The Linkage Between University Research and Commercial Success

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R&D in Scotland
Green Rush
The renewable-energy industry is heading for Glasgow

Scotland, especially Glasgow, has a long tradition in engineering. The Industrial Revolution[1], beginning around 1800, saw the emergence of all sorts of industries in and around Glasgow. Shipbuilding, steelmaking, fans, blowers - all sorts of heavy machinery was made in Scotland during this period. Much of that economic development was well into decline by the 1960s and perhaps capped off with the shutting down of Ravenscraig Steelworks which was then part of British Steel, in 1992.

Now we hear of the emergence of Glasgow as a centre for green technology, and in this case, the focus is on wind energy.

- Siemens has announced plans to spend $130 million on a wind-turbine factory in Hull and creating 700 direct jobs.
- Mitsubishi joined the Scottish and Southern Energy, a local utility, is funding a renewable energy research centre in Glasgow.
- Iberdrola, the Spanish owner of Scottish Power has placed it global offshore-wind headquarters in Glasgow
- -Gamesa, a Spanish turbine maker – is to set up its own research facility in Glasgow.

What does it take to link university research and commercial success?

Lessons Learned.

1. Build on the scientific and technology culture of the region.
2. Provide leadership which straddles academic and commercial interests.
3. Focus on an obviously-emerging technology.
4. Embrace 'research, even with its implicit risk.
5. Look longer term.
6. Collaborate with industry.
7. Market the talent.

The answer to this rush of investment is tied directly to Strathclyde University and it's 'best of class' department of electrical engineering.

Strathclyde University initiative is funded by four utilities through the Institute for Energy and Environment which employs 210 staff. The mandate is to take new technology from design to operation. Headed by Jim MacDonald, who spent 8 years in the power business, the focus is on both practical and theoretical innovation and encouraging collaboration with manufacturers – in this case Rolls Royce. Industry at large is expected to fund up to 40% of the budget of the Institute.

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[1] The Industrial Revolution marks a major turning point in human history; almost every aspect of daily life was influenced in some way. Most notably, average income and population began to exhibit unprecedented sustained growth. In the two centuries following 1800, the world's average per capita income increased over 10-fold, while the world's population increased over 6-fold.[2] In the words of Nobel Prize winner Robert E. Lucas, Jr., "For the first time in history, the living standards of the masses of ordinary people have begun to undergo sustained growth. ... Nothing remotely like this economic behavior has happened before."[1] Courtesy of Wikipedia.

There are lessons to be learned from these developments.

What would strike most engineers (since they know a lot about rotational forces) is that the fundamentals that have attract this new investment and will provide the businesses and jobs are the same fundamentals at work during the industrial revolution. The ability to research and to build turbines, fans, pumps, and electrical transmission, was and is, apparently, the technology which attracts investment. The University of Strathclyde kept its fundamentals in place and up-to-date in order to contribute to this success.

As MacDonald stated, Glasgow "has always been an engineering city and it will be even more so in the future". This is a good example of a culture – engineering – migrating over decades and now finding new applications. It is also a good example of how a University's research leadership and education curriculum can be seen to translate into economic progress – i.e. high-value jobs. A culture, along with leadership which understands both academia and business, can create the link between research and commercial success, and attract investment and create jobs.