

Science Workforce<sup>3</sup>. Building on the understanding we had gained that the science workforce transcends traditional occupation and industry classifications, this study looked at the entire UK workforce. We also wanted to capture the multi-disciplinarity of individuals, employment sectors and new professions and sectors.

workforce is distributed across a range of sectors.

The science workforce in academia and research has traditionally been the most visible and vocal, and they feature strongly in both the policy and careers landscapes. However, our data identified this group as under 250,000

working population (54/46) with some sectors close to a 50/50 gender distribution. However, there is a higher proportion of females in secondary science roles, particularly in the public sectors and in some science employment sectors, such as ICT, we found extreme gender imbalance with 91% reported as male. Of the 720,000 science workers (primary and secondary) in non-science sectors we also found an extreme gender balance with 73% male, where the profile is for higher pay and older workers.

One of the most important features we identified was that there is a significant number of non-graduates in the science workforce. Using data on the highest qualification the science workforce is shaped as follows: 34% with pre-graduate qualifications, 32% with graduate qualifications and 27% with postgraduate qualifications. The comparison for the whole economy would be 61:15:5. The indications are that the role of graduates and non-graduates in the science workforce will continue to grow.

From the research the Science Council has identified the following policy priorities for the future:

- We need to develop greater diversity in the science workforce;
- There is a need to invest in, develop and support non-graduate pathways into science careers, including provision of apprenticeships, science focused applied and vocational qualifications for post-16;
- There needs to be a review of HE provision to ensure that the STEM degrees meet the needs of both the primary and secondary science workforce;
- The UK needs to address the sharp decline in the number of taught specialist masters degrees available.

## ... science knowledge and wider skills are also valued ...

Industry/occupation matrices were used to produce definition of employment sectors as core, related and non-science sectors, and workers as primary, secondary and non-science workers, see Fig 3.

This study showed that:

- 20% of the workforce is employed in science roles, amounting to **5.8 million people** of which **1.2m** were primary science workers and **4.6m** secondary science workers. This is expected to rise to 7.1million in 2030.
- The Health and Education sectors employ 60% of the science workforce and the remaining 40% of the science

(32,000 primary science workers in academia and a further 72,000 in education with 130,000 primary and secondary science workers in R&D) with a relatively high percentage being postgraduates. The more significant finding is the one third of the science workforce who are non-graduates.

Regional science employment distribution is very similar to total economy averages with 37.4% (2.1m) located in the East, the South East and London.

Gender diversity remains an issue in many areas but overall the primary workforce 60/40 male/female similar to UK

### REFERENCES

- 1 BIS Research Paper No 30, *STEM Graduates in Non STEM Jobs*, March 2011
- 2 BIS Research Paper No 30, *STEM Graduates in Non STEM Jobs*, March 2011
- 3 <http://www.sciencecouncil.org/content/science-workforce>

# INNOVATION IS GREAT BETWEEN THE UK AND INDIA

Tom Wells, Deputy Head, UK Science & Innovation Network, India



Innovation is an issue of growing importance for bilateral collaboration between the UK and India. This has been the case for a while, but was formalised as a top priority in March 2012 when the Science Ministers of both countries met for the UK-India Science &

Innovation Council.

This priority, alongside work to promote UK-India research collaboration, was given the ultimate endorsement at the UK-India Summit in February this year. The British and Indian

Prime Ministers issued a declaration in which they “welcomed the rapid expansion of India-UK research and development cooperation, which is helping to generate and develop high quality, high impact

... renewed focus by governments ...



research partnerships leading to new knowledge creation". But they also stated there was "considerable potential for expanding the relationship further" and "encouraged a renewed focus by governments and businesses of both countries ... to exploit the potential for cooperation." Since then, a lot has happened to develop UK-India innovation links, with the UK Science & Innovation Network (SIN) right at the heart of the activity. Here's a run through of the latest developments...

During the Summit, the Technology Strategy Board (TSB) and India's Department of Science and Technology (DST) discussed a joint programme to support research collaboration

### ... to make their engines less noisy ...

between the UK and Indian businesses. A month later DST and the TSB signed a Programme of Cooperation to set that idea in motion at the evening reception of the Innovate UK conference.

The agreement is the first international partnership the TSB has signed outside of Europe and will see the TSB and the Indian Global Innovation and Technology Alliance (GITA), sponsored by the Indian Government, supporting UK and Indian businesses and academics in joint R&D and innovation projects over a three-year period. The TSB will commit up to £5m to the programme, which will help build and strengthen links between the two countries and

build international partnerships between businesses.

With delegates from the TSB in New Delhi in July, the finer details have now been worked out and we're expecting a call for proposals to open in September. To begin with, this is likely to cover clean tech and

### ... manage the intellectual property ...

energy systems, and affordable health technologies. But details will soon be available on the TSB's website, and the call page will be linked to from our blog (see <http://bit.ly/15fSIUJ>).

Since the PM's visit, we've also had some good news for the UK's reputation for innovation. The UK was ranked 3rd in the 2013 Global Innovation Index. Set alongside

the fact that the UK has the most efficient research base in the G8 in terms of citations per unit of R&D spend, it was a firm endorsement of the UK as a leading innovation nation.

In April, the UK's Intellectual Property Office facilitated the creation of a practical toolkit (available at <http://bit.ly/1dIODKX>) to help academic institutions and business organisations understand how to manage most effectively the intellectual property that arises out of research collaborations between them. Sam Pitroda, Chair of India's National Innovation Council, was in the UK in July. He attended a round table with the who's who of

innovation in London, met with Ministers and spoke at an event at Nesta about innovation. Some of the highlights of the event were recorded through the medium of Twitter, see the event page at: <http://bit.ly/14Cqrzk>.

In July, SIN supported Rolls

Royce to launch their open innovation competition in Delhi and Bangalore (see <http://bit.ly/1dO5WTM> for more details). And we had the FICCI Global R&D Summit in New Delhi where Dr Nick Rousseau, Head – EU & International Policy, Department for Business Innovation & Skills, presented his views on opportunities in International R&D Collaboration. We also had Dr John Clayton, Knowledge Transfer Partnership Advisor from the UK, highlighting the emerging role of SMEs in R&D and innovation (you can watch videos of speakers at the FICCI R&D summit at <http://bit.ly/18ZzeLp>).

### ... supporting UK and Indian businesses ...

A great example of UK-India partnership translating to innovation is the recent news report on how Imperial College, Indian Institute of Science and Indian Institute of Technology have helped Global engine major Rolls-Royce to develop a low noise technology to make their engines less noisy. You can find out more here: <http://bit.ly/19YfDjp>.

The following week, the UK was the country partner for Confederation of Indian Industry's 9th Annual Innovation Summit. The Science & Innovation network sponsored the visit of Mr Richard Cawdell, Healthcare Tech Lead at AcceleratorIndia, to take part in a session on cross border collaboration. It was like a great event, with the UK's innovation capability featuring strongly.

In early September, we had UKTI's Graduate Entrepreneurs Festival (see <http://www.entrepreneursfestival.ukti.gov.uk/>) in Manchester. And later in the year we'll have the Global Innovation Round Table in November in New Delhi, and the UK innovation and technology showcase. The latter will be in New Delhi and Bangalore, also in November, timed around the 5th Anniversary Celebrations of Research Council's UK opening their office in India. We'll be showing off the best the UK has to offer in innovation – both at the ecosystem level, but also

specific world class innovators who may find the perfect partner in India. If you want to know more, please get in touch.

So, in summary, there's a huge amount going on in Innovation between the UK and India. If you want to keep up with the latest news from the Science & Innovation team in India, please visit our blog at <http://bit.ly/15fSIUJ>

### ... the best the UK has to offer ...