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and Areas of Innovation

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Driving Innovation and Enterprise

*Plenary Session 3
"The future: realistic dreams"*

Author:
Liam Nicholls
Creative Places, United Kingdom

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Driving Innovation and Enterprise

Executive Summary

Our proposed contribution covers the different ways that we have seen institutions drive innovation and enterprise. We use case studies to show this by example, focussing on the University of Cambridge in the UK and MIT in the US, but also using examples from Leeds, Warwick and Manchester to show how a variety of initiatives and environments are being used to drive this agenda.

Initiatives by the University of Cambridge

Innovation and Enterprise

The University of Cambridge works hard to encourage innovation and enterprise on many fronts. To encourage innovation that has applicability to the real world some of its most recent initiatives have included putting business engaging academics into posts focussed on that very activity within the departments; and an initiative to set up a centre that encourages multi-disciplinary team formation around business problems.

Enterprise Champions

This initiative initially pioneered by the Engineering Department creating an Enterprise Champion - by the appointment of Philip Guildford, that had been brought in from industry to become the Director of Research in 2003. The University's Enterprise Champions now total over 60 in number and, importantly, gives industry ability to talk directly to a single person regarding a particular topic if they do not know how best to navigate into a department.

Importantly, Enterprise Champions have also grown to act as a first point of contact for department members who want advice on bringing their ideas and expertise to market. They know the resources available through Cambridge Enterprise and foster a good working relationship with colleagues to encourage commercialisation. Cambridge Enterprise is the department within the University formed to help students and staff commercialise their expertise and ideas.

Enterprise Champions exist in all departments, including architecture; Arts, Humanities and Social Sciences; and the Cambridge Bilingualism Network. It isn't just the sciences with obvious business applicability to Commercial R&D.

Maxwell Centre

This is the centrepiece for industrial engagement with those working on the West Cambridge Science and Technology Campus. A 4,500 sq m facility containing approximately 1,000 sq m of state-of-the-art research laboratories.

The Maxwell Centre objectives are to carry out world-leading research in the physical sciences, developed to meet near-term and longer-term industry objectives. Research scientists from industry occupy laboratory and desk space alongside their University collaborators. Through the work it is intended that SMEs can increase their engagement with the University – it isn't just for the large scale multi-nationals.

The Maxwell Building now hosts the SKF University Technology Centre and is due to be the Cambridge site of the Sir Henry Rolls Royce Institute for Advanced materials Research. It also provides the hub for two Engineering and Physical Sciences Research Council Centres for Doctoral Training.

Director Professor Sir Richard Friend is advised by a Maxwell Centre Steering Group, made up of leading academics including Professor Chris Abell, Pro-Vice Chancellor for Research and Professor Andy Neely, Pro-Vice Chancellor for Enterprise and Business Relations. Centre Programme Manager Dr Agnieszka Iwasiewicz-Wabnig is also the Knowledge Transfer Facilitator for the University's Department of Physics – where she looks after knowledge exchange in research areas that principally fall within the remit of Engineering and Physical Sciences Research Council.

The Maxwell Centre recognises that there is no "one-size-fits-all" solution for engagement with external partners. It works with companies on finding out specific synergies between Cambridge research, expertise and community in the context of their business, and facilitates interactions to deliver outcomes beneficial for both sides. Cambridge has numerous industry-academia interaction models to select from and the team are happy to discuss any specific interests/needs and look at ways they can best offer advice on partnership development.

Fostering Entrepreneurship

The University's most significant, dedicated, initiatives fostering entrepreneurship come through The Entrepreneurship Centre within The Judge Business School and through ideaSpace.

The Entrepreneurship Centre

Within the University's Judge Business School this centre is involved with inspiring and enabling entrepreneurship as well as studying/researching it.

Its mission is to:

- Support the University of Cambridge's entrepreneurial talent development and commercialisation of new ideas;
- Enhance the development of management capacity within the Cambridge Entrepreneurial Ecosystem and beyond;
- Develop and share thought-leadership that establishes the University of Cambridge as a global knowledge locus for entrepreneurship;
- Provide a critical resource for entrepreneurs, mentors and investors

Programmes range from 'toe in the water' exploratory attendance events of an informal nature through to formal courses:

- Enterprise Tuesday – free evening lectures and networking sessions, with inspirational speakers from industry as well as academia
- Venture Creation Weekends – where entrepreneurs and aspiring entrepreneurs can find out if their start-up ideas are viable
- EnterpriseWISE – an entrepreneurship programme for PhD and early career women who are working in science, engineering and technology so as to develop their skills, knowledge and confidence
- Ignite – a one week training programme for aspiring entrepreneurs and corporate innovators to trial and prepare business ideas for the commercial environment
- ETECH Projects – offering students the opportunity to understand the process of taking novel technologies to market by analysing early stage and potentially disruptive technologies and delivering a commercial feasibility report to the inventors of these technologies
- The SME Growth Challenge – helping established SMEs develop their organisation's managerial skills for growth
- Postgraduate Diploma in Entrepreneurship – a unique training and qualification to support individuals with entrepreneurial ambition
- MBAs and Executive MBA programmes

ideaSpace

Initially set up in 2009 as a standalone entity by stakeholders the University of Cambridge and the East of England Development Agency, following encouragement and a significant donation by the Foundation of one of the city's most successful serial entrepreneurs, Dr Hermann Hauser. Its first Director, Stewart McTavish had an entrepreneurial career by setting up three companies before taking on this role.

ideaSpace evolved into a University of Cambridge Department in 2016 and has grown to occupy space for budding entrepreneurs to set up their businesses in three different locations in the city.

ideaSpace provides office space and resources for anyone looking to start a new, high impact business – with individuals joining it from both industry and academia. The key ingredient that an individual needs to join this community is an idea for a new business which will positively affect the lives of a million people within 3 to 5 years. People with such ideas and a determination to succeed are invited in and are able to rent desk space in a stimulating work environment that gives them ability to share experiences with like-minded start-up founders and gain access to some of the UK's most successful entrepreneurs and investors.

Initiatives by MIT to drive innovation and enterprise

MIT is steeped in innovation and enterprise activity from its very soul. When it first admitted students in 1865 its founding charter focussed on teaching and research with relevance to the practical world and the transforming of society for the better. This continues to be its primary purpose today and its work to

develop technologies in an innovative fashion, in partnership with industry, has led to what is probably the world's strongest cluster of R&D intensive business activity that you can find.

For the purposes of this paper I will focus on the work it is doing to foster entrepreneurship, although there is a particular centre I might mention at this point, to show how a specific initiative can be grown to have impact:

The Deshpande Center for Technological Innovation

The Deshpande Center was established at the MIT School of Engineering in 2002 to increase the impact of MIT technologies in the marketplace. It supports a wide range of emerging technologies including biotechnology, biomedical devices, information technology, new materials and energy innovations. Since 2002, The Deshpande Center has funded more than 80 projects with over \$9 M in grants. Eighteen projects have spun out of the center into commercial ventures that have collectively raised over \$140 M in outside financing.

Fostering Entrepreneurship

The following programmes and facilities exist for MITs own students and staff:

MIT \$100K Entrepreneurship Competition

MIT Entrepreneurship Center (E-Center)

The Legatum Center for Development and Entrepreneurship

The Lemelson-MIT Program

MIT Venture Capital & Private Equity Club

MIT Enterprise Forum

Of particular note, the MIT Enterprise Forum builds connections to technology entrepreneurs and to the communities in which they reside. The Enterprise Forum produces a series of educational programs about entrepreneurship through a network of 24 worldwide chapters. The MIT Enterprise Forum is a community of volunteers sharing resources, knowledge, and a passion for entrepreneurship and wealth creation. The MIT Enterprise Forum collaborates with over 200 corporate and education organizations that connect technology entrepreneurs with resources that can help make the commercialisation of technology faster and easier.

Cambridge and MIT into the future

Not only will these institutions want to evolve their businesses to most effectively impact on entrepreneurship and innovation within their organisations but they want to grow their impact beyond.

ideaSpace works with governments, agencies and higher education institutions to develop policies, strategies and programmes to support a thriving start-up sector.

The University of Cambridge is also now pursuing an opportunity to let space in some of its existing surplus property on Cambridge Biomedical Campus, in the same building as the current ideaSpace project. It is envisaged that this project will deliver space for different types of occupiers in the life sciences sector, be they large corporates who want a satellite office on the campus, or SMEs wishing to take space there.

This project will help the ecosystem on the campus, which currently only provides for very early stage businesses in ideaSpace, and very large corporates on development land controlled by Cambridge Mediparks Ltd.

The MIT Regional Entrepreneurship Acceleration Program provides opportunities for communities around the world to engage with MIT in an evidence-based, practical approach to strengthening innovation-driven ecosystems. They endeavour to achieve this by translating research insights into practical frameworks, convening stakeholders focused on innovation driven ecosystems and by educating regional leaders through team-based interaction to achieve economic and social progress. Their claimed focus is on:

- Translation of research and expertise into practical frameworks, approaches and actions with widespread global application.
- Convening stakeholders (corporate, risk capital, entrepreneur, university and government) from ecosystems around the world to build a community for collaboration and learning.
- Educating regional innovation ecosystem leaders through team-based learning to facilitate meaningful economic and social outcomes.

MIT REAP admits teams from up to 8 partner regions annually, which are comprised of 5-8 highly driven and influential members and is headed by a regional champion.

So if you think you have something to learn from these organisations they have people in the front line wanting to hear from you. Stewart McTavish has a number of helpful enquiry points through his staff but can also be e mailed directly at stewart.mctavish@ideaspace.cam.ac.uk.

Travis Hunter is Program Manager for External Programs within the MIT Innovation Initiative and can be found at <http://innovation.mit.edu>

Other examples

University of Leeds – Using space to drive innovation

The University of Leeds is not just rebuilding its innovation centre it is using the new development of the Nexus Innovation and Enterprise Centre to radically overhaul the whole concept. So whilst the existing Innovation Centre has provided businesses in the area with easy-in easy-out terms and some support services, the new building, due to be completed in summer of 2018, is conceived as something to attend to new agendas and is being delivered in a high profile location to help realise its new range of objectives.



Nexus is a 100,000 sq ft facility that is designed to be a hub for the local innovation community as well as national and international organisations looking to innovate, be more productive and grow. It is being built on a high-profile site on the University's campus but fronting a main arterial route into the city, close to the inner ring road. The intention is for it to be a high-profile gateway facility, providing businesses with access to research and innovation expertise; providing academics with access to a business environment in which to hold meetings with potential partners and to explore commercialisation opportunities.

What do the physical features of the building entail?

- Ground and First floors that are mainly triple height spaces focussed on communication and collaboration, where people will meet in both an organised and serendipitous fashion
- Areas of Ground floor space dedicated to exhibition displays; an 80 cover café; a business lounge; a 120 seat lecture theatre; 4 seminar spaces that can each hold 70 people and which are capable of being combined; and open/semi-private space
- First floor space that will offer open/semi-private space and 12 meeting rooms
- Second to Fifth floors that are rentable laboratories and offices
- Of the 12 rentable laboratories 8 will be fitted out as Category 2 laboratories and 4 will be designed to be used by businesses undertaking mechanical and electrical/electronic R&D.
- Office space will be available to rent in suites from two-person spaces upwards

What are the aspirations for use of the building?

- Active incubation programmes to support entrepreneurship and business creation – for students and staff at the University, for people from outside the University
- Connectivity partners that can help grow a vibrant innovation ecosystem by linking business, academia, public sector and others through formal events and one to one connectivity actions that can make a difference within the communities the initiative is here to serve
- By connecting people and providing support that works the aspiration is to create new opportunities for innovation, productivity and growth within the Leeds City Region and beyond.

University of Warwick – The next generation of Innovators

The University of Warwick has been working hard to explore how it can be ever more innovative and entrepreneurial in its development into the future.

Through its Warwick Manufacturing Group the University has developed an enviable reputation for extraordinary innovation, working with leading businesses and helping them to grow massively. Passionate about the power of partnerships, they work with international companies, organisations and pioneering entrepreneurs to create ground breaking products, processes and services.

Importantly, they have also developed world-class education that covers all aspects of the education pathway, not just for those at University. This includes work with school pupils at the WMG Academy for Young Engineers – with people as young as 14.

The WMG Academy for Young Engineers is a University Technology College based in Coventry, not far from where the University is based. University Technical Colleges are relatively new schools as a concept in the UK, built to serve 14 to 18 years olds and led by a University and various businesses.

Similarly Founders4Schools is a UK initiative began as an extension of ‘Silicon Valley Comes to the UK’ as an idea to bring inspiring entrepreneurs to universities and schools. They advise that research shows that school students who have 4 student-employer encounters are 5 times less likely to become NEET and 3 times more likely to choose a STEM subject. So there is real benefit to innovation and enterprise if we can get school children involved in business engagement and problem solving early.

Close working relationships with employers are a key feature of the curriculum at the WMG Academy of Young Engineers. Students are set technical projects based on the day-to-day problems and situations they have to resolve in their companies. Team working is the norm for students – so they work together to develop skills that employers value: problem-solving, creativity, leadership, communication, resilience and the ability to respond to change. Out of this may come entrepreneurship interest as well as innovation and enterprise ability. This innovative new learning environment has been designed to engage students and generate an excitement for the engineering opportunities that will shape the creation of the high-value products of tomorrow.

Such things are helping the University of Warwick not just have positive impact on their local economy, they are also helping it to develop an enviable reputation around innovation and enterprise.

Corridor Manchester Life Sciences – Building the ecosystem

It is often noted that without a complete ecosystem of business and environments to foster these, that hard work that goes into driving early stage innovation will be lost as businesses grow.

This can be particularly pertinent in the life sciences sector where commercial laboratory space can be difficult for businesses, especially at SME level, to find.

The University of Manchester provides office and laboratory space for early stage businesses in its Core Technology Facility and University of Manchester Innovation centre (UMIC). This is then supplemented by Manchester Science Partnerships, who run both Manchester Science Park and the highly successful Citylabs development. The latter of these is co-located with hospital space, and there has been extraordinary commitment from the NHS Trust in bringing the development forward on its land in conjunction with MSP as the commercial developer. It provides a variety of medium sized suites of office and laboratory space which can accommodate those businesses that have outgrown UMIC.

By providing different types of commercial space for businesses in one geographical location, there is a clear pathway for entrepreneurs to grow their businesses, as well as a freeing up of the bottle-jam which can sometimes perpetuate itself if businesses grow and overfill innovation centres, leaving little space for firms in their early stages of development.

About Creative Places

Creative Places is a specialist commercial real estate advisor. Our expert knowledge allows us to help our clients plan, create, manage and invest in collaborative places for people involved with research, R&D, the creative industries and innovation. Places such as science and research parks, medical research campuses and technology centres. In a nutshell, we help create and shape business environments that enhance innovation.

About the speaker

Liam Nicholls MA Cantab MRICS
Partner
Creative Places

Liam joined Creative Places in February 2016 after 6 years working in the Corporate Services team for DTZ/Cushman and Wakefield. He has specialisms in corporate finance, asset management and an in depth understanding of occupier trends and investment structures in the R&D sector.

Liam has recently worked on:

- Strategic development and asset management to Manchester Science Partnerships
- Development of the London Cancer Hub to Sutton Borough Council/ICR
- Investment and development strategy to Norwich Research Park LLP
- Development financing and investment on the Cambridge Biomedical Campus to Cambridge Mediparks Limited
- The nature and scale of demand for Healthcare R&D space in central London to Medcity
- Retail and Leisure Strategy to Scottish enterprise in Edinburgh Bioquarter.