NA Regional Summit 2008 NAFEMS
2020 Vision of Engineering Analysis and Simulation
October 29 - 31, 2008 | Hampton, Virginia

The Role of Digital Simulation in Developing a PLASVEE© for 2020

Stephen Scampoli
Lead Product Manager
ANSYS, Inc.

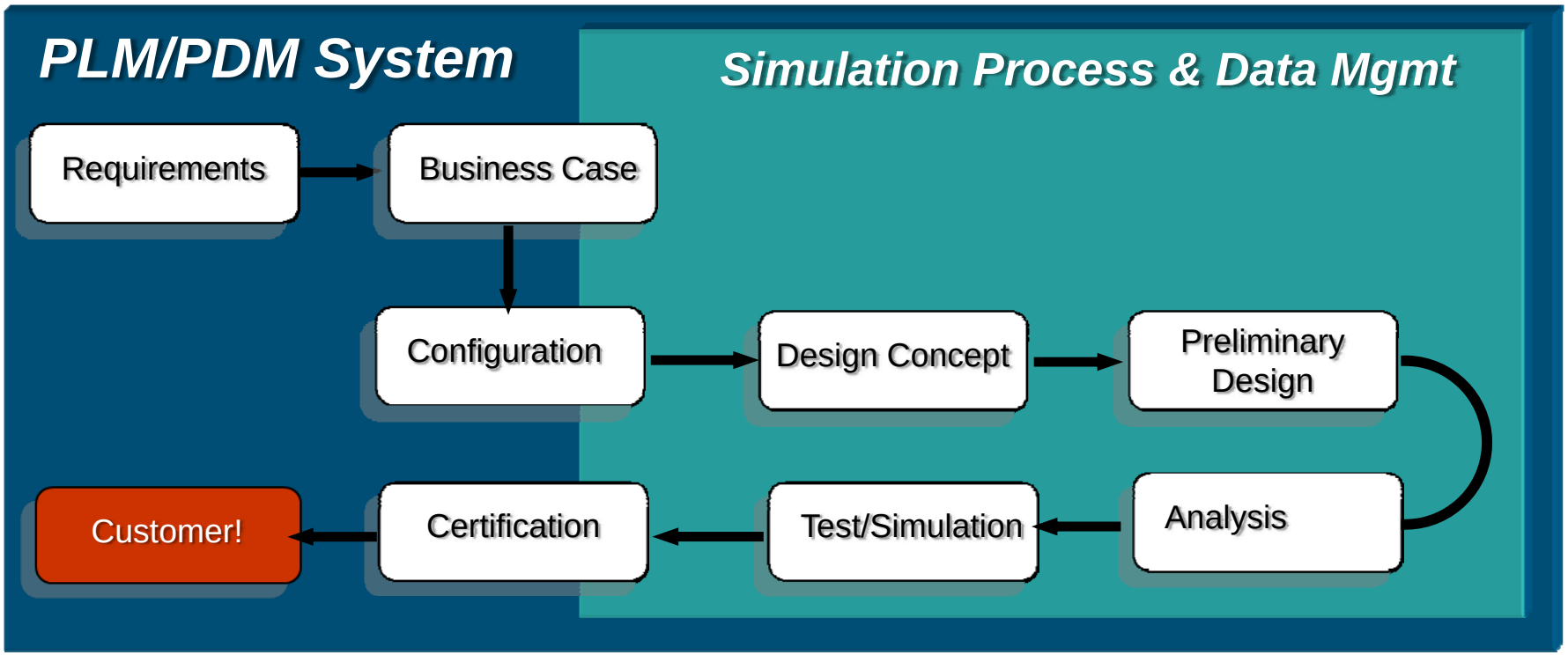
Knowledge Lifecycle Management - Process Management Needs

- Enable effective knowledge transfer
- Enable collaborative environment for distributed workgroups.
- Create reusable templates to capture best practices and minimize reinventing methods.
- Support the increasing demands for DOE and design optimization.
- Support complex multiphysics simulation processes.
- Support complex life-cycles for simulation processes.

Knowledge Lifecycle Management - Data Management Requirements

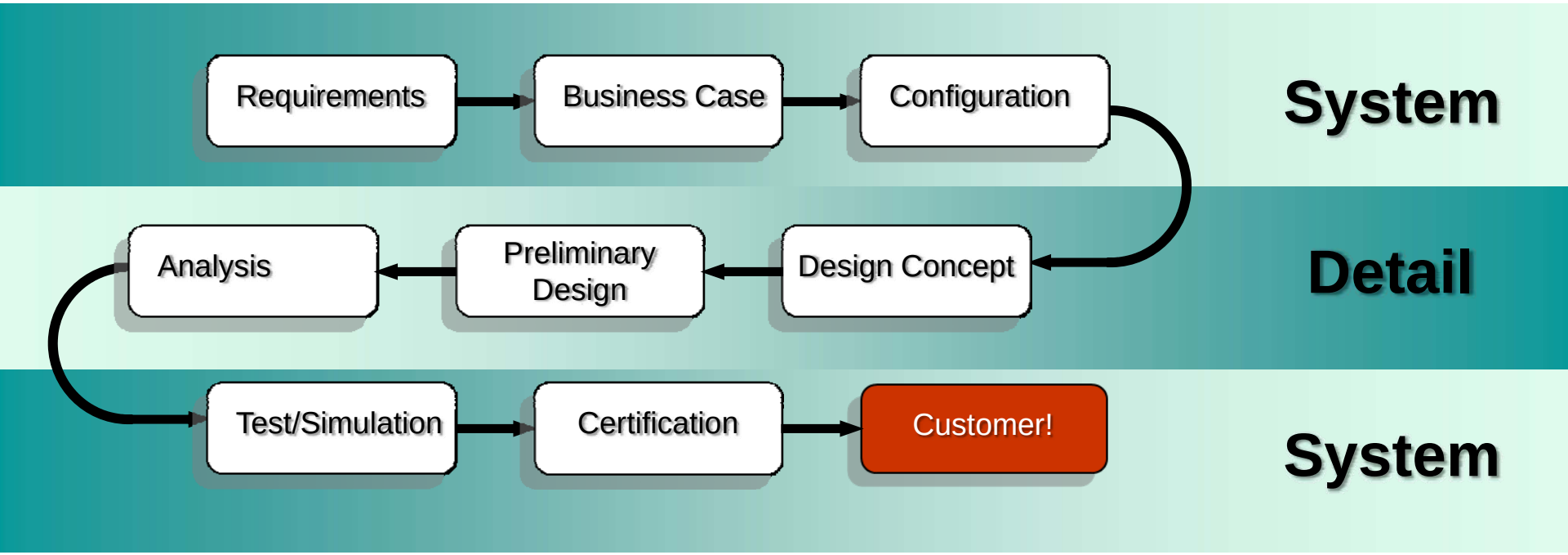
- Automatically extract relevant data from complex simulation data.
- Effectively handle extremely voluminous simulation data.
- Provide data mining services and effective searching of simulation data.
- Encapsulate design decisions inherent in successful simulations.

Knowledge Lifecycle Management
- SPDM and PLM/PDM Continuity



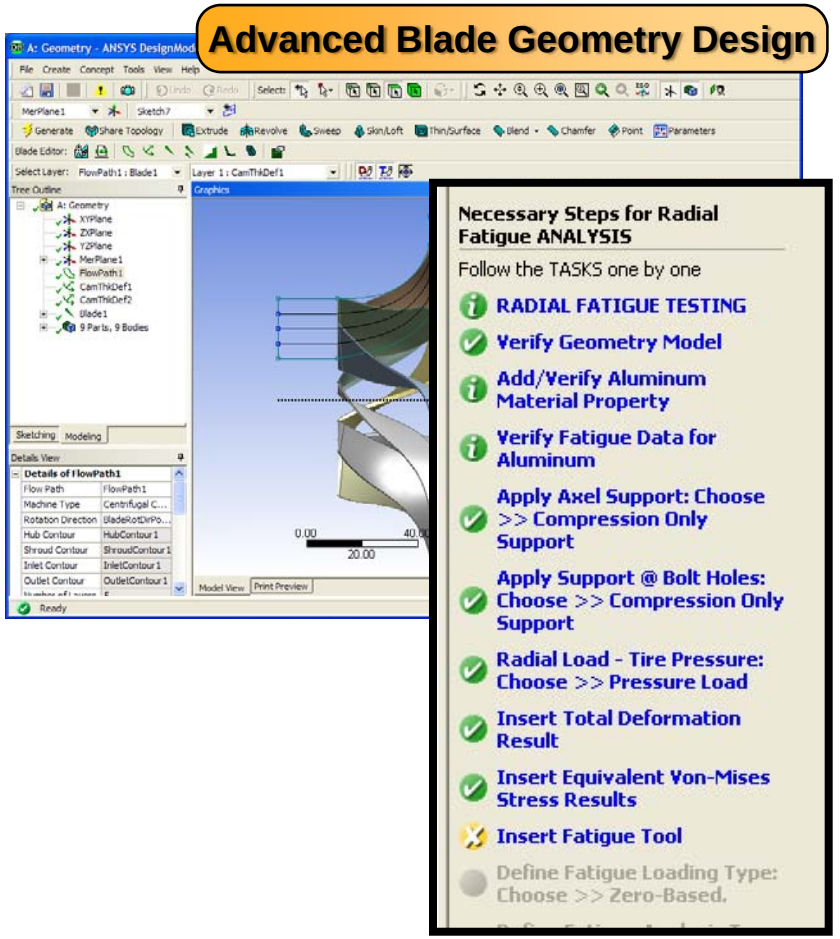
- CAE Process will be integrated and coordinated from SPDM system.
- SPDM will integrate and tightly couple with PLM/PDM system.
- Requirements for PLM/PDM and SPDM will continue to be different.

Product Development Process
- Modeling and Analysis Focus



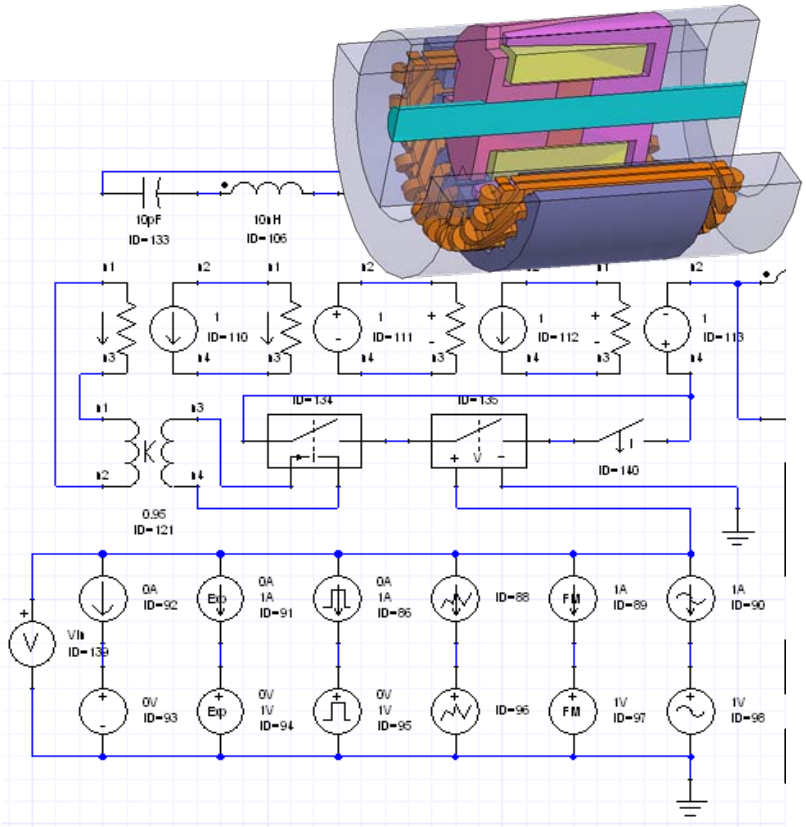
Modeling and Analysis - System Level

- Configuration and concept analysis.
  - Template based
  - Parametric models
  - Driven by performance requirements
  - Inputs retrieved from the PDM system.
  - Project direction optimized

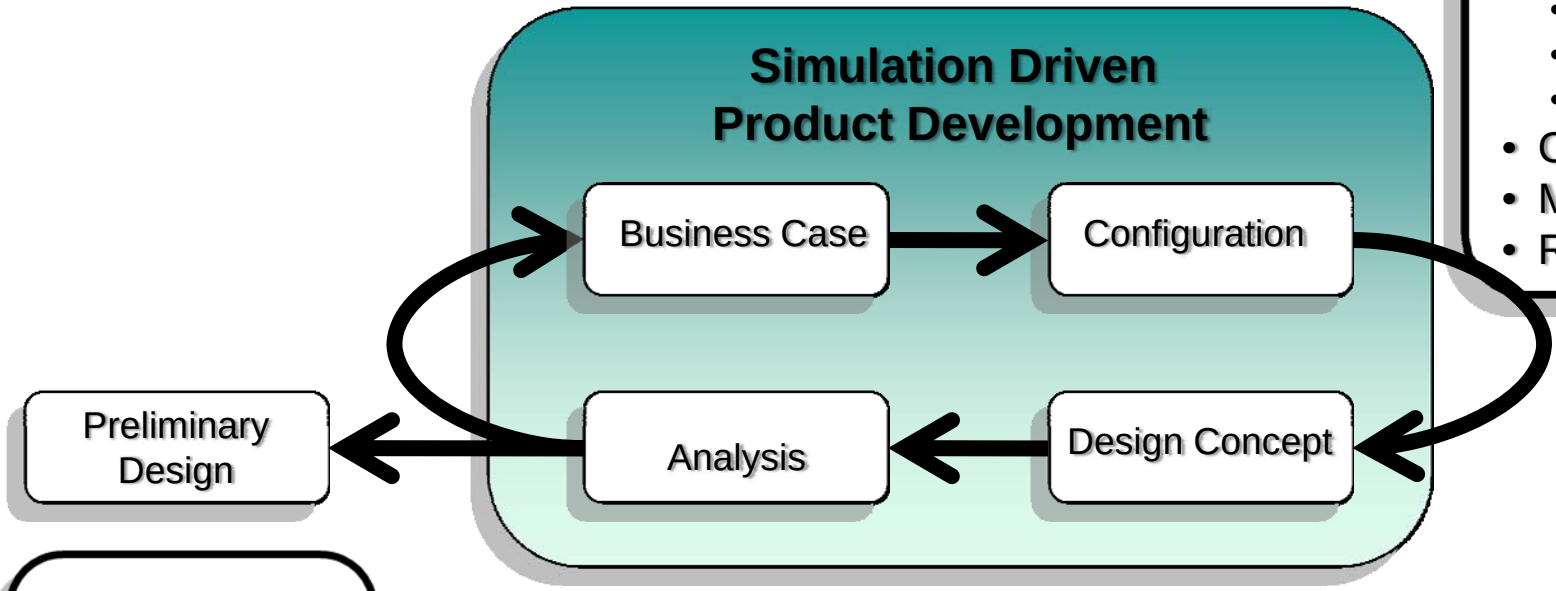


Modeling and Analysis - System Level

- Configuration and concept analysis.
  - System level performance
  - Integrated with hi-fidelity models
  - Supports the business case
  - Validates the configuration
  - Defines the path for the detailed design.



Modeling and Analysis - Detail Level



Inputs:
- Model
  - Geometry
  - Mesh
  - Scan
  - Circuit
- Conditions
- Materials
- Requirements

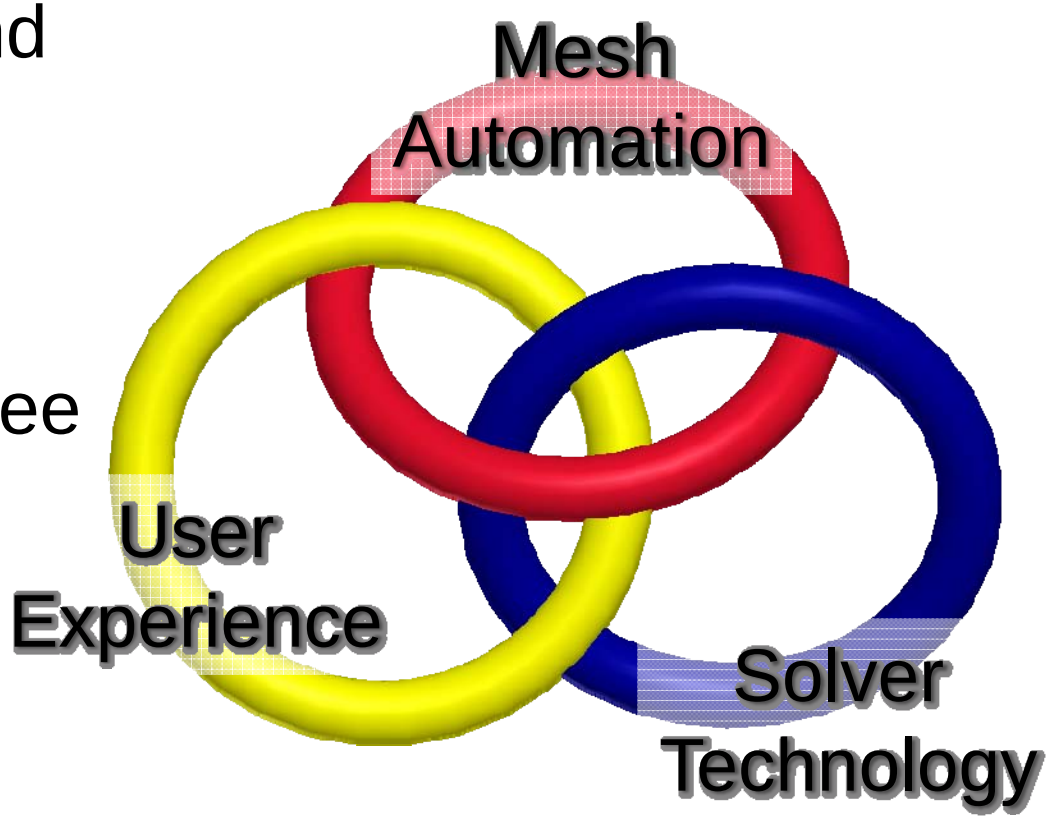
Outputs:
- Geometry
- Design Limits
- Materials
- Performance

Modeling and Analysis Tools:
- **Geometry Integration**
- **Automatic Meshing**
- **Multiphysics Environments**

Optimization Tools
- **Parametric Framework**

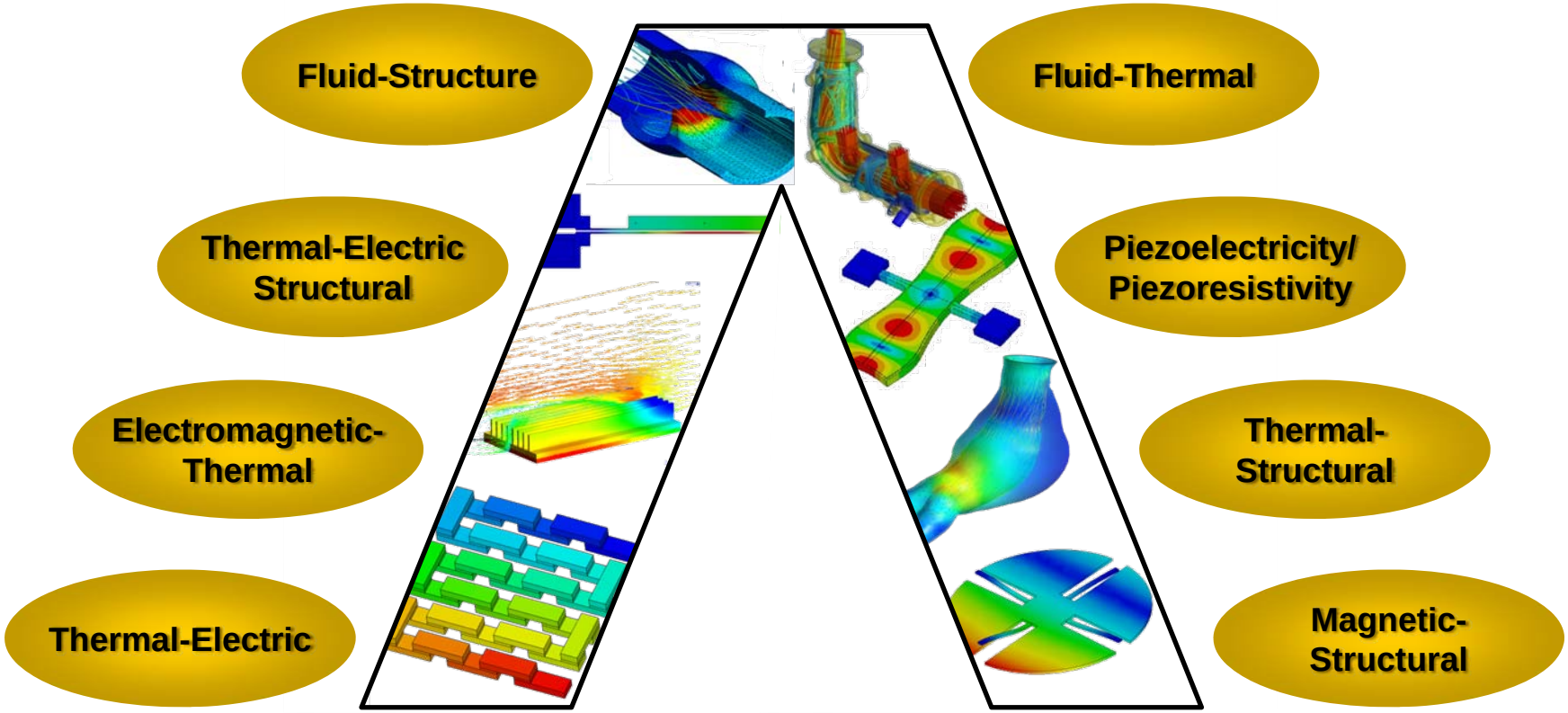
Modeling and Analysis Tools - Automatic Meshing

- Mesh automation is integral with solver and element technology development.
- The synchronized development of all three areas provides:
  - Robustness
  - Speed
  - Quality



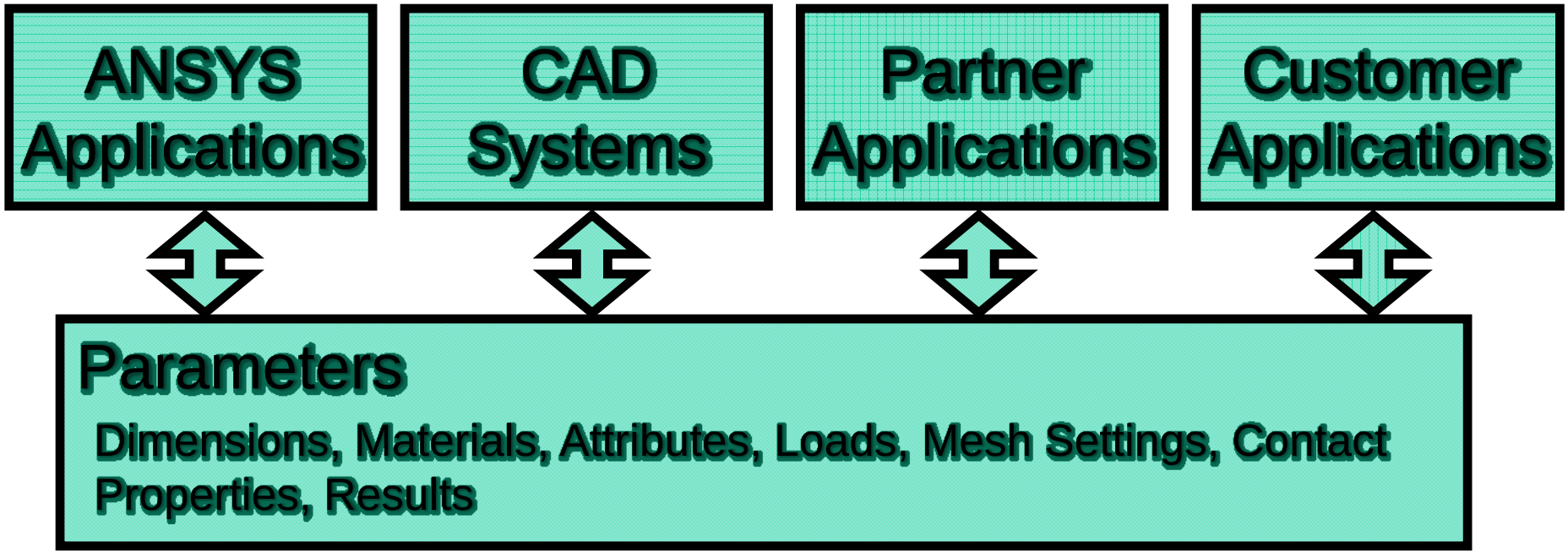
Modeling and Analysis Tools - Multiphysics Environments

Multiphysics environments call the correct solvers based on the conditions defining the problem.



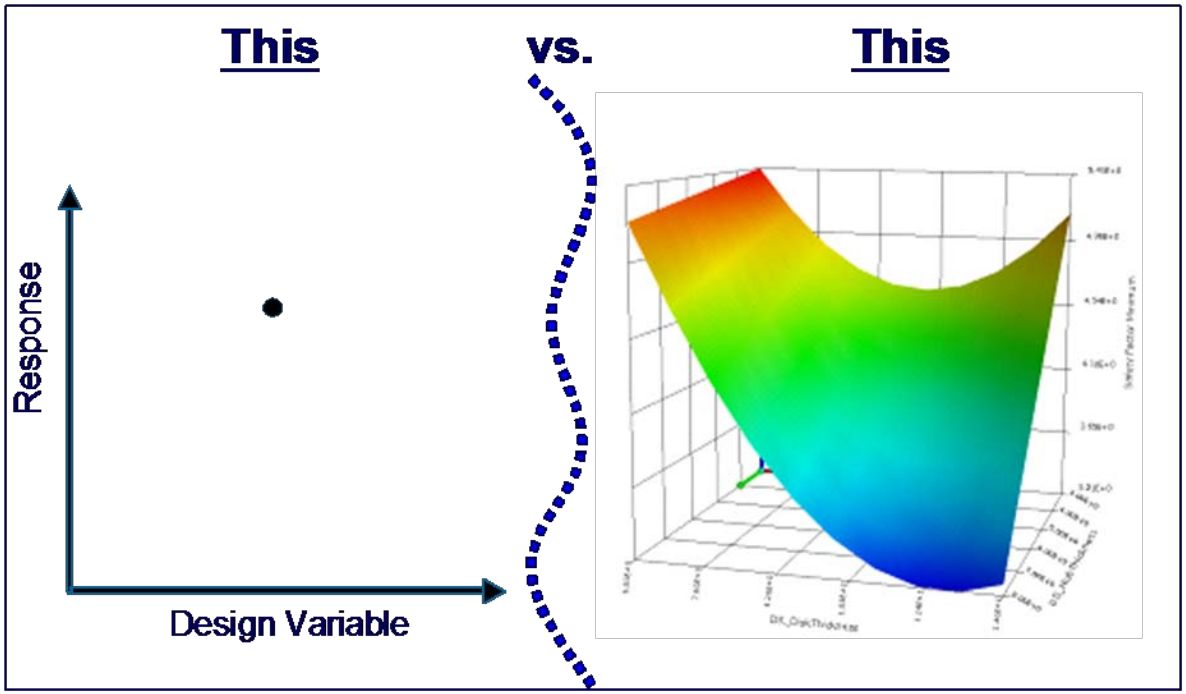
Optimization / Design Exploration

- The ANSYS framework enhances the “isolated” parametric nature of engineering applications.
- Collects and shares simulation relevant parameters.



Optimization / Design Exploration

- Parametric design studies provide real design understanding of trends and trade-offs.



- Product innovation is realized with less development risk.

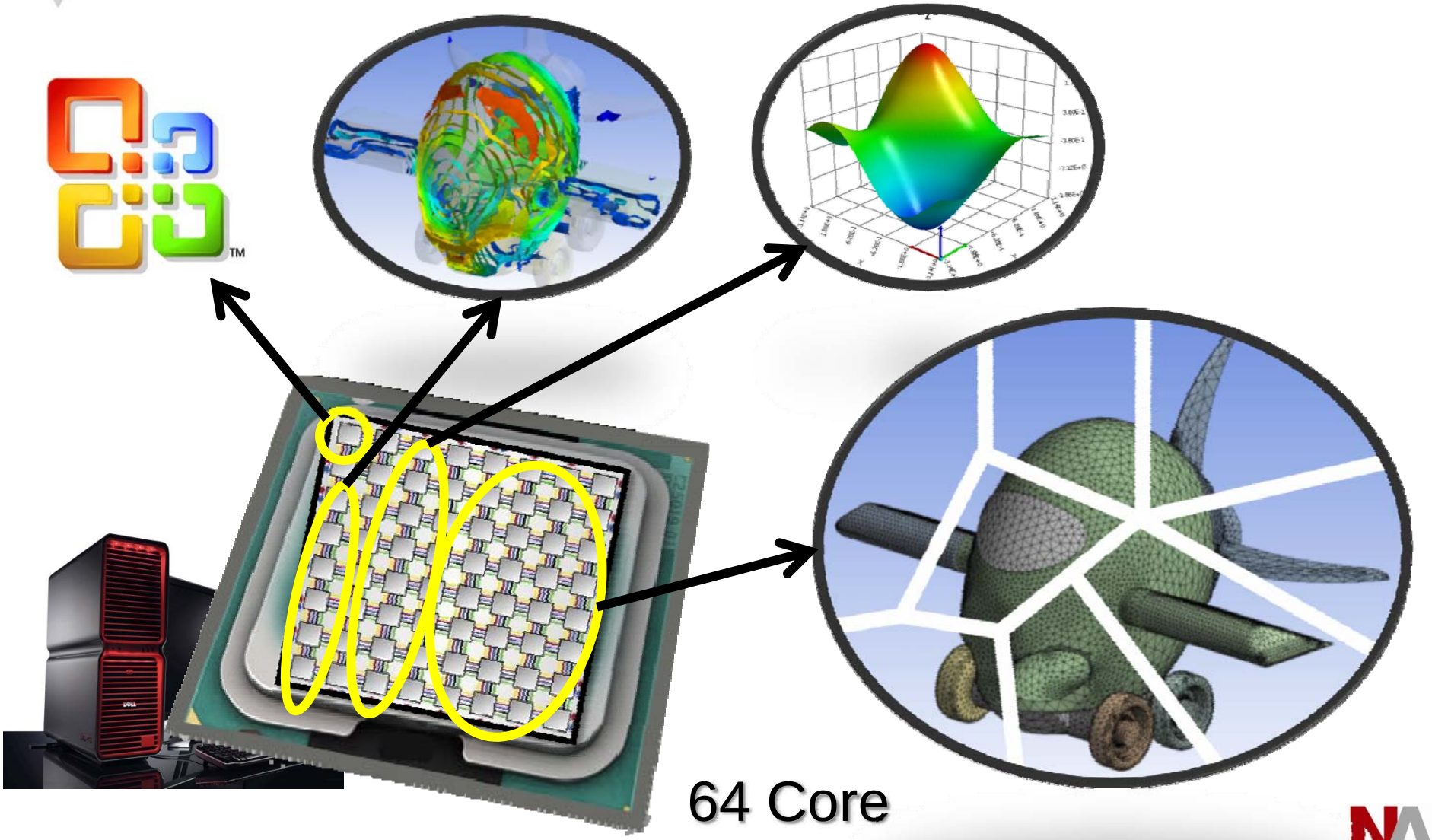
Simulation Driven Solution

Visualization Solution

- Enterprise reliance on simulation results
  - Engineering
  - Manufacturing
  - Marketing
  - Sales
  - Customers
- Mulit-Sensory
  - Sight
  - Touch
  - Audio
  - Other

**** NOT A PLASVEE ☺ MODEL****

Computing Infrastructure

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