



**Materials
Processing
Institute**

HOW CAN SMEs MAKE THE MOST OF PUBLIC SECTOR R&D INVESTMENT

**OPPORTUNITIES AND CHALLENGES FOR THE UK
INDUSTRIAL STRATEGY**

A speech delivered at the launch of a British Academy and
Leverhulme funded project on knowledge co-creation between
universities and SMEs, British Academy, London.

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Introduction

Thank you for the invitation to speak this morning. I am here primarily as a representative of the Federation of Small Businesses, having recently taken on a role chairing the FSB's policy committee for innovation and enterprise. The Federation sits alongside other representation organisations, such as the CBI, EEF and the Institute of Directors, in offering advice and support to small businesses and reflecting their concerns in the public policy arena. With over 170,000 members, the Federation has the most members of the national business associations. This leaves FSB as an organisation well placed to reflect the needs and concerns of the UK's wider SME community.

By way of introduction, as the CEO of the Materials Processing Institute, I lead an independent research and technology organisation, specialising in the upscaling and commercialisation of new technologies. We work primarily with the materials and foundation industries, including the SME dense metals sector, where I also have a role as the Innovation lead for the UK Metals Council. Many of the companies I work with are UK based, but we also have a number of multinational clients in materials and supply chain businesses. In the last year this has seen myself and colleagues supporting businesses in Germany, China, India and USA, giving us an opportunity to compare how innovation is done in the UK, as compared with our international competitors.

The focus for today is around how SMEs can make the most of public R&D investment and inevitably there is a primary concern around how the company and university relationship works, but I would also like to take this opportunity to look more widely at how SMEs engage across the whole public arena in innovation and in particular, how we can create an environment that supports innovation and growth in our SME community.

The Challenge for SMEs

I interact with some of the most SME dense sectors of the UK industrial economy. These companies are vitally important for our advanced manufacturing supply chains, the more so as we begin to negotiate trade deals, where export goods may require a UK component content that is significantly higher than at present, to avoid rules of origin related duties.

These small and medium sized businesses are not household names, but they are often significant employers in the places and regions in which they are situated and collectively they support over £200bn of UK GDP. They are often capital intensive manufacturers and invest in what I term continuous, relentless innovation which is vital to their survival. Yet these same companies report that they experience great difficulty in accessing the innovation support that is often targeted at them, but is more effectively used by large businesses.

An analysis of barriers shows that small companies report that they can struggle to know both what to do in terms of innovation and how to do it. They want support to be delivered locally to them and certainly within a 50 mile radius of their business. Implementation of innovation is also a challenge, often requiring capital expenditure. Overall, companies in this sector report that innovation support is both 'patchy and poorly co-ordinated'.

Government Policy

Government recognises the importance of innovation and we have seen a succession of Labour, Coalition and Conservative Governments, showing remarkable consistency of policy, supporting long term initiatives and accepting the need for the role of public support, including funding, in industrial innovation. Both major parties ran for election with a manifesto target to raise innovation spending to 3% of GDP and I was present at the CBI conference last year where the Prime Minister committed Government to an additional £2bn spend on innovation.

Despite all of this, we must recognise that the UK economy is still in a period of recovery and more economic shocks could arise. The need to spend public money in the most efficient way, for the maximum impact is an imperative and in this, the owners of small businesses understand the value of efficient allocation of resources.

Definitional Issues: What Innovation Means to SMEs

Whilst Government support for innovation is welcomed, it needs to be recognised that in this SME community the nature of an innovation may well be bespoke to the individual company in which it is commercialised. For this reason it is important to consider even what the term 'innovation' means to industry. There is a perception, whether justified, or not, that Government agencies seek to tell companies what counts as innovation. This approach lacks the sensitivity to recognise that an innovation that is new to a company, could be just as, if not more important economically, than one that is new to an industry, or new to the World.

This impression is felt most keenly in relation to process innovation, that is innovation in the method of manufacture, which is the key to competitive advantage in so many industries. It is here that Government policy needs to push hard on both the diffusion and adoption of innovation.

It is this issue of diffusion of innovation where the Federation of Small Businesses is pressing for urgent action. By accepting the definition of innovation as activity that is new to a firm, which is inclusive of process and business model innovation and recognising, as the UK Productivity Council does, that raising the productivity of the lowest performing firms could add over £100bn to UK GDP, it can be seen that accelerating the diffusion of innovation offers a quick route to improving UK prosperity and raising living standards.

It is known that innovation diffusion is related to the flow of information in a society, with the number of interactions and the openness of individuals key factors. The experience of the FSB is that small business owners are serial networkers and so with the right support the Federation and its members sees innovation diffusion as a quick win for Government.

The trick required of policy makers is to precisely target the maximum amount of support, to this challenging, dispersed group of small companies, for the greatest benefit.

Summary of the Barriers

The barriers to innovation in manufacturing SMEs can be summarised as:

- Innovation diffusion and connectivity with the SME community
- Support for process innovation to enhance productivity
- Capital investment to implement innovations
- Management and leadership able to support innovation
- The need for local support

Overall there can be a general reluctance to engage with publicly funded schemes that are perceived as inefficient, or wasteful of public money.

Recommendations

Broad consultation with the SME community, particularly in the metals sector, has identified a number of policy changes that could be adopted by Government, which would address these barriers.

1. Taxation

Turning first to taxation. The R&D tax credits scheme is well established and yet it is reported that only 5% of SMEs participate. SMEs would like to see greater simplicity and a definition that encompasses more wide ranging activity.

Despite capital expenditure being a barrier to implementation of new innovations, SMEs in general are reluctant to access locally available grants. Instead an enhanced scheme of capital allowances would be preferred, more directly suited to the culture of entrepreneurial small businesses.

2. Intellectual Property

It is acknowledged that productivity improvements will arise primarily from process developments and yet the flagship policy of 'patent box' provides little benefit for IP arising from process development as compared with product development. This bias discourages investment in productivity. Simple changes to the rules of patent box could redress this imbalance.

Perhaps more controversially, the claims on intellectual property made by many publicly funded innovation agencies, such as universities, are a real barrier to the commercialisation of these innovations in the industry.

By focussing SME innovation support more on tax benefits, rather than grants, Government policy would be more closely aligned to the culture of the SME community. Often owner managed, these businesses have a strong culture of entrepreneurship and believe success should be rewarded. They can however be disparaging of what they perceive as wasteful and bureaucratic grant schemes. This is not to say that there is no role for grants, but to have a much wider engagement within the SME community, then a variety of approaches, that fit with the prevailing culture of the community, are required.

Conclusion

In conclusion then the key challenge for the future of UK industrial innovation is SME connectivity, to address the barriers of innovation diffusion and availability of capital expenditure, through support delivered locally.

UK SMEs are not asking for elaborate grant schemes, but they do need focussed support, delivered locally. It is recommended that Government focus much more on rebalancing in support of process development that enhances productivity, rather than towards new product introductions.

Specific changes to UK tax and intellectual property policy, as I have outline, could enable this, enhancing SME innovation and accelerate the diffusion of innovation throughout the economy.

HOW CAN SMEs MAKE THE MOST OF PUBLIC SECTOR R&D INVESTMENT

Chris McDonald is the Chief Executive Officer of the Materials Processing Institute. The Institute carries out industrial research and innovation in advanced materials, low carbon energy and the circular economy. Chris's background is in industrial research and manufacturing, where he has worked internationally. He led the divestment and return to independent, not-for-profit ownership of the Institute in 2014, the year the organisation celebrated its 70th anniversary.

In addition to leading the Institute, Chris provides expert consultancy support to companies, Governments and public bodies, in technology strategy and the technical due diligence aspects of mergers and acquisitions. He is prominent in the development of public policy, around innovation, steel and SMEs, where he works to support growth and inward investment. He is the policy chair for Innovation and Enterprise for the Federation of Small Businesses, a member of the CBI Regional Council for the North East and is the Innovation Lead for the UK Metals Council. Chris is also a member of the Steel Advisory Board for UK Steel (EEF).

A graduate of Cambridge University, Chris is a Fellow the Institute of Chemical Engineers and of the Institute of Materials, Minerals and Mining. He sits on industrial advisory boards at a number of universities, including Oxford and Sheffield.

He is often called to commentate in the media on innovation leadership and the steel industry.

Chris McDonald
Chief Executive Officer
Materials Processing Institute

“Chris provides expert consultancy support to companies, Governments and public bodies in materials, technology and innovation strategy”



Materials Processing Institute

The Materials Processing Institute is an independent, open access and not-for-profit technology and innovation centre working with industry, government and academia worldwide. Support ranges from small scale, site based investigations, through to long term collaborative research programmes.

The Materials Processing Institute is expert in advanced materials, low carbon energy and the circular economy, specialising in challenging processes, particularly those involving high specification materials, high temperatures and difficult operating conditions.

The Institute has over 70 years' experience as a leading UK technology provider. Extensive materials processing knowledge is supported by state-of-the-art facilities with a broad range of equipment, from laboratories through to demonstration, scale-up and production plant.

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