Introduction to Simulation Best Practice Project and the State of the Art Work Package

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• Lack of confidence in design and manufacturing increases the use of expensive and time-consuming prototyping in the design process.

• Innovate UK is currently funding a project with KTN, NAFEMS and Alstom which looks to identify best practice and emerging trends in simulation with an aim to provide resources to:
  • Enable new and struggling users of simulation and modelling tools to learn from experienced users, both to understand the benefits and how to use them to achieve benefits.
  • Identify the state-of-the-art and future developments in simulation and modeling so that experienced users can progress their use of these tools, and achieve even greater productivity in their design and manufacturing.
Areas being addressed by the SimBest project are:

- High performance computing.
- Multi-scale modelling.
- Multi-physics modelling.
- Optimisation.
- Materials modeling.
- Uncertainty quantification

This project will involve direct discussions coupled with community workshops to further evolve consensus on best practice, state of the art and current gaps across the most important simulation technologies with high potential advantage in multiple sectors if adopted more widely.
The establishment of a simulation use landscape to identify topic areas for best practice and state of the art comparisons later in the project will be led by NAFEMS. A desk study will be performed to list simulation and modeling approaches relevant to HVM and with inputs from KTN a list of leading researchers and industry players will be assembled to begin community building. 7 key manufacturing industries will be targeted:

- Aeronautics
- Automotive
- Energy
- Process (including Chemistry & Food)
- Built Environment
- Electronics
- Health (including medical and life-style)
Using the outputs from WP2 KTN will engage with the academic community to determine leading researchers in UK and the state of the art in their simulation and modeling fields.

This engagement will involve direct discussions coupled with a community workshop to establish state of the art across the most important simulation areas for HVM.

An attempt will be made to obtain real case studies to illustrate current state of the art. Hardware and software integration and complexity generation to achieve reliable combinatorial approaches for maximum gain will be considered for both material/component behavior and overall system/product performance optimization prediction.
WP1 – PROJECT MANAGEMENT

WP2 – COMMUNITY IDENTIFICATION

WP3 – INDUSTRIAL BEST PRACTICE

WP4 – STATE OF THE ART

WP5 – GAPS

WP6 – DISSEMINATION

Portal for new companies to (a) access UK capability and (b) learn good practice.

Help well established industrial users of modeling and simulation to identify and access state of the art.

Link state of the art academic work with industrial challenges.

Suggest where public money can be spent on addressing gaps in capability to industrial modeling and simulation.
YOUR HELP NEEDED!
How to get involved

1. SimBest online website and Capability Map

https://connect.innovateuk.org/web/simulation-best-practices
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Capability Map

List of challenges and organisations
YOUR HELP NEEDED!
How to get involved

2. Interviews with academics and research based organisations

- The KTN is approaching leading academics across the span of modeling and simulation to draw out themes, and drivers for state of the art research that can be mapped on identified challenges.

- This work will be crucial for the extraction of industrial gaps to be addressed by research councils

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Thank you
Get in touch!!

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SimBest website  https://connect.innovateuk.org/web/simulation-best-practices