

Translation for and by SMEs

Introduction

A wider use of material models will make European SMEs more competitive on the market. The potential of material modelling for shortening the product design phase and decreasing the production costs is recognized by the manufacturing industry across Europe, including SMEs (EMMC roadmap 2018). In this session we illustrate and discuss the importance of materials modelling for SMEs through successful examples.

Objectives

The objective of the session is to highlight the benefits of using material models in SMEs. We want to make SMEs more aware of how they can use materials modelling for value creation. Further, we want to discuss how to facilitate the use of material models by SMEs. Peculiarities of the translation of industrial problems of SMEs to material modelling will be discussed as well as hindering factors and the role of translators. Another aspect that will be discussed is how to make research more easily accessible for use and implementation in industry, in particular SMEs. Briefly the objectives of the session are:

- Present and discuss additional challenges for translators for SMEs.
- Discuss common practice and ways of making translators, and thereby material modelling, *more accessible* to SMEs. By more accessible, we mean easier to find translators and easier to understand or use material models.
- Discuss ways of making the use of translators and material models *more attractive* to SMEs. More attractive is related to the capability of creating value.

Background information and documents

Applications of material modelling for both the materials and manufacturing process design have been demonstrated but is not yet common practice. Ease of use, level of accuracy and inability to answer specific questions in a timely manner are recognized as some of the obstacles to a wider use of materials models. Investments in terms of people (expertise), infrastructure and capital as related to potential benefits need also to be considered, especially by smaller companies.

As materials are increasingly important for the European competitiveness and sustainability, it becomes more urgent to achieve a tight interaction between the material modelling community and industry. Therefore, the importance of dissemination of results, good communication between the modelling community and industry, and translation of this knowledge into industrial applications becomes vital. Even with many successful cases of scientists in the manufacturing industry translating business problems into problems to be solved by material models, industrial scientists do not normally have the resources or skills to do this. Usually the manufacturing users of modelling lack the expertise necessary to integrate reliably material models into their development and production workflow (this is particularly true for SMEs). Hence, there is the need for players who can do the job of translating industrial problems into simulation cases. Lack of validation is also a factor hindering the use of material models in industry: specific industrial sectors (e.g. aerospace and health) often require long

EMMC International Workshop 2019

test procedures for certification of products. The use of material models for such purposes must also be improved (EMMC Roadmap 2018).

The following documentation can be useful

- The EMMC RoadMap 2018 for Materials Modelling and Informatics; https://emmc.info/wp-content/uploads/2018/09/EMMC_Roadmap2018V5a-del.pdf.
- J. Zoric, S.T. Johansen, K.E. Eianrsrud, S. Solheim "On pragmatism in industrial modelling" 10th international conference on CFD in Oil and Gas, Metallurgical and Process Industries, SINTEF, Trondheim (2014) https://www.sintef.no/globalassets/project/cdf2014/docs/official_proceedings_cfd2014-redusert-filstr.pdf
- Natalia Konchakova, Denka Hristova-Bogaerds, Daniel Höche, Pietro Asinari and Luca Bergamasco, "Translation from industrial challenges to materials modeling solutions", European Materials Modelling Council (EMMC) https://emmc.info/wp-content/uploads/2018/06/EMMC-Translation_2018.pdf
- EMMC "Translators guide" <https://emmc.info/wp-content/uploads/2018/01/Translators-Guide.pdf>.
- Materials Modelling: expectations, benefits and Key Performance Indicators (KPIs); <https://emmc.info/business-benefits-and-key-performance-indicators-kpis-of-materials-modelling/>

Discussion points and questions

The aim of the discussion points listed below, is to get input to how EU can improve the competitiveness of European SMEs by increased use of materials modelling.

- How can we increase the *awareness* among SMEs of the benefits with materials modelling?
- How can we make translators, and thereby material modelling, *more accessible* to SMEs?
- What *additional challenges* does a translator face when performing translation for SMEs? Is there a need for training of translators tailored towards SMEs?
- How can materials modelling be made *more attractive* to SMEs, both in terms of making use of the results in daily operation and with respect to value creation.