

## The Need for Speed

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Times are good, demand for commodities is strong, prices are up and our greatest challenges revolve around staffing our ever-expanding industry. An unfortunate side effect of all this exuberance is costs are rising. Consumables, capital items and labour are all increasing in cost, which is rapidly redefining the cost per tonne, pound or ounce of metal produced. In many cases this increase in the cost of production is relatively small when compared to the rapid increase we have seen in the price received for our products. This situation would be fine if we could rely on those same costs decreasing when metal prices eventually decrease. Sadly no-one expects that to happen, whilst some heat will come out of the labour market and even the price of consumables a large portion of the increase in costs are here to stay. The result of all this is that the need to operate as far down the cost curve as possible to ensure long term prosperity of an individual operation has not changed.

The question is how can we do this in times of great shortage? Lasting reductions in the cost structure of our operations will come from improvements in the efficiency of our processes. These improvements can include better energy efficiency, lower use of consumables and even the ability to operate with less human input however the area of improvement with the greatest leverage to cost per tonne remains that obtained by improving the actual processes we use to recover the valuable mineral and deal with the tailings.

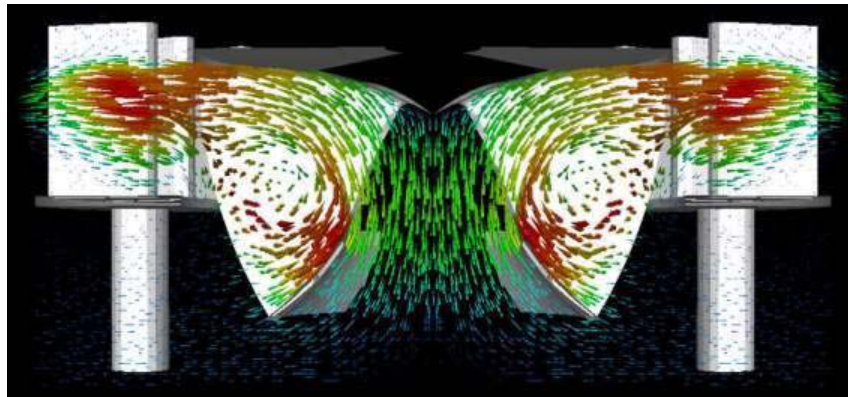


Figure 1. Determining flow patterns and velocities in a flotation cell mechanism.

Such improvements do not come easily and require an ongoing commitment to research and development. This is perhaps one of the great challenges of this once in a lifetime boom for our industry. We face a situation where costs are increasing at a rapid rate and the technological advances we have historically relied upon to counter this are at risk of coming at slower rates. With so many demands to meet immediate market needs it is difficult to find the resources to follow innovative ideas. We need faster development tools.

Fortunately some of these tools are now readily available and well proven. Undertaking research and development work using computer modeling has reached a point where it is feasible to test many design concepts on the desk top in a short period of time. Previously many prototypes would have been built and tested at much greater expense, requiring far more human resources. The process was understandably slower. Two examples of developments in process technology that relied heavily on CFD modeling are presented in some detail in this newsletter. Many others can be found in other literature. The challenges associated with better utilization of the available resources in our industry will always exist however the ways in which we seek to meet those challenges is evolving.

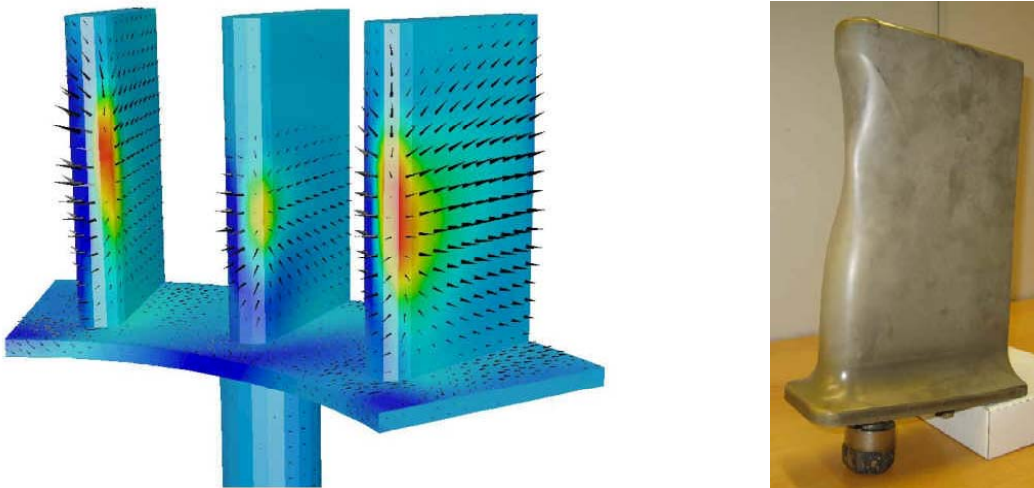


Figure 2. Predicting wear patterns in flotation cell stators.

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