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# Data scientists the 'rock stars' of business

By **Fran Molloy**
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The profession of data scientist was called "the sexiest job of the 21st century" by *Harvard Business Review* three years ago and since then demand for these new rock stars of the business world has climbed exponentially.

Global consultants McKinsey estimate the United States alone will face a shortage of up to 190,000 people with "deep analytical skills" by 2018, and will need another 1.5 million managers and analysts who can use big data to make effective decisions.


Data scientists who excel are lateral, creative thinkers.

If 'sexy' means having rare qualities that are much in demand, data scientists are already there, the *Review* authors noted.

"In Australian-equivalent population percentages, that's 10,000 to 14,000 analysts and more than 100,000 managers," says Dr Michael Brand, associate professor of data science at Melbourne's Monash University.

Kelly Tall is studying the new Master of Data Science and Innovation at the University of Technology Sydney.

He's spent more than a decade in the industry, principally as a data scientist, and says he's seen first-hand how Australian demand for data scientists has outstripped supply across small technology firms and high-paying corporate sectors alike.

"Data science is a tool for the business world and in particular for big business," Brand says.

Many businesses are testing the waters by outsourcing analysis to consultants. However, experts agree that data analysis is now core competency and is not, long-term, outsourceable."

Anticipating the demand, new data degrees are on offer at universities, often building on existing courses in data analytics in business, science and IT disciplines.

The University of Technology, Sydney takes a trans-disciplinary approach with its new Master of Data Science and Innovation degree, launched this year at the UTS Centre for Connected Intelligence.

The centre's Dr Theresa Anderson says the university seeks to produce graduates who can straddle diverse spheres of 'big data'. Digital transformation means data is everywhere, however interpreting that data requires multiple skillsets.

"Increasingly, companies need someone who can make sense across the spectrum of where data is flowing and then help translate that data into information that can feed innovation," Anderson says.

"But innovation requires a very different mindset, in addition to the technical capacity of analysing data. Our students develop that intersection of both their creative and their analytical mindset."

Anderson says that the program's strength lies in its multi-disciplinary approach and has attracted masters students from backgrounds as diverse as engineering, business intelligence and media.

"I take very seriously the idea of trying to build a community of co-learning," she says, adding that student applications are "curated" with this in mind.

"I see data science as a team sport and students are valued for the skills they already have and their willingness to share and to be a part of this community."

Monash has added new postgraduate data science courses to its line-up, and from 2016 will offer a data science specialisation in its undergraduate Bachelor of Computer Science degree. A three-day executive short course is also available.

"All projections show increasing demand for people with data science skills and qualifications," says Ann Nicholson, Monash IT faculty associate dean.

The short course covers "the entire data science ecosystem and how it fits together," Brand says, and is for managers seeking to understand how data analysis helps make effective and timely business decisions.

"While many are now teaching how to run correlations and regressions, very few around the world – and Monash is among them – are teaching what to do with the results and how to make analytics an integral part of one's business."

A search on the Australian wing of resume site LinkedIn for the job title 'Data Scientist' delivers just 322 results, though a further 2579 people hold the title "Data Analyst."

It's a far cry from the estimated 15,000 needed within three years.

At the University of NSW, more than 20 PhD students are enrolled through the new Centre for Big Data Research in Health, reflecting the health sector growth, says centre director Professor Louisa Jorm.

"There's huge amounts of data starting to flow and very few people with the right capabilities," she says.

Millions of electronic patient records, prescription records and Medicare records are collected daily. After stripping out patient identifying information, the data is analysed for patterns – patterns that point to ways to save lives and money by targeting preventative programs to at-risk people.

Jorm says health competes with lucrative sectors to attract data scientists but says her students are highly altruistic.

"Many come from work in areas like indigenous health or health disadvantage, that aren't about career prospects or financial reward.

"Most people coming here to do a PhD want to do research in an area that is going to make a difference to the population, to themselves, to their families."

Kelly Tall is among the first intake of students studying for a Master of Data Science and Innovation at UTS. Her undergraduate degree in art theory and history was followed by years of work in market research, learning software programming languages and graphic design as well.

The new UTS degree aligns with her interests. "It's done through the Connected Intelligence Centre, which doesn't fit within any of one faculty, so we can select

courses from across the university that are relevant to data science," Tall says.

Her fellow students include webmasters and IT architects, a health informatics specialist and a lawyer.

"Although we do the core subjects together, we all have a different focus. It just means we can do our own thing to some extent."

Tall studies part-time, works in data visualisation through her website Hello Mister, and is spreading the two-year full-time masters load over four years.

"Unlike infographics, which is more descriptive, data visualisation is used in civic engagement and analysis of complex data sets, which can be easier to understand when presented in an illustrative, visual way."

The degrees core subjects are co-ordinated by academics from disciplines across the university, with electives available from most faculties including engineering and IT, law, design and health.

Tall's own interests mean she's taking a masters subject through the UTS Design school. "We're looking at the "interfaces" you can build between the digital world and the analogue world and how to build experiences or events to connect people with data in a physical way, not just through a screen but through sound, lights, touch," she says.

She hopes to later access the UTS Data Arena, used in the CIC. "It's designed like a diorama, to be viewed through 3D goggles, so you can see data in a three-dimensional space."