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UK's capabilities in additive manufacturing and 3D printing

Last week (July 7-10), I led a 7-member Indian delegation of manufacturing experts from the academia and industry to the UK for meetings and site visits in Nottingham, London, and Coventry. I collaborated with my colleague, Leena Arora, to deliver this event, which was the third in the series (<https://blogs.fco.gov.uk/science-innovation-network-india/funding-opportunities/>) of manufacturing-themed workshops that I'll be leading on in 2014. Watch this space for updates on upcoming workshops!



([https://blogs.fco.gov.uk/wp-](https://blogs.fco.gov.uk/wp-content/uploads/conference_DSC00139.jpg)

[content/uploads/conference_DSC00139.jpg](https://blogs.fco.gov.uk/wp-content/uploads/conference_DSC00139.jpg)) We participated in the **9th international conference** (<http://www.am-conference.com/>) on additive manufacturing and 3D printing in Nottingham from July 07-08. More than 300 delegates from 22 countries attended the conference. Additive manufacturing (also known as 3D printing) involves the use of information technology (e.g. computer-aided design) instead of the

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conventional methods (e.g. machining, casting) to create physical objects. As a result, large factories with an imposing number of assets on the shop floor at one place might become a thing of the past if additive manufacturing is widely adopted.

Besides taking a master class on additive manufacturing and 3D printing, we gained an overview of the research activities in UK organisations including **Loughborough Design School** (<http://www.lboro.ac.uk/departments/lds/>), **National Centre for Computer Animation** (<http://ncca.bournemouth.ac.uk/>), and **Centre for Advanced Additive Manufacturing** (<http://www.adamcentre.co.uk/>). The visiting delegation then met with **Prof. Richard Hague** (<http://www.nottingham.ac.uk/engineering/departments/m3/people/richard.hague>) at the **University of Nottingham** (<http://www.nottingham.ac.uk/>) to discuss the current state of affairs in additive manufacturing and 3D printing in the academia and industry in India. While the funding themes are not known yet, collaborative opportunities might be available through **GITA** (<http://gita.org.in/Event/GITAFunding.aspx>) and **GII** (<http://global-innovation-initiative.org/>). The first day of the conference was filled with talks on the medical applications of and global developments in additive manufacturing, business models & supply chain strategies, and materials and processes involved in additive manufacturing.

How about using 3D printing to address health issues? That's exactly what **William Hoyle** (<http://techfortrade.org/team/>) from **techfortrade** (<http://techfortrade.org/>) is trying to achieve. He spoke about how the UK registered charity was supporting innovations "to facilitate trade and alleviate poverty." The organisation recently launched **The Ethical Filament Foundation** (<http://www.ethicalfilament.org/>), which works towards recycling the 3D printer filaments to cater to the needs of a growing worldwide market in a socially- and environmentally-responsible manner. To this end, the Foundation has partnered with **ProtoPrint** (<http://www.protoprint.in/>), a company based in Pune, India. With potential applications in public health, and a focus on advanced manufacturing, 3D printing might make a good fit for the imminent Newton funding programme for India.



(<https://blogs.fco.gov.uk/wp-content/uploads/Renishaw.jpg>) On the third day of our visit, we were at the **Stone**

(<http://resources.renishaw.com/en/details/location-map-renishaw-plc-at-stone-staffordshire--39002>) campus of **Renishaw** (<http://www.renishaw.com/en/renishaw-enhancing-efficiency-in-manufacturing-and-healthcare--1030>) – a global company, more than 40 years old, with specialities (<http://www.renishaw.com/en/Our-company->

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-6432) in measurement, motion control, spectroscopy and precision machining. After a quick tour of the company's facilities, we headed off to the London offices of the UK India Business Council (<http://www.ukibc.com/>) (UKIBC) to meet with industry representatives. An invigorating discussion followed covering topics ranging from challenges of doing international business to industry-academia collaborations.

The Bangalore (http://www.ukibc.com/business-services/ukibc_programmes/UKIBC_Business_Centres/Bangalore.aspx) office of the UKIBC was recently launched in Koramangala – a short drive south of Bangalore's city centre. (<https://blogs.fco.gov.uk/wp-content/uploads/UKIBC.jpg>)

 MTC_DSC06925

(https://blogs.fco.gov.uk/wp-content/uploads/MTC_DSC06925.jpg) We spent the last day of our visit at two of the High Value Manufacturing Catapult (<https://hvm.catapult.org.uk/>) centres – Warwick Manufacturing Group



(<http://www2.warwick.ac.uk/fac/sci/wmg/>) (WMG) and Manufacturing Technology Centre (<http://www.the-mtc.org/>) (MTC). At the WMG, we visited the Energy Innovation Centre

(<http://www2.warwick.ac.uk/fac/sci/wmg/research/hvmcatapult/research/energyinnovationcenter>) which hosts an impressive volume of battery research, and the Lightweight Technologies Centre of Excellence

(<http://www2.warwick.ac.uk/fac/sci/wmg/research/hvmcatapult/research/lightweight/>),

which is focused on developing the next generation of lightweighting solutions for achieving fuel efficiency in transport systems. At the MTC, we toured their facilities (<http://www.the-mtc.org/projects>) in net shape manufacturing and high integrity fabrication, among others. Earlier this year, the MTC was awarded (<http://www.the-mtc.org/news/chancellor-announces-60-million-to-make-uk-world-leader-in-aerospace-technology>) £60 m to help establish the National Netshape and Additive Manufacture Centre, which will develop 3D printing processes for aerospace applications.

(https://blogs.fco.gov.uk/wp-content/uploads/WMG_DSC06871.jpg)

 WMG_DSC06871

As additive manufacturing and 3D printing gather momentum in the UK and India, we plan to catalyse the formation of collaborative partnerships. Stay tuned for future updates!

Impressions from a couple of the visiting delegates:

"A wonderful exposure to the state-of-the-art activity in manufacturing in the UK, an opportunity to closely understand the UK organisations' evolved methods of working... you are happy with it."

Aakash, Founder, Aha 3D Innovations Pvt. Ltd (<http://ahagadgets.com/>).

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“The visit enabled us to understand the key areas of interests....that will be mutually beneficial to the academia and industry in India and the UK.” Prof. Cheruvu Siva Kumar (<http://www.iitkgp.ac.in/fac-profiles/showprofile.php?empcode=aWmdU>), Indian Institute of Technology Kharagpur.

3 comments on “UK’s capabilities in additive manufacturing and 3D printing”



Dr P M Pandey says:

15th July 2014 at 1:36 pm (<https://blogs.fco.gov.uk/viyer/2014/07/14/uks-capabilities-in-additive-manufacturing-and-3d-printing/#comment-20208>)

Hi Vijay

Its a nice article summarizing various activities during 5 days trip to UK. I feel that the emphasis is to develop either miniaturized additive manufacturing or to go for very large sizes. The basic concept remains similar. Here the game is of controls and mechatronics and very high end mechatronics system integration is a current need which is possible due to enormous funding only. The joint projects in developing such high end additive manufacturing systems and developing new applications including biomedical sciences may be explored in near future with UK universities and industries.

Dr P M Pandey, IIT Delhi



Nandgaonkar Sandip says:

14th July 2014 at 7:52 pm (<https://blogs.fco.gov.uk/viyer/2014/07/14/uks-capabilities-in-additive-manufacturing-and-3d-printing/#comment-20207>)

Hi,

Article is good enough to know current status of 3D printing technology in UK. Links of different research organisation gave is brief of current trends in the additive manufacturing. Overall article is good enough to boost interest in new researchers.



Ujjal Mitra (<http://www.printzworldwide.com>) says:

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14th July 2014 at 11:10 am (<https://blogs.fco.gov.uk/viyer/2014/07/14/uks-capabilities-in-additive-manufacturing-and-3d-printing/#comment-20206>)

Hi Vijay,

This was a good brief article on our trip and you have summed it up nicely. We would now want to explore all opportunities for collaborative partnerships and will keep tracking developments in this regard.

Thanks.

Comments are closed.

About Vijay Iyer

Vijay Iyer is a Senior Science & Innovation Adviser with the British Deputy High Commission Mumbai. He facilitates UK-India research partnerships in sectors including energy, health, and life sciences.

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