

## Computational Modelling: a tool to add economic value to the industrial production

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### ABSTRACT

The scientific-technological development is essential for the sustained growth of our regions; the production of quality goods with high added value is an important step forward when compared with the production of raw materials. Computational Mechanics is an essential tool for the development of new technologies and for the optimization of the existing ones [1].

The industry faces technological problems increasingly more complex, and the numerical simulation of those technological problems induces scientists to computational developments of greater complexity.

Since technological decisions are reached based on the results provided by numerical models, it is evident that these models have to be highly reliable. Therefore, it is essential that sophisticated modeling techniques are used, that highly qualified engineers develop models and that the results are validated experimentally using industrial or laboratory determinations [2].

The examples used to illustrate this article are taken from real applications developed for industry: the structural verification of the communications satellite ARSAT-1 and the modeling of rock fracturing processes.

### REFERENCES

- [1] E.N. Dvorkin, *Computational Mechanics: Bridging the Gap between Science and Technology*, IACM-Expressions, N°22, 2008
- [2] P.J.Roache, *Verification and Validation in Computational Science and Engineering*, Hermosa Publishers, 1998.