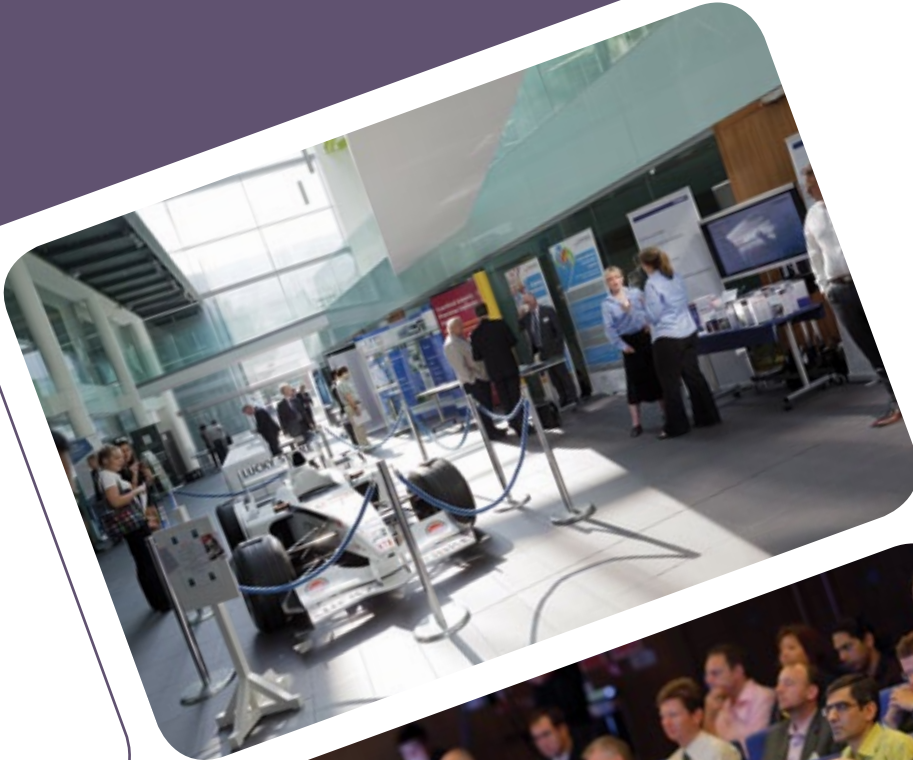


National Manufacturing Debate 2012

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Cranfield
UNIVERSITY



THEManufacturer

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Information on the National Manufacturing Debate from 2010-2013 can be found at:
www.cranfield.ac.uk/sas/manufacturingdebate

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About the National Manufacturing Debate

The National Manufacturing Debate was launched in 2010 to provide an independent national forum for advocates of UK-based manufacturing.

The debate aims to bring together representatives from industry, manufacturing services, government and academia to identify the challenges being faced in this important sector. The debate promotes pragmatic discussion around the ways in which these challenges can be met and to track progress from one year to the next.

The debate has enjoyed an increasing delegation of high profile individuals from all representative groups since its inception. It is also a popular platform for the 'hidden leaders' of SME manufacturing companies, to voice their concerns and share the ways in which they have overcome obstacles to growth. In 2012 over 200 delegates attended the debate.

Each year the National Manufacturing debate focuses on one key theme which is relevant to the current priorities of UK manufacturing. Past themes include:

- 2010: Manufacturing for recovery
- 2011: Investment, incentives and innovation

The 2012 debate was focussed on: Enhancing the supply chain for growth.

Why does Cranfield University host the National Manufacturing Debate?

The National Manufacturing Debate is hosted each year by Cranfield University, an academic body which prides itself on its strong record of business interaction and commercial focus.

Operating in a global context, Cranfield University and its research activities are characterised by three core elements:

- a focus on sectors, private, public and charitable, rather than traditional academic silos disciplines
- a concern for the practical outcome of its work
- a willingness to address defence

These characteristics are both a cause and effect of Cranfield University's student profile. Students study at post graduate level on both professional development and degree-awarding courses; they come either to enhance an already chosen career, or to move to a new one.

As host to the National Manufacturing Debate, Cranfield University adds insight from its multidisciplinary research in a number of relevant fields including:

- Aerospace
- Automotive
- Energy
- Environment
- Healthcare
- Manufacturing
- Security and defence

Cranfield's aim is to transform all its knowledge to practical application. Hosting the National Manufacturing Debate is just one way in which it hopes to speed up this process, closing gaps between academia, industry and its supporting services.



The third National Manufacturing Debate took place on May 30 at Cranfield University. The focus was on enhancing the supply chain for growth.

National Manufacturing Debate 2012

Context and focus

Building on the success of past debates, the theme for 2012 looked to identify the ways in which heightened awareness of UK manufacturing capabilities and government rhetoric in support of industry can be leveraged for competitive advantage and economic growth. It also looked to identify blockers, such as regulation, finance structures and industry culture, which might be removed or altered to benefit the sector.

Understanding the characteristics displayed by UK supply chains, and particularly of Small and Medium-sized Enterprises (SMEs) within those supply chain, is fundamental when addressing this subject.

The UK manufacturing sector comprises many SMEs, according the Federation of Small Businesses this size category accounts for 99% of all enterprise in the UK. It is therefore essential for UK economic growth as well as industrial competitive capability that these SMEs reach their full potential.

Despite a challenging economic environment, including uncertainty in the UK's chief export market – the eurozone – research carried out by Cranfield prior to the May debate showed that most

SMEs were positive about their own growth prospects with 85% of SMEs having an optimistic view of the future.

Yet significant challenges remain for SMEs in the UK. Professor Rajkumar Roy, head of manufacturing and materials department at Cranfield University set the context for the third National Manufacturing Debate and summarised these challenges for delegates. He pinpointed:

- Lack of Demand
- Taxation
- Competition
- Fluctuating income with steady outgoings
- Uncertainty about future funding – 39% of UK SMEs have public sector contracts
- A reducing number of British owned SMEs

Professor Roy also noted that there were opportunities to address Britain's Trade Deficit and reduce imports by focusing on reducing unit cost, and improving the number of products available in the UK.

He urged the government to allocate further funding to support SMEs, noting the importance of public procurement in enhancing resilience and stability for business. Prof Roy strongly proposed the need for Manufacturing Co-operatives to improve competitiveness of small SMEs and build collective resilience in the supply chain.



National Manufacturing Debate 2012

Keynote presentations

Prior to the main National Manufacturing Debate 2012 a range of presentations from industry representatives and experts introduced delegates to the variety of supply chain challenges and opportunities for manufacturers in the UK.



The presentations represented a range of sectors and perspectives on UK manufacturing, from large enterprise to SME and from government bodies to financial services.

These presentations armed delegates with contextual information with which to drive forward an animated and relevant debate in the afternoon.

The following pages summarise some of the key messages conveyed in the morning presentations.



Keynote presentations

Iain Gray, CEO, Technology Strategy Board (TSB)

The first keynote speaker was TSB CEO, Iain Gray, who highlighted the importance of manufacturing to the UK economy with the below statistics:

Mr Gray explained the role of TSB in funding research for industry, government and universities. With 50% of TSB funding going to micro and small businesses, Gray also shone a light on what his organisation is doing to help promising firms grow.

He emphasised that TSB aims to support the development of new ideas and technologies with competitive and commercial value. He explained that, in evaluating funding for research, TSB asks:

- Can we do it?
- Is the idea ready?
- Is there a large market opportunity?
- Can we make a difference?

Gray launched TSB's High Value Manufacturing Strategy at the debate.



Importance of manufacturing to UK

- Manufacturing contributes over £6.7tr to the global economy
- UK in the world's top 10, generating 10% of UK Gross Value Added
- UK manufacturing directly employs 2.5 million people, generates half of UK exports and accounts for three quarters of business R&D conducted in the UK
- UK ranks second only to the US in the aerospace industry
- Two out of the top six pharmaceutical companies are headquartered in the UK
- UK-based auto industry exported a record-breaking 84% of production in 2011

This document sets out TSB's investment objectives with regards to supporting high value manufacturing and the ways in which TSB aims to enhance the exploitation of science and innovation in the sector. The strategy covers the period 2012-2015 and includes a commitment from TSB to double its direct investment in manufacturing to £50m a year.

Keynote presentations

UK steel plants pay
50%
more for electricity than
those in France



John Bolton, Long Products Director, Tata Steel

John Bolton brought insight into how industrial companies can create sustainable business models which meet the needs of today while positioning an organisation for growth tomorrow.

At Tata, Mr Bolton said this is done by:

- Maximising market opportunities
- Managing costs
- Building flexibility
- Earning the right to invest

Tata Steel is the largest foreign investor in the UK; the sixth largest industrial R&D investor in the UK. Tata will invest £2billion in the EU over the next 2 years and the majority of that investment is expected to be in the UK.

This position makes Tata Steel a key influence in industrial growth prospects for Britain. Bolton identified rising opportunities in renewable energy as a key growth area for Tata Steel itself but cautioned that the UK faces challenges in exploiting these.

Bolton pointed to high energy costs and green taxation as a barrier for growth in Tata Steel's UK-based renewable business. He revealed that for every wind turbine installed along Britain's coastline – each requiring 100 tonnes of steel – an average of just

10% of the finished product is manufactured in the UK. The highest proportion recorded is 30%.

The reason behind this, he claimed, is that UK steel plants pay 50% more for their electricity than they do in countries such as France, and that 15% of that cost is in so called 'green tax'.

Turning to government procurement practices, Bolton said that the British government's interpretation of EU rules for procurement in UK infrastructure projects is harming the British supply chain. He contrasted this with the actions of other EU governments, such as Germany's, where EU rules are implemented more strategically in order to support national industry.

The absence of a rational industrial policy in the UK, said Bolton, has seen the reduction in UK manufacturing output as a function of GDP from 20% in 1980 to 11% in 2010.

Keynote presentations

In the last 10 years
Barclays has put in place

100

relationship directors
in manufacturing



**Mark Lee, Head
of Manufacturing,
Barclays**

Mark Lee presented the banking perspective of manufacturing.

He introduced Barclays to the audience and assured delegates that UK manufacturing is an important focus for the bank. In the last 10 years Barclays has put in place 100 relationship directors in manufacturing, he revealed.

Barclays has a dedicated business growth fund and Mr Lee said that the bank is acutely aware of the importance of ensuring SMEs, as well as large corporations, can benefit from this.

Presenting the economic outlook, as it appeared in May, and explaining how this affects the manufacturing sector Lee made the following observations:

- The manufacturing sector is favourable for investment
- International v domestic exposure is a concern
- Strong export operations make companies attractive to Barclays
- Risk mitigation is important to try to cover volatility of foreign exchange commodities

Keynote presentations



Karl Eddy, Head of Government Infrastructure and Advisory Team, Grant Thornton

Grant Thornton is one of three organisations which won the national contract for the administration of the Manufacturing Advisory Service (MAS) in 2011. At the National Manufacturing Debate, Karl Eddy gave his organisation's view on how to enhance growth throughout the UK manufacturing supply chain.

Mr Eddy noted that the UK manufacturing supply chain has a significant challenge in conveying confidence due to concerns over key drivers such as quality, trust and awareness. A decline in investment in SMEs in recent years has exacerbated these concerns he said.

To increase capability and confidence in the supply chain Eddy suggested that a strategy needs to be devised which promotes innovation in an efficient manner. He emphasised that collaboration across the supply chain is essential in order to achieve this and promoted the idea that strategies should not be developed for companies alone but for networks that collaborate.

Eddy highlighted the work that Grant Thornton has done through MAS to develop a toolkit which supports collaborative innovation for improved supply chain capability. This toolkit is tailored to SME needs and develops strategy and innovation skills as well as promoting operational efficiency.

MAS Supply Chain Toolbox

MAS Strategy

- Supply Chain mapping
- Supply Chain opportunities
- Supply Chain relationships management
- Identification of diversification opportunities
- Financial expert advice-access to finance

MAS Innovates

- New product development-deas generation
- Intellectual property review audits
- Design for manufacture/assembly
- Rapid prototyping
- Product conformance and compliance testing

MAS Efficiency

- Value stream mapping
- Waste reduction
- Process variation reduction (Six Sigma)
- Workplace organisation and visual management
- Equipment effectiveness (OEE)
- Set up reduction (SMED)

Keynote presentations

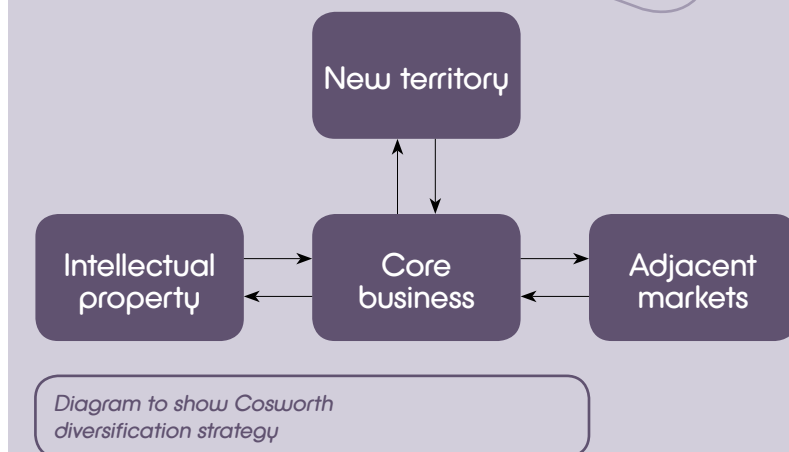
Tim Routsis, CEO, Cosworth Group

Providing an exemplar for SME growth Tim Routsis explained the origin and the transformation of Cosworth from a narrowly focused motorsport manufacturer to a diversified high tech engineering and manufacturing business.

Routsis admitted that diversification is not easy – especially for SMEs – but emphasised that a methodical approach which identifies areas running adjacent to core business capabilities can support stable growth and mitigate risk. Following these principles has allowed Cosworth to enjoy 20% compound growth through the recession.

Routsis highlighted the critical role played by intellectual property in supporting sustainable growth. Protecting intellectual property can be a major challenge he asserted.

Looking to the future Routsis said 2012 is full of uncertainty for manufacturers. He said that three important areas of change in the macro environment that are likely to affect the sector and the wider business community are:



- Societal change: Routsis sees a move away from globalisation and observes protectionist behaviour emerging in places like Scotland, China and USA
- Financial: Routsis commented on the rise of extended payment terms. These can be more than 120 days representing cash flow problems, particularly for SMEs
- Environmental: Routsis drew attention to the increasing impact environmental concerns are having on manufacturing and business operations



With the right approach Routsis said that manufacturers can turn these areas of change to their advantage. He said that this would require swift assertive action however.

Keynote presentations



Martyn Pellew,
President, British
Chambers of
Commerce

Martyn Pellew suggested that politicians, civil servants and the media have low confidence in manufacturing and a better reputation is needed.

He critiqued current government deficiencies in supporting business as:

- Overconsumption of tax and overproduction of regulation by a 6 million strong army of civil servants
- Lack of transparency in the real business benefits of initiatives like the Regional Growth Fund

- Inability to stem an influx of EU regulations which harm UK competitiveness such as those relating to paternity leave and agency worker rules
- Decrepit planning systems which hinder the introduction of new infrastructure like offshore wind farms

Despite these deficiencies however, Mr Pellew said the outlook for UK manufacturing is not entirely negative. To nurture the small amount of growth the sector had recently shown he suggested:

- Reducing red tape
- Easing planning regulations
- Halting business rates increases
- Improving infrastructure spend
- Promoting exports to the BRIC nations (Brazil, Russia, India & China)

Other specific points in BCC vision to support a business friendly environment in the UK include the establishment of a business bank and assessment of the extent to which the Beecroft Report might aid deregulation and increase employment especially for young people.

Keynote presentations

Victor Higgs,
Managing
Director, Applied
Nanodetectors



Victor Higgs highlighted the potential for key 'horizontal' or enabling technologies, such as nanotechnology, to aid UK manufacturing competitiveness across sectors. He showed that lack of strategic investment in these technologies could cut off future opportunities.

Dr Higgs argued that developing capabilities in nanotechnology, which has applications in all sectors but especially in hi tech defence & security, aerospace and healthcare, should be an integral part of government industrial strategy. He showed that other nations, including the USA and Japan have well funded national programmes to support nanotechnology while the UK has no formal programme to

advance this key capability.

In relation to the growth prospects of his own SME company Higgs said that he found China far more receptive to innovative companies. He said it is an entrepreneurial nation which recognises the value of innovation and is ready to take risks to maximise market potential.

Applied Nanodetectors was founded in 2004 to create nano-sensors for medical applications, particularly for breath analysis. Its products are of huge potential value to the UK NHS, according to Higgs, for early diagnosis and better self-management of conditions like asthma which represent large costs.

China is an intensely entrepreneurial nation - far more so than the UK //

Higgs said however, that risk aversion, an overly complex approach to medical trialling and a slow procurement and adoption culture in the NHS represented difficulties for his business and only served to highlight opportunities in Asia as more attractive and accessible.

Keynote presentations



Martin Smith, Head of Technology and Innovation at PA Consulting

Martin Smith delivered the final keynote for the 2012 National Manufacturing Debate and presented the findings of a recent report from his organisation titled: *How to unlock sustainable development?*

The report is based on information gathered during a series of roundtable dinners which took place across the UK and involved a wide range of industry representatives.

Opinions expressed by these representatives showed that there is a feeling that government is prone to changing the ground rules for businesses – often with good intentions but resulting in an impression of instability and uncertainty. A desire for greater consistency was expressed.

Mr Smith recommended that:

- Government should learn to pick winning technologies and sectors

- Organisations active in the target areas should align
- Entrepreneurs should be encouraged
- Industry and government need to create more excitement about manufacturing among the general public

Smith stressed that the supply chain is a key source of competitive advantage and highlighted that more communication within and between sectors has an important role in reducing uncertainty and enhancing productivity. He pointed to the Automotive Council as a successful example of how organisations can support this kind of communication.

Lord Alec Broers



Lord Alec Broers, who chaired proceedings during the morning presentations, brought the session to a close with a summary of the key points made by speakers. In his summary Lord Broers emphasised the need for urgent actions from government and large companies to support manufacturing SMEs. He also urged the National Manufacturing Debate organisers to ensure that the 2013 debate included an update on the progress made on this year's findings.

The Debate

Each year the National Manufacturing Debate at Cranfield University is led by a panel of industry experts representing a wide variety of sectors and viewpoints on the requirements of British industry.

The full panel for the 2012 debate included:

- Mark Lee, Head of Manufacturing, Transport & Logistics, Barclays
- Professor Paul Shore, McKeown Professor of Ultra Precision Engineering, Cranfield University
- Jon Bolton, Long Products Business Director, Tata Steel
- Karl Eddy, Head of Government Infrastructure and Advisory Team, Grant Thornton
- Nick Hussey, Chairman, SayOne Media
- Martin Smith, Management Team Member, PA Consulting Group
- Martyn Pellew, President, British Chamber of Commerce
- Dr Victor Higgs, Managing Director, Applied Nanodetectors
- Dr Will Barton, Head of Technology, Technology Strategy Board

The debate was chaired by Will Stirling, Editorial Director of *The Manufacturer*.

Key messages on the development of manufacturing SMEs for growth:

- Securing the UK Manufacturing Supply Chain is a shared responsibility among the government, industry and the financial institutions
- New Manufacturing Co-operatives with like-minded SMEs need to be supported to achieve business growth
- Large companies could support their small suppliers more and encourage collaboration
- There is a clear disconnect between industry skills and current delivery mechanisms. There is a need for direct engagement of industry in the education and training.
- Banks need to do more to inform SMEs about funding opportunities and how to take advantage of them
- Bank managers need better training in understanding the distinct needs of the manufacturing sector and SMEs within the sector
- More work is needed to improve the image of manufacturing and make it a desirable career destination in terms of SME job opportunities as well as those at blue chip organisations



Is the UK's manufacturing supply chain broken?

This was the question posed by *The Manufacturer's* editorial director, Will Stirling, at the start of the 2012 National Manufacturing date and the query which acted as an anchor for discussion throughout the afternoon.



Martin Smith, immediately objected to the term 'broken' in association with UK manufacturing supply chains but suggested that it is being undermined by the off-shoring of assembly work while companies focus UK activity on design work.

Will Barton also refuted that UK supply chains were broken, suggesting that the term "hollowed out" is more appropriate and that different sectors displayed widely varying states of health and integration in their UK supply chains.

Paul Shore countered this comment with a suggestion that hollowed out supply chains are an indication of production capacity being out of tune with

the forward capacity of tier-one companies. Some simple improvements in communication could improve this situation he insisted.

Panellists also suggested that collaborative projects below the OEM level could

Panellist comment



There are massive benefits to having a well connected supply chain - even better if relationships are formalised. Funding challenges, for example, can be helped by using the risk profile of a large purchaser to support the SME business case //

Mark Lee,
Head of Manufacturing
Barclays

be better leveraged to increase the capability and security of UK manufacturing supply chains. It was felt that OEMs were keen to support this concept but that many lacked confidence in the effectiveness and consistency of support for such collaboration.

Skills

Following this brief discussion of capacity in the UK supply chain, the debate quickly turned to address problems in the supply of skilled employees to support current capacity; let alone the increased capacity needed for industrial growth.

With 50% of the manufacturing workforce due to retire over the next 5 years, the problem of sourcing and training appropriate replacements for these roles poses a major challenge – and one which resonated with delegates as well as panellists at the debate.

In addition, skills retention is considered to be difficult for many companies. While apprenticeships were put forward as a potential solution, the quality of apprenticeship frameworks, particularly for SMEs with little influence over local training delivery, was seen as a barrier by some delegates.

Jon Bolton, who in addition to his role at Tata sits on the board of the sector skills council, Semta, defended the quality of modern apprenticeships. He admitted however, that administration of apprenticeships can be a problem for companies – a reason for the development of the Semta Apprenticeship Service.

John Christopher, a delegate from EESTA, urged the engineering community at large to take responsibility for skills challenges rather than bemoaning the lack of support.

Following up on this call to arms, Bill Williams, CEO of the Centre for Engineering and Manufacturing Excellence, which had just been awarded University Technical College status at the time of the debate, pleaded with industry representatives not to dismiss this education movement which gives employers the chance to shape the curriculum and inject engineering context into the way in which young people, with a proven aptitude for STEM subjects, learn.

On the issue of recruiting suitable engineering talent in the UK their were mixed views as to whether this was a problem of demand or supply. For instance while Lord Broers reported that the House of Lords Select Committee on Skills & Training found industry cannot source skilled engineers, a delegate countered this by quoting that Jaguar Land Rover received more than 13,000 applications for less than 20 graduate jobs.

Delegate comment



“The people in this room, members of industry, will be the ones who impact whether UTCs are successful in their own eyes. To a large extent these schools are still an

experiment, but I stress that it is entirely possible for an SME to have a part in their development. Just ten days per year of an engineer's time can make you a partner in a UTC with input into the curriculum”

Bill Williams,
CEO, Centre for Engineering and manufacturing Excellence

Access to finance



Panellist comment

“Being seen as part of a supply chain can allow an SME to step away from being characterised as a manufacturer of commoditised products and highlight that they are part of the production process for something much more bespoke. From a banking perspective this means we can look at a much greater vault” //

Mark Lee,
Head of Manufacturing
Barclays

Will Stirling asked attendees to clearly define

what problems they have experienced with access to finance. Attempting to show the choice available to manufacturers in search of finance Mr Stirling referred to government initiatives such as the National Loan Guarantee Scheme and the Regional Growth Fund. He suggested however, that persistent negativity from industry on finance challenges means these schemes do not match real needs.

Mark Lee assured that banks are aware that access to finance is still felt to be a growth blocker among UK SMEs. In response he said many banks are improving

their support for companies with cash flow issues. He also said however, that banks were not seeing strong demand for finance from manufacturing.

Mr Lee's assurance was not warmly received by delegates, and the lack of demand was blamed on the inappropriate nature of bank lending to small firms. It was felt that the banks are uninterested in providing loans of under £1m, too much for the purposes or capabilities of many SMEs.

According to Victor Higgs, lack of appropriate finance for entrepreneurs means that many are forced to leverage credit cards and he quoted anecdotal evidence of entrepreneurs who had “gone bust with bulging order books” because they could not get bridging loans.

Lee insisted that banks exist to lend and that any viable business proposition would be considered on its merits. But this comment raised the accusation that many bankers do not understand the manufacturing industry well enough to differentiate risk from promise.

Lee agreed that communication between industry and the banks needs to be improved and pointed to the 'lending clinics' being run by Barclays as an opportunity to do this he also suggested that the business case for an SME seeking finance might be improved by leveraging supply chain information and contacts. Nick Hussey also communicated that Lloyds bank recently sent 250 of its banks managers on an intensive manufacturing course, including tutoring in the principles of lean manufacturing, to help them understand the nature of manufacturing businesses more fully.

Tempering anger at inappropriate banking, some debate participants observed a low level of understanding

among SMEs as to how banks should be approached and the way in which to present their business. Professor Rajkumar Roy noted that Scotland has an SME development fund (e.g. Scottish Investment Bank) that could be used as a model for improving SME access to finance in the rest of the UK. He said this could facilitate understanding and clarify routes to appropriate finance for different investment or funding intentions.

Delegate comment

“ We feel that the banks are out to sell a product. We are also not given the opportunity to deal with the higher level relationship managers that deal with larger companies. Rightly or wrongly, the impression we get is that our relationship managers are focussed on meeting targets and do not understand our business ”

Richard Kings,
JH Richards





National Manufacturing Debate 2012

Strategy, collaboration and innovation

The pros and cons of Manufacturing Co-operatives or 'clustering' as a means of helping SMEs pursue growth formed the centre of a debate around suitable strategies for increasing supply chain resilience and capability in the UK.

Paul Shore spoke out as a strong advocate of clustering. He pointed to the regional strength of North Wales in optics manufacturing as an example of how clustering can foster a targeted technology or industry and help turn small companies into medium sized companies.

Delegate comment

“The Advanced Manufacturing Supply Chain competition is an ideal initiative to address failures in UK supply chains – such as getting a prime to adopt SME technology”

Philip Johnston, Managing Director, Trackwise

Expanding on this theme John Garside from WMG identified several instances of 'virtual companies' springing up in the Midlands and elsewhere. He explained that this model involved several small companies coming together to bid for parts of contracts which they could not fulfil alone. Mr Garside said however, that this model is being embraced more quickly abroad, implying that the UK supply chain may be missing an opportunity to capitalise on the strategy.

The Catapult Centres, administered by the Technology Strategy board and located around the UK, were spoken of positively. They were seen by many as a good way for SMEs to work collaboratively, and also to engage with large companies on technology or process development. Some delegates did however, express scepticism about the interest of the Catapults in companies who had “no money to bring to the party”.

Another TSB-led initiative to receive attention was the Advanced Manufacturing Supply Chain Competition which was praised by delegates for its ability to identify supply chain flaws and build competitive advantage delegates were encouraged to enter the second round of the competition for the opportunity to fund supply chain innovation projects. Round two applications for the competition closed on September 12, 2012.

The scope for large companies to assist in supply chain development was discussed but doubt was expressed over the extent to which large companies have, or should have, any allegiance to existing supply chains. There was seen to be an experience gap or understanding barrier between large companies, where finance and skills issues



are less urgent, and unique SME challenges.

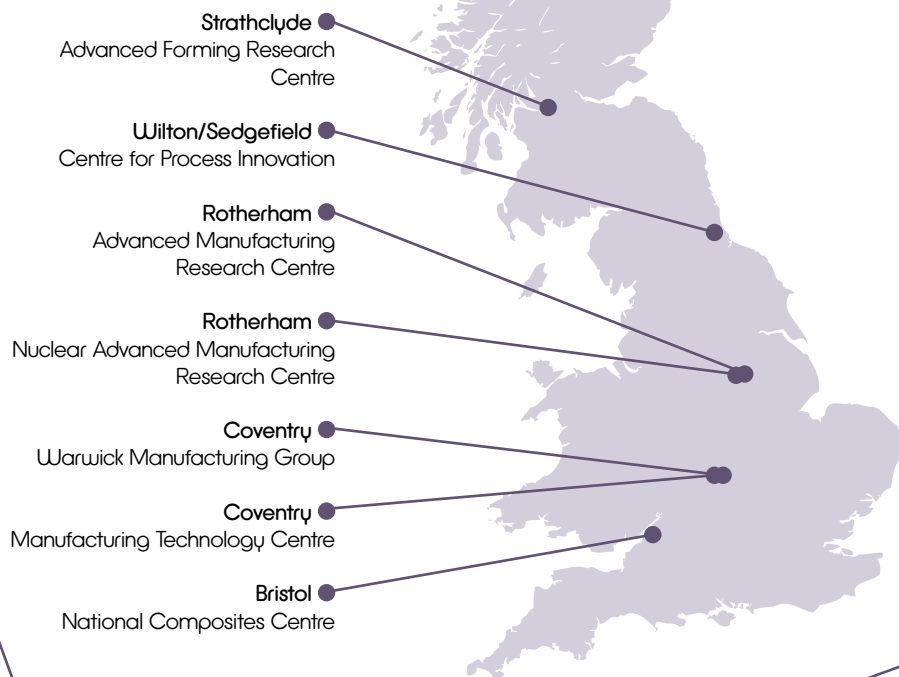
Returning specifically to the proposition of Manufacturing Co-operatives rather than the broader idea of collaboration, it was noted that SME clusters have been successful in sharing responsibility for apprenticeship training. This was seen as positive, not only because it takes pressure off a single SME to provide the time and training expertise for an apprentice and to share the apprentice wage cost, but also because it provides more security to the apprentice themselves. The potential impact of disappointing young people by having to curtail an apprenticeship was taken very seriously by delegates and clustering was seen as a way of providing apprentices with a safety net.

A possible catalyst for clustering in the UK was seen by some in a perceived desire on the part of some larger companies to pull back from globalisation. The impact of

events like the Fukushima disaster and the way in which such events exposed the inherent risk in far flung supply chains was noted.

This suggestion led to the observation that many companies in the UK, SME and large alike, are now foreign owned. It was recognised that this state of affairs made the requirement for a strong industrial strategy from government, which committed to creating a business-friendly environment in the UK for the long term, all the more urgent.

It was agreed that collaboration between government and large industrial business should form the basis of a national industrial strategy. In this way realistic strategic areas for growth could be targeted and developed with SMEs being pulled into relevant supply chains and given clarity on what core competencies they require in order to remain key players. The ability to export and to be active in international markets was felt to be a core competency which would apply across most supply chains.



The seven centres for the High Value Manufacturing Catapult

The public image of manufacturing

Delegate comment

“ We have done a lot to give engineering a very bad name in this country. For proof of its poor image you just need to look at the number of women it is managing to attract. The latest figures I have seen from the Engineering Council show that just four per cent of engineers in the UK are female ”

The final theme addressed by the afternoon's debate was the public image of manufacturing. Despite some efforts to highlight the value of manufacturing to the general public it was still felt that the industry has a poor public image and that this effects government and private investment in the sector as well as its power to attract young talent.

The proliferation of manufacturing trade bodies and agencies was seen to perpetuate this image problem. It was felt that, without a single strong voice to represent the industry,

its needs could not be addressed coherently and no consistent message about the opportunities within manufacturing would be heard.

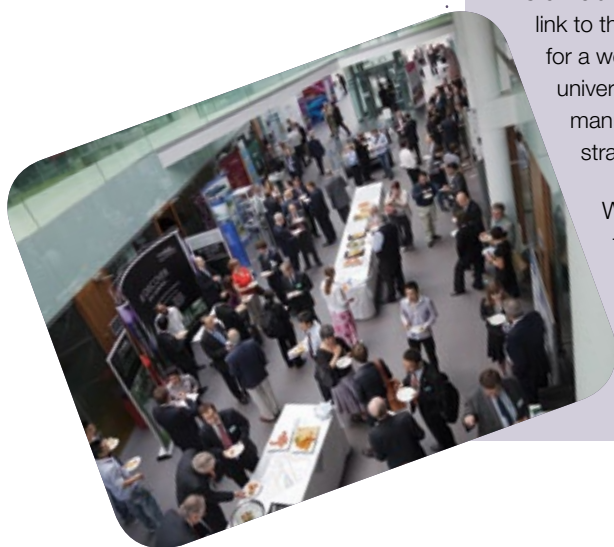
There were many negative effects which a poor public image was noted to have on manufacturing prospects. Among the most passionately argued during the debate was the impact that industry image has on the number of women entering the sector. One delegate commented that the UK is missing around 50% of its potential skills base by ignoring women as candidates for engineering and manufacturing.

Conclusion

All themes discussed in both the keynote presentations and the National Manufacturing Debate at Cranfield this year clearly link to the requirement for a well defined and universally recognised manufacturing strategy.

While the need for more government support, deregulation and confidence

to grow were all commonly agreed upon, it was felt that any one of these alone would not be enough to move British manufacturing forward out of recession. An industrial strategy which combines all of these and includes clear action points and policies to foster target industries is needed if UK manufacturing is not to be in the same position by the time of the 2013 National Manufacturing Debate.



A worthwhile exercise?

Speakers share their views on why the National Manufacturing Debate is important and what outcomes they hope for from the 2012 event:

Ian Gray, TSB:

The debate is important in bringing business, academia and government together. Too often we think in terms of silos. The kind of wide ranging debate which takes place here, across sectors, provides an essential interface.

The subject of this year's debate, focussing on supply chains, is incredibly important to the UK and I hope that I was able to reinforce and communicate what TSB is doing through its strategy and through its competitions to support businesses in getting their ideas to market faster.

Martin Smith, PA Consulting:

There is a huge debate going on in the UK about what we need from a commercial and industrial strategy and it is quite absurd that we do not have one – we cannot rely on market forces alone. The debate is therefore a fantastic forum because the national strategy must come from practitioner – not government. Government should just be an enabler.

Mark Lee, Barclays:

The sheer number of people who came to this year's debate and some of the individuals who sat on the panel reflect the groundswell of opinion within and around the manufacturing industry. For me the debate was an important barometer of industry. A chance to hear what challenges and opportunities are being talked about.

Victor Higgs, Applied Nanodetectors:

It is essential that we support a national focus on manufacturing. Taking the nanotechnology sector as an example, it is clear that those countries which have a clear national programme for nanotechnology have been able to leverage companies in the sector, giving them an advantage when it comes to international competition. A national focus on manufacturing should distil the value we have in the UK and identify where and how that can be exported. Perhaps most importantly though, our national strategy could raise awareness and create a vision for manufacturing which would draw in the next generation.

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Sir Alan Rudge, chairman of the ERA foundation and a speaker at past National Manufacturing Debates commented: It is important that we realise that talking about the problems faced by industry once does not mean those problems go away. It is therefore important that we gather together those people who are concerned about industry on an annual basis, to exchange views and report progress on dealing with the issues identifies when we last met.

Sadly I don't think we have really bitten the bullet on the conflict between decarbonisation and industrial growth which I spoke about at the 2011 debate. Jon Bolton from Tata Steel showed this in his presentation this year. He showed that the taxes we are loading onto energy costs are making the price of energy in the UK twice that of our major competitors.

Join us at the fourth National Manufacturing Debate, on 20th and 21st May 2013, at Cranfield University, to see what progress has been made.

www.cranfield.ac.uk/sas/manufacturingdebate

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