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Manufacturing does matter



In his opening remarks to the Future of UK Manufacturing Summit, Sir Alan Rudge, Chairman of the ERA Foundation, said: “Manufacturing does matter. It remains the source of real wealth generation.” If one examines political attitudes to the sector over the last two or three decades, however, one is hard-pressed to believe the political establishment agrees.

A lack of investment, support and apparent interest from Government has seen the country’s manufacturing output slip further and further backwards. For many years, of course, we were told this was not a problem. We were told we were living in a ‘post-industrial’ economy, where the business of creating and manufacturing products was regarded as an antiquated activity only pursued by those unable to grasp the realities of the new economic landscape.

If there is one good thing to have emerged from the recent global financial crisis, it is that it has effectively put paid to this notion. Following the virtual implosion of the financial services industry, it has become abundantly clear that manufacturing is going to have to plug the gap that has been left. Naturally, this has meant that politicians have had to sit up and take notice of the manufacturing sector again.

It was with this in mind that the ‘Future of UK Manufacturing Summit’ was launched. Offering as it did an opportunity for manufacturers to interact directly with representatives of the main political parties, the Summit provided much more than a platform for politicians to address manufacturers. In fact, it was designed as a forum for politicians to listen to manufacturing.

The overriding impression from the Summit was of an industry struggling to innovate and compete under the joint burdens of under-investment, a media-inspired image problem and anti-competitive taxes and regulation. Even our world-leading sectors, such as aerospace, felt they faced serious long-term threats that, if not addressed, would lead to inevitable decline.

Five key points emerged from the Summit that were felt to require the most urgent action. These were: long-term political leadership; a need for culture change to improve the perception of manufacturing; a need to improve the level of engineering skills; the improvement of the business environment through greater incentives and lower taxes; and an urgent need to reduce energy costs.

Following up on this, Findlay Media, with the support of the ERA Foundation and the Institution of Mechanical Engineers, has launched the ‘Vote Manufacturing’ Campaign. Designed to place manufacturing firmly on the political agenda prior to the forthcoming election, the campaign encourages those involved in manufacturing to put these five critical issues to their political candidates and ensure that manufacturing industry’s decline is not allowed to continue. The campaign urges candidates to back their doorstep talk with appropriate, decisive and immediate actions.

Does manufacturing matter? One could argue that it’s never mattered more.



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Manufacturing: our future



A debate about the future of British manufacturing is ultimately a debate about how Britain can best generate the sustainable growth it needs in the decades ahead.

To build a balanced economy in the UK, we need to invest in those basic strengths that will underwrite our competitiveness in the industries and jobs of tomorrow.

Over the last 30 years, British manufacturing has continually reinvented itself in the face of intense competition. Securing an edge in research, design and innovation that has put us at the top of global supply chains as the world's sixth largest manufacturer and a leading exporter of high-tech goods and services.

The rise of industrialising nations like India and China and shift to low-carbon presents us with both a challenge and huge commercial opportunity.

As the global market for high-value products – especially those produced to a high environmental standard – increases, we need to be ready to win our share of the business and new jobs that will create.

But the market alone won't supply the skilled workforce, modern infrastructure, long-term finance and investment, strong R&D base and access to emerging technologies that our manufacturing base needs to compete. These capabilities are built through public investment and a strategic focus from Government and industry. That's why, over the last year, our Government has announced a £150 million package of major new measures to help UK advanced manufacturers.

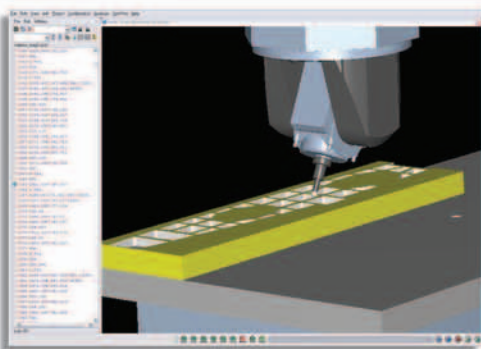
We're investing almost £1 billion in cutting edge technologies like plastic electronics, composites, wave energy and industrial biotechnology that have huge forecast global markets and where Britain has real potential for leadership and growth.

Taken together, these measures can help British manufacturers realise their global ambitions and our Government will continue to do all it can, working with you, to ensure Britain prospers as a 21st Century industrial nation.

Lord Mandelson

Secretary of State for Business, Innovation and Skills

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The state of play

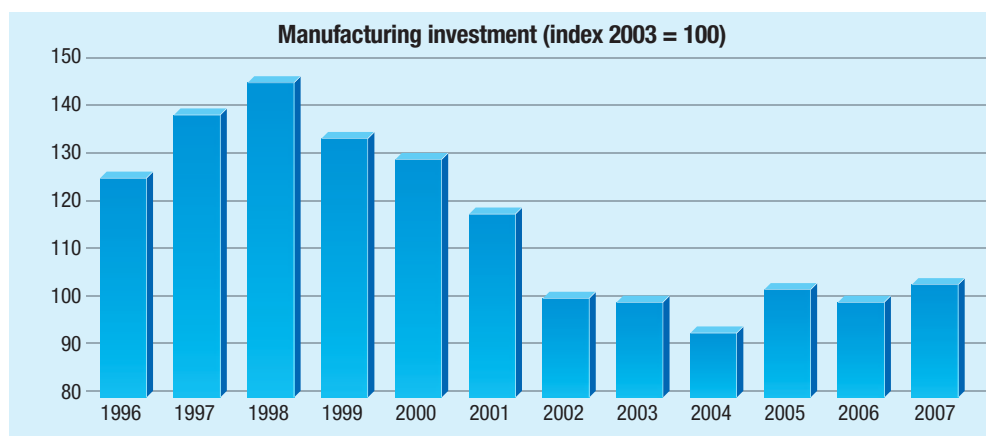
The ERA Foundation has analysed the current state of UK manufacturing and has attempted to establish the key parameters for industrial recovery.

In his opening remarks to the Future of UK Manufacturing Summit, Sir Alan Rudge, chairman of the ERA Foundation, set out to offer an overview of the current situation facing manufacturing industry. In doing so, he drew heavily on The Foundation's '4th Report on the Sustainability of the UK Economy in an Era of Declining Productive Capability'.

Commissioned by the ERA Foundation from Oxford Innovation, and available in a compilation from the ERA Foundation as 'The Sustainability of the UK Economy in an Era of Declining Productive Capability', the report paints a fairly clear picture of a sector that has been largely ignored by successive governments that have preferred instead to develop and maintain a favourable environment for financial services.

The Government-led drive towards a 'post-industrial' economy in which a declining manufacturing industry was deemed to be relatively unimportant by policy makers and little was done to either recognise or react to the decline, is outlined in the report, which points out: "Under the Conservative Governments of Thatcher and Major, manufacturing declined from 25% to 22% of the economy; this has accelerated rapidly under the Blair and Brown administrations and has now reduced to 12% of GDP."

The myth of the post-industrial society is clearly illustrated in the UK Trade Balance and the impact upon the Balance of Payments in the period prior to 2008. And, although the Balance of Trade has recovered somewhat



over the past year as a consequence of the recession, the position for manufacturing remains (in the words of the report) 'dire'.

The huge cumulative deficit in the balance of trade over the past decade has been driven primarily by the massive and growing deficit in trade of manufactured goods. And, while the recession has halted the decline, manufacturing has not yet benefitted markedly from the market-driven devaluation of Sterling – certainly not to the same extent as it did in 1993 after the UK's forced withdrawal from the Exchange Rate Mechanism.

The report finds that over the past decade, and in contrast to widespread claims to the contrary, the deficit in manufacturing has not been compensated for by the growth in financial and business services. The surplus on Other Business Services has been almost entirely offset by the deficit on overseas travel. With a deficit in the trade of manufactured goods still at £55 billion per year, and a deficit in food and beverages of almost £20 bil-

lion per year, the overall picture of the past twelve years is that of a nation consuming more goods than it is able to pay for by trade and earnings from abroad.

The resulting deficit in the balance of payments has been financed primarily by the sale of debt and equity assets; to the tune of £40 billion in 2007 alone. Without this capital inflow the UK would not have been able to finance the deficit in the current account, which, although reducing with the onset of recession, remains stubbornly in negative territory.

The need for manufacturing to play a leading role in bringing about financial recovery is emphasised by the fact that alternative drivers for real growth are not up to the task. Consumers' spending will be restrained as households recover from the credit bulge of the pre-2007 years. Tax increases will almost certainly hit households hard as the Government seeks to repair public sector deficits.

Public spending, after a period of

The parameters for manufacturing success

Parameters identified as requiring urgent action:

- A long term, well publicised, Government commitment to manufacturing.
- Competitive energy supply and costs.
- Availability of technical skills (non-professional).
- Encouragement, especially of the young, towards industry and manufacture.

Parameters requiring review and optimisation:

- Government procurement policies and practices.
- Investment tax incentives.
- Capital depreciation relief.
- R&D tax credits.
- Corporation tax.
- Business start-up support.
- Deregulation (and reduction of bureaucracy).
- Direct Government grants for specific industrial initiatives.
- Availability of engineers and other professional skills.

- Encouragement for Academic/ Industry collaboration.
- Maintaining the science base.
- Regional Development and the role of the RDAs.
- Infrastructure (transport and communications including broadband).
- Venture capital tax incentives.
- Bank for Industry.
- Accommodation costs/business rates.

Parameters judged to be in reasonable shape at the present time:

- Foreign exchange rate.
- Interest rates.
- Labour costs.
- Flexibility of labour laws.
- Capital Gains tax.
- Capital controls.
- Intellectual property protection.

Parameters considered of low priority or irrelevant to manufacturing:

- Competition policy.
- Foreign takeovers.

rapid expansion, must also be restrained severely and this will surely act as a drag on growth. With the running down of North Sea gas and oil and a growing deficit in energy, Britain will be increasingly dependent upon growth in the manufacturing sector and its exporting and import-substituting capacity to balance the economy

In their recent paper 'Prospects for the UK Balance of Payments', the Cambridge economists Coutts and Rowthorn have predicted, using conservative assumptions, that the current account deficit will increase from 2% of Gross Domestic Product in 2009 to almost 5% by 2020. They make the point that empirical evidence indicates that a deficit of this magnitude is not sustainable and, if unchecked, will lead to a painful adjustment involving lost output and higher unemployment.

Their paper calls for industrial and other policies to improve UK trade performance, including services but above all in manufacturing.

The question remains, however, what policies are needed to create a climate in which manufacturing can flourish? The ERA Foundation has used the analogy of a greenhouse to illustrate the situation. In essence, when too many of the plants in the greenhouse are withering it is time to examine the greenhouse and not the individual plants. With this in mind, the ERA Foundation, working with other similarly concerned bodies, set out to establish a list of parameters which were considered to be influential in shaping a healthy environment for manufacturing.

The list is not necessarily exhaustive; nonetheless, to test the param-

eters and provide some initial prioritisation, it was circulated as a simple questionnaire to one hundred knowledgeable industrialists and policy makers who were invited to add further parameters.

Thirty-six responses were received and a final list of 31 parameters compiled; these are organised in the priority order shown in the panel. In addition the ERA Foundation commissioned a report from Oxford Innovation on the subject of 'The Environment for Successful Productive Industry' (Oxford Innovation, July 2009, available from the ERA Foundation).

Despite the limited scale of this survey, the combined responses do provide firm indication of the items of concern. Only two of the parameters received a substantial 'low priority or irrelevant' vote.

The parameters which scored highest as either 'urgent action for an incoming Government' or as 'needing optimisation' are shown in the accompanying table. The 'optimisation' of parameters, substantial and developmental in some cases, should be undertaken with a view to tilting the playing field in favour of UK industry and manufacture and thereby creating the conditions for growth rather than decline. Such optimisations must include the provision of a fertile environment for profitable investment and this demands attention to a variety of taxes. In optimising any of these parameters the need to maintain stability is critical if long term investments are to be encouraged.

It should be noted that the recent devaluation of Sterling and the onset of low interest rates have removed two major issues for manufacturers; therefore they do not appear in the 'urgent action' list. However, it is clear that these are key parameters and there is a long term need for Government to manage them with manufacturing in mind.

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Passions emerge at UK Manufacturing Summit

The UK's manufacturers are a committed bunch and they are looking for something back from Government.

It didn't take long for strongly-held views to be aired at the Future of UK Manufacturing Summit, held at the Institution of Mechanical Engineers, London, 4 March 2010. The oak-panelled halls and large portraits of eminent engineers of the past gave silent testimony to the history of UK engineering and manufacturing but the concern in the Summit was all about where the industry is today and how it proceeds.

In his introductory speech, Sir Alan Rudge, chairman of the ERA Foundation, highlighted the decline of manufacturing in relation to broader GDP. The last 10 years have seen it fall to just 12 per cent of the national economy – a faster fall than under the Thatcher/Major years – as governments chased the golden 'post-industrial' crock at the end of the 'service economy' rainbow. Our balance of trade with the rest of the world has fallen into huge deficit: £25 billion in 2008. Imports of manufactured goods exceeded exports by £58 billion – although there seems to have been some recovery in 2009. But manufacturing remains responsible for half of all the UK's exports, three-quarters of its R&D investment and employs millions.

While the basic picture wasn't news, the extent of the problem raised a few eyebrows.

The ERA Foundation's report (The Sustainability of the UK Economy in an era of Declining Productive Capability, February 2010) identified among UK manufacturers various sets of parameters and concerns, which were classified from 'urgent' to 'irrelevant to manufacturing'. While it may be surprising that 'competition policy' and 'foreign takeovers' came under the latter heading, those requiring 'urgent action' will not have caught anyone unawares. They included a long-term, well-publicised government commitment to manufacturing; competitive energy supply and costs; availability of non-professional (for example, craft and trade) skills; and encouragement of the young towards manufacturing. Tax, government procurement, R&D credits; start-up support; maintaining the science base; and a 'bank for industry' were among the second category.

It quickly became clear that the panel discussion was going to overrun its allotted timeslot. Many participants were eager to make their points and to do so clearly and forcefully. The panel consisted of Liberal Democrat

MP Vince Cable; Mike Gregory CBE, of the Institute for Manufacturing at Cambridge University; Conservative MEP Malcolm Harbour; Ian Godden, chairman of A|D|S; Ruth Lea, economic adviser to Arbuthnot Group; and Harry Tee CBE, chairman of the Electronics Leadership Council and a number of companies.

The discussion started quietly enough, with a question about a 'bank for industry'. Cable observed that the banks needed fundamental restructuring, that they had failed in their mandate to lend to business and their overriding obsession seemed to be rebuilding their balance sheets. If they were 'too big to fail' then maybe they should be broken up and it could be that, out of that process, special institutions aimed at manufacturing could emerge. Harbour agreed and highlighted particular failure in venture capital funding.

"Finance is especially missing in the development phase and taking the business to the market, which is the most crucial phase," he said and pointed out that far more venture capital gets involved at that stage in the US. "There may be an opportunity to use more funds from the European Investment Bank through appropriate vehicles in this country to cover what is certainly a funding gap." However, government bureaucracy may get in the way. Jaguar/Land Rover applied for a grant to aid in development of more



Sir Alan Rudge, chairman of the ERA Foundation, chaired the debate

“Manufacturing remains responsible for half of all the UK's exports, three-quarters of its R&D investment and employs millions of people“



The panel (l-r): Mike Gregory CBE, of the Institute for Manufacturing at Cambridge University; Malcolm Harbour MEP (Con); Sir Alan Rudge of the ERA Foundation; Vince Cable MP; Ruth Lea, economic adviser to Arbuthnot Group; and Harry Tee CBE, chairman of the Electronics Leadership council and a number of companies

efficient engines and had to wait 18 months for a sign-off to release the money. Competitors on the Continent obtained similar funds far faster.

"Start-ups and SMEs find it especially difficult to get funding," said Lea. "It becomes a vicious circle – the economic situation means that such businesses are seen as higher risk, so they can't get funding, so they fail and things go further downwards." She said she was not convinced that we would see a break-up of the big banks in the UK. "But I think it's worth looking at the idea of an industrial bank; I see it as an idea whose time has come." The chairman concluded the answers by suggesting that the right tax environment would attract investment, that it could not be forced.

The discussion then moved onto aligning the UK's undoubted leadership in financial services with manufacturing, which would help to commercialise innovation. Tee contrasted the situation in Germany, where technology centres are funded equally by industry, government and academia. The close involvement made the path to commercialisation of innovation easier – so much easier that, for example, the commercial lead the UK had in electronic plastics has resulted in the establishment of development centres in Germany and The Netherlands. A contributor from the floor questioned whether the country is effectively using the power of public

purchasing to drive innovation. He found ready agreement.

"In health, for example, we have colossal, integrated market. The NHS is looking to move to working more closely with companies," said Tee. "In conjunction with universities, early stage funding could be raised because the investor knows there is a customer. You can see how it can work if you look at the US and the development of their defence industry." Gregory concurred.

"Universities are becoming more entrepreneurial and working better with industry but we aren't [as a country] fostering and building an environment for growing industry," he said. Cable turned his focus on the banks.

"They are not aligned at all – they're totally misaligned to industry. They are used to making money through securitised assets, through mergers and acquisitions," he said. He warned, however, that the tide may have turned on science funding, in an era of cuts in public expenditure. Tee said that, if science funding is cut, then the government has to make

decisions as well – which science will be invested in? Sir Alan said there is nothing wrong with our science base at the moment and Gregory opined that the weak point is not the science, that it is downstream; the chairman responded that if the tax advantage was shifted to manufacturing, people would invest in it.

"It's a game of billions. It needs a big and concerted effort," he said. Harbour added that there is a need for public initiatives to be sustained – which was met with a murmur of agreement from the floor.

"SMEs find the process is so complicated, they give up applying. MAS has done a good job and I hope it will be sustained – but the question is: where will the money come from, in a restrained environment?" he said. "There are ways to leverage public funding. The government hasn't given clear leadership or indicated support and understanding of those areas. For example, the supply base in the auto sector has been hollowed out."

Cable made the interesting point that the political parties are subject to conflicting pressures. "One group wants lower tax rates – and you can get those by doing away with allowances," he observed. He also suggested that a lot of money could be saved by doing away with RDAs; his point about conflicting interests was illustrated by a brief discussion of whether and how RDAs had been



"We aren't fostering and building an environment for growing industry."
Mike Gregory CBE

helpful or effective. Some have, it would appear, and some are perceived to have been less so. But if there was total agreement – and strong feeling – on the complexity of access.

"We ran a survey of SMEs in the electronics and high-tech sector; most of those companies employ fewer than 50 people," said Tee. "They don't have the time or resources [to fill in all the forms required]. They need a single point of contact." Gregory reiterated Cable's point and said that manufacturing needs to speak with a coherent voice. The discussion then moved onto linked areas, starting with training and skills, including attitudes to manufacturing; and the role of public agencies, including the RDAs.

"There is clearly a lot of feeling in the room about the way manufacturing is handled," said one contributor. "We are looking for leadership from governments [of whatever party] in finding solutions to the problems."

The potential of manufacturing to solve the balance of payments issue was mentioned again – a 10% rise in exports would virtually wipe out the deficit. But how does the sector attract youngsters? And what about manufacturing's hunger for working capital?

"I see two themes," said Cable. "One is that the balance in post-school education is in the wrong place, towards universities, rather than technical colleges [and work-place training]. They don't have the same esteem from kids, who remember that their dads and uncles lost their jobs. The second is that housing and building is the most employment-rich sector – but the problem is that it's the wrong model. We are obsessed with private contractors building private housing." And the private sector is prone to booms and recessions. "The government needs to ensure a steady flow of support through the Housing Corporation to ensure homes are built." Which would benefit the construction supply chain. Harbour supported the call.



"The balance in post-school education is in the wrong place, towards universities, rather than technical colleges."

Vince Cable MP

"The government is looking for some big-picture issues and the lady [from the floor] was right to highlight the short-term nature of support," he said. "It should demonstrate more leadership in green and sustainable technologies than it is. We face the danger that a failure of leadership will see companies go. High-tech and sustainable activities attract skills – but that has to start at primary school. Youngsters want something successful."

Lea said the question of skills came up time and time again when she was at the Institute of Directors and that there is a lack of a proper vocational pathway, such as the Netherlands and German-speaking countries have. However, she said that the government may now be realising the scale of the problem.

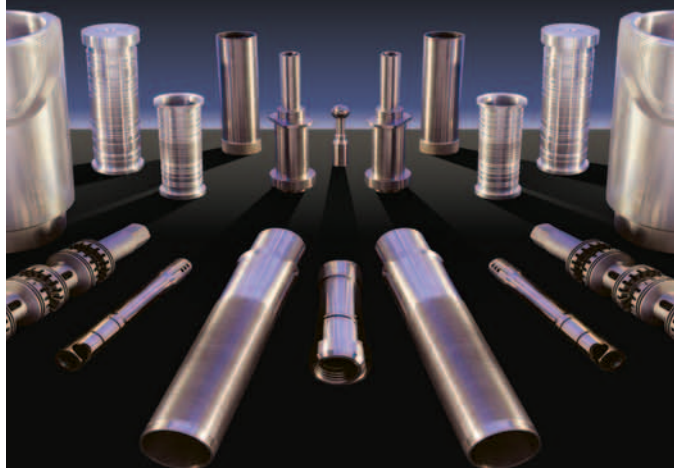
A contributor from the floor, who had patiently waited to get his point across, said there was a danger of 'drowning in ideas'.

"We have an election coming up. What can we do now to ensure we ask politicians the right questions?" he asked. There was agreement that it would be a good idea to draw up a 'manifesto for manufacturing', which would focus on key issues and help the sector to speak with a single voice. Not least of the issues is energy costs and security of supply. While the pursuit of sustainable and renewable energy is laudable, the UK's tax and charge regime is placing the country at a significant disadvantage – a topic addressed during the automotive sector's discussion in the afternoon.

After an opportunity to cool passions and exchange views over coffee, the meeting was addressed by Lord Mervyn Davies CBE, minister for trade, investment and small business. Informal discussions over lunch indicated a divided reaction. While everyone appreciated the minister's attendance, there was a strong feeling that parts of his speech were 10 years out of date. However, his call for more expertise from different sectors in the economy to come into government was broadly accepted.

The afternoon saw contributions from Lea, who gave a warning-laden view of the economic situation and the difficult choices facing the country. The best response was probably drawn by Andrea Rodney, director and owner of Hone-All, a precision drilling equipment manufacturing SME. Her tale of the weight of bureaucracy that frustrates attempts to take advantage of supposed opportunities for training and exporting drew nods of agreement. Her company's ability to recover business lost to less well-equipped competitors was applauded. Her passionate commitment to her company and to manufacturing was a more than adequate reflection of the feelings of the attendees.

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Flying the flag?

Despite its position as the UK's flagship manufacturing sector, aerospace faces considerable obstacles both now and in the years ahead.

Chairing the aerospace sector meeting, Ian Godden of aerospace trade association A|D|S began by giving an overview of the UK aerospace industry's current position. In doing so, he highlighted the fact that aerospace is one of the UK's biggest manufacturing success stories. Indeed, on the surface, the figures relating to the sector were highly positive. The UK aerospace industry is the biggest in Europe (bigger than the next largest – France – by 30%) and the second biggest in the world after the US. In fact, the sector holds 17% of global market share, a figure which, according to Godden is 'going up, not down'.

At this point, however, the air of positivity began to dissipate. Pointing out that 'If you don't back winners, they shrink', Godden then proceeded to detail what he believed was the Government's under-investment in this successful sector. A particularly unfavourable comparison in this regard was the investment of £340million in the Airbus A350 XWB project announced last year. This was dwarfed, however, by France and Germany's respective investments of €1.2billion and, indeed, Godden put an approximate figure of £800bn on government's overall investment in the sector, with promises of less rather than more to come.

In response to this, Professor Derek Sheldon of engineering consultancy firm Derek Sheldon Consultants asked the question that was on many lips when he said: "The proper strategy should be to hold on to and maintain the position of the aerospace industry as one of our key sectors at all costs. But is that a question or is it a given? I'm not sure how the government sees it."

John Garside of the IMechE's Manufacturing Industries Division Board raised what he felt was a key threat to the future of UK aerospace: the fact that the UK lost its influence over the Airbus consortium when BAE Systems sold its 20% share in 2006. "Since we haven't got a voice in the Airbus decisions, we've lost our control. We're the only company, other than the US, capable of building a complete civil airliner. There is massive demand for aerospace, with huge opportunities. For instance, China wants aircraft numbers in the thousands. Here we are, as a nation, desperate for high-value manufacturing and we're walking away from it. It just beggars belief!"



Godden concurred, saying: "Airbus is wildly successful, but we're only hanging on to it by our fingernails. We are the world's leading wing designers and manufacturers, but unless we hang on to the wing design, our market share will shift from 17% to the 'natural' level of UK industry – 3 or 4%."

Continuing, he said: "20% of Airbus equity used to get us 20% of the workshare. Plus Rolls-Royce engines, that equalled 40% of the European civil aerospace industry. Since we have lost control of the equity, every time a new programme comes along, we're having to fight much harder. As we speak today, the lack of equity and the UK not matching the levels of investment by France and Germany means that our share of Airbus is declining."

In terms of securing funding, Conservative MEP Malcolm Harbour asked: "How do we retain and develop the international competitiveness that we have in this sector and what do you want government to do to help?" He also asked whether the UK was accessing sufficient investment from the EU funding for aerospace, to which Roger

Parr of the East Midlands Development Agency made it clear that such funding was not easy to get, saying: "There's a lot of money out there, but God is it hard to get to!"

Ian Godden suggested that the creation of an aerospace research institute would go a long way towards helping to secure EU money, saying: "One of the reasons we don't get our fair share of EU funding is that, in the eyes of the European Union at least, we don't have the right model to channel the money in."



"It's a time bomb. If you look at the demographics, we're about four or five years away from a crisis." Ian Godden, A|D|S

He also suggested that such an establishment would create a strong training resource to plug the skills gap, about which he expressed considerable worries, saying: "It's a time bomb. If you look at the demographics, we're about four or five years away from a crisis. So it feels OK at the moment, but the crisis is coming. And the big problem for us as – for instance – the nuclear industry gears up is going to be competing for that resource."

Derek Sheldon was less concerned about this problem, however, feeling that aerospace's position as a 'glamorous' industry insulated it from the worst of the skills shortage to some extent. "There is a worry about the young folk coming through," he said, "but it's still a fairly sexy industry compared with many. And the other thing is that most of the large aerospace companies are still sensibly investing in apprenticeships."

Simeon Collins of Wallwork Heat Treatment then offered a stark warning to the aerospace industry regarding the increasing energy costs that were making UK companies less competitive. "Energy is now so

disproportionately high for us – we're talking millions – that we're having to buy it on a daily basis. A lot of companies now just can't offer heat treatment cost-effectively. By the end of this year, there may be only two companies that can offer heat treatment to the aerospace sector: mine and one other. Your prices are going up; I'm talking 300%. And when you come to get your compressor blades or your landing gear heat treated, I'm not taking the hit on that. And if there's only going to be me and one other, you're going to be less competitive."

Using this input from the supply chain as a cue, Godden moved the discussion 'from macro to micro', moving on to the concerns of the supply chain. In doing so, he unearthed considerable supplier anger and frustration at the obstacles put in their way by the major aerospace companies.

Perhaps the most vociferous contributor in this regard was Andrea Rodney of Hone-All Precision, who outlined the expense and difficulties involved in getting the approvals from the major aerospace companies necessary for undertaking work for them. She said: "How do we actually become part of your value supply chain without a massive investment with no guarantee of a reward at the end of it? Why do you create these obstacles to supply when we can demonstrate that we've already hit your targets in terms of quality. Why do we then have to pay to do it all over again?"

Godden sympathised, saying: "The problem is that the big aerospace companies refuse to accept each others' standards." He did point out, however, that the SC21 programme designed to accelerate the competitiveness of the aerospace & defence industry by raising the performance of its supply chains was addressing this, but that it was no easy process.

In defence of the major aerospace companies, Garside said: "You have to remember that every aircraft has to be flight-certified and we have to be sure that everything on that aircraft is right." Rodney responded to this by saying: "When your aeroplanes are sitting on the runway, I've done plenty of jobs to get them flying and it doesn't matter whether we've got the approvals or not."

Godden attempted to pour oil on these troubled waters, asking delegates to look at the problem globally. He said: "This is a world-wide problem. If you talk to people in France, they think they've got a worse supply chain than the UK – and they're right."

Key points

- Insufficient Government investment threatens UK's current leading position in aerospace.
- The sector is only four or five years away from a skills crisis.
- Inefficiencies in the supply chain are making the sector less competitive.

Investing in tomorrow

How can UK manufacturing attain the position it merits in the economy?

Dominic Molloy of Rockwell Automation gives his point of view.



As Rockwell Automation's sales director, UK & Ireland, Dominic Molloy has a vested interest in the future health of the UK manufacturing sector.

In the UK, Rockwell Automation is involved in almost every sector of manufacturing. As Molloy puts it: "Food and beverages, life sciences, power and infrastructure, rail, water and wastewater, packaging – pretty much any industry you go to you'll find our products." What is good for the UK manufacturing sector is therefore good for Rockwell Automation and any threats to manufacturing are threats to the company. Naturally, then, he has areas of major concern about manufacturing's long-term health and its place on the political agenda. And, while he describes UK manufacturing as 'fairly robust', the fact that reports show manufacturing output has fallen from 21% of GDP in 1994 to 12% in 2008 means Molloy can see the flaws in its structures.

"I think probably one of the biggest challenges facing us is the perception of manufacturing in the UK," he says. "We have a large economy in global terms, but the balance isn't sustainable

in the long term. I think one of the critical things for us is to get a more balanced economy going forward and a strong manufacturing base is critical to that. I think if you've got a strong manufacturing base, you can be a leading player in the global market."

Of course, the question remains of how to go about achieving this and Molloy is not short of ideas on this score, beginning with a change in approach to the sector from government. "I think the government's role is critical", he says, "but it's difficult because we change personnel in government quite a lot. The Labour government has been in power for some years now, but even though it's been a long while, there's been a lot of change in terms of ministers and strategies. I think government needs to simplify its strategies to ensure perhaps more of a collaboration with the manufacturing industry. I think government needs to invest more in the manufacturing industry. The grants available tend to focus on the larger organisations or the smaller ones, with the result that the SMEs tend to lose out."

Another issue that Molloy feels requires urgent action is the question of skills and training. This is an area in which Rockwell Automation has felt the pinch itself, leading it recently to take steps to counteract the shortage of available engineers. "We're actually putting our money where our mouth is," says Molloy. "In September, we will be taking on four apprenticeship trainees. We will be hiring them on a three-year programme, so they'll end

"Probably one of the biggest challenges facing us is the perception of manufacturing in the UK."

Dominic Molloy

up with a degree qualification at the end of it. Whilst we have programmes to develop our existing staff, this is the first initiative of its type we've done for a number of years in the UK. Part of that is driven by the fact that we see a serious skills shortage in the UK. It's getting harder and harder for us to recruit people into our organisation, so we've taken the decision to grow our own talent. This year will be the first year and hopefully we'll proceed on a yearly basis. We're looking at four people, which allows us to make sure they have a position with us at the end of their training period. Hopefully as the economy picks up over the coming years, the scheme will expand – because it does become self-funding after a while ... if you put that time and money in training schemes to get people who are right for you, you get a real return on your investment."

This is not to say, however, that Molloy feels government does not have a major role to play in remedying the skills shortage. "I think the way we put together educational and training packages in schools and universities has to change. There's been a big push to get people into universities over the last 10 to 15 years, but it seems to have been at the expense of vocational training like apprenticeships, diplomas, engineering and scientific courses. I think if the government could promote more of those skills and technologies that allow people to move into manufacturing, that would be a big step. If we don't have the people trained in those skills going forward, we're going

to struggle to be a leading force in manufacturing."

Of course, many of manufacturing's problems stem from an image problem based on outdated public perceptions. Here, Molloy believes, his company's technologies have a major role to play. "Automation helps to create a more appealing image of what manufacturing actually contributes to the country. Maybe a lot of people still think of dirty, smelly, noisy factories, but if you go to a modern car plant, for instance, they're fantastic facilities. If you go to modern factories, they showcase what investment in technology can do."

Improving processes

But it is not just a question of perception, of course. The need to improve processes is going to have to play a major role in reviving manufacturing. He says: "We need to carry on creating a flexible workforce, but we also need to accept that we're not a low-cost labour market, so our foundation has to be built on innovation, productivity and efficiency. The more you automate your manufacturing process, the less labour becomes a large part of your costs and the less that becomes a negative factor in competition. If your labour costs are low due to automation, it becomes less significant and reduces the 'low-cost labour country' argument for manufacturers."

For all the negatives, Molloy does see a number of opportunities available to UK manufacturing, not least in new technologies based around sustainable power generation. In particu-

lar, he points to developments in the automotive sector, saying: "We're moving away from carbon-based fuels. That's a huge opportunity for the UK to become a centre of excellence again. It's a great boost that Nissan decided to build its electric car here."

He also warns against only concentrating on the negative aspects of environmental regulation, saying: "A lot of those environmental questions – you can just see them as an overhead and a burden on manufacturing, but they actually force people to be innovative and to do things in a more flexible way. So, if you look at it as a challenge and a way of improving your process, you can actually make being green a new type of lean manufacturing discipline. It's actually helping us in a lot of ways to be more flexible and innovative and enables us to create enterprises that are truly sustainable."

For all the hardships brought about in manufacturing by the recent economic downturn, Molloy hopes that it will mark a sea change in governmental attitudes towards manufacturing. "I think the message is starting to filter through," he says. "Sometimes you need a bit of a kick to make you realise that things need to be corrected ... I think what the last year or so has done has made people realise that we wouldn't have been hit so hard if we'd had a more balanced economy...I'd like to see the UK government set out its stall that it wants to attract investment in our manufacturing base because it's very efficient, very high quality and can be very profitable for investors."

Driving change

The automotive industry sector breakout group found a lot of common ground – and agreed to seek to speak with one voice.

The automotive industry breakout session, moderated by Mark Johnson, group chief engineer, Advanced Product Creation with Jaguar Land Rover, began with a proposal to endorse the establishment of the Automotive Council, which is co-chaired by Lord Mandelson and Richard Parry-Jones and split into two groups: the technical group and the supply chain group. There were no voices raised against. Discussion moved quickly on to complexity in dealings with government and public agencies.

“Andrea Rodney hit the nail right on the head,” said one contributor, referring to the presentation by the director of Hone-All. “Those who work in government do seem to try and make things as complicated as possible.” Not only that, but the decline of manufacturing as a proportion of the UK’s GDP appears, to many of those present, an illustration of successive governments’ lack of interest in the sector as a whole.

“This hasn’t just happened, it has been happening over 25 to 30 years and it won’t improve unless there is a sea change in the way politicians see their role. Otherwise it will be about short-term gains.”

“We need, as a high priority, to see a long-term commitment from government to manufacturing – and a consistency in its message. There is a clear need to ensure that it isn’t just lip service, that it’s demonstrated in action.” Among those actions recommended to ‘walk the talk’ is an ‘industry bank’ – a source of finance attuned to the needs of industry.

It was appropriate to emphasise that the order of discussion did not indicate priority on the agenda, when the subject of energy costs arose. “If the UK is in a worse competitive position because we are seeking to set an example on climate change to Europe, then we are all in a bit

“If the UK is in a worse competitive position because we are seeking to set an example on climate change to Europe, then we are all in a bit of a pickle.”

of a pickle,” said one participant. It is a subject on which there are clearly strong feelings and there is a widespread belief that the UK is being harmed by a disadvantageous energy policy by virtue of not having security of supply and paying some of the highest prices anywhere in the developed world. “We have to have a competitive energy supply and cost,” said one. “Costs are the priority for today but there is no doubt that we need efficiency in the longer term,” said another.

The subject of non-professional (for example, shopfloor/craft/trade/technical) skills is one that is also felt strongly and gave rise to the first disagreement – born more of misunderstanding, rather than definite differences, it ultimately emerged. It was accepted that there is a problem with educational throughput – that the industry is subject to supply and demand rules in its need for skills. From that, it is vital for industry to seek to ensure a home for skills that may not be required for a period in the future.

The most vexed question is one of apprenticeships. While they may not be an insupportable burden for large organisations, SMEs have to think carefully before they take on an untrained candidate, whether direct from school or later. Among solutions suggested were the Isle of Man Apprenticeship and a similar programme in Wales, which both bring together groups of SMEs, who will undertake responsibility for part of an apprentice’s training. The possibility of a training obligation, fulfilled either by taking on trainees or by paying a compulsory levy, was raised, but no agreement was reached.

However, before apprentices are trained, they have to be recruited and there is no doubt that the image of engineering and manufacturing among young people is nothing like as good as it could be. There was some disagreement over where the focus should be and how it should be delivered, but the differences were resolved by recognising that presenting manufacturing as an attractive career option to schoolchildren and ensuring effective training are different, but complementary, approaches. There was a suggestion that large scale, iconic projects, such as the Apollo Space Programme, are attractive to youngsters and we could do with some more of them. In that context, the Bloodhound supersonic land speed record project was mentioned, although some of the

largest projects are not in the automotive field. However, Apollo attracted youngsters from previous generations into engineering that was not related to space programmes: there is a 'halo effect'. But there remains another challenge.

"It's a status issue. We need recognition of engineering, in terms of 'technocrats'. Engineers in Germany have much higher status than in the UK." Imagineering and Manufacturing Insight both have roles to play in encouraging interest in engineering and marketing it. As far as delivery of training goes, there is, again, a need for a single message to go out from the sector: the 'alphabet soup' of agencies and delivery contractors is confusing, bureaucratic, time-consuming and tends to consume money before it reaches the delivery point. For those present, a single focus, clear message and coherent presentation are the key issues, so there may be justification for a marketing budget.

"Do we really, at our most optimistic, believe that any politician or government will put manufacturing high up the agenda? We are competing against health, schools and old people. Is there something for us to do to push it up the list?" The question prompted a response that flowed from the analysis of the economic situation, which pointed out that, if we build another 500,000 vehicles a year, it would wipe out the country's automotive balance of payments deficit and cover around one-quarter of the total manufacturing deficit.

"We have to encourage government to get manufacturers to set up here. [We need to encourage] electric vehicles, hybrid vehicles and advanced technologies." But the question is: what will make that difference? What will encourage inward investment? Will the government take some responsibility for the transition, in delivering the catalyst needed for change? "It isn't just inward investment but encouragement of home-grown industries, which may come out of nowhere," said one. As the meeting neared its conclusion, another contributor suggested that the UK auto sector was being a bit too hard on itself, that foreign incomers and visitors are very impressed at how good the auto sector, in particular, is. "One of the drivers is legislation – it's the long-term driver of diesel development, for example. What we need is clarity of those issues that are the big drivers." And the biggest is legislation, whether it be of emissions, energy, low-carbon or a service-based economy.

In summarising the session, the moderator confirmed that all were in agreement about the priorities – long-term commitment from government; simplification of access to finance and help from public agencies; training and skills (and building the image of the industry in schools); and the need for manufacturing to speak with a single voice in putting concerns to government.

Mark Johnson
of Jaguar
Land Rover
chaired the
session



Key points

- Disadvantageous energy policy and high prices makes the UK uncompetitive.
- The image of engineering must be improved if the skills gap is to be addressed at root.
- Government needs to create an environment that encourages manufacturers to set up in the UK.

At the sharp end

Andrea Rodney, director of Hone-All Precision, represented the SME sector at the UK Manufacturing Summit and gave a clear idea of what companies like hers need from Government.

Addressing the UK Manufacturing Summit from the perspective of the SME, Andrea Rodney of Hone-All Precision made no secret of her frustration with the situation facing her sector. She made it clear that she wanted the representatives of political parties present to leave with two things: “A better understanding of the needs and value of SMEs – not only to manufacturing but to the economy as a whole – and, in order for us to succeed, the importance of simplicity and streamlining.”

Having spent the last 15 years transforming her company into one of the UK's leading sub-contract honing and deep-hole drilling companies (and being named ‘Bedfordshire Business Woman of The Year’ last year), Rodney knows whereof she speaks when it comes to the problems facing SMEs in the modern economic landscape. One of her greatest areas of concern is the difficulty facing firms such as hers when it comes to securing finance.

“Existing lending that was not secured at a fixed rate has become massively expensive in an attempt to recover profit margins from clients,” she says. “Any renegotiating of lending limits or structures has become, if not impossible, certainly very difficult and now involves lengthy negotiations with accountants resulting in even more costs. If successful, the end result usually involves the directors having to personally guarantee their vital organs to the bank's security centre.”

The problem with financing extends beyond the acquisition of loans, however, as Rodney points out: “Any SME with significant borrowing is ‘politely invited’ to take on the recommended credit insurance, satisfy the requirements, pay the massive premium and, as each month

passes, watch the amount of cover diminish.”

Although describing it as ‘well intentioned’, Rodney does not feel that the European Finance Guarantee scheme has been of much help, either, claiming that the levels and cost of administering the scheme are prohibitive for both the bank and the client. “It certainly hasn't been the effective mechanism for getting capital flowing that we'd all hoped for,” she says.

While making it clear that progressive manufacturers have continued to invest, Rodney suggested that much of this investment has tended to be in process improvements and training rather than equipment. Although she acknowledged a fall in demand as one of the reasons for this, she also blames the continued failure to offer 100% capital allowances on all machine tools.

Straining to train

But even with a desire to invest in training, it is by no means easy to do so. While there is no shortage of training schemes available, Rodney maintains that they are outnumbered by the number of agencies available to help SMEs access this funding. However, the problems arise because the funding is not set up to aid SMEs and it is impossible to access the funding directly.

Says Rodney: “There is £1600 per employee available to receive NVQ Level 2 training in Business Improvement Techniques. However, this scheme is a bit like a chocolate orange. By the time you tapped it to access it, unwrapped it to figure out who and where, it then segments and everyone gets their slice before the last chunk that goes to the deliverer themselves. By this time, all we're left with is very little substance and a shiny piece of paper. For example – the provider who visited us was sub-contracting the training three times so therefore the deliverer could not afford to run the course unless I could guarantee 8 to 10 people on the course at the same time – this is impossible in smaller businesses bearing in mind that more than 14,000 manufacturing companies employ fewer than 20 people.”

Here again, Rodney believes that simplification would solve these problems: “If only we could access the £1600 directly, pick a deliverer who can tailor the training, cut

“A better understanding of the needs and value of SMEs – not only to manufacturing but to the economy as a whole – and, in order for us to succeed, the importance of simplicity and streamlining.”

“What we need is our own industry, the Government and the rest of the country to get behind us and help us make the UK what it really is and should be – the heart of manufacturing excellence.”



out the numerous layers, the quality would improve and bottom line benefits be seen much more quickly therefore giving a much higher return on investment both for the company and the government funding agency.”

Attracting recruits

Of course, all this talk of training budgets is all very well, but only, as Rodney says: “If we have any people to train”. Here again, she feels the government has a major role to play. “Few companies remain of the dark, dirty and dangerous days of manufacturing. And yet attracting youngsters into our industry is increasingly difficult due to the lack of recognition for the technological and process advancements we have made. Unless we start to attract youth into our industry, no amount of training availability will help.”

At the root of this problem, Rodney believes, is a general culture of negativity surrounding manufacturing in this country. In this instance, however, she believes manufacturing itself needs to work harder to promote itself. She says: “We manufacturers have to start believing in ourselves again. We have to start recognising our own value and understanding the giant leaps we have made ... we need to break the British reserve of our shy and retiring nature and start screaming this from the rooftops. To the media, to editors, to politicians, to schools – every-

where. Let’s start making them listen to who we are, what we offer and how we have survived where many have failed.”

‘Simplify and streamline’ was at the heart of Rodney’s pleas for reform. “Fair policies on tax, sensible levels of legislation so we and our team are protected but not impeded, simple access to support through simple, streamlined Government departments and a recognition that this country and its economy cannot return to being dominated by finance and retail alone.”

Summing up, she said: “What we need is our own industry, the Government and the rest of the country to get behind us and help us make the UK what it really is and should be – the heart of Manufacturing Excellence. There are many of us within our industry willing to effect the changes required. What we would like is an acknowledgement of our efforts and importance and the removal of the barriers placed before us by previous governments and legislation.”

Key points

- Government must acquire a better understanding of the needs and value of SMEs.
- Access to training and funding must be simplified.
- Manufacturing must work harder to promote itself and overcome its current negative image.

UK Manufacturing in 2010

Economic context

A few key facts summarise the economic context:

- Manufacturing represents about 14% of GDP, a proportion that has been falling for many years, as in all developed economies. This figure – higher than the US, but lower than Germany – could be regarded as low for a developed economy.
- Manufactured products are disproportionately represented in exports – an important 55% of UK export volume. But the UK has been running a £70 to £80 billion deficit per annum in traded goods, only partly made up by a £30 to £40 billion surplus in services.
- Manufacturing output is about 25% higher than it was 25 years ago, but has been relatively flat for the past 5 to 10 years and, at the time of writing, is 7.4% lower than a year previously.
- Productivity in manufacturing industries has approximately doubled over the same 25 year period and is continuing to rise, as is necessary to remain internationally competitive.

The combination of these factors means manufacturing employment has fallen substantially to its present level of 2.8 million and is continuing to fall by about 100,000 per year, generat-

ing the perception that manufacturing is in decline. In parallel, the rate of investment in manufacturing has fallen significantly since 1998.

Arguably, the most important economic issue is the extent of the trade deficit that has built up over the last 10 years. There is currently a deficit in traded goods of 6 to 7% of GDP, partly balanced by a surplus in services of slightly more than 2% of GDP. This deficit, running at £40 to £50 billion per annum, represents unknown territory.

Increased exports of manufactured goods is the only realistic way of addressing this imbalance, (services represent a positive balance but have no prospect in the short-term of growing sufficiently to cancel the deficit in manufactured goods) which is currently being financed by the sale of assets – akin to selling the family silver. In difficult times, overseas ownership of manufacturing businesses makes them particularly vulnerable.

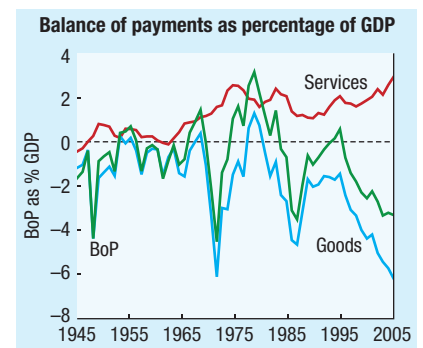
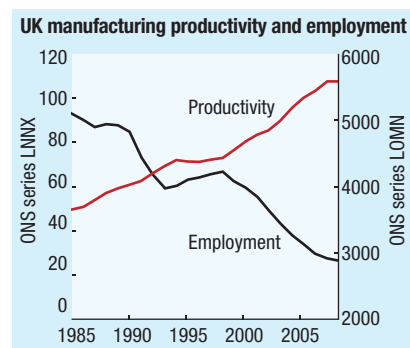
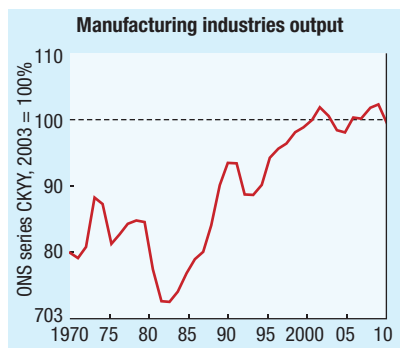
How can we build UK manufacturing capacity?

To rebalance the economy, manufacturing in the UK needs to be built up in areas where it can be internationally competitive. From the Manufacturing

Excellence (MX) activities, IMechE is well placed to comment on what creates successful manufacturing companies. With 25 years of data from the UK, information is also being gathered from mainland Europe, particularly Germany.

It is clear that successful manufacturing companies, operating in the high-wage economies of the developed world, offer a complex range of interlinked products and services. They do not offer undifferentiated, stand-alone products, using simple machinery, where competitiveness depends on parameters such as labour cost and machine efficiency. Rather, the emphasis is on highly integrated products, using sophisticated processes and complex supply chains using highly efficient processes.

Growth is likely to come from sectors such as: pharmaceuticals; health-care equipment: sensors, analysis and instrumentation equipment; aerospace; automotive; renewable energy; civil nuclear; construction plant; and food. Many British companies are world leaders in these fields. The key to retaining their position is therefore the ability to integrate activity and services, NOT just manufacturing.



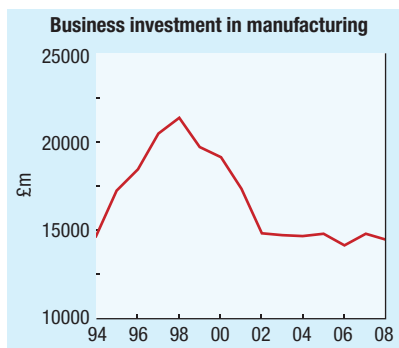
The Institution of Mechanical Engineers (IMechE) is particularly well placed to comment on manufacturing in the UK. Many of its 90,000 members work as professional engineers, managers and leaders in manufacturing industry. Its Manufacturing Industries Division plays a key role through lectures, seminars and courses. It has been particularly influential through its Manufacturing Excellence Awards (MX). Based on the Institution's experience through its members and its activities, this paper summarises its latest views on manufacturing in the United Kingdom.

How much should the UK invest?

The level of investment in facilities and equipment clearly has an influence on productivity. Economic data shows a progressive reduction in the levels of investment in UK manufacturing since 1998, flattening at around £15bn per year since 2002: a reduction from 13% of output to 8%.

Undoubtedly, the price of capital goods has fallen and more functionality can be obtained for the same money. Data from other developed countries shows a similar, but less pronounced, pattern. However, on other measures, such as the robot 'population' or investment per worker, the UK compares unfavourably with Japan, Germany, Italy, France and the US. Finally, there is concern that current accounting practices, particularly pay-back criteria, don't drive the right approach and underestimate the potential returns.

Investment in product and process R&D, and other intangible assets, is growing in importance. These early stage activities control what happens subsequently, in manufacturing and service processes. Indeed, design and manufacturing should ideally be co-located to optimise the interfaces.

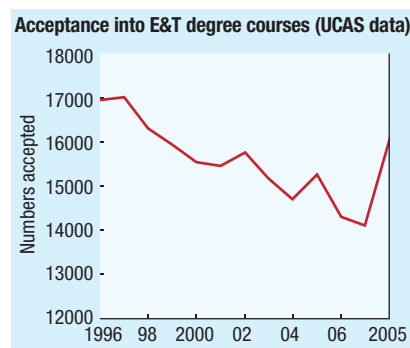


How smart does industry need to be?

Successful manufacturing continues to be dependent on skilled resource, at all levels in organisations – from shopfloor to board room. In fact, far from manufacturing being 'de-skilled', it is becoming increasingly skilful, reflecting the fact that remaining competitive in a high-wage economy depends on being smarter. At the same time, demographic trends are reducing the numbers of young people available to enter industry.

In the first years of the 21st Century, the proportion of young people studying science and technology subjects was falling. This trend has been reversed recently, with modest increases in the numbers studying these subjects at GCE 'A' Level, first degree and doctorate level.

Welcome though these improvements are, they will not resolve the shortfall created by more than 10 years of inadequate output of trained engineers. This means firms will have to look to overseas recruitment and internal training to fulfil their immediate needs, which cannot be met quickly through the educational system.



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SUMMARY & RECOMMENDATIONS

The IMechE has formed its position on UK manufacturing policy, centred on the understanding gained through the MX assessment and awards process. The key points are:

- Manufacturing is a vital part of the UK economy, employing some 2.7m people directly and accounting for more than 55% of export value. At a time when the UK faces significant balance of payment issues, it is vital that manufacturing is expanded for the good of the economy as a whole. Manufacture is an increasingly international and complex business, but many companies in the UK are thriving.

- Manufacturing is a highly skilled activity at all levels within organisations and there is some evidence of more young people being attracted into the science and technology disciplines which the industry needs to grow. At the same time, manufacturing is dependent on investment in know-how and intellectual property. Given that many UK OEMs are now overseas-owned, it is vital that Government supports the infrastructure to make early stage investment attractive in the UK.

- UK manufacturing expertise is still highly valued. For example, thousands of overseas students study at centres of excellence in our Universities like Bath, Birmingham, Cranfield, Warwick, Cardiff, Loughborough, Strathclyde, Sheffield, Nottingham and Cambridge.

In conclusion, IMechE believes the traditional ingredients of manufacturing – productive plant, machinery and operations – remain important, but are not the whole story. In an advanced economy, there needs to be an integrated combination of research, innovation, design, development, logistics and supply chain, run by highly educated and trained staff. These are the vital components of a vibrant UK manufacturing sector.

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Defence combats its challenges

The sector is not only worried about defence cuts, but is also in the grip of the skills shortage.

The UK defence industry, which employs 300,000 people and accounts for 10% of the country's manufacturing output, is very nervous, on the basis of what was heard in the defence breakout session.

Leading the discussion was Andrew Sleigh, formerly group managing director of the defence and technology sector of QinetiQ from 2005 to 2007, chief technology officer from 2007 to 2009 and now a consultant on innovation governance.

The sector is special in that it is heavily dependent on government procurement, while exports are heavily controlled and restricted, largely in case they might fall into the hands of potential adversaries. Nobody present complained about this.

The other issue that makes defence special is the great complexity of the design problems, most of which require multi-disciplinary and multi-company solutions. Furthermore, in times of war, as is the case today, it must be able to quickly respond to changes in needs and changes in tactics by adversaries, who, unsurprisingly, are unwilling to sit back and be defeated, but can be expected to apply maximum ingenuity and effort to inflict the same on our forces.

Against this background, it was perhaps unsurprising that one of the primary concerns was what were expected to be 'big cuts' in R&D money from the Ministry of Defence and the prospect of yet another defence review at a time when China and India are expected to become major defence procurers and thus competitors in five years' time.

The group was unanimous in putting the need for long-term, high-level commitment from government at the top of their list of issues that needed to be addressed. They not only wanted maintenance of R&D tax credits but also emphasised the urgent need for direct government grants, espe-



“There is a need for the procurers to understand the whole supply chain.”
Andrew Sleigh



Key points

- Big cuts are expected in R&D money from the Ministry of Defence.
- Many projects are high risk and can only be pulled through with external funding
- Skills shortages are making it difficult to sustain capability.

cially for demonstrator projects to maintain skills and expertise. Sleight observed that many projects are 'high risk', which he went on to suggest means 'they can only be pulled through if externally funded'.

One of the contractors present commented that: "What the MoD is completely focused on at the moment is cutting. How is the UK defence industry going to cope with the effects of all the cuts?" To which Sleight responded: "There is talk of adaptability and flexibility, but I don't think many people at MoD get this. But maybe we are at a unique moment in history." As regards flexibility in supply, he noted that defence is rather difficult ground for start-ups.

A complaint was presented from the managing director of a defence supplier who could not be present. "I firmly believe that one of the problems with decision making at senior level in MoD is the very short appointments that uniformed employees have – often two or three years, after which they move on. They rarely have to live with the consequences of their decisions or really get to know their subject." Quite a few people nodded agreement, but nobody was willing to go on record as criticising the organisation that represents the main customer of everyone present. However, Sleight later observed: "There is a need for the procurers to understand the whole supply chain."

Intellectual property protection was also seen as a major problem, and there were particular complaints from delegates that UK companies were expected to share their IP and expertise and skills with US companies in joint projects and a comment reflected this: "This is not a two way street".

Skill shortages were seen as a significant problem, as they were making it difficult for the UK defence industry to sustain its capability. Although it was felt that the larger defence companies have generally kept training in

place, remarks made included the startling observation that registered engineers are down 35% over the last five years, although it was reported that the number of students studying engineering at universities increased by 18% last year, although only 'half the students are from the UK'.

It was also said that half the problem is that 'manufacturing industry is not prepared to train engineers; large companies do so, but smaller ones don't'. It was generally agreed that it takes five years at least for an engineer to become skilled and it was observed that, as well as skill shortages in the major companies, the supply chain is having 'real trouble'. Presumably, this was because those lower down the chain do less training and have less access to people with the required skills. There was also seen to be a need for skilled technicians, especially for what was termed 'high value manufacturing'.

Attendees commented they were dependent on recruiting engineers of overseas origin. Indeed, Sleight, when summing up, even went so far as to say: "The only real source of quality skilled engineers is from abroad." On the subject of culture and getting young people interested in engineering, Sleight asked: "Why do we not have more television programmes about being in manufacturing?"

There were a number of complaints about the Regional Development Agencies 'playing politics', but Sleight pointed out that 'RDAs do provide a single access to government'. They have, however, no leverage with the French, and a supplier of seals for the nuclear industry, who had joined the defence breakout group complained that "French industry will always insist on using French components".

Nobody had a solution to offer to this particular aspect of Gallic culture.

Engaging the Organisation

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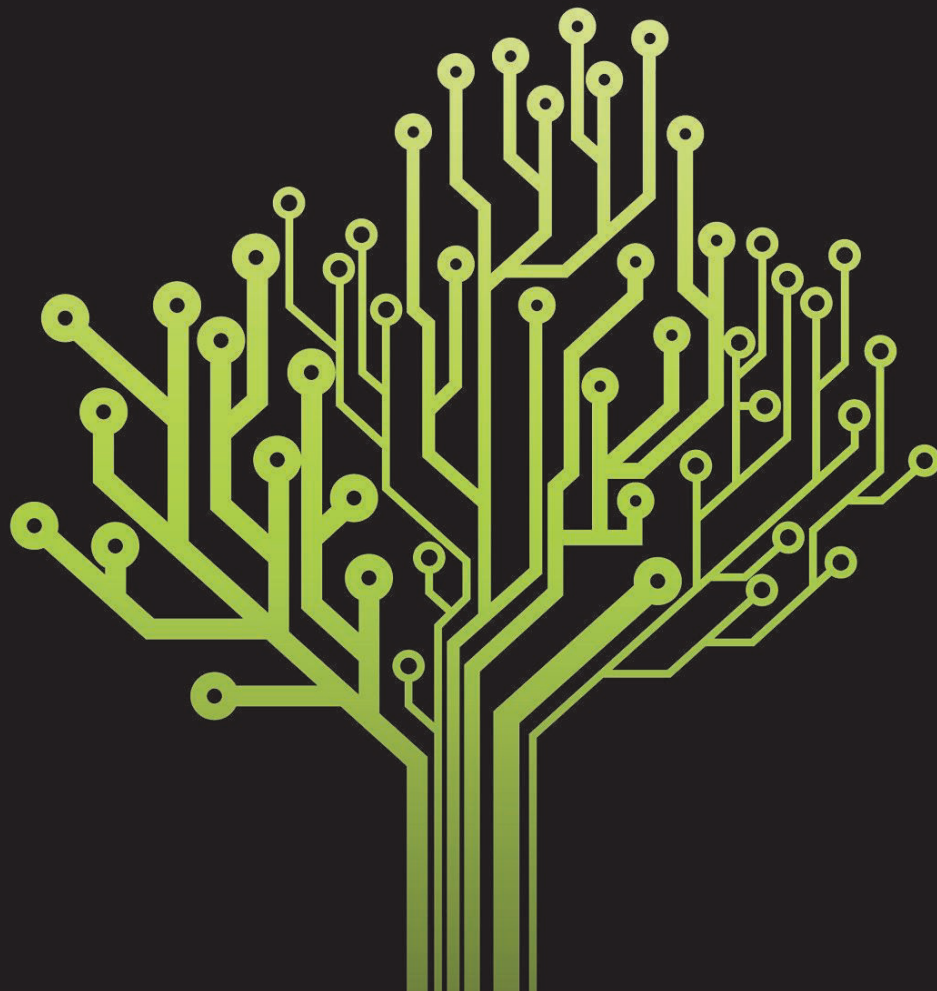


So, who are we?

We are Intellect, the UK trade association for the IT, telecoms and electronics industries. Our 750 members, from SMEs to large international corporations, account for over 80% of their markets.

We are here to help the UK electronics sector and supply chain to be as successful as they can be. We provide a powerful, unified voice for the sector to government. Our members are able to benchmark themselves against, and network with, major competitors and gain access to a wide range of markets. Provision of market key performance indicators is a major focus for our programme.

If you would like more information or specific advice on how you can make the most of Intellect's electronics programme, or to receive your free hard copy of 'Electronics growth: the way forward for electronics', get in touch, Ecommunications@intellectuk.org



Survival of the fittest

The Future of UK Manufacturing Summit electronics breakout discussion group concluded help was needed in innovation, regulation and access to export markets.

The meeting commenced with a discussion on the ERA Foundation Report. The report warned that government has adopted an approach too reliant upon financial and knowledge intensive services while turning its back on UK manufacturing. Breakout session chair Harry Tee stated that this attitude must change and that the electronics industry must add value to UK plc.

Philip Baker, engineering manager at assembly manufacturer, Mekufa (UK), agreed, stating: "What we need to do is achieve a proper hearing at government level, but we need to form a proper steering committee that must be taken seriously." The delegates concurred that the manufacturing sector doesn't have a cohesive voice and observed that there is a misconception of the industry at

every level. "I don't hear the word 'manufacturing' very often," Tee noted. "It's seemingly not yet in the phrasebook. So what do we mean by 'manufacturing'? If we don't know, MPs certainly won't."

David Kynaston OBE, chairman of the Electronics Knowledge Transfer Network, raised the subject of an effective manufacturing strategy, saying: "We must embrace low-cost resources, but to sustain electronics manufacturing, we need a high level of efficiencies." Kynaston noted that, without government investment, innovative products in the UK will 'perish', but conceded that the industry could only expect limited participation. "Government is not cohesive," he continued, "so the message needs to be delivered to a great number of depart-

**"I don't hear the word 'manufacturing' very often. It's seemingly not yet in the phrasebook. So what do we mean by 'manufacturing'? If we don't know, MPs certainly won't."
Harry Tee CBE**



ments. Let's not forget we are addressing a bankrupt government and this brings with it a huge restriction. Nevertheless, when you need its support you are often tied up by legislation – the regulations are phenomenal and it's a major impediment to anyone investing in a new plant in the UK."

Nigel Sach of G&J Greenall observed: "As a country, we are very good at innovation ... However, at the moment, the UK designs a product, but other countries manufacture it. It's often a cheaper solution, so how are we supposed to compete?" Sach warned that UK manufacturing has been sacrificed to the philosophy of open market trading.

Power Business Worldwide vice president Jeanette McFarland briefly changed the focus to regional development assistance, which she believes is currently 'only about adding jobs, but not adding innovation'. She pointed out: "If you have a model to restructure your business and it decreases your headcount, you cannot apply for regional development assistance."

Technical Skills

On the subject of the skills base, Baker stated the importance of maintaining a balance between the different knowledge levels. He observed that programmes for vocational and academic education must integrate to deliver the skills manufacturers need. "UK manufacturers no longer provide one particular product and, consequently, some of the labour content doesn't need to be highly skilled," he said. "But this still leaves us with higher skills sets that have to find some kind of employment."

Kynaston suggested that change starts with enterprise. "In the next 10 years," he anticipated, "we'll generate a renaissance of enterprise, so low skills levels are a problem. The problem is that offshoring is too easy and there is good reason to regard ourselves as more than custodians and medium and small volume manufacturers. But, currently, we go to politicians and we are ignored." Baker agreed, saying: "When you need support from government, you are often tied down by legislation and the number of regulations is phenomenal. It's a major impediment for anyone investing in a new plant in the UK."

Delegates agreed that greater investment was needed in skills programmes to create a differentiation in the global market. Colin Guest of Zarlink Semiconductor, noted: "We don't want people with

core skills. Graduates have a certain level of expertise in a particular field, but cannot get jobs as the market is not there. There's a growing need to recognise technicians and apprentices. However, there is still the matter of influencing government and getting the message across to create excitement for young people."

Tee concurred, saying: "Manufacturing suffers from an overwhelmingly negative image. A sustained campaign must be mounted to persuade the country – especially parents, teachers, students and the media – that manufacturing is essential and worthwhile."

McFarland added that the industry needs to support such pledges: "Training schemes may be established, but there's nothing there for youngsters doing apprenticeships. We need to back it up by offering real jobs."

"There are three main concerns for SMEs," Tee noted. "Innovation: to work our way out of recession; Regulation; to make it easier for companies to survive and move forward; and access to export markets. There is a need to make it easier to market abroad – especially as SMEs are limited by their ability to sell."

Energy was a particular concern of the delegates, with high costs not just affecting manufacturers, but all the way down the supply chain. Attendees discussed the dramatic effect which rising costs of commodities as basic as water could have, as well as the likelihood of future black-outs. Barker elucidated: "If you consider the gigawattage we're producing, energy costs in the future are going to become a significant problem."

Delegates moved on to political consensus, with Tee highlighting the economic danger of the nation turning its back on manufacturing. "A long-term, high-level government commitment to manufacturing is essential," Tee cautioned. Delegates agreed that low interest rates were crucial, as well as the need for a stable exchange rate.

Intellectual property, too, was listed as a key point and delegates felt it important that UK manufacturers played on a level playing field in terms of European competitors. The electronics sector is particularly vulnerable as aspects such as counterfeiting are a huge problem.

While there are a large number of government initiatives for investment and innovation, delegates concurred that these are spread too thinly among too many organisations. Tee reiterated the importance of relating to the government the significance of manufacturing to the UK economy with an idea of banking for industry. "We can 'red ring' some of the taxes coming off manufacturing and feed them back in so the government can see how important the industry is. SMEs must focus on innovation, to work the industry's way out of recession; regulation, to make it easier for companies to survive and move forward; and access to export markets to make it easier to market abroad."

Key points

- Manufacturing industry needs a better hearing from Government.
- Over-regulation represents a major impediment to investment in the UK.
- Low interest rates and a stable exchange rate are crucial to success.
- High energy costs are a serious long-term threat.

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Improving the world through engineering

Skills are the key to success

Sir Alan Jones of Toyota UK and chair of SEMTA, the Sector Skills Council for Science, Engineering, and Manufacturing technologies, addresses the UK skills shortage and looks to its future.

I've heard pronouncements that there is no future for manufacturing in the UK several times over the years. But the naysayers look likely to be proved wrong again. In 2009, the manufacturing sector accounted for 13.5% of the UK economy, compared to less than 10% from the financial services sector. In 2010, we will see manufacturing move back to the centre of the economy. An economy based on real products built by skilled people.

This isn't to say that we do not face challenges; serious ones. Coming out of the recession, business confidence is low, capacity is under-utilised, and jobs and orders still hang in the balance. The real danger is that we won't have the skills to tackle the problem and take the opportunities to go for growth.

The UK has a rich manufacturing heritage and the sector remains strategically important to the country's future, economically and socially. The UK is the sixth biggest manufacturing economy in the world, accounting for 3 million jobs in 150,000 worksites. It turns over some £500 billion a year, with exports totalling £200 billion – 50% of the UK's total exports. The sector makes a huge investment in research and development amounting to around £10 billion a year and, pre-recession, contributed £160 billion in gross value added to the UK's economy – that's £50,000 per person employed.

These industries have not emerged unscathed from the recession. Whilst defence has held up fairly well, civil aircraft order books are down. The marine situation is complex – capacity is being built up after years of downsizing and many boat building companies are pursuing lean techniques to improve their competitiveness. The rail industry faces tremendous pressure to reduce costs and deal with peaks and troughs in infrastructure and train building. Passenger growth is stagnating in the recession and we see the current capital spending peaking in 2013 and reducing thereafter.

We've seen UK manufacturing employment falling by 30% in the last ten years; there are fewer UK manufacturing companies; and UK productivity had been hit by recession. In terms of GDP per employee, UK productivity increased by 42% between 1991 and 2008. In the last year, it has dropped some 3%.

That's the bad news. But the manufacturing sector is also on the brink of a new era of opportunity.

UK aerospace is likely to expand further. Military aircraft demand is up marginally, and the largest naval ship building programme in years with the Type 45 and new aircraft carriers giving a number of UK shipyards a new lease of life. As the pressure to reduce emissions increases, rail has a big opportunity – being on average 2 to 5 times more energy efficient than road, shipping and aviation.

So there is everything to play for, the question is what do we need to build a stable, sustainable manufacturing industry?

First, manufacturers need to tackle the demographic factors working against them. 45% of the manufacturing workforce is aged over 45 and a lot of the higher level skills and knowledge are locked into the older workforce with a serious shortfall in the younger age groups to replace them. The recession has exacerbated the problem by driving downsizing and early retirements so older workers tend to leave early taking their skills with them.

Although projections for growth are limited, based on new Semta research that takes into account the effect of the recession, the net effect of retirements and people leaving our industries is that we will still need over a 150,000 recruits between now and 2016.

Yet, only 11% of engineering companies employ any apprentices or trainees and, while there is a slight increase in the numbers of young people taking maths and science A-levels, there is a serious need for a pipeline of talent coming into the industry.

There are other skills challenges we need to tackle:



“Only 11% of engineering companies employ any apprentices or trainees and, while there is a slight increase in the numbers of young people taking maths and science A-levels, there is a serious need for a pipeline of talent coming into the industry.”

Sir Alan Jones

10% of our workforce has no qualifications and many more are under-qualified for their roles. Equally, 21% of engineering companies have skills gaps in their existing workforce and 70% of these are in technical skills.

Semta's role is to provide the access to skills and training that manufacturers need, and to ensure the right skills are being delivered at the right time in the right place. Already progress is being made. In 2009, there were 100,000 National or Scottish VQ registrations – an increase of 25% compared to 2008 – while 75,000 certificates were awarded, an increase of 36%. Adult Apprenticeships too are increasing, up by 10% to more than 15,000 starts in the last educational year. Semta's National Skills Academy for Manufacturing is delivering the national standard B-IT programs. These not only increase workforce skills, they also put employees on the qualifications ladder and provide measurable and sustainable bottom line profits from quality, cost and delivery improvements. Typically, Skills Academy programmes help companies achieve a 6:1 return on investment.

Employers have been frustrated by the complex process of accessing the correct training and funding and, as a result of this feedback, Semta's mission going forward is to simplify the skills landscape. The first step has been to work in partnership with other skills councils and support bodies to 'hide the wiring'. This means employers only need to make one call to access the correct help. Semta has also just launched a new online Skills Connector service that allows employers to undertake a diagnostic to determine their specific needs, develop a training plan and then connect to a local training provider who can deliver quality programmes to suit their need.

If the UK is to really compete in the new global economy, then employers need to embrace its demands, skill up and retrain, and invest in skills that support new technologies and processes, lean manufacturing and continuous improvement. I believe there is a real opportunity for a renaissance in manufacturing. The government has identified strategic industries and Semta is working to identify their skills needs in areas such as plastic electronics, silicon electronics, industrial biotechnology, composites, and nanotechnology.

Many regions are already benefiting from investment in green and emerging technologies: we have Low Carbon Economic Area in the North East and the South West. In Plastic Electronics, we have many regional centres of expertise, including London, Manchester, Swansea, Cambridge and Sedgefield. In Advanced Manufacturing, we have the Rolls-Royce 'Factory of the Future' in Sheffield. And, of course, we cannot forget space, with an anticipated turnover of up to £14.2bn and supporting 115,000 jobs by 2020.

The recent budget pledge of £2.5million in additional funding for improving skills and training amongst smaller businesses, and the government's announcement of additional support for advanced manufacturing, shows that the contribution of manufacturing to the UK economy is now being recognised. The UK's manufacturing sector has historically played a vital role in the success of our economy. We know that in the past, the success of the economy has rested on the UK's rich manufacturing heritage and I believe it will do again. Manufacturing is returning to life and with continued support and investment in skills and training will continue to flourish.

Securing the next generation of talent

Nicola Eagleton-Crowther, Make It in Manufacturing Campaign Manager at the Manufacturing Institute asks how young people can be brought into industry.

When I ask teenagers to describe their ideal job, their wish list often includes: decent pay, being creative, meeting people, international travel, early responsibility and promotion prospects. Typically, these are features of a career in manufacturing and engineering, yet there's this huge disconnect between the reality of working in industry and the image that people have of the sector.

Negative stereotypes abound, with oily rags and dark satanic mills imprinting themselves onto the public consciousness. Many people still think that manufacturing is about standing on a production line sticking cherries on bakewells, or mindlessly processing widgets.

Fed by these myths, many parents see manufacturing as a dead-end option for their children and it fails to gain the esteem it deserves.

There is a false belief that UK manufacturing has died and gone to China, so young people and their guardians wrongly deduce that it's a route to job insecurity and fail to recognise that the UK remains one of the world's top six manufacturing nations – with manufacturing accounting for more than half of the UK's export business.

If we are to build a stronger, more durable UK economy on the back of a renaissance in advanced manufacturing and engineering and create quality long-term jobs, there is an urgent need to challenge these deeply entrenched perceptions and to improve the poor image of the sector, particularly

among young people.

This was a recurring theme of the Future of UK Manufacturing Summit and its panel discussions, with both Malcolm Harbour MEP and Lord Mervyn Davies agreeing that tackling the issue of image amongst children and young people should be a priority.

The urgency of this mission is sharpened by forecasts such as Working Futures III, which predicts that the UK will need to recruit 587,000 new workers into manufacturing over the period 2007 to 2017. However, the profile of workers is predicted to change. Overall, almost 47% of all employees in 2017 will be at associate professional level or higher, compared with just over 32% in 1987.

The ageing workforce adds further pressure to the task of re-educating

young people and the wider public. How are we to ensure that valuable knowledge and experience is imparted to a new generation?

Today's highly automated manufacturing businesses demand a multi-skilled workforce to service an increasingly challenging, diverse and multi-faceted industry. But how are we going to attract the best brains and talents into a sector that is so maligned and misunderstood?

The Manufacturing Institute, a charity dedicated to improving manufacturing performance and education, and transforming the image of the sector, is addressing this challenge through its Make It in Manufacturing campaign (www.makeit.org.uk) which introduces young people to real world manufacturing – demonstrating

Right: Nicola Eagleton-Crowther (centre) with some of the children who have taken part in the campaign





Further information: Nicola Eagleton-Crowther:
0161 875 2515, nicolac@manufacturinginstitute.co.uk;
www.makeit.org.uk



through education that it is an exciting and rewarding career destination.

More than 15,000 young people have been involved in Make It activities over the past four years. Attitudes are tested before and after events and descriptions such as, 'boring', 'dirty' 'work for boys' and 'low paid' change to 'exciting', 'creative' and 'interesting'.

The involvement of manufacturing businesses in Make It is key to its success. Supporters include: Aegis; Aircelle; Air Products; ATG Airports; BAE Systems; Chemicals Northwest; ColorMatrix; Cogent; C-TEC; EMS Sigma Recruitment; Engineering Manufacturing Solutions; ENER-G; Envirolink; Jaguar Land Rover; James Walker; Kinetic; LP Displays; Linpac Plastics; Martin Conquest; MBDA; McBride; McVities; Oaktec; Robert Wiseman Diaries; Siemens; Tetra Pak, Northwest Aerospace Alliance; Northwest Automotive Alliance; Optare; The Hyde Group; Typhoo; Unison Engine Components and UPM Shotton Paper.

Last month, The Manufacturing Institute opened the UK's first Fab Lab (www.fablabmanchester.org), a hi-tech community mini-factory where anyone can enjoy the creativity and achievement of making things.

Many teenagers have set up their own mini-manufacturing businesses as part of Make It Enterprising Challenge days, while the Make It Zone at careers events give pupils a chance to make hair gel and bespoke sunglasses, solder electronics, mould plastics, tackle robotics, and generally enjoy the challenge of making things.

It is designed to demonstrate the reality of modern day industry by giving young people a chance to 'see it for real' and an opportunity to talk to young apprentices and graduates.

Future skills base

Having noticed a reduction in the availability of skilled workers in the marketplace, aerospace components manufacturer Aircelle is proactive in securing its future skills base.

"The situation is fine if you're looking for skilled people in well known professions, but the issue is that there are not enough to go round," says engineering director Iain Minton. "It then tends to come down to how attractive your company is, and how big your company is – factors which often pull the people up the chain, leaving the smaller businesses at the bottom. The enthusiasm we see from the children and the teachers at the Make It Enterprising Challenges, and the buzz our own people get out of it is brilliant."

One of the UK's key growth areas will be the low carbon economy and it is predicted there will be more than 1.2 million people working in 'green' jobs in the UK by 2020. Securing these new skills is a challenge being addressed by Make It supporter ENER-G.

"Industries in the 'green' sector are chiefly engineering and manufacturing-based, requiring strong technical skills," explains ENER-G group managing director Derek Duffill. "High calibre engineers and manufacturers are at a premium and we believe the environmental technology sector will

continue to generate explosive growth for many years to come. It offers the long-term career goals and financial rewards that ambitious young people are looking for. Crucially, it also gives them an opportunity to design, develop, manufacture and operate the technologies that can make such a positive difference to society."

ColorMatrix, which makes liquid colour and additives for the plastics industry, is also carrying the Make It message. Operations director Dave Nuttall said: "We should be focused on attracting a new generation of people to fuel a future of smart manufacturing rather than people who can simply fill technical, low grade jobs."

"Manufacturing can be regarded as being about boilersuits, grease, oil and sticking two widgets together. That's just not true! We have people in R&D, chemists, marketing, IT and 15 nationalities represented in our sales and customer service and technical teams. Manufacturing can be so multi-faceted and rewarding as a career."

Modern manufacturing is a global enterprise competing on innovation, creativity and smart thinking. It's a multi-disciplined industry, needing people with a variety of skills – from vocational practitioners with specific technical skills to accountants, buyers, designers, marketers, R&D, logistics and commercial managers.

It's time to talk manufacturing up, shake off the myths and negative perceptions that surround the sector and show the outside world just how much modern industry has to offer.

Speaking with one voice

Engineering bodies, think-tanks and prominent industry figures are all seeking to change Governmental thinking about manufacturing. The Boardroom Report examines some of the views and solutions expressed.

For the most part, the problems highlighted at the UK Manufacturing Summit are – unfortunately – no new thing. In many cases, they have been festering for some time and are only now getting the public attention they merit.

For this reason, the various bodies, including trade and research organisations that serve the manufacturing sector, have been wrestling with these problems for some time. Of late, the recession and the impending election have served to concentrate the minds of all those involved in manufacturing, which has led to a proliferation of policy documents, manifestos and papers devoted to the travails of the manufacturing sector.

It is no coincidence, of course, that there is considerable crossover between the various documents since the issues are well known to all in the sector. However, there are considerable differences in approach and in the solutions offered.

Where all parties agree is that there is a severe and fundamental problem

with the skills base of the UK. ‘Engineering The Future – a vision for the future of UK Engineering’, a briefing document compiled by an alliance of professional organisations, including The Institution of Mechanical Engineers, The Engineering Council, The Royal Academy of Engineering and the Institute of Chemical Engineers, sets out the problem clearly, pointing to a forecast requirement for 587,000 new workers in manufacturing in 2017. It makes a number of recommendations about this, including at the most basic level, that a greater focus on STEM in schools and colleges to ensure that all young people are taught by specialists in each of the scientific subjects. It also recommends the provision of incentives for industry and SMEs to encourage the provision of apprenticeship places and graduate training.

In addition, ‘Engineering The Future’ recommends giving the new engineering-related 14-19 Diplomas time to embed and develop as planned so that they can prove their value, as well as ensuring the right level of

investment in university engineering departments. It also makes clear its belief that the recognition of professional qualifications in engineering would help to strengthen the aspirations of students and apprentices.

In its 2009/10 report, Engineering UK (formerly the Engineering Technology Board) also acknowledges the scale of the skills problem, as well as pointing to a more fundamental demographic issue facing the UK skills base, namely that, according to the Government Actuary’s Department the number of 15 to 24-year-olds is predicted to decline by 8% over the next 10 years. In addition, it is predicted that by 2010 there will be one million 16 to 24-year-olds who are not in education, employment or training (NEET).

Equally, the report makes clear that significant numbers of Chartered Engineers and Incorporated Engineers are retiring or approaching retirement and this is reflected in the decline in total registrants in recent years. However, it does point out that the number of engineering technicians continues to

“Further support should be provided for the administrative costs of apprenticeships, internships and graduate traineeships”

Engineering The Future

Broadcasters should be encouraged to question lazy assumptions ... which reflect metropolitan obsessions about public and financial services.”

Policy Exchange

“The Engineers and Engineering Brand Monitor (EEBM) has actually shown a positive shift in public perceptions of engineering between 2008 and 2009”

Engineering UK

increase, albeit from a lower base.

Both the EEF's 'Back at the Crossroads' document and Policy Exchange's 'Innovation and Industry' manifesto for manufacturing recommend tackling the skills problem by 'de-cluttering' the number of organisations involved in planning and funding training, moving towards more demand-led funding and making it easier and more cost-effective for companies to establish their own training and apprenticeship schemes.

Specifically, Policy Exchange suggests scrapping the 2020 qualifications targets and Train to Gain (though continuing to fund this training through colleges), abolishing the 'National Strategies' and the establishment of an independent Standards Agency to replace Ofqual, which should maintain a website with properly researched best practice on literacy and numeracy programmes, similar to the What Works Clearinghouse in the US.

Engineering the Future agrees on this point, saying: "Further support should be provided for the administrative costs of apprenticeships, internships and graduate traineeships, and other means found to incentivise employers to provide apprenticeships and stimulate employer interaction with course content and delivery."

Improving the public perception of manufacturing is another topic covered by most if not all of these documents. According to Engineering UK, the Engineers and Engineering Brand

Monitor (EEBM) has actually shown a positive shift in public perceptions of engineering between 2008 and 2009. 85% of respondents from the general public stated that they would recommend a career in engineering to their children, friends or family, compared with only 66% in the initial pilot survey in 2008. A higher proportion of the general public also now view engineering as a well respected profession (78%), which makes a good contribution to society (86%) and will have a positive impact on our future (91%).

More worryingly, however, 7 to 16-year-olds have the least positive opinion of engineering. Art and design was the most popular subject choice among 7 to 11-year-olds, with design and technology third. With this in mind, the report recommends the explicit linking of popular school subjects and activities such as art and design to engineering.

Engineering the Future calls for improved career advice in schools regarding manufacturing, saying: "Too many students get incomplete or inaccurate information on where a course of study might lead them. Students with ability in STEM subjects need detailed information on the full range of options available to them by STEM specialist advisors."

Policy Exchange feels an even more profound culture change is necessary, saying: "British broadcasters should be encouraged to question the lazy assumptions made in the media about how people live their lives and which

tend to reflect metropolitan obsessions about public services and financial services." It goes on to suggest the mass media – particularly TV broadcasters – should be encouraged to reflect the importance of manufacturing to the British economy and that the Manufacturing Insight programme be given a much higher profile. It points out: "A relatively modest boost in funding is needed if it is to be effective in improving the image of industry, particularly among school and college students and their teachers and advisers."

In his report 'Ingenious Britain' (commissioned by the Conservative Party), Sir James Dyson also joined calls for a drive to improve the image of manufacturing, saying: "We don't need to look hard for excellent examples of science, engineering and innovation. We simply need to celebrate them and the ingenious people who develop them."

Of course, these calls for a culture change with regard to manufacturing encompass both the social and political spheres. All the documents include pleas for political and economic changes from government to improve the business environment for manufacturers. Naturally enough, these tend to take the form of calls to lessen the tax and regulatory burden on manufacturers, but also call for incentivisation and support for the research and development that will give the sector a technological edge for years to come.

Concentrating on the SME sector,

"We don't need to look hard for excellent examples of science, engineering and innovation. We simply need to celebrate them and the people who develop them"
Sir James Dyson

"The next government must change the way it regulates. Bad regulation destroys jobs, but good regulation can spur innovation"
The EEF

"According to the Government Actuary's Department, the number of 15 to 24-year-olds is predicted to decline by 8% over the next ten years."
Engineering UK

Engineering UK recommends: "Government policy needs to be adapted to support more SMEs to bid for public sector contracts and to incentivise them to invest in new technology, research and their workforce. Additionally all businesses need to invest more in developing and exploiting intangible benefits, such as branding and customisation, to enable them to compete effectively in a crowded market place."

Sir James Dyson recommends that a Conservative government should refocus R&D tax credits on high-tech companies, small businesses and start-ups in order to stimulate a new wave of technology and that the rate should be increased to 200% when public finances allow. He also applauds Conservative ambitions to deliver 25% of procurement and research contracts through SMEs, but warns "implementation will be crucial".

Policy Exchange goes even further in this direction, recommending that R&D tax credits for larger businesses be phased out, initially by freezing it at present levels, and then withdrawn gradually over a reasonable period. At the same time, it suggests the Government should set a target, phased in over three years for Whitehall to spend at least £250 million a year of its external R&D budget through the Small Business Research Initiative scheme. In the short term, a minimum of £100 million of new funding should be provided for the SBRI which it could use to match partly or wholly what departments spend through the scheme.

The EEF also suggests creating a single source of finance to support ambitious, growing companies while providing "broader support to help businesses become better at innovation". Engineering the Future, meanwhile, encourages rolling out the SBRI across government to incentivise all departments to engage with small science-based businesses and expansion of the R&D tax credit system. It also suggests that government "maintain

the provision of long-term investment in start-ups through a large-scale research-focused venture capital fund. Government has just announced the introduction of the £1 billion Investment Fund for innovative new companies ... It will be vital for this fund to be maintained despite public spending pressures to ensure long-term success. It will be important for the fund to focus in particular on the needs of science-based businesses, which have longer lead times than those seen in other sectors."

The role of public procurement in kick-starting recovery is widely emphasised. Total UK public procure-

"Manufacturing has a very visible presence in the areas where it is located that make it a target for regulatory intervention by officials"

Policy Exchange

ment is worth around £220 billion a year and Engineering The Future recommends that Government should "implement a more outcomes-focused procurement policy across the public sector" and set targets and encourage innovation in public procurement.

Taxation represents another common concern, of course, with calls for a business tax system structured so that it does not penalise manufacturers that invest heavily in the plant and machinery required to remain competitive in the global marketplace. With this in mind, Policy Exchange suggests no further cuts in capital allowances, with changes to the current system to allow capital expenditure to be written off in full over eight years. This should be funded by scrapping the annual investment allowance.

Policy Exchange also says "the tax allowance system should reflect more closely the real cost of investment at a time when new technology is accelerating the pace of change in manufacturing". This is echoed by the EEF, which calls for capital allowances that 'reflect the true cost of modern machinery'.

The EEF also rounds on the problems caused by regulation in industry, saying: "The next government must change the way it regulates. Bad regulation destroys jobs, but good regulation can spur innovation." It also urges Government to take a more proportionate and risk-based approach to regulation.

Policy Exchange's document puts it thus: "The burden of regulation [is] a perennial gripe of manufacturers, who are particularly hard hit by red tape. Regulation not only affects their employment policies but also their business processes and the use to which their products are put after sale. Unlike most services, manufacturing has a very visible presence in the areas where it is located that make it a target for regulatory intervention by officials who fail to recognise the sector's importance to the economy."

In order to effect change in policy in manufacturing in general and over regulation in particular, the importance of having a voice in policy making is recognised. Policy Exchange suggests that businesses should be involved from the earliest stages of the regulatory process, while Engineering The Future proposes that Government should "Introduce a more formal policy-making process that would call for advice and ideas at a much earlier stage and provide access a broader range of engineering advice before the policy direction is framed."

www.eef.org.uk

www.dyson.co.uk

www.engineeringuk.com

www.policyexchange.org.uk

www.raeng.org.uk/societygov/public_affairs/pdf/Manifesto.pdf

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Boardroom Report – April 2010

Laser Process Ltd is a laser cutting subcontractor based in Staffordshire. Formed in 1990 we have grown to become one of the leading companies in our field in the UK. Being a subcontractor, with no products of our own, we are entirely dependant on higher levels of the supply chain having work to pass down.

As a company we have never been afraid of investing in new equipment. Until 2008 we were purchasing a new laser cutting system, on average, every 18-24 months and it was always part of our philosophy to use the most advanced equipment available to the market.

The last eighteen months have been a real challenge because of the general state of the economy and the fact that work simply has not been there. We are now, at last, starting to see signs of a recovery and it is important that we do all we can to move forward and get back to the patterns of growth we had become used to.

It is important, now that we are in the approaches to an election that all parties realise that if we, as a country, are going to survive and thrive we must have a buoyant manufacturing base. Manufacturing is the only way forward. Over the recent months many SMEs have been supported by their owners as profitability, and therefore cashflow has been hit and credit ratings have been affected as balance sheets have reflected the conditions.



Investment is the key to moving forward, investment without onerous conditions and at affordable rates. It is important that everyone works together, government, the financial sector and manufacturers, to ensure that UK Plc has a future as a world leading economy. We need lenders to be more flexible and for the government (whatever its colour) to provide support.



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Our members design, create and supply the major machinery, technology and equipment that enables the manufacture of everything from everyday items such as mobile phones, computers and family cars, through to high-tech precision items like F1 racing cars, medical implants and space craft.

The Manufacturing Technologies Association

The core of engineering based manufacturing



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