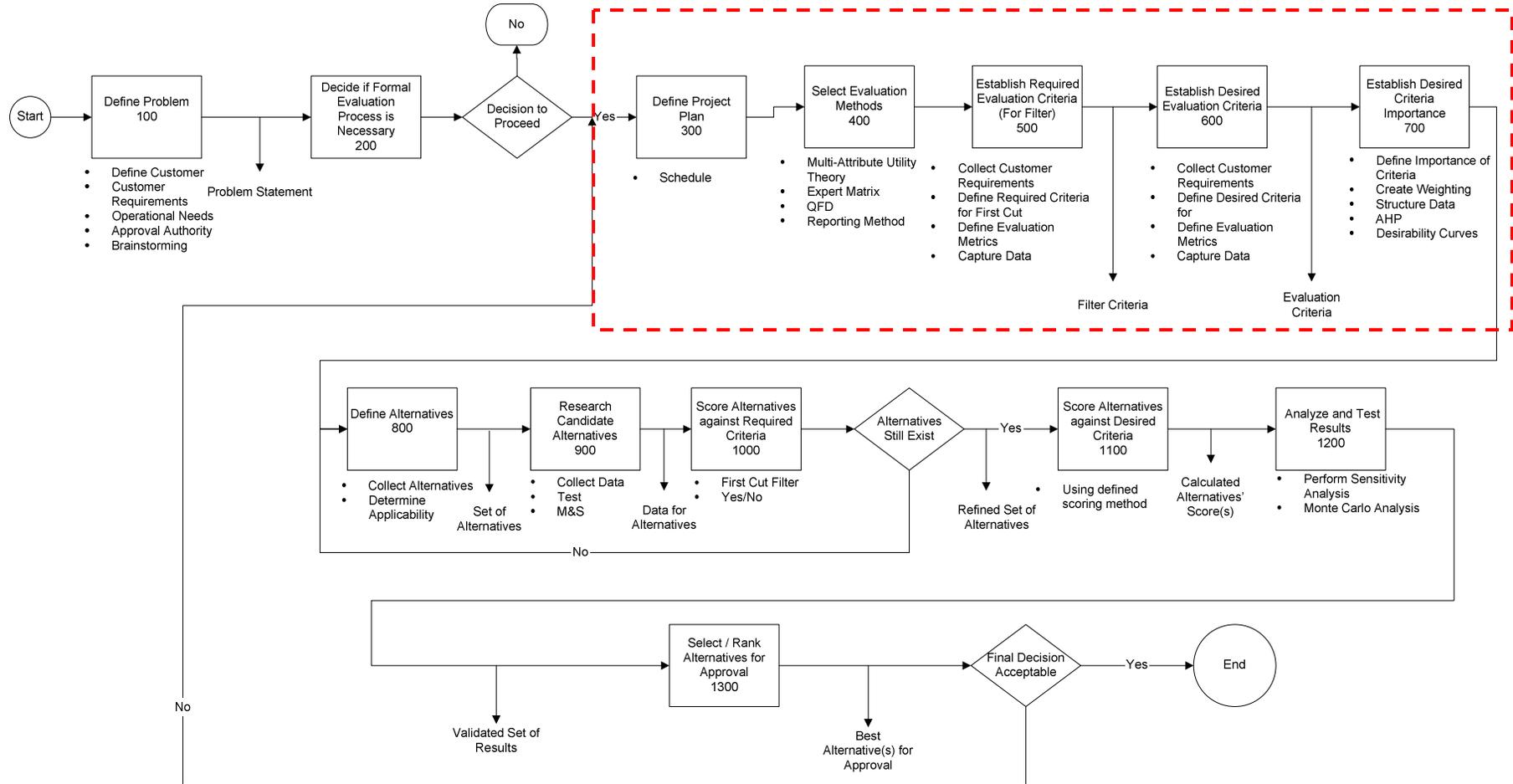
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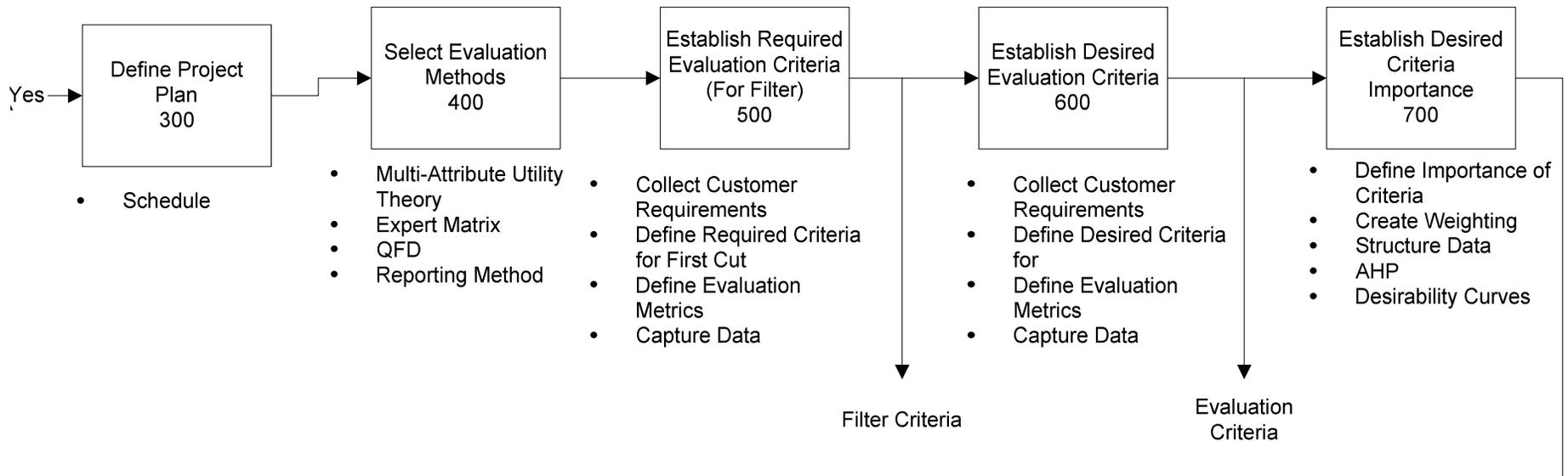
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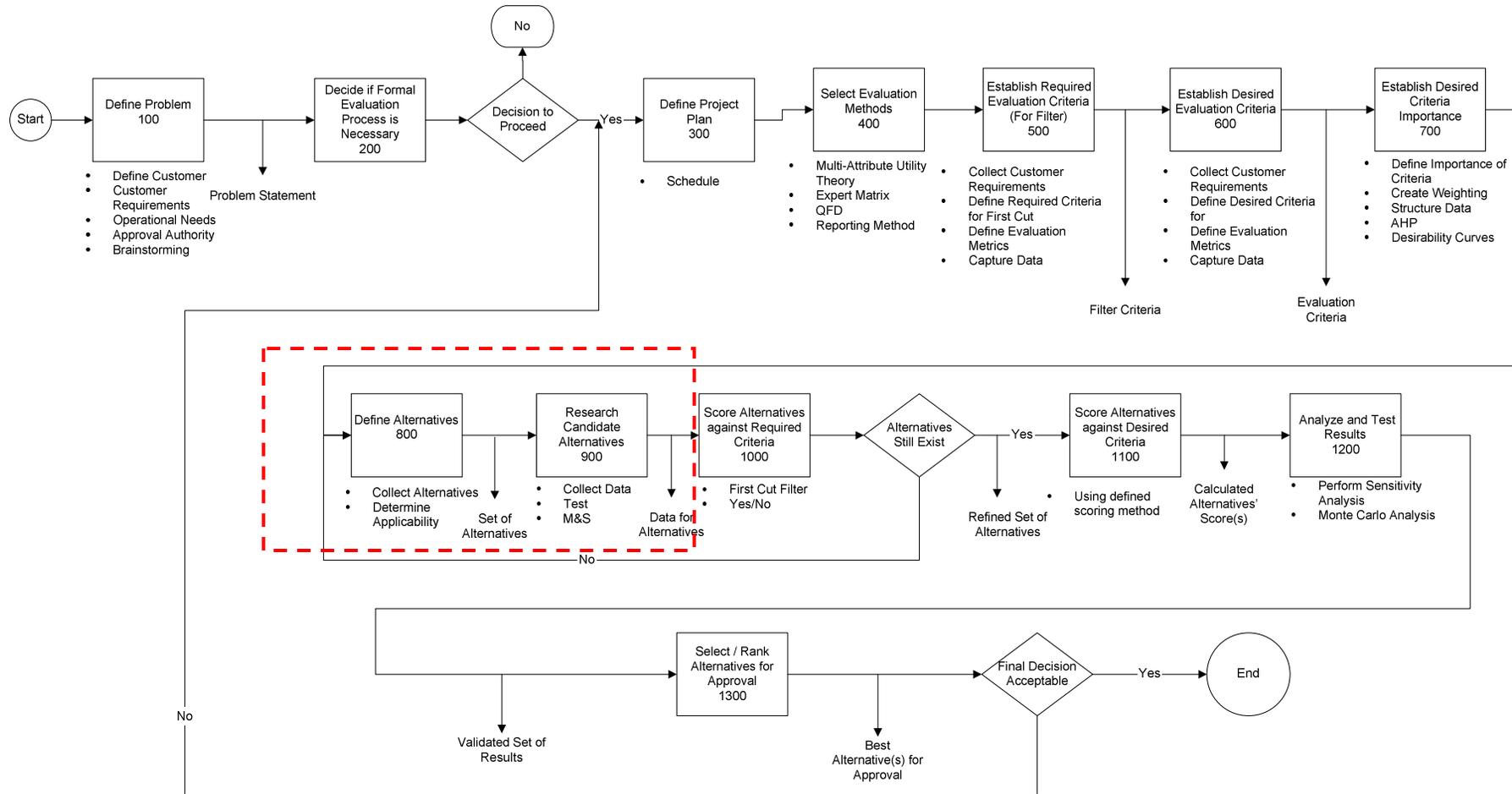
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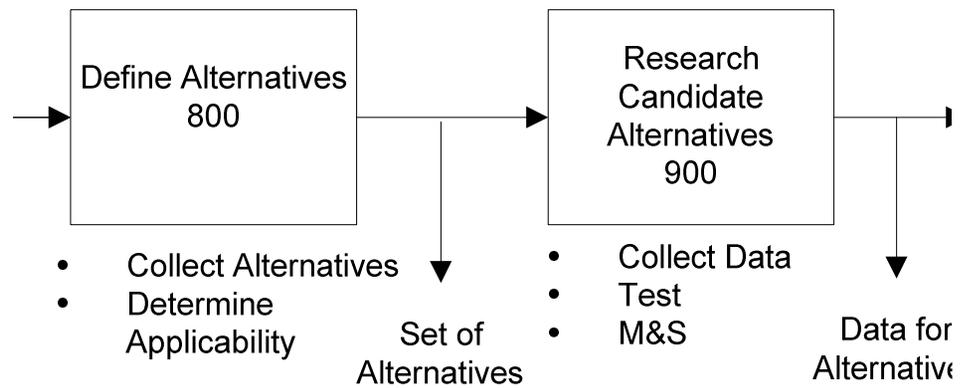
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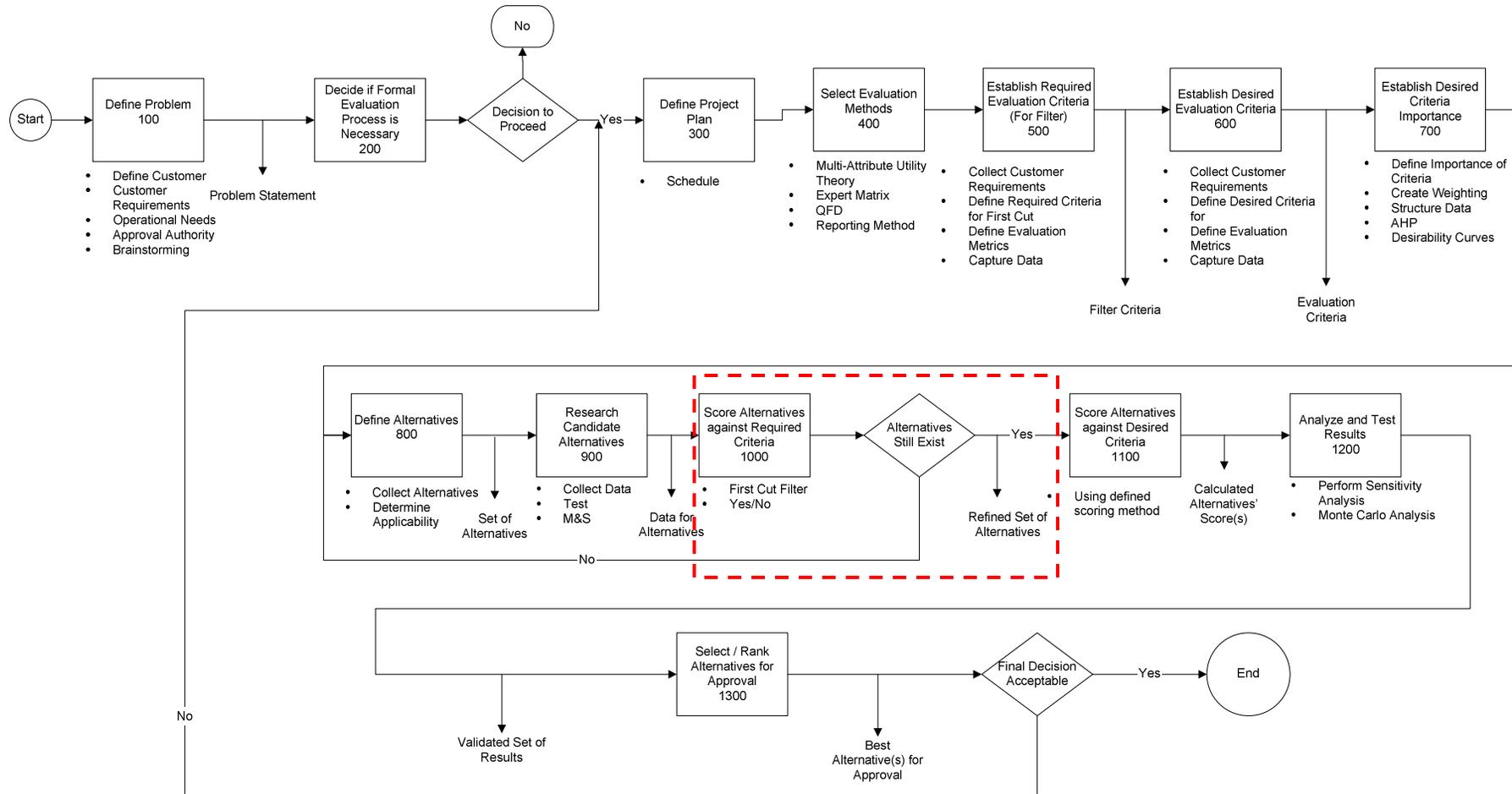
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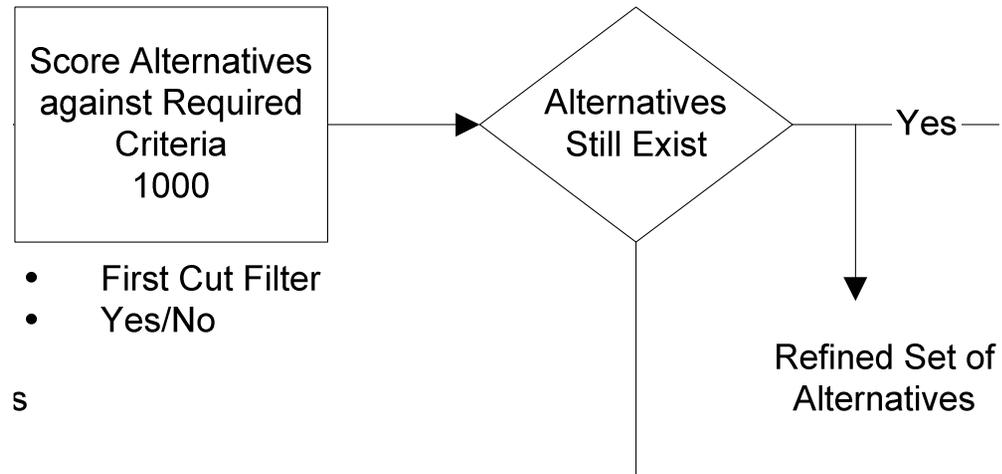
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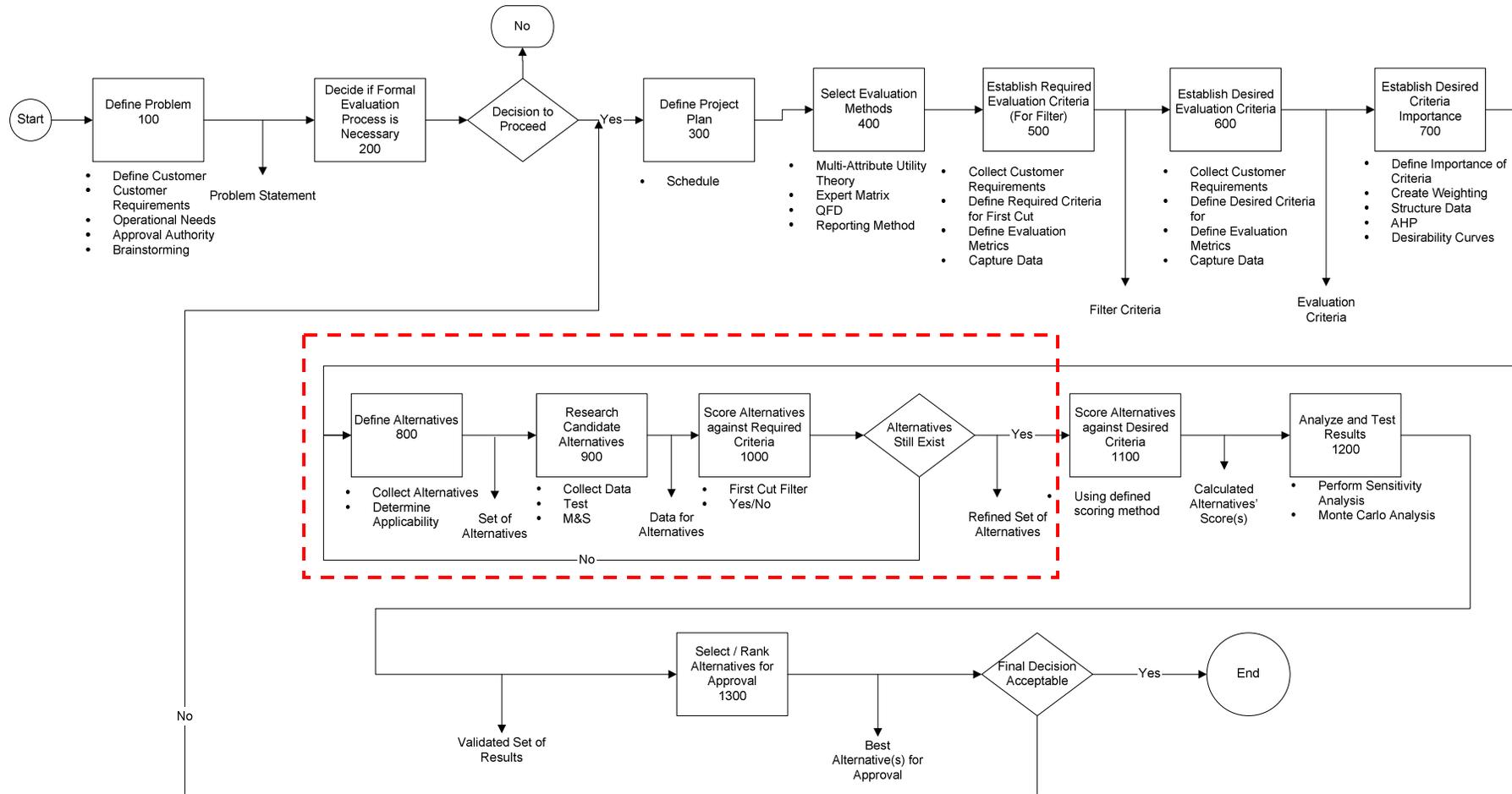
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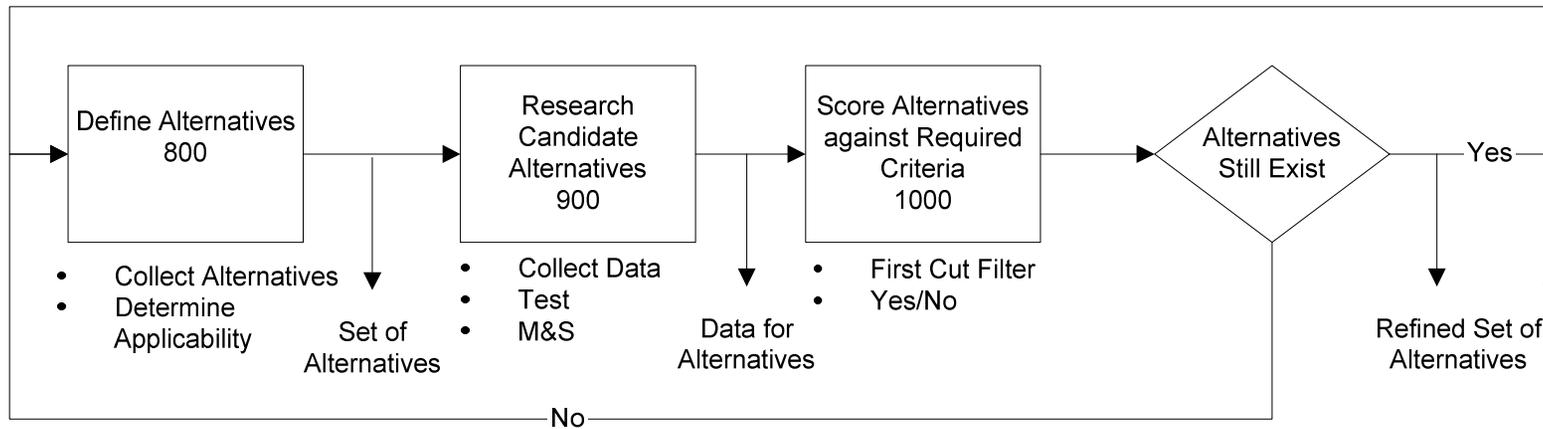
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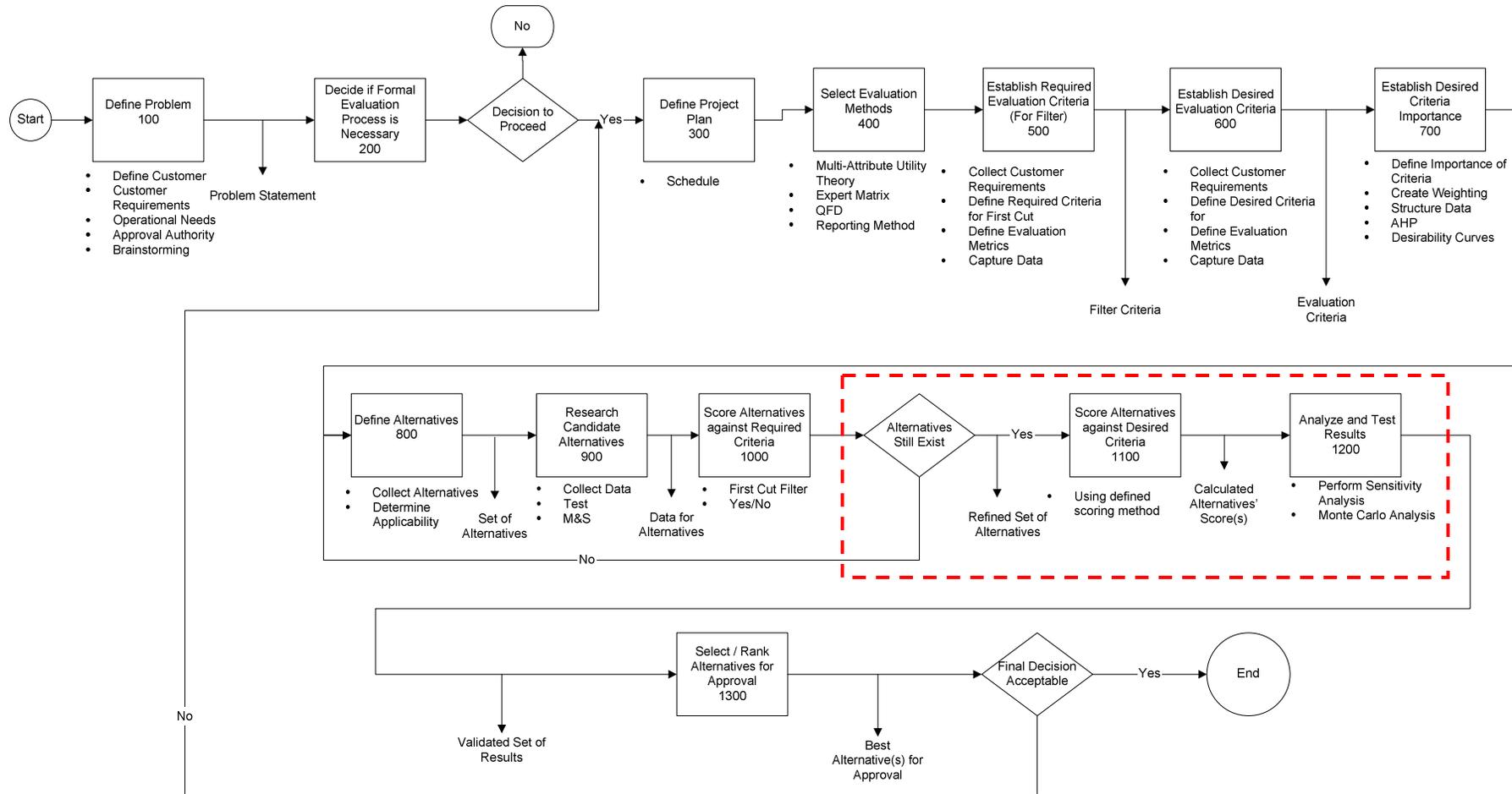
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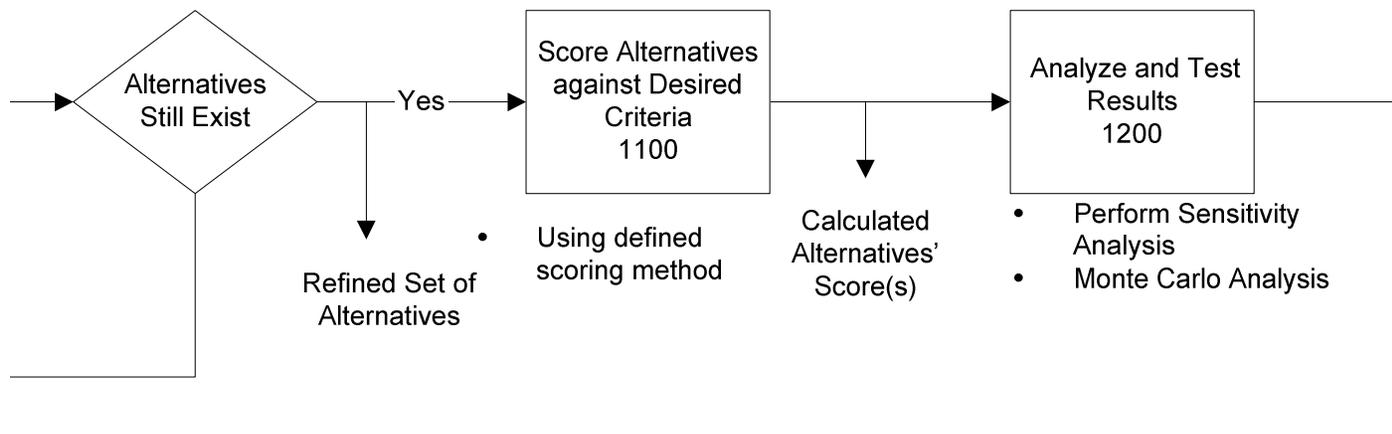
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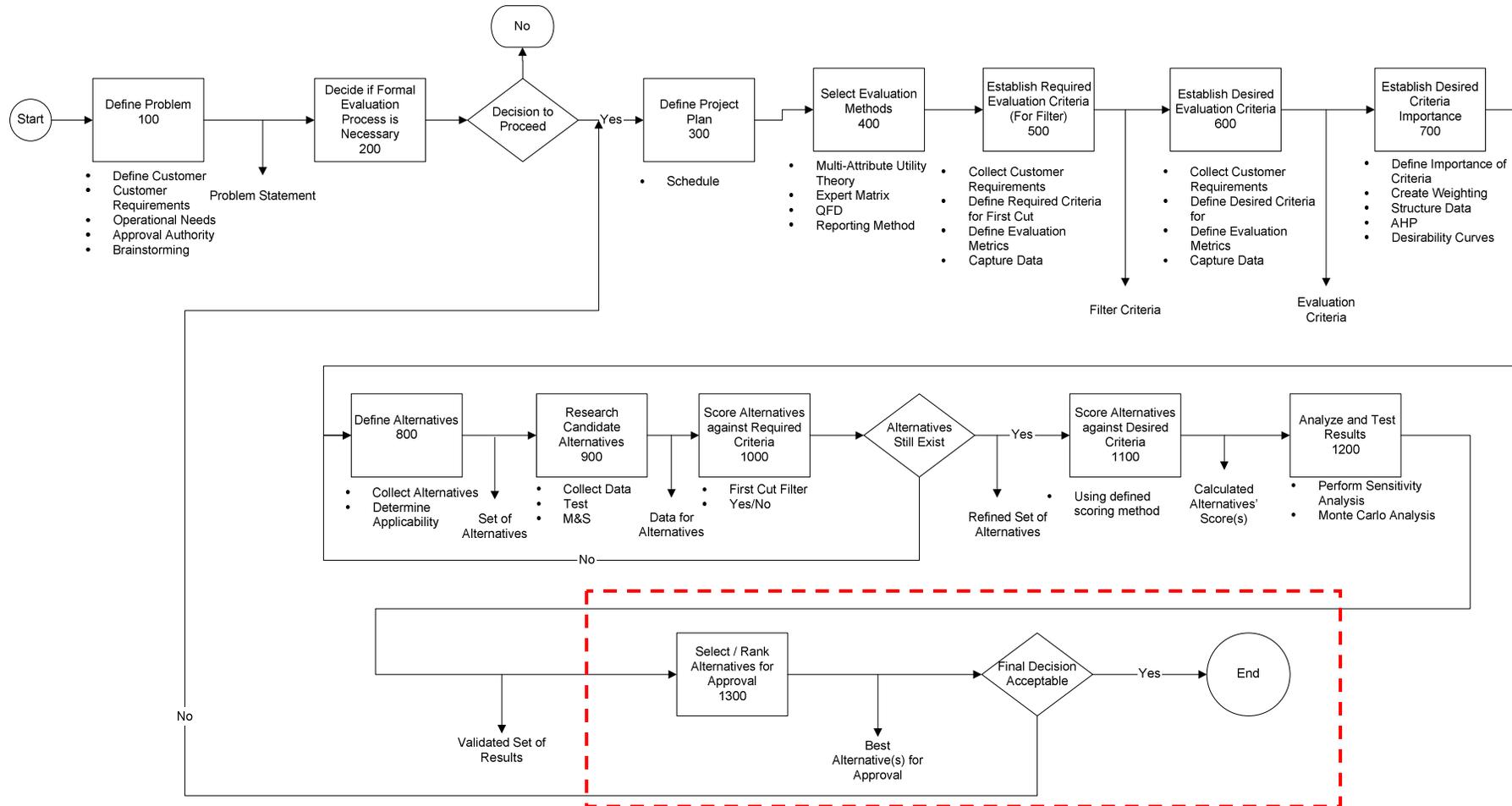
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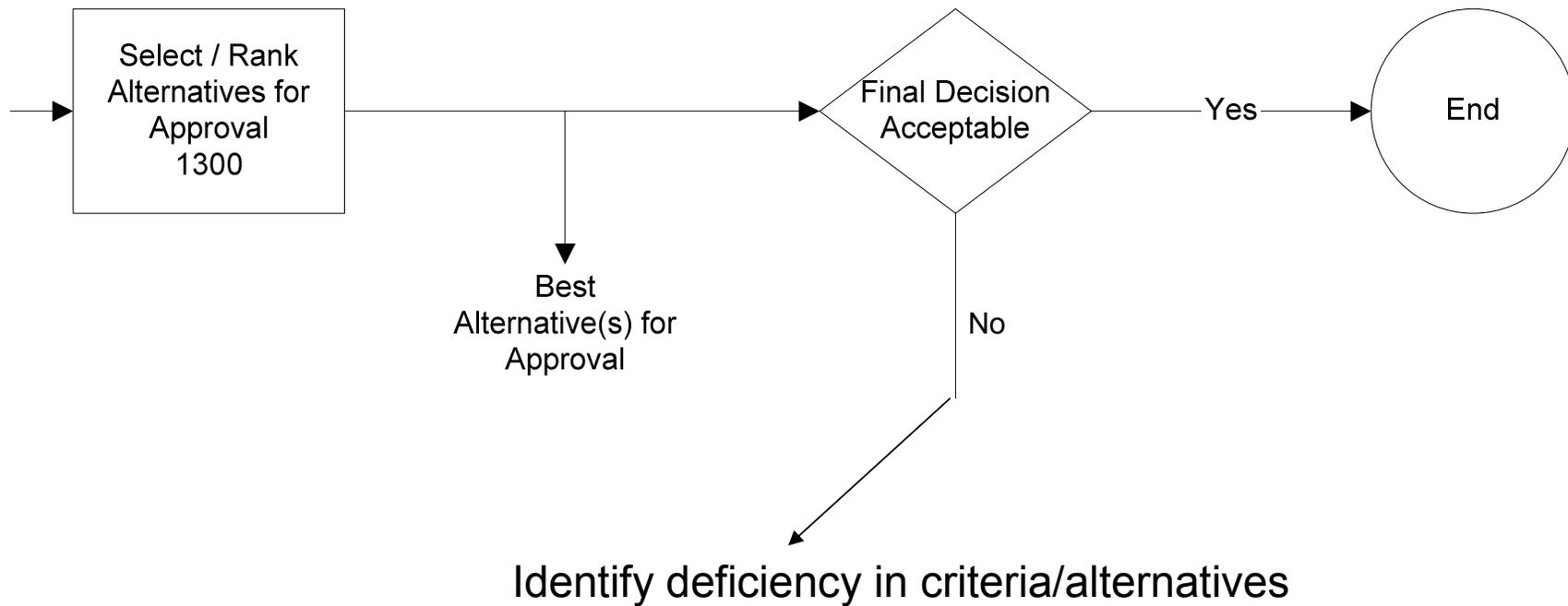
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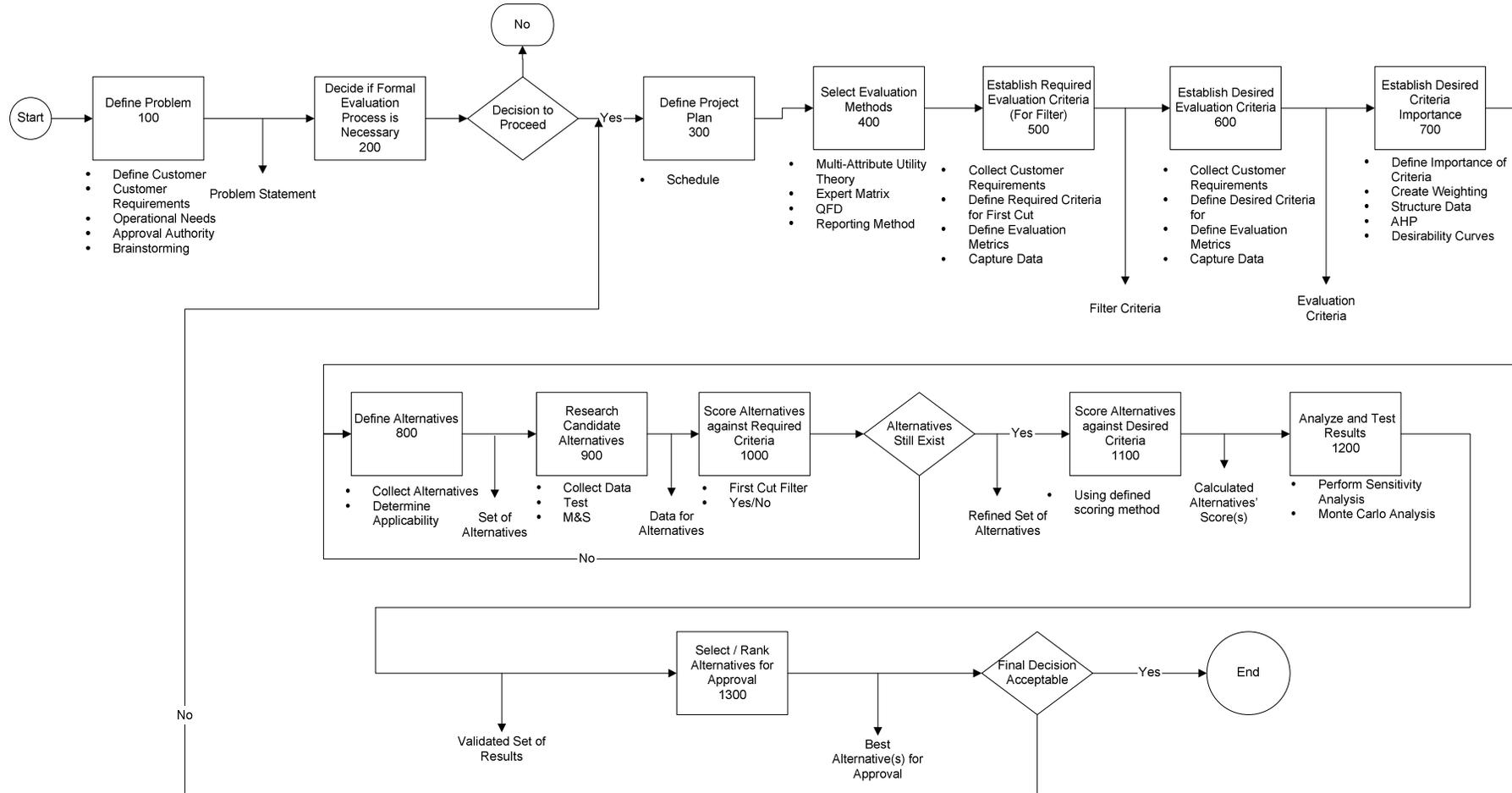
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## Level 1 Decision Analysis and Resolution Process



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# ARDEC Enterprise Application



- DAR process to be approved as part of formal ARDEC SE Standard Process
- Projects are required to tailor and use process for their application
- Identified methodologies/tools for each process step to facilitate process execution

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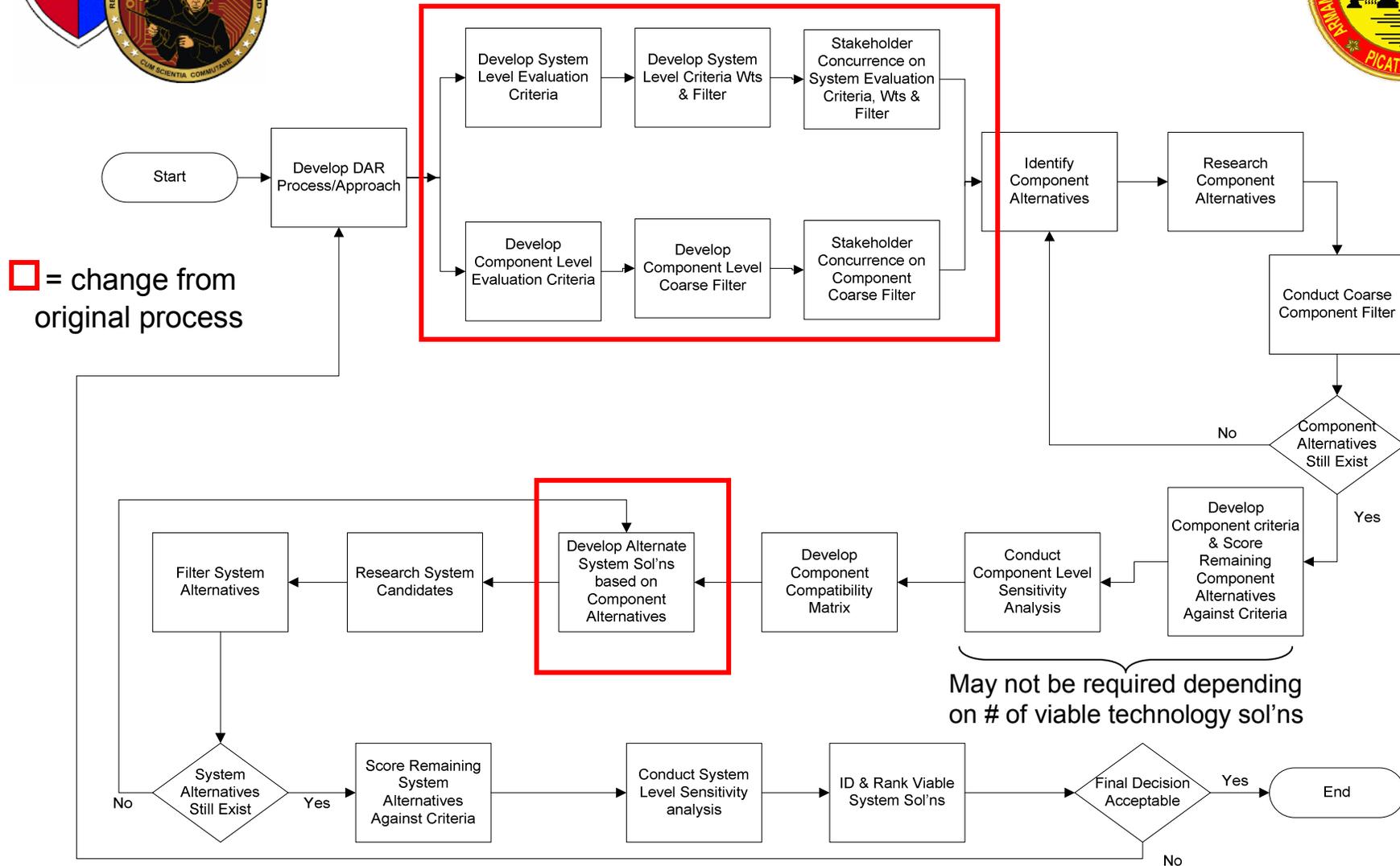
# Tailored DAR Process



- Application for FCS Active Protection System (APS) Technical Trade Study for RDECOM.
  - Identify Science and Technology Investments needed to get to an objective APS system.
- ARDEC DAR process focused competing organizations' efforts to determine path-forward for the APS technical trade study



# Tailored DAR Process



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# DAR Benefits



- Project risk will be reduced by applying the defined DAR process.
- Fact-based decision will be made rather than subjective decisions.
- Increased quality decisions
  - Defendable
  - Stakeholder buy-in
  - Flexible
  - Valid

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# Return on Investment

<i>Quality or Customer Satisfaction</i>	<i>Co\$t</i>
<ul style="list-style-type: none"> <li>•DAR Process created to enhance the ARDEC capability to deliver quality products to the Warfighter.</li> <li>•Tools capability to support ARDEC project execution</li> </ul>	<p>Savings from...</p> <ul style="list-style-type: none"> <li>•Reuse</li> <li>•Standardization</li> <li>•Best Practice application</li> <li>• Savings: \$11.3K/use</li> </ul>
<ul style="list-style-type: none"> <li>•Defined DAR process provides for better time and resources scheduling needed to execute.</li> <li>•Lowers the learning curve DAR application</li> </ul>	<ul style="list-style-type: none"> <li>•Defined DAR process reduces risk by providing a tailorable framework for making decisions</li> </ul>
<i>Schedule</i>	<i>Risk</i>

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- Questions?

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