INVESTMENT PREDICTABILITY OF CONVENTIONAL AND INNOVATIVE PROJECTS

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ABSTRACT

In the 20th century cost estimating has matured into a professional skill with ever increasing predictability of cost. Estimators use proven methods and have broad access to key figures, derived from estimates based on historic investment results and project metadata, and normalized cost information based on various comparable projects.

Nowadays estimators are increasingly faced with new challenges. Processes need to be flexible in order to adapt to rapid changing availability of energy and varying product demand. Stricter requirements with respect to emission levels drive the introduction of new technologies in otherwise 'conservative' industries. Increasingly interconnecting process feeds demand innovative solutions. Adaptation to these requirements call for iterative estimating processes. One aspect deserves explicit attention: ensuring that projects remain within time and budget. Since design changes hugely affect total cost, aspects like managing the redesign process have to be taken into account during the estimating process. These developments widen the portfolio of technologies to be considered, thus affecting the cost estimating profession.

The aim of this article is to describe the evolution of the cost estimating profession driven by these new challenges. How will the cost engineer be able to keep the predictability – and thereby the reliability – of cost estimates at a high level while giving sufficient path for innovative design options?

Our solution is firstly to focus attention on a process function level like mixing, heating, power supply, reacting, cooling, product storing, etc. On this level cost data can be made available. We re-evaluated existing project data to establish scaling relationships that can generate cost data at desired output.

Secondly, with respect to novel/innovative projects we strengthen the cooperation between cost estimators and in-house professionals like chemical/process and mechanical engineers. They specify novel process designs using proven engineering practices that yield main equipment dimensions and process functions. Cost engineers then need to reliably convert this type of output into estimates with sufficiently high accuracy.

We present two case studies to support our message. We envisage an ever accelerating application of novel technologies in a relatively 'conservative' industry. This will require additional skills from the cost engineer, as well as a closer cooperation with process engineering professionals.

The authors contributed to this paper as members of the Special Interest Group 'Cost Engineering in the Process Industry' (SIG CEPI), of DACE, NL. Please visit Cost Engineering Process Industry - DACE for more info.

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