

***Selecting Systems Engineering Tools  
...and making a return on the investment***

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## Why Select a Systems Engineering Tool?

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- **Automate tedious error-prone tasks**
- **Implement a common disciplined process for SE tasks**
- **Provide alternative views of data to different users**
- **Leverage computational and information technology POWER!**

## Systems Engineering Tool Selection Process

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- Define the Requirements
- Determine Critical Requirements
- Select candidates for the solution
- Benchmark the tools for comparison
- Perform trades and make the selection

## Identify SE Tool Requirements

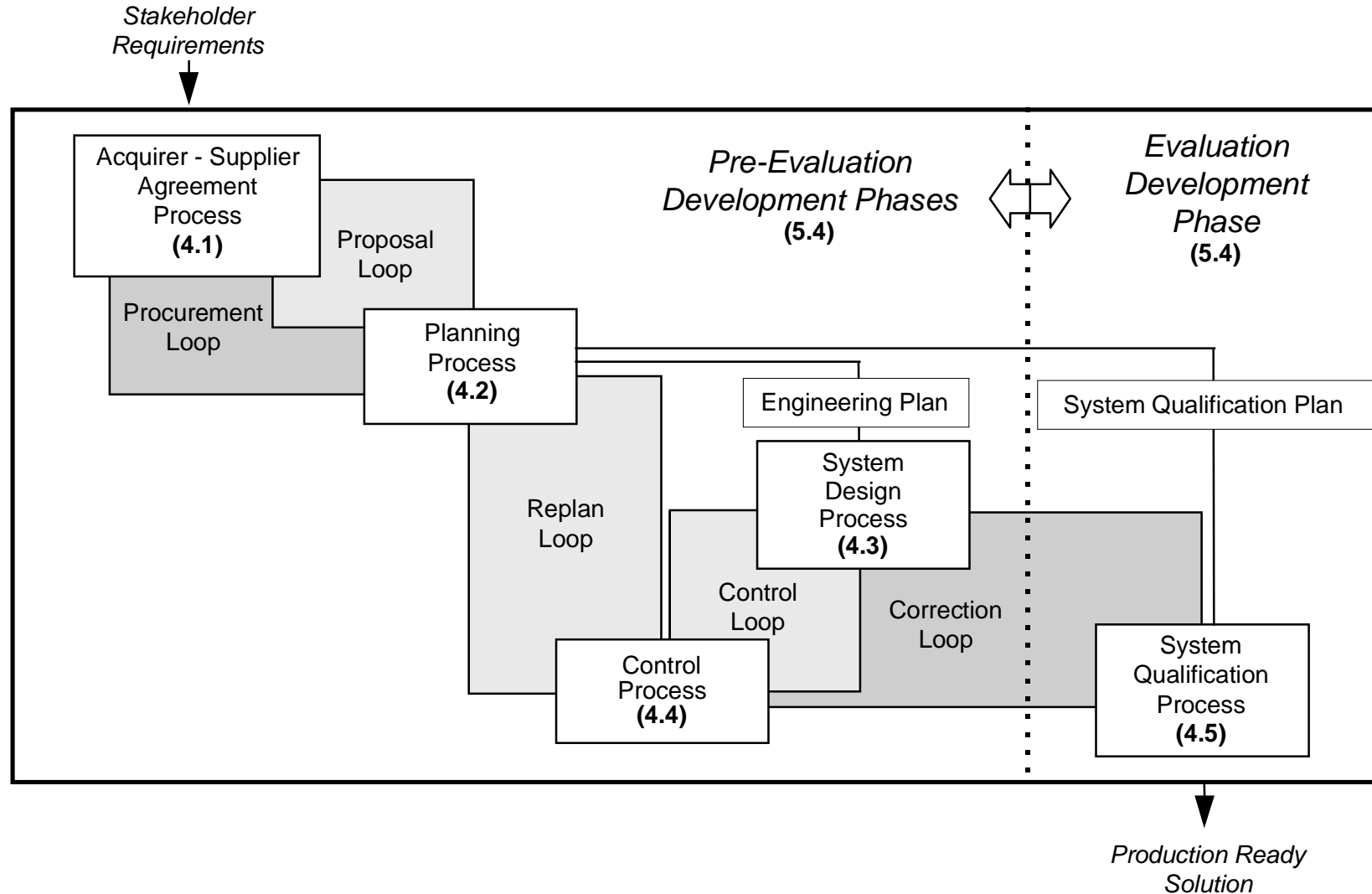
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- **Determining the SE tool domain**
- **What task requires automation?**
- **Who are the players?**
- **Assembling a tool selection team**
- **Preparing a tool specification**

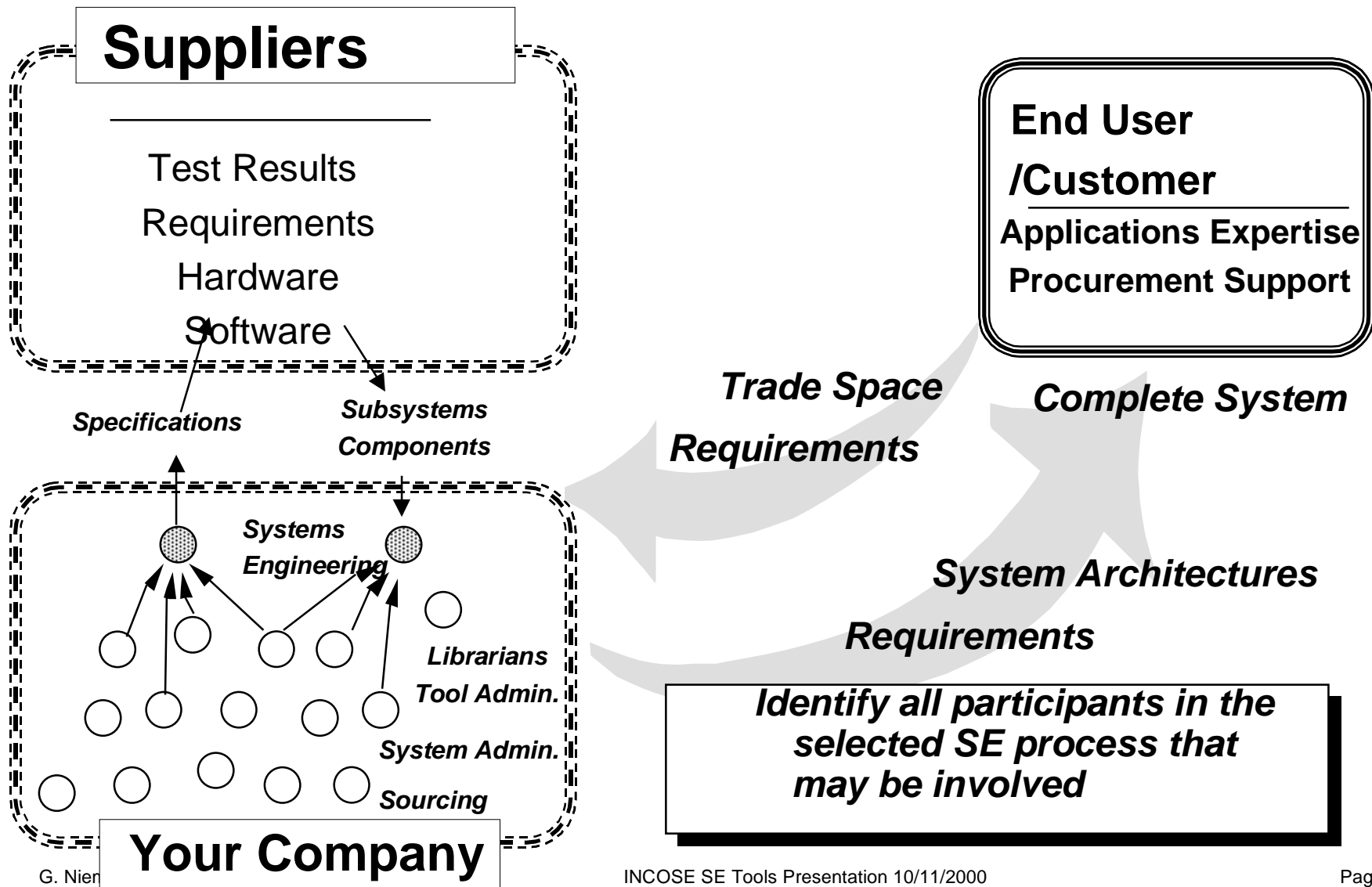
# Identify the SE Tool Domain

## EIA 632 PROCESSES FOR ENGINEERING A SYSTEM



**What steps of the Systems Engineering process apply to the tool selection?**

# Who are the players ?



## **Select the SE Tool Evaluation Team**

- **SE Practitioners**
  
- **Current SE Tool Users**
  - **Adds benefit of “looking under the hood” of the SE toolsets**
  - **Do not select relentless advocates**
  - **Do not select relentless skeptics**
  
- **Other participants**

## Prepare an SE Tool Specification

- **Provide an operational concept**
  - Tell a story
  
- **Define requirements**
  - SE products required
  - Task specific algorithms
  - Diagramming requirements
  - Configuration Management support
  - Report outputs
  
- **Identify critical requirements**
  - If these requirements cannot be met, then the selection ends

## **Identify Candidate Suppliers**

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- **Find suppliers**
  - INCOSE symposiums
  - Trade Journals
  
- **Get responses to the SE Tool Requirements -**
  - Can be sitting down with the SE Tool Application Engineer
  - Or, response can be a formal RFP
  
- **Selecting Appropriate Suppliers**
  - Use Requirements Specification as the preliminary filter

## **Beware the Buzzwords !**

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- **Seamless Integration**
  - What is integrated?
  - Which part owns the data?
  
- **Integrated Tool Suite**
  - Which of the tools in the suite do you really need?
  - Half competency in all areas
  
- **Executable Specification**
  - How can you execute a “shall” statement

## Evaluating vendors

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- **Preparing the benchmark test**
- **Scoring the supplier**
- **Making the final selection**

# Scoring the SE Tool Candidates



		1	2	3	4	5	6	7	8
	Tool/ Function	Behavior Modeling	Require Managmt	Allocation	Impact Analysis	Optimizat ion	Trade-off Analysis	Verification	Config Mngmt
1	<b>CORE</b>								
2	<b>CRADLE</b>								
3	<b>DOORS</b>								
4	<b>REQUISITE PRO</b>								
5	<b>RDD</b>								
6	<b>SLATE</b>								
7	<b>Statemate</b>								
8	<b>RTM</b>								
9	<b>FORESIGHT</b>								

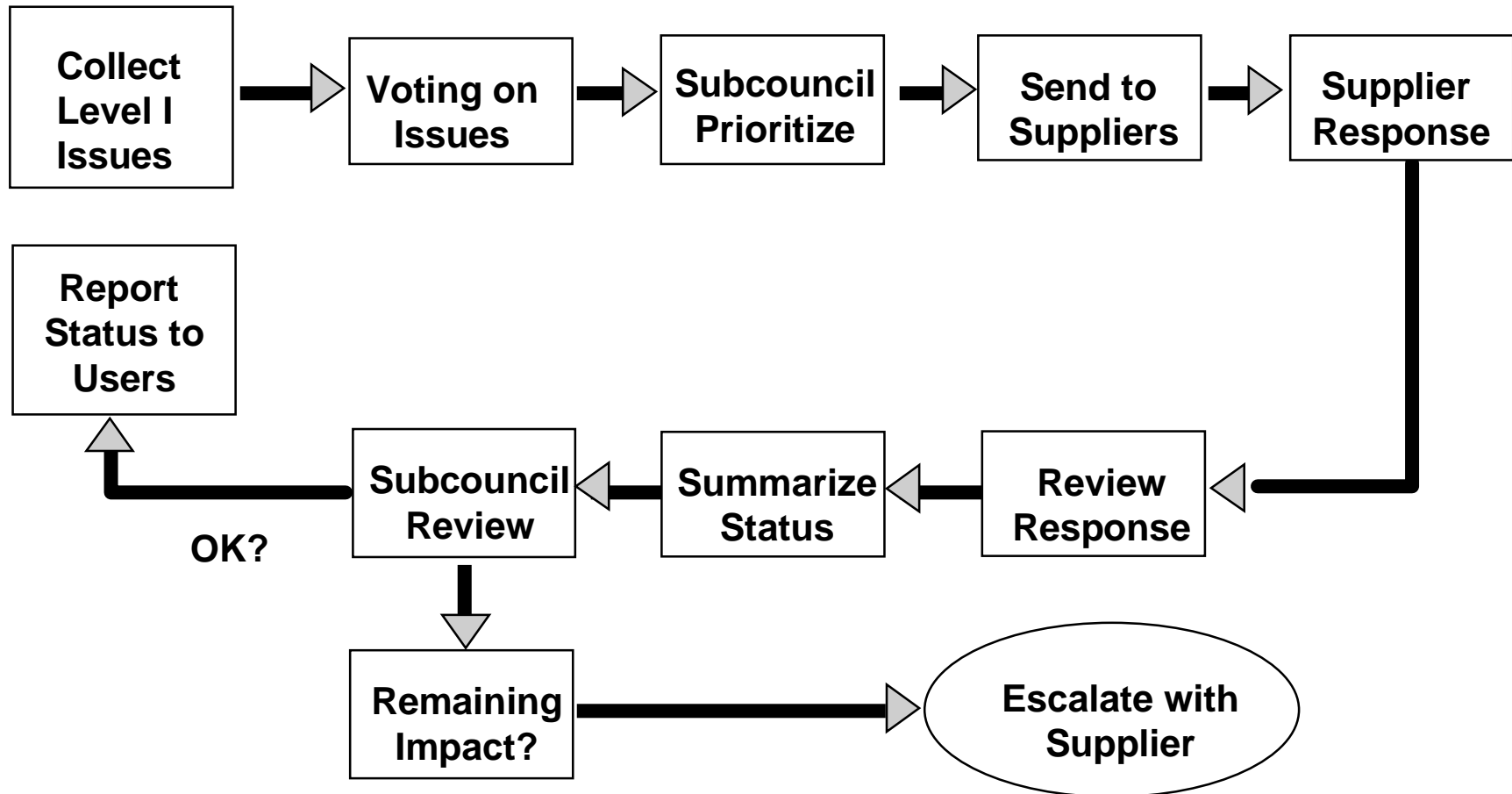
## **Making the Selection**

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- **Select the “Best Functionality” from your scoring matrix**
- **Consider tool support and consulting**
- **Look at price considerations**
  - **but don’t automatically select the CHEAPEST!**

## ROI- Resolving Supplier Issues

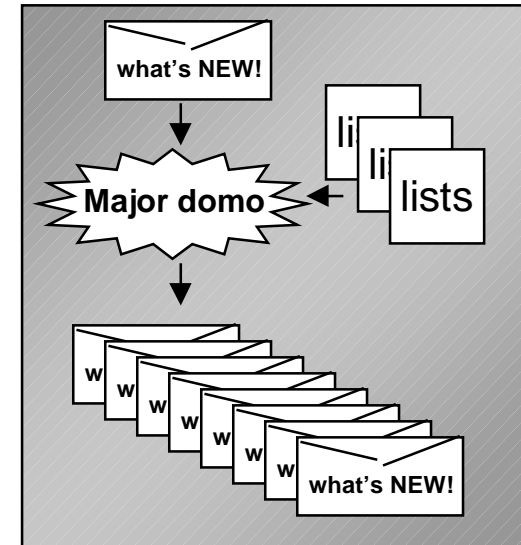
**\*New List\***



***Process involves users, support, and Supplier***

## ROI - Return on Investment - Leveraging the users

- Enlist all users in User Groups
  - World Wide Web
  - Web Based Meetings
  - E-mail discussion groups
- Customize Tool Training around your company's SE process



**Multiply every dollar spent on the selected SE tool by fostering communications among the user community**

## **Summary**

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- **Identify SE Tool Domain and Requirements**
- **Select Candidates**
- **Evaluate all candidates on a common benchmark**
- **Make a selection based on functionality**
- **Leverage the supplier and users to increase the ROI of the selected tool**