ADVANCED PROCESS MODELLING FORUM
22–23 APRIL 2015

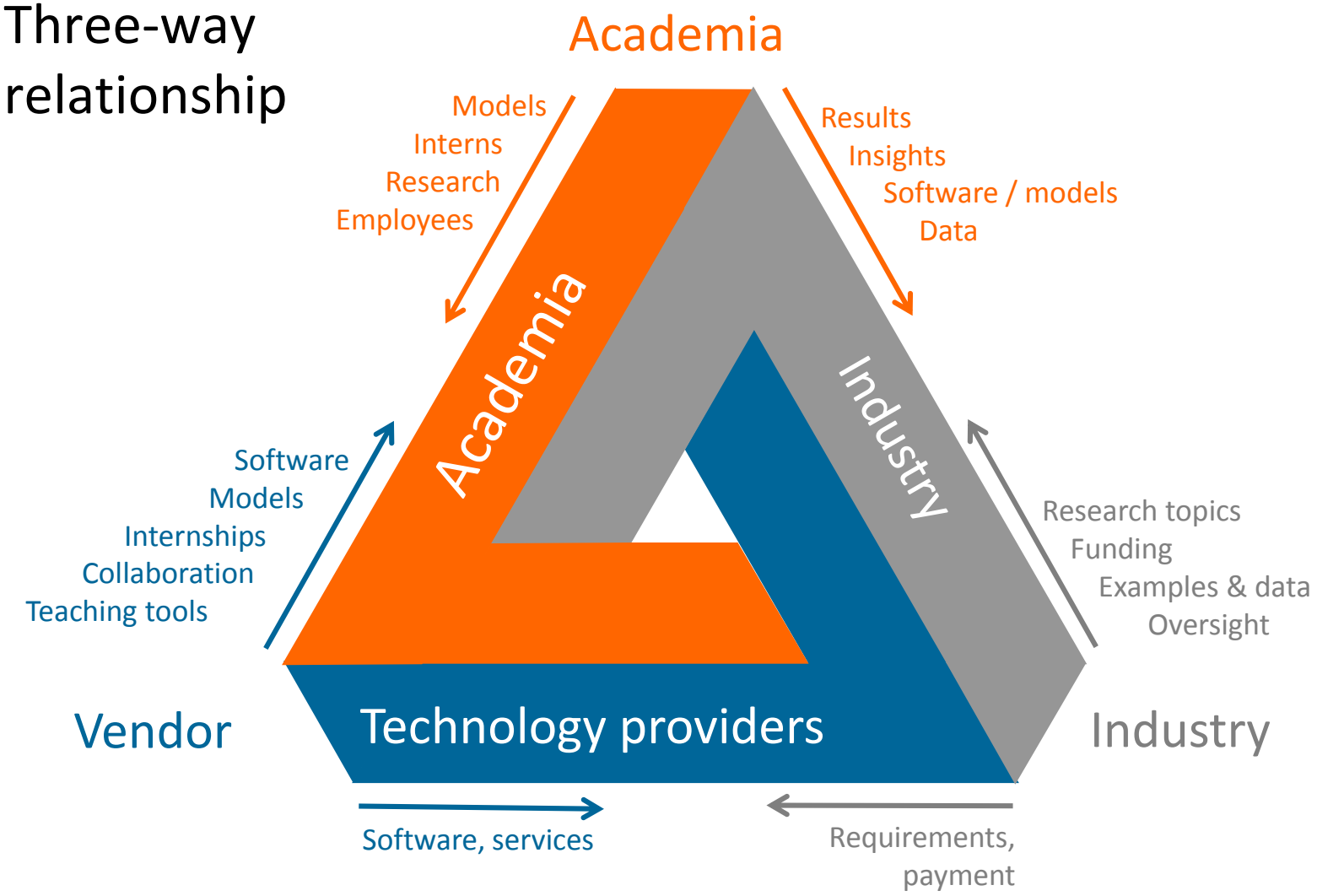
Bridging the gaps

Transferring technology from academia to industry

Mark Matzopoulos – Marketing Director, PSE
Scott Owens – Business Manager, NNL
Pieter Schmal – Head of PSE Academic

The challenges

- Three-way relationship



Industry perspective

Scott Owens, National Nuclear Laboratory

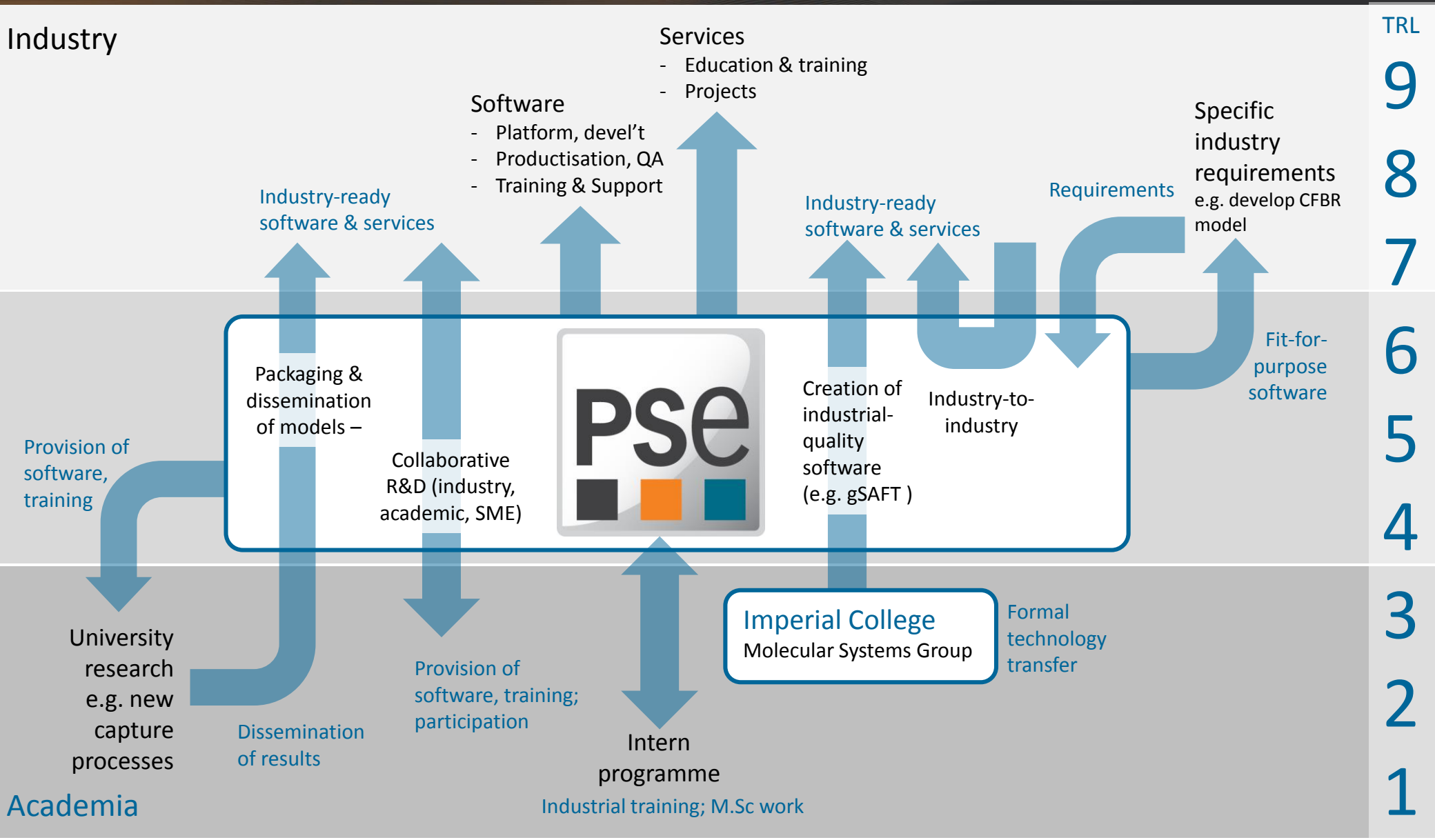
Mechanisms for tech transfer

NASA Technology Readiness Level (TRL)

TRL		
9	Actual system "mission proven" through successful mission operations (ground or space)	Industry
8	Actual system completed and "mission qualified" through test and demonstration in an operational environment (ground or space)	
7	System prototyping demonstration in an operational environment (ground or space)	
6	System/subsystem model or prototyping demonstration in a relevant end-to-end environment (ground or space)	?
5	System/subsystem/component validation in relevant environment	
4	Component/subsystem validation in laboratory environment	
3	Analytical and experimental critical function and/or characteristic proof-of concept	
2	Technology concept and/or application formulated	
1	Basic principles observed and reported	Academia

PSE's role in technology transfer – TRLs 3-7

Example: ETI CCS SMTK project



PSE Academic

Pieter Schmal, Head of PSE Academic

The problem

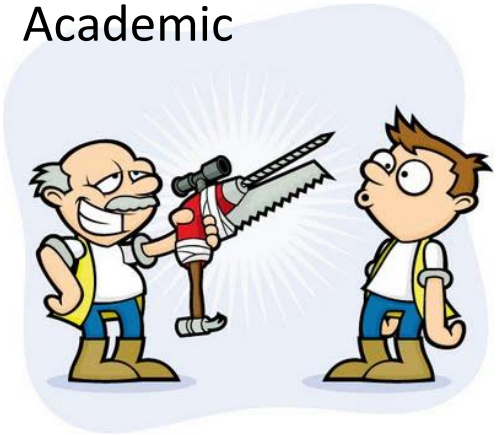
- Academia follows trends
- Sub-optimal tools give sub-optimal results
  - These are standard at present in industry and academia
- You (our customers) have realized and we have demonstrated that our platform can give you better, safer, faster results
  - Desire to expand use
- Lack of people knowledgeable, trained or experienced

What we are trying to achieve

- Getting students the best modelling tool set to help industry get most value out of their processes

PSE Academic

Student



Industry

What is needed to achieve this?

- Good modelers with (some) experience

- Good modeler needs *some* knowledge on:
  - Physics
  - Thermodynamics
  - Kinetics
  - Mathematics
  - Statistics
  - Numerics
  - Modeling
  - Operation
  - Control

Typically

Well covered by curriculum

Poorly covered by curriculum

Only partially covered by curriculum, but generally less considered responsibility of University

PSE Academic Advisory Board

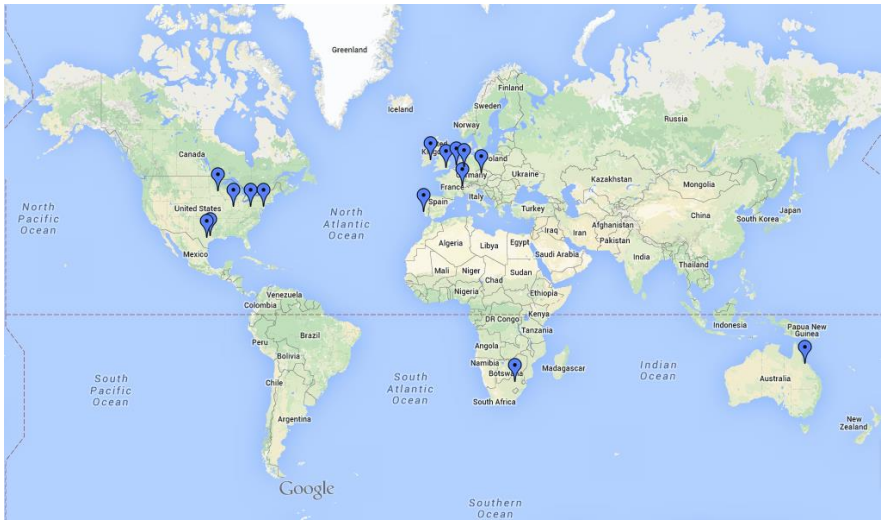
- This requires
  - University program to align with industry needs
    - Needs to fit Academic and Industry requirements

- PSE Academic Advisory Board
  - Ben Weinstein (P&G)
  - Scott Owens (NNL)
  - Eva Sorensen (UCL)
  - Nilay Shah (Imperial)

PSE Academic Advisory Board

- Goal:
  - providing insight on trends and individual priorities
  - reviewing training
  - help translate this into training material development priorities
  - help facilitate the transition from University to Industry

- How
  - Partner with Universities
  - Teaching program
  - Intern program



MBI prize

Technical webinar series

WEBINARS

PSE Technical Webinar Series

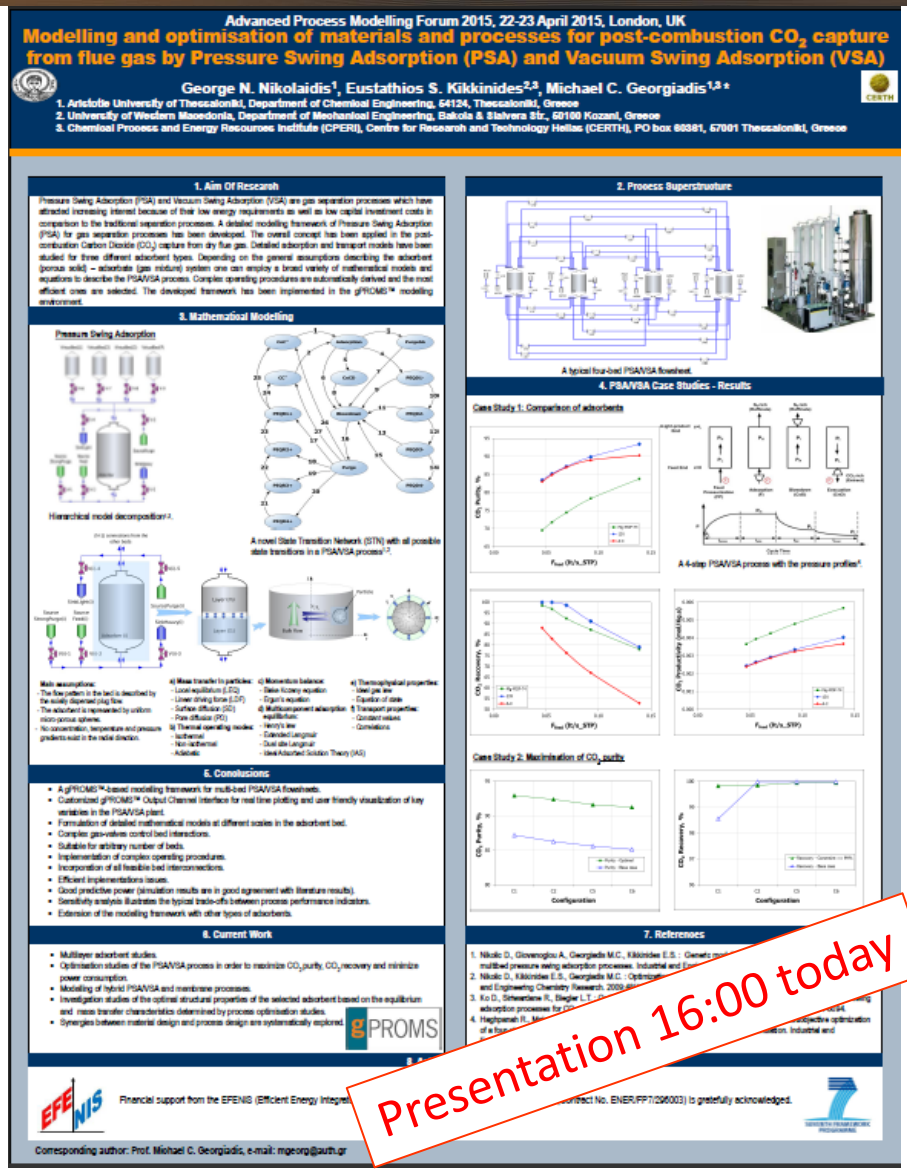
Effective training without leaving your desk

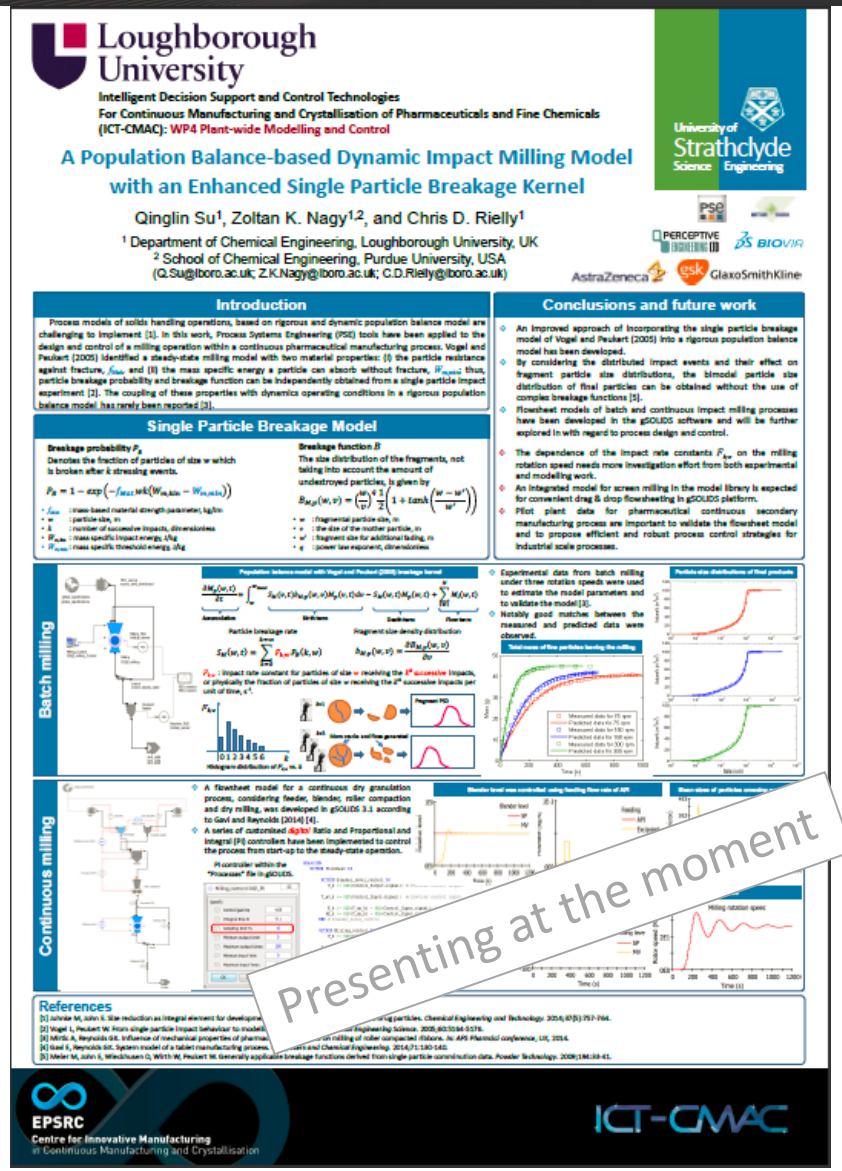
The PSE Technical Webinar Series allows you to participate in high quality, focused training sessions with minimal expense and a low time commitment. Technical Webinars are prepared and presented by experienced PSE Applications Engineers, the same ones who teach our on-site courses and provide customers with ongoing technical support. Each session covers a key element of the gPROMS platform in a depth appropriate to the 90-minute session duration. Each webinar is structured as follows:

- 10 min. - Review of optional assignment from previous webinar
- 50 min. - Lesson on current topic including interactive polls
- 15 min. - Question & answer
- 10 min. - Description of optional assignment
- 5 min. - Post-webinar quiz

gMODEL
gSOLIDS
gCRYSTAL
gCCS
gPROCESS
gCOAS

Poster winners

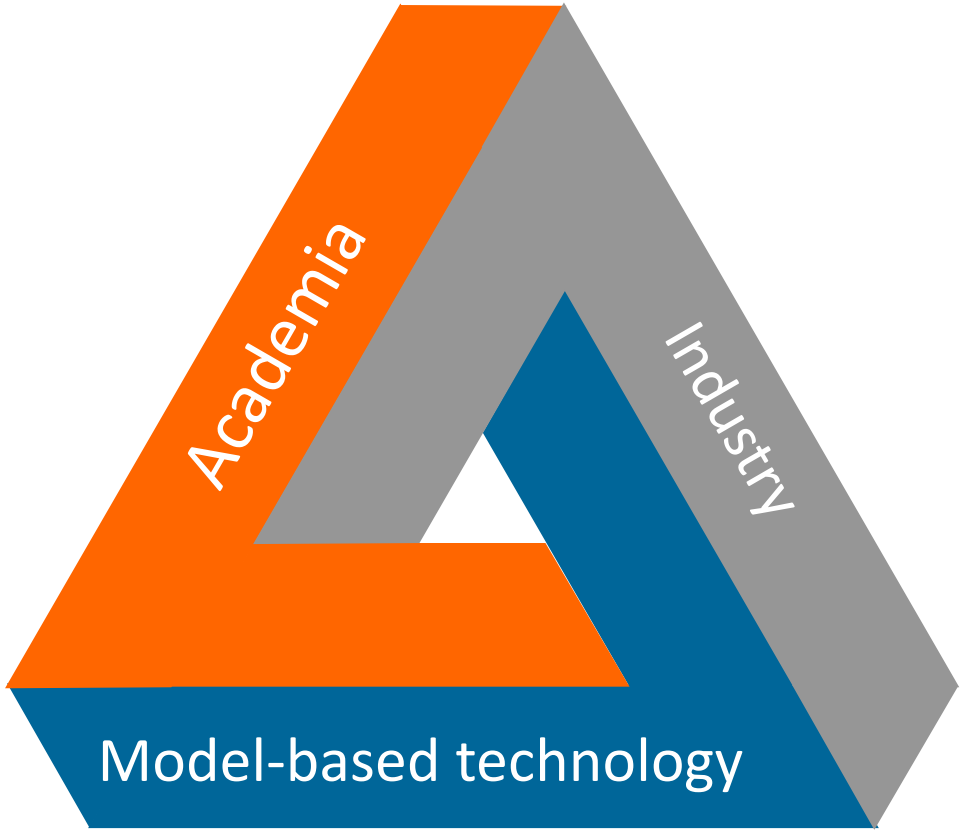




Presentation 16:00 today

Presenting at the moment

Thank you



Challenges

- Industry – Academia – Modelling technology vendors
  - three-way relationship
  - symbiotic