



I closed off my March President's Corner by making the point that we are in the 'Age of Unicorns' and that without strong math and science skills our future engineers and managers will not be adequately equipped to meet the needs and expectations of the national economy or for managing business complexity in the future. By way of example, a 2014 Department of Higher Education and Training report indicated that six of the top ten occupations in high demand were for graduated/certificated engineers (see the Table below, and of the remaining four occupations, three required higher technical training in engineering.

Table 1

Top 10 Occupations in high demand in South Africa

No.	Occupational Title
1	Electrical Engineer
2	Civil Engineer
3	Mechanical Engineer
4	Quantity Surveyor
5	Project Manager/Engineer
6, 7	Finance Manager Physical and Engineering Science Technicians*
8, 9	Industrial and Production Engineers* Electrician
10	Chemical Engineer

It will take significant efforts at all levels of our society to rectify ongoing imbalances in the education system that seems ill equipped to motivate more learners to excel in maths and science and go on to study engineering at a senior level. However, it is all too easy to look to the education system as having the sole responsibility to do this. Perhaps we should first look at how we, as parents, guide our children and nurture their inquisitive and analytical minds from an early age. More should and can be done to educate and inform *parents* about their educational responsibilities and change the culture which seems to imply that; *once we have packed the kids off to school, that is the end of our educational responsibility as a parent.*

This edition of the *Journal* showcases some of our industry's young engineering talent, who have risen to the above challenge, and publishes the work they are doing to better understand some of the technical issues facing both our mining and extractive sectors. Most of the authors either have started, or are about to start, their working careers. The SAIMM has two main initiatives through which it strives to contribute towards the ongoing development of engineers, specifically for the mining industry:

1. *The SAIMM Scholarship Trust Fund.* This Trust channels financial assistance to underprivileged and talented undergraduates. We already have numerous case studies of lives being transformed. The SAIMM desperately needs the support of its member's contributions to this cause, simply because the results are so immediate and measureable
2. *The Young Professionals Council:* Many of you reading this article will recall with mixed memories and emotions your first two to three years working for your first boss who was both task-driven and not a particularly good coach ... There are so many young engineers that do not handle this transitional period well, and our Young Professionals Council has been tasked specifically to find ways of staying close to graduates and diplomates at this critical start to their careers, in order to offer friendly advice, support, and guidance.

Technology continues to drive the demand for engineers. Safety and efficiency are drivers of mechanization and automation in mines and manufacturing around the world; smartphones, cheap sensors, and cloud computing have enabled a raft of new internet-connected services that are infiltrating the most tech-averse industries—Uber is roiling the taxi industry; Airbnb is disrupting hotels. Perhaps ongoing research towards continuous mining systems will also re-invent the mining industry? Certainly, technology entrepreneurs are exploiting the new technology opportunities.

So what about the 'Age of Unicorns'?

This also relates to the pace of technology change that is driving the demand for engineers of all disciplines. You will recall that unicorns are mythical creatures that existed in people's imaginations? Well, the billion-dollar tech start-up was supposed to be the stuff of myth; neither Google nor Amazon were in the billion dollar league on start-up (Aileen Lee coined the term unicorn as a label for such corporate creatures.). There are now (according to Fortune) more than 80 companies with more than this value at start-up. And it is accelerating: in 2013 there was one company with a start-up valuation of \$10 billion but today in 2015 there are eight (including Uber, the on-demand car service worth \$41.2 billion. Its valuation is higher than the market capitalization of at least 70% of the companies in the Fortune 500!)

Why does this all matter? Because these start-ups are not in the 'classical' engineering space but are pulling the top math and science talent from the built environment. We need to look after our own and ensure that even when the mining industry is in challenging times we do not neglect to invest in our young professional engineers.

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