

## Engineers in finance

By **Stuart Nathan** 7th August 2017 12:55 pm

### | Viewpoint



**Tim Parker of McLellan & Partners Ltd discusses what engineers can bring to financial roles within large companies**

The world today is a place of wonder compared to days gone by. It was not too long ago that mobile phones just meant longer cords, the horse was the power behind horsepower and the thought of a man on the moon was a fairytale. But over the last century, Engineering has been pivotal in the development of the world we know today.

The mind of an engineer is a complex one, with thoughts fixating on equations and limits, values and methodologies to produce an elegant solution to a problem. The Engineer has one main enemy, cost, which constrains the support, facilities and time in the commercial world of today. The saying "money talks" has always been true but it seems that saying is more true today than the world of a century ago. Cash is king and the banker holds the key to the safe. Traditionally the engineer and the banker have been considered to have equally important but opposite skill sets which maybe why the international finance community has increasingly become fearful to commit to technical projects.

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GDP growth broadly correlates to investments in projects the Industry and Infrastructure sectors and with a substantial number of project finance teams for the international lending community being based in a post-Brexit London, nobody would blame the banker for being cautious.

## **Spreadsheets as weapons**

Experience tells us that risks in projects will always occur, but the test of a good project is entering a project with our eyes wide open. This is where the relationship between the banker and the engineer should be a lot closer. Without good technical assumptions or bespoke inputs, a project that is reliant on a process or engineering solution may be misrepresented at the funding stages and result in a strong project not seeing the light of day.

The weapon of choice of the banker is the spreadsheet, and many financial institutions will live or die by it. The potential complexity and coding behind a financial model can be mind blowing and the time and effort saved by carrying out multiple calculations, replotting graphs and statistical analysis almost instantaneously is a modern marvel (think superheated steam tables) but the results will only be as good as the accuracy of the data that enters any given cell.

This is where the engineer is critical; the construction of a basic financial model in most cases is the simple part. The understanding of how the processes interact, how changing one may impact another and avoiding sweeping statements are essential elements. A good example may be modelling of a continuous industrial process, such as heat treatment, where it might be advantageous to maintain the temperature in a vessel, even when not processing material. Simply lowering production output may not result in a reduction in operating cost, this maybe simple to an engineering mind but can the same be said for the financial modellers mind.

## **An independent perspective**

Sophisticated financial modelling based on poor technical assumption or poor modelling on correct technical inputs equally result in a misrepresentation of a projects potential. An enthusiastic sponsor may overstate the advantages of a system making a project look more attractive financially than it ever would technically be able to return. An independent perspective is crucial.

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It is well known that even identical twins have some minor differences and these are normal under the surface, the same is true of projects. No two projects are the same and sometimes small differences (Equipment type, manufacturer, end user operating philosophy and even geographical location) can compound throughout a model and have quite a large impact. Handling and logistics within a processing plant are frequently underrated influencers to profit. A project engineer's role is to correctly specify the equipment, but if a process is changed from the specification to save cost during supplier negotiations and that process has fractionally worse cycle time might by 1 second on a minutes cycle may seem nominal, but over a shift, a day, a week year – you get the idea. Again, this may be obvious to the engineer's mind who are generally able to visualise the influence these items have when interacting but may not be so instantly recognisable to others.

Scenario modelling for future environments that the project may see itself can be driven politically, regulatory or socially but these can often stem from the engineering principle for which the project or process is derived. The consultation of an independent engineer, although not infallible, will improve the probability of the making correct business critical decision for multi-million pound projects, which in my view is vital. And the benefits increase over time; if working relationships between technical and finance houses has an opportunity to bond, the financial model can be as effective as a well oiled machine.

*Tim Parker is divisional director for industry and infrastructure at McLellan & Partners Ltd*