



Technology Roadmap - Nanotechnology seminar

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The effect of nanotechnology on industry and everyday life is set to be significant and disruptive in nature. Research and breakthroughs in nanotechnology will result in real commercial prospects for companies both large and small as well as opportunities for research organisations, attendees at a recent Dublin seminar heard.

"Nanomaterial Roadmap 2015 -- Development of advanced technology roadmaps in nanomaterial sciences and industrial adaptation to small and medium sized enterprises", the last of this year's Enterprise Ireland Technology Roadmap events, brought together key academic, government and industry stakeholders for a half-day seminar at the beginning of November.

The seminar, sponsored by the Irish Innovation Relay Centre (**IRC**), featured presentations from Dr Jonathan Loeffler, of the Steinbeis Foundation in Stuttgart, as well as Dr Jenny Melia, from the Industrial Technologies **division** of Enterprise Ireland.

Small and medium sized companies were urged by Jim Cuddy, manager of innovation and technology transfer at Enterprise Ireland, to develop a nanotechnology roadmap so that they can forecast future developments in specific sectors and identify relevant opportunities.

A roadmap is essentially a prediction of future developments based on thorough examination of a sector or industry including technologies, trends and opportunities. Developing a roadmap allows for strategic positioning by companies, irrespective of size, and assists them to develop within their chosen industry.

The nanotechnology industry presents many genuine opportunities for Irish SMEs. Called one of the "rising stars" of the nanotech sector by Scottish Business and Financial News, Ireland's nanotech market is still at a relatively early stage, meaning that SMEs with strategic roadmaps will be able to identify and address gaps in this potentially lucrative market. Indeed, the Irish Council for Science, Technology and Innovation (**ICSTI**) has estimated that the potential value of nanotechnology-enabled products and processes exported by Irish enterprises will exceed EUR13 billion in the next four years.

But SMEs may not be able to get involved in this area without help, according to both Dr Loeffler and Dr Melia. "The roadmap process is very strategic," explained Dr Melia. "SMEs are not able to do this themselves and will need external help." And certainly there is plenty of help to be found, according to the speakers who outlined various ways in which SMEs can get a foothold on the nanotechnology ladder.

Dr Loeffler highlighted the work of the **Steinbeis Foundation**, which has devised a project called NanoRoad SME. The project, which is in its second year, will help SMEs to develop technology roadmaps in the domain of nanomaterials. The roadmaps will serve to identify breakthroughs and trends in research and development; to associate these trends to product and application visions; and to adapt the roadmaps to SMEs.

"As the product life-cycle becomes shorter and shorter, SMEs need to start looking for new opportunities early," advised Dr Loeffler. "The main point to ask is when do SMEs need to enter the market, and for which product."



As part of the NanoRoad SME project the organisation conducted a [survey](#), which revealed that 163 companies (120 of which are SMEs) are currently working with nanomaterials. Fifty-five percent are using nanomaterials, 43 percent are producing nanomaterials and 58 percent are designing nanomaterials.

Of the SMEs who are not using nanomaterials the barriers for use include not fully understanding the production process, concerns about the price/performance ratio and not having enough information about relevant research results, according to Dr Loeffler, who explained that there are two approaches to nanotechnology - the technology driven approach and the market driven approach.

In order to clarify the market for SMEs and give them a helping hand in developing their own roadmap the Steinbus Foundation has devised a searchable [database](#), which can guide SMEs to identifying areas of interest to them. "It can give companies a clearer idea of when technology will get to market, which is very useful information to have," added Dr Loeffler.

Meanwhile Dr Melia highlighted a number of collaborative research opportunities in nanotech, which could offer SMEs valid prospects for entering the market. Rather than starting off by looking for opportunities in Dublin or Europe, Dr Melia explained companies should first look locally, "most research centres or local institute of technology have some flavour of nanotechnology," she said.

In addition, several nanotech projects are funded annually throughout Ireland by Enterprise Ireland, through various funding mechanisms. "A particularly innovative scheme is the innovation partnership programme, which is especially good for companies," explained Dr Melia. "The company and the university work together with Enterprise Ireland covering up to EUR190,000 of the research costs."

One of the primary benefits of this particular scheme is that the university looks after all the paperwork and the IP is pre-negotiated, making it a favourite with Irish companies, according to Dr Melia.

As well as Enterprise Ireland-funded schemes, Dr Melia highlighted a number of European Union-funded programmes, which could prove beneficial to companies. Many of these European programmes offer Irish companies exposure to researchers who are leaders in their field with programmes like the Marie-Curie scheme allowing companies to take researchers in-house to work on a project for two years, fully funded by the EU.

Looking to the EU seventh framework (FP7) Dr Melia told attendees that there is some EUR4.5 billion in available funding. "Some 10 percent of contracts agreed so far have some form of "nano" component, which highlights the high-level of interest in this area."

The primary message coming from the half-day seminar was that SMEs are not alone; there are numerous ways in which they can make significant moves in the area of nanotechnology and benefit from the many commercial opportunities that are available in this burgeoning industry.

If you are interested in receiving the slides from this Nanotechnology Roadmap event or you would like information on dates and topics of upcoming Technology Roadmap Seminars, the Innovation Relay Centre (IRC) can be contacted at www.irc-ireland.ie, e-mail irc@enterprise-ireland.com or Tel: 01 808 2449.