Design Enabler Information Mapping (DEIM)

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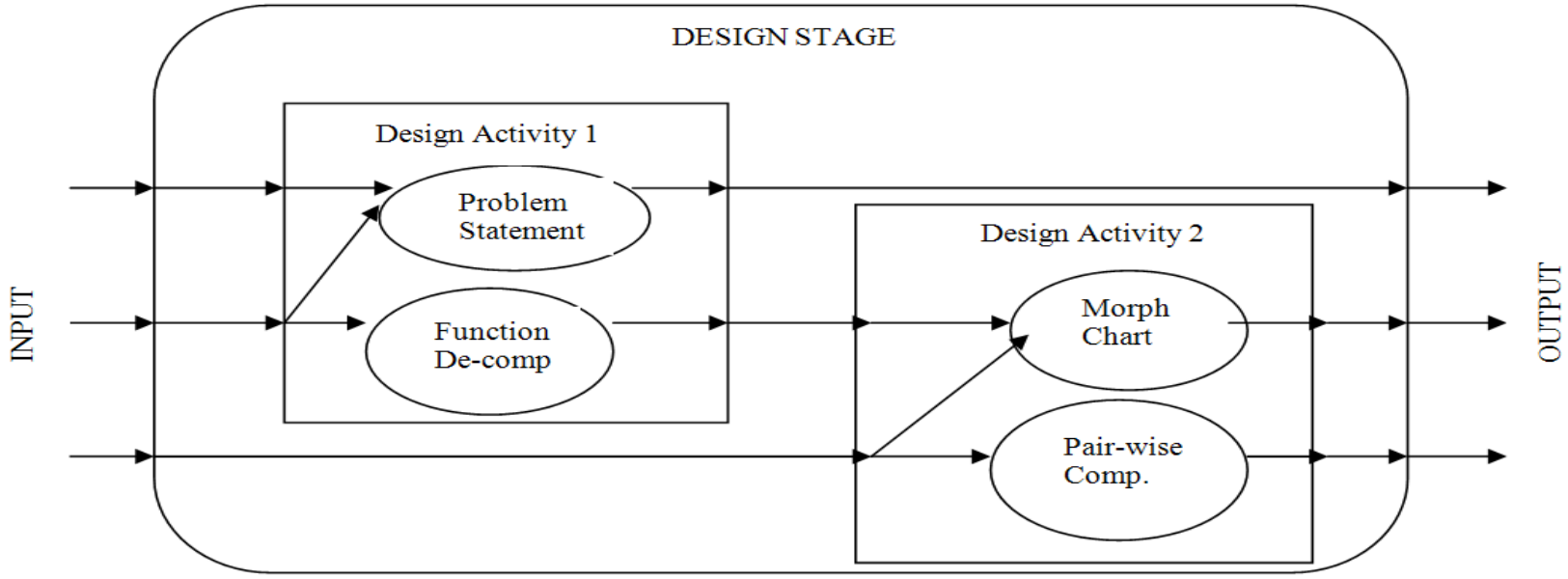
Points Of Interest

- What are we trying to do?
  - Improve learning capabilities through case studies
- How can this be accomplished?
  - Performing Case Studies to empirically model Design Situations
  - Implementing a visual aid for modeling Design
- What benefit can be gained?
  - A tool to visualize how design is conducted.
    - Graphs for Mathematics
    - Plots for Codes
  - Another dimension of design can be seen to extract more information from Case Studies
- How can it be implemented?
  - Implementation into early design courses
  - Gain experience in design modeling (skilled much like CAD)

What Are We Doing?

- Modeling a design process by mapping information flow. (Identify the arrows)
  - Crudely at first, then refining the process
- Establishing the requirements for an array of design elements.
  - Pavan's Protégé work



How can this be accomplished?

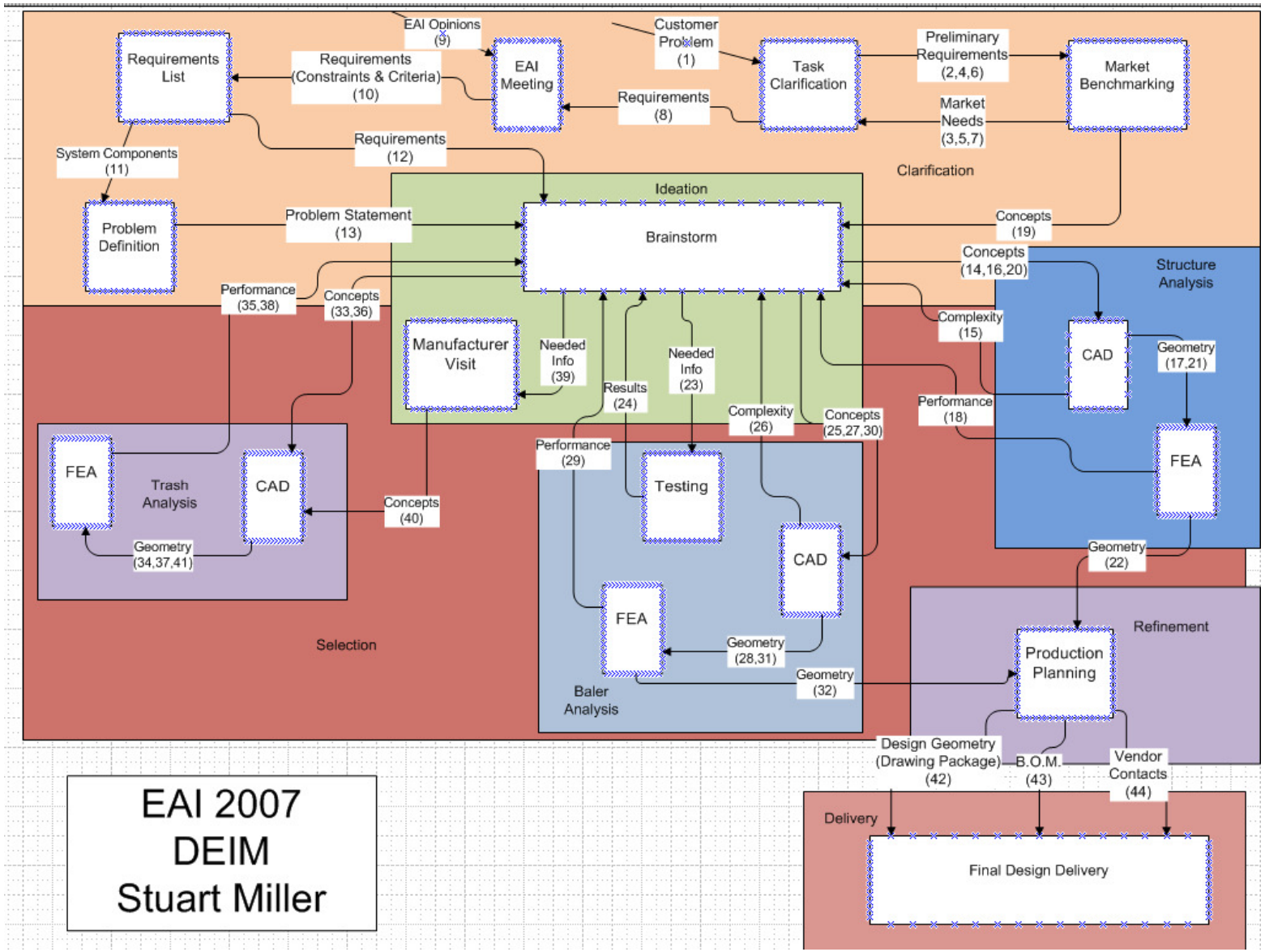
- Breakdown the process into sub categories; Design Stage, Design Activity, Design Method
  - (Design Activity may be part of hierarchy, or a parallel characteristic)

- Populating list of Design Tasks; components, required inputs, expected outputs, (time), stage of design
  - Inputs [information, resources, people]
  - Outputs [information, (decision, maybe)]

- Linking inputs to outputs of previous steps, then repeat.
  - What are my options to achieve X as an input to my current step?

- Read literature while looking for:
  - Process evaluations (how well a tool works)
  - Task items to populate list (exhaustive list of tools/methods)
  - Requirements of design tasks

EAI DEIM



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What benefit can be gained?

- Identify wasteful “items” within Design Process (Non Value-Adding)
  - Is the output of Task X used for another task or a direct deliverable to the customer?
- Identify a “Critical Design Path” that MUST be followed to accomplish minimal results
- Organization of inputs to streamline time. (Knowing up front what will be required 10 steps into the process)
- Show benefit of Design Methods to future ME 401 / ME 402 students.
- Develop a list of elementary Design Information Items
  - Geometry
  - Customer Requirements
  - Requirement rankings

How can it be implemented?

- Methodology must first be established.
  - (How to develop info within the map)
- Utilize case studies to make test runs, and practice application.
  - (improve the skill of Design Modeling)
- Publish and distribute DEIM for mainstream application.
  - (Beta testing)
  - Collaborate to collect high level educational value from DEIM

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