



Department  
for Business  
Innovation & Skills

## STRENGTHENING UK SUPPLY CHAINS

Good practice from industry and  
government

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# Executive summary

This paper sets out 12 business challenges where collaborative supply chain approaches are providing solutions. Strong and sustainable supply chains need primes and large tier-ones to adopt a collaborative approach to their suppliers, working with them for long-term success. Supply chain collaboration can solve problems in skills, finance, innovation and supply chain efficiency – benefiting the whole supply chain.

There are already many examples of good practice from industry and government but there is scope for government and industry to do more, leveraging the funding and support already available through programmes such as the Advanced Manufacturing Supply Chains Initiative (AMSCI) and the Manufacturing Advisory Service (MAS).

## Skills

The most well-known manufacturing primes attract many times more qualified applicants that they can offer apprenticeships or employ; at the same time, less well-known supply chain companies have difficulty finding the talent they need. Primes can use their brand power to help their suppliers recruit through **clearing houses** which redirect high-calibre additional candidates to supply chain companies.

Supply chain companies also face barriers to training their existing workforce. A number of major primes, particularly in aerospace and automotive, are expanding their **apprenticeship academies** and training facilities and channelling the additional recruits into their supply chain.

## Finance

Releasing working capital down the supply chain is critically important if the UK's manufacturing suppliers are to survive and grow. Large corporates across different sectors have introduced **supply chain finance** programmes to improve suppliers' cash flow while maintaining their own working capital. These programmes use the credit strength of the prime to give suppliers up to 100% advances on outstanding invoices at low cost.

Late payment is a major issue for many supply chain companies. To date over 1,500 companies have signed up to the Government's **Prompt Payment Code**. Sector codes of practice are also effective – the rail industry has a fair payment charter and the construction sector is developing its own.

## Innovation

Suppliers are increasingly being seen by primes and tier-ones as a source of innovation. Half of respondents to a recent survey said that partnerships, rather than in-house R&D, would be key to future innovation activity.<sup>1</sup> The Technology Strategy Board plays a central role in facilitating **collaborative supply chain R&D**, but sector-specific funding programmes are also helping suppliers take their 'bottom-up' innovations to market. Online and face-to-face **innovation exchanges** can improve customers' awareness of supply chain innovations. Perhaps the best way to facilitate innovation is through co-location;

**open innovation campuses** are prime-led initiatives to bring the supply chain together with academia in one single research facility.

### Efficient supply chains

Government and primes have a mutual interest in building the capability of suppliers. Several primes run their own **supplier mentoring** programmes to build manufacturing and management capabilities. This is complemented by the **Manufacturing Advisory Service** and industry-led programmes to develop suppliers in specific sectors and regions.

Efficient supply chains require professional, reliable and robust suppliers; however, they also require customers whose purchasing behaviour is responsible and conducive to the long-term sustainability of the supply chain. Certain sectors including oil and gas have come together to agree industry-wide **procurement codes of practice**. Major customers can ensure good procurement practice is passed on down the supply chain and give suppliers long-term visibility of future demand.

If primes are to meet ambitious sustainability targets, efficiencies must be spread through the supply chain. To do this, some primes are taking responsibility for training their suppliers through **sustainability schools** and programmes; others have set up online sustainability 'hubs' to enable suppliers to share information and expertise.

# Introduction

**Supply chain collaboration has the potential to unlock solutions for some of today's most pressing business challenges, in skills, access to finance, innovation and supply chain efficiency.**

The collaborative approach is taking root in industry. Supplier-customer relationships are no longer purely transactional, focused exclusively on unit cost; primes are leading a shift in mindset from top-down supply chain management to supply chain collaboration. This is above all a business decision – primes and major tier-ones know that creating strong, skilled, sustainable and innovative supply chains is in their own commercial best interests.

This paper sets out 12 business challenges where collaborative supply chain approaches are providing solutions. In each, industry and Government have developed initiatives which seek to address these challenges. Many of these initiatives are driven by primes and major tier-ones; others are led or funded by Government; some are bottom-up and originate from suppliers. All involve some degree of collaboration, whether this is vertical (e.g. primes working with suppliers) or horizontal (e.g. suppliers in parallel supply chains joining forces, perhaps facilitated by primes).

## Government support

Building and strengthening the UK's supply chains is a priority of the government's Industrial Strategy, and support is available to companies and organisations who want to adopt the collaborative initiatives set out in this paper.

### The **Advanced Manufacturing Supply Chain Initiative** (AMSCI) is a funding competition

designed to improve the global competitiveness of UK advanced manufacturing supply chains. £245m of public funds have been pledged so far over four rounds, to support research and development, skills training and capital investment to help UK supply chains achieve world-class standards and encourage major new suppliers to locate in the UK. Funding is also available from the **Regional Growth Fund** (RGF), a £3.2 billion fund helping companies throughout England to create jobs between now and the mid-2020s.

The **Manufacturing Advisory Service** (MAS) provides manufacturing business support for companies based in England, helping them to improve and grow. Supply chain collaboration in skills may also be eligible for government funding for employer-led vocational education.

## The business challenges

### Skills

1. Helping suppliers to recruit
2. Helping suppliers to train

### Finance

3. Increasing understanding between industry and banks
4. Accessing working capital
5. Addressing late payment
6. Financing performance bonds

### Innovation

7. Increasing collaborative R&D
8. Setting the direction of innovation

### Efficient supply chains

9. Building supplier capability
10. Improving procurement approaches
11. Increasing demand visibility
12. Embedding sustainability

# Skills

## Helping suppliers to recruit

Shortages in the supply of skilled entrants to the workforce are a major problem for supply chain companies. Suppliers may lack the recruitment power of the primes and struggle to find quality candidates at apprentice, graduate and experienced hire level. A strong talent pipeline to the supply chain benefits primes and tier-ones as well as the suppliers themselves.

### Clearing houses

The most well-known manufacturing primes attract many times more qualified applicants that they can offer apprenticeships or employ; at the same time, less well-known supply chain companies have difficulty finding the talent they need. Primes can use their brand power to help their suppliers recruit. High-calibre candidates who narrowly miss out on a place with the prime can be redirected to supply chain companies, who may be willing and able to take them on.

To overcome this a 'Clearing House' is being piloted with **BAE Systems** and **Siemens**, to reallocate to supply chain companies the many high quality engineering apprenticeship applicants they attract, but whom they are unable to take on. This model could potentially be expanded, for example to include graduates seeking placements or employment. Clearing house schemes such as this can complement the **Talent Retention System**, an online platform to match apprentices, graduates and experienced hires with manufacturing sector vacancies. The system is free to join for SME suppliers.

## Helping suppliers to train

As well as recruiting new employees, supply chain companies also face barriers to training their existing workforce. Lack of administrative capacity, difficulties financing the investment and unawareness of available support can all deter suppliers from systematically engaging with training. As a result, some supply chain companies find recruiting pre-trained staff more efficient than training, but such 'poaching' within the supply chain is likely to be counter-productive in the long term.

### Opening up Apprenticeship Academies to suppliers

A number of major primes, particularly in aerospace and automotive, are expanding their established apprentice training facilities and channeling the additional recruits into their supply chain. This 'over-training' not only raises the skills level of suppliers; it also gives the next generation of employees in its supply chain an advanced understanding of its ways of working, improving the long-term prospects for prime-supplier collaboration. The model is well established in Germany.

**Rolls Royce** has opened an Apprenticeship Academy in Derby, allowing it to double the number of apprentices it trains. The 200 extra recruits will complete their apprenticeships with supply chain companies who may not have the capacity or experience to develop

their own programmes. Similar schemes have also been set up by **BAE Systems**, which successfully bid for Employer Ownership of Skills Pilot (EOP) funding to train apprentices for its North West supply chain, and **Toyota** at its Academy in Nottingham.

### Rolls Royce expands Apprenticeship Academy for its supply chain

In November 2012, Rolls-Royce opened a new, state-of-the-art Apprentice Academy in Derby. The facility enables Rolls-Royce to increase the number of apprentices it trains, beyond its own requirements. On completion of their training, the additional apprentices will find work in the supply chain, providing an additional source of skilled labour to the UK engineering and manufacturing industry.

The facility includes a 1,200 square metre workshop equipped with the latest machines, which enables apprentices to be trained on the same equipment they will be using in the workplace. 98% of the company's apprentices successfully complete their training compared with a 74% national average and many go on to senior roles within the organisation; 20% of current senior managers in the UK started their careers as Rolls-Royce apprentices.

### Graduate bursaries for suppliers

Ensuring that the supply chain has a highly-skilled graduate workforce is a common theme across the Industrial Strategies. In aerospace, nine major aerospace companies have made a significant investment in up-skilling their supply chain through the **Aerospace MSc Bursary scheme**, which BIS is co-funding. The three-year scheme will award 500 Masters-level bursaries to existing and prospective aerospace employees, including those seeking to build careers in the supply chain. The **EPSRC iCASE supply chain pilot** invited suppliers to companies already participating in iCASE to work with funded PhD students on their business projects.

### Aerospace Masters bursaries for supply chain employees

Nine of the leading companies in the UK aerospace industry have come together with Government to provide 500 bursaries over three years for Masters degrees in aerospace. The £6 million scheme (funded by industry and BIS) aims to increase the flow of high-level graduates into the aerospace supply chain and to up-skill existing employees of both primes and supply chain firms.

In addition to funding their own current employees, the sponsoring companies are making a substantial investment in supporting bursaries for employees of small and medium-sized businesses in the aerospace supply chains with up to around 75% support of the cost of tuition fees.

# Finance

## Increasing understanding between industry and finance

A frequent complaint from business is that banks lack the sector-specific expertise to accurately assess risk, leading to reluctance to extend credit. Conversely, supply chain companies often have an incomplete understanding of the range of financial products available to them both from banks and alternative finance providers. There is a clear need for increased dialogue and cooperation between banks, other finance providers, primes and suppliers.

### Sector council finance forums

To improve bank understanding of the specific needs of their sectors, a number of sector councils are establishing joint forums and other formal mechanisms for dialogue. The Automotive Council and British Bankers Association (BBA) have set up an **automotive joint industry forum** to find solutions for sector-specific supply chain needs such as tooling finance. The forum has had early success in agreeing on a tooling finance framework for the development of new products to meet this demand. The **Aerospace Finance Forum** has been created by the Aerospace Growth Partnership with the participation of major banks including Barclays, RBS and Lloyds, plus private equity institutions. An **oil and gas joint industry conference** was held in November 2013 to raise awareness of the financial instruments available to the supply chain.

#### Auto Council and BBA tooling finance framework

Vendor tooling is the equipment whose design and manufacture is dictated by the form and function of a vehicle/engine maker's unique component. Following an order, vehicle makers' standard terms result in suppliers purchasing tooling and then receiving payment when parts of being supplied from it. This can result in a substantial delay between having to pay the tooling manufacturer and receiving payment from the vehicle maker of up to two years in many cases. This can create a real cash flow problem for the supplier – especially those also looking to expand their businesses.

The Automotive Council has agreed a framework for the development of products to address tooling finance constraints with the financial services sector through the BBA. This sets out characteristics that would be expected from new products including arrangements for vehicle makers to pass on agreed terms through their Tier-one suppliers, commitment to pay suppliers on completion of agreed milestone events and the banks viewing the value of the transaction as the vehicle makers commitment to pay and to show willingness to provide funding into the supply chain. Types of products could include supply chain finance, trade finance with the vehicle maker and trade finance direct to the supplier.

### Sector expertise within banks

The automotive and aerospace finance forums are working with banks to address the perceived lack of understanding – particularly at a local level – of each sector's respective



supply chain structures and business models. In the automotive industry, the **Royal Bank of Scotland** has taken a lead among the commercial banks by building a dedicated automotive team. In aerospace, an early achievement of the Aerospace Finance Forum has been an agreement with **RBS** and **Barclays** to set up a network of regional sector specialists across the UK. The Forum is also working to increase the support available to suppliers, such as access to finance professionals with expertise in equity finance and export credit guarantees.

## Accessing working capital

Releasing working capital down the supply chain is critically important if the UK's manufacturing suppliers are to survive and grow. Capital tied up in invoices and other receivables cannot be spent on investment in equipment, facilities and skills. Given the scarcity of credit, initiatives that get cash to companies more quickly will have a very positive impact.

## Supply Chain Finance

Large corporates across different sectors have introduced supply chain finance programmes to improve suppliers' cash flow while maintaining their own working capital. The term 'supply chain finance' incorporates a range of financial products, offered by banks and other institutions, which use the credit strength of the prime to give suppliers 100% advances on outstanding invoices at low cost.

In March 2012 the Breedon Report on alternative debt markets recommended that Government should work to accelerate adoption of supply chain finance. In response the Prime Minister met with some of the UK's largest companies who agreed to consider establishing or expanding existing supply chain finance programmes for their supply chains, including **AB Foods**, **Jaguar Land Rover**, **EDF Energy**, **Rolls Royce** and **Siemens**.

Traditional bank-based supply chain finance programmes are most accessible to large, investment-grade companies. There are, however, an increasing number of working capital platforms being established to provide working capital products to smaller, non-investment grade companies – often those operating further down the supply chain. These are often funded by non-bank institutional investors. Non-bank platforms include Oxygen finance, Trade River Finance, and C2FO. **URICA**, a web-based supply chain finance platform, was awarded a commitment of £10 million funding from the Business Finance Partnership in May 2013. URICA allows companies turning over just £5m or more to offer supply chain finance, addressing concerns that companies further down the supply chain are not able to take part in existing programmes.

### Urica online supply chain finance platform

Government, through the Business Finance Partnership, and insurer RSA have each invested £10million in new web-based supply chain finance platform URICA, which permits suppliers to receive early payment on their invoices using URICA funds, whilst providing a host of benefits for the buyer.

URICA offers an alternative to bank-provided supply chain finance programmes, giving suppliers low-cost access to the capital locked up in invoices, at no cost to the buyer. At the same time as increasing the robustness of supply chains, URICA offers buyers a number of other benefits. URICA can also be used to help exporters receive early payment.

Growth companies with a turnover of between £5m and £150m are being asked to join the platform. Buyers log on to the web-based platform and invite their suppliers to sign up. Suppliers invoice via URICA and, following approval from the buyer, can receive payment as quickly as one day after invoice date, less a small early payment discount. Payment is in cash and is without recourse, personal guarantees, or commitments. The only charge is the discount charge and this is typically £200 on a £10,000 invoice. URICA receives the full invoice amount from the buyer on the pre-agreed settlement date by direct debit.

### Asset Based Finance

In addition to supply chain finance products provided by primes, suppliers have access to other products to unlock the capital tied up in invoices and other corporate assets that fluctuate in value. The major banks as well as independent asset based finance organisations provide invoice discounting (cash advances against the invoice), factoring services (the invoice is sold to the bank at a discount), and asset based lending (funding against a range of corporate assets, which tends to be used by larger, financially mature corporations). The percentage of the invoice amount that can be accessed up front is lower than supply chain finance products (typically 85%) and costs are higher. Use of invoice financing is more widespread in the UK than the major European countries but is still much lower than in the US, suggesting there is room for greater uptake of these financing models. Innovative new online receivables exchanges such as **Market Invoice**, which recently received £5 million funding from the Business Finance Partnership, will help to increase flexibility and access.

### Addressing late payment

Late payment is a major issue for many supply chain companies. This is an almost universal problem across sectors, but is particularly acute in the construction sector. UK SMEs are now owed £30.2bn in late payment according to research by Bacs<sup>2</sup> – and prompt payment can be a life-or-death issue for small companies.

### Prompt Payment Code

The Government's **Prompt Payment Code** was established in December 2008 to encourage fair payment practices. Code signatories undertake to pay suppliers on time, give clear guidance to suppliers, and encourage adoption of the code throughout their own supply chains. To date over 1500 companies are signatories to the code.<sup>3</sup>

The Late Payments of Commercial Debts (Interest) Act 1998 provides a legal framework that allows suppliers to charge interest on late payment. In March 2013 the UK implemented the EU Late Payments Directive (2011/7/EU) which caps payment terms at 60 days for business purchasers unless expressly agreed otherwise and not grossly unfair to the supplier, and 30 days for public sector purchasers. However many suppliers are still unwilling to use legal channels to obtain payment due to concern that doing so will cost them future work.

In December 2013 government published a discussion paper *Building a Responsible Payment Culture*. This paper looks at what can be done to change business payment culture and tackle late payment.<sup>4</sup>

### Sector codes of practice

Sector-specific agreements between large primes and tier one suppliers can be an effective means of achieving buy-in to good payment practices. In the rail industry, **Network Rail** has signed a 'Fair Payment Charter' with 30 of its main contractors committing the signatories to prompt, predictable and correct payment. The **Construction Leadership Council** is following the rail industry's lead by developing its own charter to encourage fair payment practice. Where voluntary agreements are deemed to have failed there is now a precedent for regulation with the establishment of the **Groceries Code Adjudicator** to oversee the Groceries Supply Code of Practice, which includes a requirement to pay suppliers in reasonable time and according to the supply agreement.

#### Network Rail's Fair Payment Practice

The rail industry has signed up to a sector-wide charter committing it to "prompt, predictable and correct" payment. The initiative is led by Network Rail and includes the members of the Commercial Directors' Forum (CDF) which represents thirty of the UK's biggest construction and engineering companies, including Balfour Beatty, Carillion, Laing O'Rourke, Thales and Siemens.

The agreement, introduced in January 2012, sets out a number of standard payment terms which are shorter than previous industry norms: Network Rail will pay its main contractors within 21 days (down from 56 days) and this will be passed on to suppliers within seven additional days. The industry aims to increase liquidity in the supply chain and increase certainty for suppliers. On retention, the practice where a portion of payment is held back until the completion of the project, tier one suppliers agreed to adopt the same terms it agrees with Network Rail with its own tier two suppliers. Network Rail is phasing out the practice.

The charter is not legally-binding but sets the tone for the way Network Rail and the industry expects to work with its supply chain.

### Financing performance bonds

Many supply chain companies, especially in the oil, gas, offshore wind and some manufacturing sectors, are required to provide performance bonds or guarantees in order to win contracts. Supply chain companies may have the technical capacity and capability

to win and deliver the tender, but by tying up credit lines or cash reserves, bond requirements can prevent companies taking on new contracts and growing.

### Debt finance schemes for performance bonds

First of its kind in the UK, the **Tees Valley Catalyst Fund** offers short-term debt investments to businesses in the Tees Valley to fund performance and warranty bonds; allowing businesses to bid for larger contracts than they are current able, creating growth and jobs. UK Export Finance also offers a bond support scheme for UK companies that are contracting with a company based overseas. The Government's **Business Bank** is exploring the possibility of building on these schemes to provide nation-wide support on performance bonds. The Oil and Gas Industrial Strategy commits Government and Industry to review issues around performance bonds in the sector and recommend actions.

#### Tees Valley Catalyst Fund

A £10m fund to help ambitious companies in the Tees Valley to post performance bonds for new contracts has been launched by the Local Enterprise Partnership Tees Valley Unlimited.

The fund provides short term loans of between £50,000 to £4 million to small, medium and large businesses to fund performance or warranty bonds to help them bid on bigger contracts. Post recession, providing the required cash security for the bond is a common obstacle in winning contracts or growing a business, even if they have been successful in the technical stages of tendering competition. The Catalyst Fund will allow Tees Valley businesses to bid for bigger contracts than previously possible, creating an estimated £700m of additional work and 1,440 jobs over 10 years.

The fund provides the cash security required (up to 100%) and structures repayments based on the staged payments from the client with no early repayment penalties. Upon repayment, the money is recycled to help someone else. Although priced commercially, due to the performance bonds generally being 10% of the total contract value, the fund can help unlock significant new contracts with the price of the fund causing an overall impact of circa 1-2%, and hence could potentially be priced into the tender with no cost impact on the business.

The fund is managed by FW Capital, an investment group specialising in SMEs. It operates on an evergreen basis, with repayments and interest reinvested in new lending. The £10m investment was provided through the Regional Growth Fund.



# Innovation

## Increasing collaborative R&D

Suppliers are increasingly being seen by primes and tier-ones as a source of innovation. Half of respondents to a recent survey by KPMG said that partnerships, rather than in-house R&D, would be key to future innovation activity.<sup>5</sup> However, UK suppliers are not always able to engage independently in innovation activities. Early collaboration by primes and tier-ones in supplier-led R&D will result in more, better-focused innovation with greater impact.

### Technology Strategy Board and Catapults

With its remit to support business-led innovation, the Technology Strategy Board (TSB) will play a central role in increasing supply chain collaborative R&D. Much of this joint activity takes place at the seven centres which make up the **High Value Manufacturing Catapult**, but companies in specific sectors are also accessing the expertise of Catapults for offshore renewable energy, satellite applications, future cities, transport systems, energy systems, cell therapy, biologics and stratified medicine. For example, the Advanced Manufacturing Research Centre, part of the HVM Catapult, worked with a joint team from **Technicut and Rolls-Royce** to develop the award-winning MEGA-FLUTE tooling technology. Aside from the Catapults the TSB also funds supply chain partnerships through its **Collaborative R&D calls** and **Feasibility Studies**, which allow businesses to test out new ideas with the input of their customers.

#### Rolls-Royce and Technicut supply chain partnership

A team consisting of members from Rolls-Royce, Technicut and the Advanced Manufacturing Research Centre (AMRC), part of the HVM Catapult centre, was selected as the winners of a prestigious 2009 Sir Henry Royce Award for Technical Innovation, for the MEGA-FLUTE tooling technology. The technology has the potential to deliver a step-change in productivity for the machining of a broad spectrum of aero engine components and features in both titanium and nickel alloys. The true benefits are yet to be fully quantified, but it is anticipated that this revolution in milling technology will deliver significant cost reductions and contribute towards decreased future capital expenditure requirements.

### Funding programmes

Recognising that primes and major tier-ones alone will not be able to make the technological advances required to sustain the UK's position in the global aerospace industry, the AGP has put in place the **National Aerospace Technology Exploitation Programme** (NATEP). The programme helps small and medium sized suppliers develop their own innovative technologies and increase their ability to win business with higher tier companies anywhere in the world. NATEP is a £40m programme supported with a £23million award from AMSCI and builds on a successful regional programme previously run in the Midlands. One successful project from that programme was led by **G&O Springs**, who brought together Alloy Wire (their supplier) and BAE Systems (their

customer), along with other manufacturers and academics, for a collaborative project to improve computer modelling of spring performance. In rail, the **Enabling Information Team** funds demonstrator projects and challenge prizes to catalyse innovation by suppliers in the sector.

### G&O Springs collaborative research project

Springs play an integral role in today's advanced aircraft systems, yet spring manufacturers have traditionally had no input into the design of those systems. This has led to sub-optimal systems design and systems that are larger and heavier than they need to be.

G&O Springs took advantage of R&D funding offered through the Midlands Aerospace Alliance's Aerospace Technology Exploitation Programme to collaboratively research more effective product solutions. They brought together Reliable Spring and Manufacturing Co (a fellow local spring maker), Alloy Wire (a material provider), the Institute of Spring Technology, together with Aero Engine Controls and BAE Systems as customer advisors.

Between 2009 and 2011, the team manufactured a large number of springs in ten different titanium and exotic alloy grades and tested them rigorously. The results were fed into computer models to project how springs would perform. As a result, aircraft systems makers can now be provided with data needed to design the optimal spring for their systems, allowing them to make significant reductions in spring and system size without compromising on performance and reliability. This has enabled G&O Springs and its supply chain to move up the value chain, now possessing differentiating intellectual property and design expertise.

### Open innovation campuses

A culture of open innovation, including between primes and suppliers, can be fostered by co-locating in supply chain clusters. Clustering by particular sectors is not a new phenomenon, but is increasingly recognised as a powerful means of increasing collaborative innovation. One of the best examples in the UK is the **Stevenage Bioscience Catalyst**, the UK's first biomedical open innovation campus. Based on land at the **GlaxoSmithKline** global R&D site, SBC is home to drug discovery and medtech SME's, outreach laboratories from a number of universities and other parts of the pharmaceutical industries industrial supply chain. **Jaguar Land Rover** has committed to invest £50million in a large-scale innovation campus at the University of Warwick. It will bring together around 1000 academics and engineers from JLR and its supply chain into one single research facility.

### Innovation exchanges

Effective communication is vital if suppliers' 'bottom-up' innovations are to be successfully adopted by primes, with customers involved at an early stage in development. This has not always happened in many supply chains. Some large companies are attempting to address this through initiatives which provide opportunities for suppliers to communicate their innovations, either face to face or using web platforms. **Anglia Water's Water Innovation Network** offers an online submission process that fast-tracks new ideas from suppliers to the relevant people within Anglia Water and to a dedicated steering group that

reviews all submissions. **British Water Innovation Exchanges** give suppliers the opportunity to pitch their innovations at 'Dragon's Den' style events.

### British Water Innovation Exchange

In 2011 water supply chain trade association British Water established Innovation Exchanges, a new model to allow greater engagement between water companies and their suppliers to improve the adoption of innovation across the sector.

Each Innovation Exchange allows a water company to engage with a large number of suppliers with discussion focusing on three areas of opportunity for innovation within their business. Individual companies have the chance to make 10 minute presentations about products and services that they offer which can address one or more of these issues. The first nine Innovation Exchanges have delivered 323 of these presentations from 128 supply chain companies, with indications that 30-40 per cent of these suppliers have had subsequent positive discussions with water companies or other suppliers about adopting their innovations.

## Building Information Modelling

New digital technologies are making early-stage collaboration between customers and suppliers easier than ever before. In construction, Building Information Modeling (BIM) allows clients, designers, constructors and suppliers to innovate and maximise efficiency on builds using 3D modelling. In 2012, Crossrail and Bentley Systems launched the **Crossrail BIM Academy** to train suppliers in this new technology. Anticipating the nuclear new-build programme that will deliver 16GW of new nuclear by 2030, a **BIM 4 Nuclear** programme has been initiated by industry and Government to encourage adoption of BIM through the supply chain.

## Setting the direction of innovation

Innovation by supply chain companies will have most impact if it is aligned with the future needs of the prime manufacturer. Suppliers need an understanding of future opportunities and priority technologies so they can conduct R&D in most appropriate areas.

### Technology roadmaps

Industry-led technology roadmaps can set out a unifying vision for technological developments in a sector. The **marine industries technology roadmap** and **HealthTech and Medicines KTN** roadmapping exercises have identified future opportunities and capability needs for supply chains in each sector. In 2009, the automotive sector developed a **passenger vehicle technology roadmap**. Further roadmaps have been published, on commercial vehicles, off-highway equipment and low-carbon vehicles, and the Industrial Strategy commissions the Automotive Council to publish five more. The initiatives to improve demand visibility (see below) also help to inform the direction of supply chain R&D.

# Efficient supply chains

## Building supplier capability

The ‘hollowing-out’ of UK supply chains is not just a problem for UK growth and jobs. It is in primes’ own interests to have a visible, locally-sourced supply chain – if this is commercially viable. Government and primes therefore have a mutual interest in building the capability of suppliers. The potential benefits for UK suppliers are considerable. In the automotive industry alone, UK suppliers could access an extra £3billion of growth opportunities if they were able to competitively meet primes’ requirements.<sup>6</sup>

### Manufacturing Advisory Service

A central pillar of Government’s efforts to raise the capability of small manufacturing suppliers is the BIS-funded **Manufacturing Advisory Service (MAS)**. Its 80 local advisors use their hands-on manufacturing experience to conduct business reviews (over 14,000 since January 2012) and initiate improvement projects to increase suppliers’ competitiveness. MAS’ network of supply chain advisors also works with primes and tier-one suppliers to understand their supply chain requirements and identify any issues with existing suppliers. MAS also manages a dedicated £20million programme for the offshore wind sector, **GROW:Offshore Wind**.

#### GROW: Offshore Wind

Government recently announced a £20m three year programme to build the competitiveness of the supply chain in England. The MAS Offshore Wind Supply Chain Growth Programme (GROW: Offshore Wind) is a new, jointly led service delivered by the Manufacturing Advisory Service (MAS), with Grant Thornton, RenewableUK and the Advanced Manufacturing Research Centre (AMRC), supported by the Regional Growth Fund.

The programme will focus on SMEs already in the sector looking to increase capacity and those with the capability to enter the offshore wind manufacturing supply chain. It will provide them with market insight into customer needs and will offer a comprehensive package of support, delivered by specialists. The support will be tailored to the needs of the individual company and could take the form of support to improve positioning for new contract opportunities, an innovative design project or access to investment finance.

### Supplier development programmes

Alongside the national MAS offer, industry has come together to run supplier improvement programmes dedicated to specific sectors. ADS, the aerospace national trade body, runs the **SC21 (Supply Chains for the 21<sup>st</sup> Century)** programme to raise the performance of the aerospace and defence supply chains in the UK. SC21 works alongside the national MAS scheme and has over 600 signatories on the programme. Programmes have also been developed at a regional level, such as the **Northwest Automotive Alliance’s Business Excellence Programme** which offers subsidised mentoring, technical support and networking for its 77 members. Also in the North West, the **Aerospace Supply Chain**



**Excellence (ASCE) 2 Programme** works to improve the performance of the aerospace supply chain in the region.

### 21st Century Supply Chains

SC21 is a change programme designed to increase the performance of suppliers in the UK aerospace, security, space and defence industries. The programme is a collaborative effort with ADS leading, at a national level, working with signatory companies, primes, regional trade associations, strategic partners and accredited training providers.

Awards levels (Gold, Silver and Bronze) for SC21 achievement require companies to have reached relevant scoring levels for EFQM, business excellence (BUSEX) and manufacturing excellence (MANEX) models; have a robust continuous sustainable improvement plan; and, where possible, have implemented the relationship management model. In addition, the companies must have achieved minimum standards in delivery and quality performance for all of their key customers for a rolling 12 month period. SC21 can be deployed by any size of company and is not dependant upon external sponsorship from large primes – if a company wishes to get involved it can.

### North West Automobile Alliance Business Excellence Programme

The £2.2 million Business Excellence Programme (BEP) offers flexible support and advice, focused on driving the competitiveness of the supply chain by improving business practices, sustainability, competitiveness and profitability.

BEP was established in 2010 and has been extended to run until June 2015. Currently, BEP has 111 members (25% of the sector in the North West region), which include all the region's vehicle manufacturers (Bentley, Vauxhall, Jaguar Land Rover and Leyland Trucks), many tier-one suppliers and SMEs through to micro companies.

To date, 266 people have been assisted with skill development, 158 jobs have been created and 405 jobs safeguarded. Projects have been wide and diverse, including lean manufacturing, market intelligence, procurement and system development, for which 87 projects have been supported. From July 2013 to June 2015, 240 individuals will be assisted with their skill development, 69 jobs will be created and an additional 158 jobs will be safeguarded.

### Prime-led supplier mentoring

Recognising the business advantages of a strong, local supply chain, several primes run their own initiatives to mentor and build the capability of their suppliers. In aerospace the **Sharing in Growth scheme**, supported by Rolls-Royce, McBairda, Timet, and the AMRC, is an ambitious proposal to raise the capability of UK aerospace suppliers in order to share in the growth of aerospace and other global markets. It will provide concentrated training and development programmes tailored to the assessed needs of suppliers and targeted at world class standards of performance. A successful AMSCI bid by **David Brown** will support 30 SME suppliers to meet demand in the offshore wind turbine sector.

### David Brown supplier development programme

A programme led by David Brown Gear Systems in Huddersfield is bringing sophisticated production capabilities into the UK gearbox supply chain, positioning the UK as a world leader in the creation of large gearboxes for the next generation of offshore wind turbines.

The project will support over 30 SME suppliers to develop systems and integrate capability to meet demand. It will develop an innovative pilot assembly cell at DB, and will work with partner projects in R&D to develop further supply chain capability. AMSCI supported DB and the other partners in the project with a £6.3million grant towards the total investment in the project of £28.5m. The project will create 157 permanent jobs and safeguard 71 current jobs.

David Brown (DB) is an original equipment manufacturer in the wind turbine market. Samsung Heavy Industries has agreed exclusivity of supply with DB for the gearbox in its 7MW offshore wind turbines.

## Improving procurement approaches

Efficient supply chains require professional, reliable and robust suppliers; however, they also require customers whose purchasing behaviour is responsible and conducive to the long-term sustainability of the supply chain. Adopting good procurement practice will ultimately improve performance and drive down costs, benefitting purchaser and supplier alike.

### Sector codes of practice

Certain sectors have come together to agree industry-wide principles for procurement. Most established is the **PILOT Supply Chain Code of Practice (SCCoP)** in the oil and gas industry. A tiered award system monitors purchasers' behaviour; achievement of Bronze, Silver and Gold awards is based on feedback and scores submitted by suppliers and other criteria such as participation in Share Fairs. The industry has also developed standard contracts and invitations to tender templates to streamline the contracting process and save costs. Elsewhere, the Offshore Wind Programme Board has undertaken to explore how best to spread good collaboration practice through identifying appropriate contractual approaches. The **Grocery Codes Adjudicator** has been set up for supermarkets where a voluntary approach was deemed insufficient. The Adjudicator has powers to fine supermarkets that breach the code's provisions around payment, contracts and treatment of suppliers.

## PILOT Supply Chain Code of Practice

The UK's Supply Chain Code of Practice (SCCoP) is currently supported by more than 200 companies spanning the spectrum of participants in the basin. The code outlines a set of best practice guidelines for the UKCS oil and gas industry to improve performance, eliminate unnecessary costs, add value and boost competitiveness. It broadly covers three stages; plan, contract, perform and pay.

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## Customer-led procurement agreements

Major customers can also spread good procurement practice by requiring that their own contracting terms with contractors and tier-ones are passed on down the supply chain. With an annual procurement budget of £40bn, central government is in a particularly important position to spread good procurement practice. It commits its prime contractors to pay tier-two suppliers within 30 days and has appointed a Crown Representative to support small companies in government supply chains. Suppliers who feel their customers are not complying with government requirements can take advantage of the Cabinet Office's **Mystery Shopper** initiative to report unfair practice. Separately, the Nuclear Decommissioning Authority requires its Site License Companies to interpret its **Nuclear Supply Chain Action Plan** which sets out objectives for good supply chain practice. A Nuclear Owners Group has been set up including **EDF Energy** to discuss major infrastructure investment issues and consider procurement strategy.

## Increasing demand visibility

Transparency of future demand is critical to the efficient operation of supply chains, allowing suppliers to confidently invest in skills, equipment and capacity, informed by knowledge of when and where future opportunities will emerge.

### Demand roadmaps

One means of increasing demand visibility is through the publication of forward planning roadmaps setting out key product and investment milestones. These may be led by Government, primes or industry associations. These are now common in the energy sectors, where developers' investment decisions have large knock-on effects on suppliers. RenewableUK now publishes **Offshore Wind Project Timelines** annually; **Project Pathfinders** tracks future projects in oil and gas from 95% of developers. Other sectors including automotive and aerospace are also attempting to increase demand visibility through industry-led frameworks for communicating supply chain opportunities. Government is supporting information sharing by publishing procurement pipelines in 19 sectors worth over £177billion through its **Contracts Finder** portal.

## Share Fairs and Meet the Buyer events

Events bringing primes and suppliers together to discuss future opportunities are now established in many sectors. The oil and gas industry pioneered the use of **Share Fairs** to bring suppliers and potential customers together and to communicate suppliers' future demands. These have now been adopted by the offshore wind industry. **Meet the Buyer** events organised by industry associations are now common across most sectors.

## Embedding sustainability

Energy and resource productivity has been described as the 'next manufacturing revolution' with the potential to generate 314,000 new jobs, a £10bn per year increase in profits for manufacturers, and a 4.5% reduction in UK greenhouse gas emissions.<sup>7</sup> Collaboration throughout the whole supply chain will be essential to achieving these outcomes and ensuring that primes and suppliers remain competitive in the face of rising energy costs and resource scarcity.

## Supplier development programmes

If primes are to meet ambitious sustainability targets, efficiencies cannot stop with their direct operations but must be replicated through the supply chain. To do this, some primes are taking responsibility for training their suppliers in sustainability best practice. Nine major constructors have established the **Supply Chain Sustainability School** to help their suppliers develop their sustainability credentials. Suppliers receive a bespoke training plan and access to resources such as e-learning modules, free workshops and case studies. Since 2011, **Nestlé** has partnered with First Milk to deliver workshops, accredited by the Royal Agricultural College, covering a range of topics such as herd health, fertility, water, and good environmental practices.

### Supply Chain Sustainability School

The Supply Chain Sustainability School is collaboration between some of the major construction firms in the UK to improve sustainability practices among the construction supply chain. Kier, Lend Lease, Morgan Sindall, Skanska, Sir Robert McAlpine, Wates, Balfour Beatty, Willmott Dixon and Aggregate Industries are leading the pilot with their own supply chains, although any company can take advantage of the scheme.

A sustainability self assessment tool allows companies to assess their performance against 10 key indicators. The information shared is confidential and not shared with the contractors. The suppliers can then take advantage of a range of online and offline learning opportunities, including e-modules, presentations, supplier days and workshops.

## Online sustainability portals

Large companies, especially in the agri-food and water industries, have set up online platforms to encourage their suppliers to share best practice in sustainability. The **Tesco Knowledge Hub** describes itself as the world's largest supply chain collaboration, with about 2000 suppliers from 20 countries using the platform to share information, case studies and expertise on sustainability. A similar initiative is the **Asda Sustain and Save**



**Exchange**, which allows suppliers to benchmark themselves against each other to improve resource efficiency in energy, waste and water. The **British Water Innovation Exchange** and **Anglia Water's Water Innovation Network** also encourage innovation for environmental sustainability.

### Tesco Knowledge Hub

In support of its stated ambition to reduce supply chain carbon emissions by 30% by 2020, Tesco has partnered with sustainability network 2 Degrees to launch the Tesco Knowledge Hub. The hub is an online platform which allows Tesco's suppliers to share best practice and learnings on a range of sustainability topics. Documents and case studies can be downloaded and shared. Tesco recently saw its 1500th supplier join the hub.

One beneficiary of the hub is Cheshire-based salad producer APS Salad. The supplier used the hub to access knowledge and expertise that led to it implementing a range of sustainability measures, including thermal screening and a Bio Refinery.

# References

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<sup>3</sup> *Big companies pledge to pay promptly following government drive*, Department of Business, Innovation and Skills, September 2013

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<sup>6</sup> *Driving Success*, July 2013.

<sup>7</sup> *Next Manufacturing Revolution*, Lavery Pennell, 2degrees and University of Cambridge Institute of Manufacturing, July 2013

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