A report by the All-Party Parliamentary Manufacturing Group

All-Party Parliamentary manufacturing Group

MAKING GOOD

A STUDY OF CULTURE AND COMPETITIVENESS IN UK MANUFACTURING

“We prefer not to say ‘these are the problems’

Instead we believe in developing a relationship and shared understanding between two groups who need to get something done”

– Geke Van Dijk, STBY

OUR OBJECTIVES

- To examine interactions across the manufacturing ecosystem, and how this contributes to or hinders strategic and competitive business practices;
- To introduce a more user-centred approach to industrial policy, placing analysis of the manufacturing business at the heart of the process;
- To understand what shapes industrial culture, and how it can be changed;
- To make recommendations to industry, Government, and across the ecosystem to encourage a more innovative, creative, durable and resilient manufacturing sector for the twenty-first century;
- To spark dialogue across manufacturing businesses and the industrial ecosystem on future competitiveness;
- To build constructively on previous Government and industry research on industrial competitiveness;
- To develop a more sophisticated understanding of modern manufacturing, addressing how it is perceived across the ecosystem.

In beginning this inquiry early in 2013, we thought long and hard about a hypothesis which, when interrogated, would provide the sector and Government with a useful and honest conversation.

We also hoped that it would lead us to worthwhile recommendations for Government and industry.

OUR HYPOTHESIS

We believe that the UK does not have a clear understanding of what constitutes our national industrial culture and the interactions that shape it.

We believe that any government's attempts to support and grow manufacturing are most effective when this understanding is central to policy formation and implementation; we see little evidence of this currently in the UK.

Furthermore, to achieve the successful rebalancing of the economy, we believe that the manufacturing sector itself must better understand its own industrial culture, and in turn accelerate the adoption of competitive business practices.

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FOREWORD

As officers of the All-Party Parliamentary Manufacturing Group (APMG), we have spent a lot of time over the last few years talking to people involved in manufacturing in the UK. One thing we have been continually struck by is an odd resignation that some things just will never be fixed because of the culture of British industry. Most frequently, this lament would come up when Germany was being praised as an example to follow. Positive words about how successfully Germany was, for example, providing finance to its medium-sized manufacturers, or training new recruits into industry, would be followed by a sigh and the phrase, 'But of course that would never work in Britain. It's just not in our culture to do that.'

This felt like the perfect starting point for the APMG's first piece of independent research. Thinking about manufacturing has very rarely come from a cultural perspective, so we launched our inquiry to interrogate this one-liner: to try and better understand what makes our industrial culture, and how we can shape it for the benefit of UK manufacturing businesses.

The APMG is in a good position to conduct this kind of investigation. Over the last nine months we have used our convening power to bring together businesses, academics, and representative bodies, in a neutral setting, to discuss this knotty problem of culture. Supported by our Steering Group of industry experts, we have taken part in some fascinating discussions, and hope that the richness of our conversations comes out in these pages.

This report is not a final conclusion to the problem. If anything, we hope that this will set the tone for more discussion of industrial culture across industry, academia and Government. We have, however made some recommendations for structural and behavioural changes that we think would help improve conditions for manufacturing in the UK.

Alongside these recommendations, we make a special request to our parliamentary colleagues. One of the most significant cultural conditions shaping life for manufacturers in the UK is the current (and false) narrative of industrial decline: the public acceptance of the idea that manufacturing here is naturally on its way to extinction. This simply isn't the case. On our travels and in our discussions we have come across so many exciting businesses whose existence and success challenge that narrative. As public figures, we politicians have a unique platform to help turn things around, simply through talking manufacturing up. We encourage our colleagues to do so!

Finally, the overriding theme that sings from the pages and pages of evidence taken for this inquiry is the desperate plea from industry, to Government, for continuity and stability in the policy environment for manufacturing. The APMG is cross-party and here to support and foster that kind of consensual policy-making, and we do indeed call for it with the first recommendation of this report. However we also reflect this commitment in our own activities: and we intend to be here, doing just that, well beyond 2015.

Jonathan Reynolds MP
Inquiry Co-Chair

Chris White MP
Inquiry Co-Chair

EXECUTIVE SUMMARY AND RECOMMENDATIONS

Culture matters – the 'way we do things around here' impacts on our overall economic prosperity as a nation, our businesses' propensity to invest in themselves, in their labour force, and in their inclination to innovate, collaborate, and engage with all the various kinds of public programmes to support their competitiveness.

We have identified clear links between culture and competitiveness – a competitive business is one that is continually reinvesting, innovating, and is outward-facing in approach. This outward-facing mentality is both reflective of competitive attitudes, but is also often the key reason for the strength of a business. Management understand best practice, learn from others, take advice from a range of sources, and access Government support programmes when they are relevant. They are also long-term in their approach, investing for future growth rather than short-term savings. This is the best of UK manufacturing, and we should be proud of our successes. It is important, therefore, to find ways of making the best the normality.

Setting the tone for a pro-investment culture in UK manufacturing

We believe that the owners and managers of manufacturing businesses are, in some cases, behaving in ways that are not wholly competitive as a result of what we term the UK's industrial culture. There is too little investment for growth in UK manufacturing, and too much reluctance to engage with the kinds of support packages and business development programmes that would make 'competitive' business practices – innovation, automation, investment in skills, exporting, long-term financing – the standard for all UK manufacturing businesses. Growth, consolidation of growth, and future resilience of productive industry in the UK will only come about with some political and industrial focus on culture, and the need to find ways of making competitive behaviours more intuitive.

Through the course of this inquiry, we were told that Government must create an environment within which competitive practices are commonplace and intuitive. The Government 'environment' is broad, encompassing the fiscal regime, the processes through which business support programmes are designed and implemented, the agencies they fund, and the institutions they develop.

First and foremost, the political sphere as a whole must promote the long-term attitude required from businesses through its own behaviours and policy decisions. This should be a priority for the current Government, and for other political parties. Regardless of the winners and losers in 2015, most damaging for the sector would be a change in the rules of the game after the next General Election. Frequently throughout this inquiry, business owners and industry bodies compared our political climate unfavourably with that of competitor nations, particularly those that have had a consistent environment of industrial policy over many decades, transcending general elections and changes of Government. This has not stifled political debate in those nations, nor placed industrial policy on an undeserved pedestal.

We believe that agreeing the broad principles for a long term fiscal environment for investment would also give enough freedom and flexibility to future Governments on their own tax and spending commitments. Fiscal tools that encourage investment – tax credits, capital allowances, etc – are, we heard in evidence, much more powerful tools for changing industrial culture than, for example, the top level of corporation tax. It is in the best interests of all parties to engage on a cross-party basis on this issue, setting the tone for an industrial culture founded on the long-term. It would send a clear signal to the sector that they believe manufacturing holds a strong position in our future economic prosperity, and will continue to do so no matter which political party is in power.

Recommendation 1

The Government should lead a cross-party initiative, in consultation with industry, to establish a long-term fiscal framework to support investment. All party manifestos should contain a commitment to a broadly comparable fiscal framework for investment for ten years from 2015.

Structuring the interactions for a competitive industrial culture

It is our belief that culture is shaped and embedded predominantly through the ways in which businesses engage and interact across our industrial ecosystem. More than anything, these interactions set the tone for how businesses behave, and it is in these interactions that we will find the key to understanding where our industrial culture originates, and how it can be changed. These interactions include talking to Government itself (through lobbying, collaborating on programmes, sitting on industry forums), looking to other public agencies for advice or shared services (such as UK Trade and Investment (UKTI), Catapults, the Manufacturing Advisory Service), or by joining and networking through private industry groups (trade associations, chambers of commerce). There is also significance to be found in the way manufacturers interact with other businesses.

Businesses' interactions with Government can be characterised in two ways. First, they engage to lobby, affect policy, and educate civil servants and Ministers across Departments on key issues affecting the sector. In this instance, we found that whilst large companies are working well with Government, the interaction with small and medium sized manufacturers remains problematic. Whilst ensuring the continued strength of our top-tier corporations is absolutely crucial, Government needs to find a fresh radical approach to how it both understands businesses, and structures its civil service. The sectoral focus is useful in some respects, but there should be an alternative. In many cases, the issues affecting one manufacturing business with around 50 employees will be very similar to that of a similarly-sized business, even if they are operating in a different sector.

Recommendation 2

The Department for Business, Innovation and Skills should restructure its civil service manufacturing team – a 'grid' approach. Vertical teams to support and coordinate supply chain sectors and ensure growth and stability of OEMs, and horizontal teams focused on size of company, rather than sector.

The second crucial interaction with central Government is through the design and development of policies to support manufacturing businesses. In too many cases, there are the right kinds of programmes out there, but businesses are not aware of them. Additionally, industrial policy teams should begin to develop new kinds of insight into the 'users' of their policies, and start to incorporate the learnings and expertise from the Cabinet Office on behavioural insight and 'designerly' approaches to programme development. These approaches place understanding how and why the 'user' behaves in context – the culture – at the forefront of their analysis. Strong examples of this being used include the Government Digital Service, and pilot projects around the delivery of services through Jobcentre Pluses. It has not yet been used to deliver business support policies, and we believe this could be a significant game-changer if it were done effectively. If the Business Bank is to become a 'one-stop-shop' for business support, then it should be the focus of this new approach, with a series of pilot projects in and around its initial design and the interface with manufacturing businesses.

Recommendation 3

The Department for Business, Innovation and Skills should work with the Cabinet Office to develop a more user-centred method for developing policy, particularly around business support, learning from the success of the behavioural insights team and the Government Digital Service.

Recommendation 4

The Cabinet Office should coordinate, with the Department for Business, Innovation and Skills, pilot projects looking at take-up of business support policies, in advance of the full roll-out of the Business Bank.

In many cases, we have the kinds of structures, agencies and industry bodies across the UK that are primed to spread competitive behaviour. Our inquiry heard how the UK's trade associations are strong, but that they are not used enough by Government, or in the right way. Whilst these bodies must continue to lobby in the interests of their members, requiring a healthy distance from Government, there must be a greater degree of collaboration in the design and development of programmes to support businesses. Trade associations will then become an invaluable conduit for the marketing of business support programmes – they have 'bought-in' to the policy even before it is rolled out.

Recommendation 5

Government should forge closer relationships with a greater number of trade associations in the manufacturing sector, particularly those with a strong core of SME members, in the initial design of policy programmes, and subsequently in marketing programmes to their members.

Encouraging competitive business practices

In the course of this inquiry, we heard many examples of what competitive behaviour in manufacturing looks like. First and foremost is the propensity to invest and reinvest, seeing the injection of finance into a business as a way of securing resilience for the long term. Alongside this overall approach to investment, we identified further practices that are not yet widespread in UK manufacturing, and make additional recommendations that we hope will remedy this.

First of these is automation. We heard how the UK manufacturing sector does not yet understand the true benefits of automation, making too close a link between automation and job losses, rather than between automation and flexibility and resilience. Government can play a role here, and we suggest a national business-focused campaign to expound the benefits of automation to the wider community.

Recommendation 6

The Department for Business, Innovation and Skills should collaborate with industry on a national campaign for automation, with a focus on myth-busting, making the case for automation and job creation.

A view frequently expressed to this inquiry was the powerful link between competitiveness across a business and whether or not that business is engaged internationally in both export and global supply chains. Whilst we support the Government's push for growth in the numbers of small businesses exporting, this push should be more targeted, and linked to formalised training where appropriate. Government could also increase its impact by more systematically linking different kinds of interdisciplinary support, perhaps through the new business bank (see recommendations 4 and 10).

Recommendation 7

UKTI should be more targeted in its approach, and collaborate with existing bodies to promote export training where appropriate.

A forwarding-thinking approach in business, engaging in ideas, shared services, and collaborating where necessary is often summarised by looking at a business owner or manager's attitude and approach to innovation. The most powerful businesses, of all sizes, place innovation at the heart of their activity, but some smaller manufacturers require the public sector to de-risk their innovation projects and access processes and technologies that might come about through collaboration. The Catapult Centres, whilst still relatively new players, have great potential to break not only the cycle of continual non-commercialisation of UK IP in manufacturing, but also, through the right kinds of interactions with SMEs, embed a more pro-innovation culture. Whilst it is hoped that the Catapult Centres will become more self-sufficient in the coming years, they may come

a point where the SME-engagement portion of their remit requires additional public funds; at the very least their funding must be protected to 2020, ensuring stability both for the Catapults themselves, and for the large companies already engaged in their activities.

Recommendation 8

All parties should commit to protect funding for the TSB, EPSRC and Catapult Centres to 2020.

Beyond Catapult Centres, we found that collaboration across businesses and trade associations, particularly on skills development, was a strong marker of competitiveness. Whilst encouraging collaboration is perhaps the most challenging part of our industrial culture to change, we do believe that the benefits of collaboration, across industry, should be argued clearly and more frequently. We ask political parties to collaborate in recommendation 1, and look to industry to follow suit across its representative bodies. We have identified the need for further work on encouraging and developing collaboration across manufacturing, which could begin with greater clarification on the barriers to collaboration that come with competition law, something that was identified to us as a concern to many businesses and representative bodies.

Recommendation 9

Government should work with trade associations to review the impact of competition law on the ability for businesses to collaborate, and clarify the legal position.

We also look at other elements of a competitive business, and suggest reasons why they may not be as widespread as they currently are, such as servitisation and new approaches to business ownership. Sitting across all of these competitive businesses practices is a concern around the lack of strategic management advice for manufacturers. Many manufacturing businesses are not encountering individuals with the skills and expertise necessary to advise in this area. They need someone to present the case that links investment to growth and flexibility, who is able to see the future of a business beyond simply the need to manage cash flow.

The APMG believes this should be a stated strategic priority for the sector. The Manufacturing Advisory Service (MAS) has been praised throughout this inquiry for its excellent quality advisors, but should focus its efforts on expanding targeted strategic management advice aimed at manufacturers in urgent need of a creative, innovative rethink across the whole of their business. MAS should also work more closely with interdisciplinary teams of advisors, for example working with the Design Council to expand the use of design in their programmes.

Recommendation 10

The Manufacturing Advisory Service should undertake a review of its strategic management advice, looking to expand its remit in this area with more targeted support. It should work with organisations including business schools, trade associations and Chambers of Commerce, and partner with the Design Council and UKTI amongst others, to link strategic business advice to the structural evolution of the business.

1 INTRODUCTION

From the outset, this inquiry sought to develop as valuable a process as possible – we wanted to take the sector, businesses, trade bodies, Government, and all political parties on an honest and worthwhile process of discussion and analysis, trying to get to grips with the strengths and weaknesses of how manufacturing policy and the support ecosystem interact. This report is as much a summary of that process and discussion as it is policy paper making recommendations for change.

Whilst we do make firm recommendations in the chapters to come, this opening section explains our starting point – why look at manufacturing in this manner, and why now?

What's the problem?

At the start of this process, we hypothesised an issue around the manufacturing sector and its relationship to Government and other supporting bodies. Through our work across the UK, we noted a common refrain – that there was a competitiveness problem in some (certainly not all) of UK manufacturing, and that this competitiveness problem was somehow tied to our industrial culture. Furthermore, the problems we face are different to those in other nations; we can positively or negatively compare our industrial culture with that of other nations and identify what is particularly 'British' as opposed to 'German', or 'Japanese' industrial culture.

Industrial decline, perceived or real, is a significant contextual factor. Owing to certain characteristics of UK manufacturing – the physical footprint of factories, the interconnectedness of industrial character and urban development (many town halls being built by prominent industrialists in the 19th century), the way in which whole towns across the UK were shaped and survived (or didn't) as a result of their industrial activity – industrial decline is, and was, more deeply felt at the community level than decline in other parts of the economy. It was argued to us that through this decline, our internal sense of our industrial culture was damaged.

Indeed, the figures are stark. Between 1990 and 2009 the percentage of UK Gross Domestic Product attributed to manufacturing fell from 22% to just over 11%. Perhaps more deeply felt in terms of cultures, employment in the sector fell from 5.2 million to 3.1 million.[1] Of course, reversing this trend is important, and there have been numerous

1 BIS (2010), 'Manufacturing in the UK: Supplementary Analysis, Economics Paper 10B', available online here: http://www.bis.gov.uk/assets/biscore/business-sectors/docs/m/10-1334-manufacturing-in-the-uk-supplementary-analysis.pdf

calls for Government to publicly state a GDP target for UK manufacturing. We do not do that here, but recognise the demand from some in the industry for that, and believe that it would give both industry and Government a rallying point. It is unlikely, however, that any political party will set itself targets in relation to industrial activity; targets that it will be judged against if they are not met.

Whilst we hope that our report and recommendations will do something to reverse the industrial decline seen over the previous two decades, we did not focus our inquiry on that question. However, we believe that decline as a cultural marker – as a cultural signifier – has come to define the sector's own impression of itself, and dominated the narrative around manufacturing over the past two decades. A great deal of anti-competitive behaviour by business, faulty interactions between agencies, or the mis-match of business support on offer to manufacturing can be traced back to this narrative of decline.

The image question

No other sector of the British economy holds the social, cultural and emotional significance with the British public as manufacturing, yet it continues to be in some respects a misunderstood, misaligned and misrepresented part of our national identity. Across this inquiry, we have heard that the most significant barrier to growth in the sector is its image, as represented by the media, as understood by school teachers and the scant careers advisors that remain in the system. This confirmed our belief that this sector of the economy particularly has a deep and significant relationship to wider cultural factors.

However, further evidence shows that the picture is more complex, and placing the Government's (and indeed the sector's) weaknesses at the door of 'image and perception' is misleading. Firstly, a number of respondents to this inquiry told us that the Department for Business, Innovation and Skills (BIS) and its agencies such as UK Trade and Investment (UKTI) are much more manufacturing-savvy than was the case leading up to the 2010 election. Moreover, high-profile campaigns such as GREAT by UKTI, the Make it in Great Britain campaign by BIS, and the APMG's own Made By Britain – targeted at overseas investors, the UK public, and the UK Parliament respectively – have added to a developing shift in how manufacturing is perceived, culturally. Made By Britain engaged over half of all MPs, including the Prime Minister, Deputy Prime Minister and Leader of the Opposition, and has been used further by the EEF in their photography competitions in 2012 and 2013.[2]

The public's understanding of modern manufacturing is crucial in shaping our industrial culture: it is the public who work in the sector and advise their children to study engineering, or be inspired to set up a business that designs, makes and exports a product. However, to talk of a public that 'doesn't understand modern manufacturing'

2 For more information, please visit www.policyconnect.org.uk/apmg and www.eef.org.uk/photography

is not backed up by evidence, and shouldn't, therefore, permeate too much of the policy discussion. We risk 'talking down' the public as much as the sector. Some of the only rigorous research on this issue, by the Institute for Manufacturing (IfM) and YouGov states that:

> … the public have a nuanced view of manufacturing. The UK public believe manufacturing to be high tech (50% agree) and that the share of manufacturing in the economy needs to increase significantly (72% agree). However, there is low agreement that manufacturing jobs are well paid (16% agree) and a concern that manufacturing jobs are the first to be moved overseas (74% agree).[3]

The misunderstanding about modern manufacturing is not necessarily about what the sector looks like – we know that the dark satanic mills have gone, and understand that the clean, efficient, hi-tech factories and laboratories have replaced them. However, the public (as much as the sector itself as we shall show) has bought the myth of the inevitability of companies moving 'manufacturing' abroad. During evidence sessions, we heard how offshoring has been the default setting in UK manufacturing since the early 1990s, and that spreading the word on the benefits of reshoring – where it makes commercial sense – will reap great rewards for our industrial capability. We discuss this issue further in chapter 2.

3 F Livesey (March 2012), 'Public Perceptions of UK manufacturing and efforts to rebalance the UK economy', available online here: http://www.ifm.eng.cam.ac.uk/uploads/News/2012/15_March_Job_Security/PublicPerceptions_WhitePaper_FINAL_020312.pdf

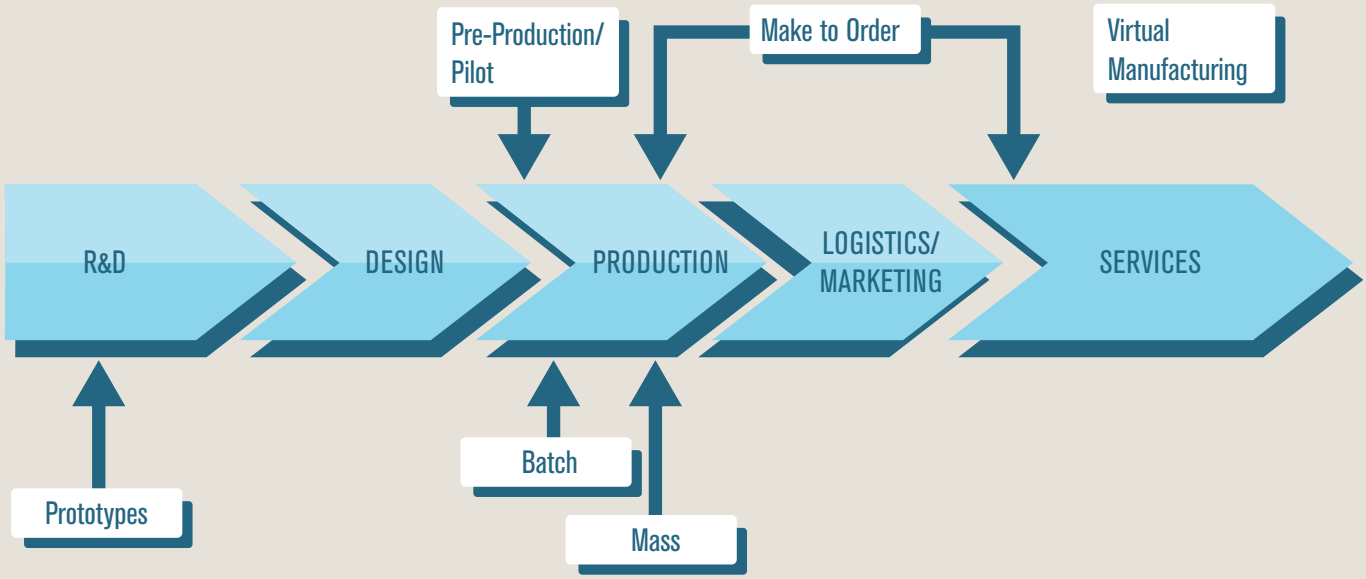
Our style of analysis…

Immediately we are faced with the problem of definitions – competitiveness, culture, manufacturing – and whilst we have taken quite a broad understanding of what these concepts are, there are overriding principles that have governed our thinking.

Looking at 'manufacturing'

The APMG, and most current commentators, are indebted to Professor Sir Mike Gregory and the IfM's ground-breaking work on defining manufacturing. We have taken Sir Mike's broad definition of manufacturing that encompasses many stages across a process, either side of simply production. As the IfM state: "*A key distinction that this extended definition makes is that manufacturing and production are not the same. Production is but one activity of a manufacturing company.*"[4] This broader definition of manufacturing, which includes R&D, design, logistics, and marketing, allows for a more sophisticated understanding of where and how manufacturing matters across the UK economy (see fig 1). As a result, we have been as interested in talking to designers, business consultants, and those responsible for marketing manufacturing products, as those managing the factory floor.

Figure 1: The expanded definition of manufacturing



4 F Livesey (Jan 2006), 'Defining High Value Manufacturing', available online here: http://www2.ifm.eng.cam.ac.uk/cig/documents/DefiningHVM.pdf, p.6.

We found that many manufacturing businesses do not yet consider themselves to be operating across this spectrum. Moreover, at the level of policymaker and Parliamentarian, it is this expanded idea of manufacturing that needs more attention in terms of image change – those in power understand the value of production in their constituencies, but believing only in the value of production does too little justice to the diversity and variety of the modern 'manufacturing' process. It has also created a silo-ed, less integrated, less inter-disciplinary approach across industry, which was presented to us as a marker of uncompetitive behaviour.

Looking at 'competitiveness'

Competitiveness has become a loaded term, particularly since Lord Heseltine's review of the UK's competitiveness across sectors, '*No Stone Unturned*', which sought to do a competitiveness audit of UK plc. The 'competitions' across UK industry operate at differing levels of abstraction, i.e.:

- at the level of a company competing with others to win a contract
- at the level of a region competing to attract funding, or investment to a particular area needing particular skills
- at the level of a supply chain to provide the best possible product to the top tier company (which then may compete with others)
- at the level of a nation when interacting at a high level (the Secretary of State for Business meeting with the chairs of foreign-owned multi-nationals) or when trying to develop policies that intersect at a broader cultural plane (eg skills or taxation)
- at the level of a transnational organisation for example, as the EU, in setting standards

We were deliberately vague in defining competitiveness in the course of this inquiry, and wanted contributors to speak to us on what the term meant to them. It became clear that competitiveness needs to be considered both strongly firm-specific, but also broadly in the manners explained above. For an industrial culture to be resilient, thinking simply of the competitiveness of one business is not useful, either for that business, or for those developing policy. Also, an expanded definition of competitiveness, like an expanded definition of manufacturing, places business decisions within their broader context, and makes it easier to consider the role culture plays in shaping those decisions.

Looking at 'businesses' – how to analyse 'manufacturing'

The issues affecting different sectors within manufacturing are stark. What is competitive for one manufacturing sector – such as food and drink – may not be competitive for another – such as defence. We do not, in this report, seek to explain to each sector what it should be doing to be more competitive. Rather, by examining interactions across the whole of what is considered 'manufacturing' we have drawn out cross-cutting issues that affect many sectors, and kinds of businesses.

In a number of ways, our analysis encourages an understanding of manufacturing business based indicators that are more directly connected to the idea of an industrial culture. During the course of this inquiry, we registered great appetite for a refreshed mechanism for understanding manufacturing, and by framing our discussions and evidence gathering in this manner, we have encouraged a new kind of conversation amongst the sector, which we hope will continue and spread to policymakers.

These new 'indicators' acted like conversation starting points in both our formal evidence sessions, and in interviewing individuals.

- Ownership model
  Is the business family-owned? Foreign or UK-owned? How engaged are the shareholders? Are employees involved in the ownership?

- Management
  Who manages the business? Is it an engineer? An accountant? Do they have management training? Do they have an MBA? Are they also the business's main external ambassador?

- Size
  How much money is flowing through the business? How many employees does it have?[5]

- Age and history of business
  Is this a start-up? What 'ages of manufacturing' has this business seen? Where did it begin? Was it once part of a larger business, and since been spun-out into an independent supply chain?

- Growth potential
  How much growth potential is there in this business? Does it sit at the point just before or just after major growth or investment?

- Position in the supply chain
  If this business is in a supply chain, where does it sit? Who are its customers?

5 In analysing size, we agree very strongly with APMG officer John Stevenson MP's view on 'SME' as an increasingly redundant label in analysing businesses. A transcript of his Westminster Hall debate on the topic is available here: http://www.publications.parliament.uk/pa/cm201314/cmhansrd/cm130904/halltext/130904h0001.htm#13090438000001

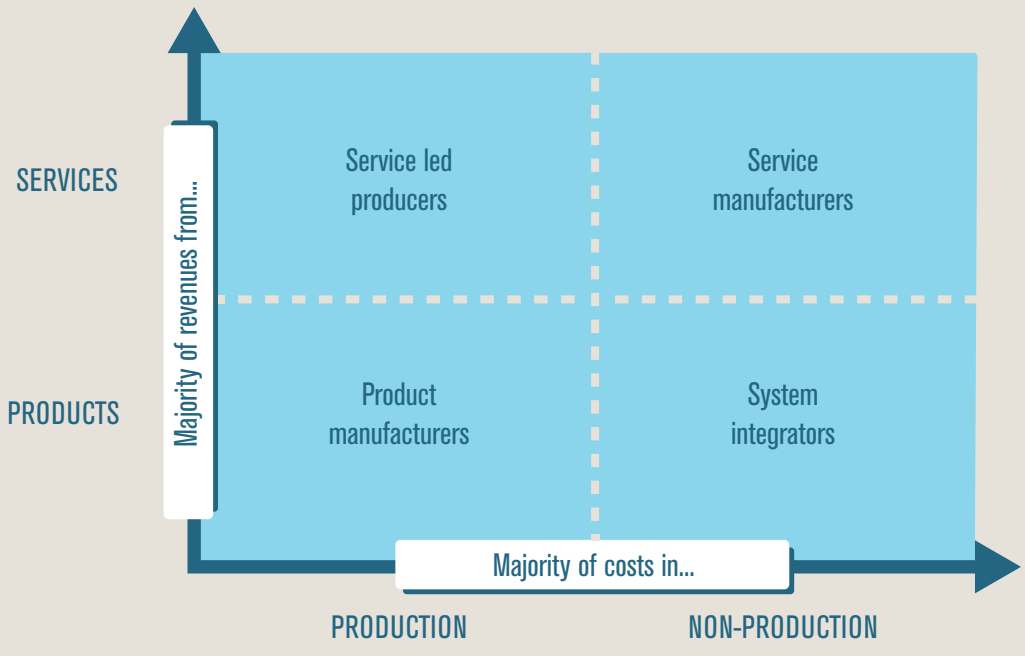
- Approach to training and education
  Does this business have an education and training strategy, engaging both internally and externally?

- Position within networks
  Is the business in a cluster? Does it network either locally, regionally or nationally? Does it join representative bodies?

When asking these kinds of questions, we begin to understand businesses in context, something that the industrial policy debate has consistently failed to do.

A further useful framework, developed by Dr Finbarr Livesey at the IfM, talks of businesses in terms of their production costs, and proportion of revenue from service, rather than simply product. For example, Rolls-Royce receive a very large degree of revenue from the service of their engines, and would occupy the top right quadrant of the diagram below. Whereas a manufacturing business where costs are not in production but rather in design, development and logistics, but still derive significant revenue from products (for example, high-end automotive) would sit in the bottom right quadrant.

Figure 2: Types of manufacturer



It is often the case that successful manufacturers will chart a course around these quadrants, finding value in their relative cost / revenue in product and service. We do not recommend that all businesses migrate to any one quadrant, rather that they (and policy) understand that there are routes of travel towards greater levels of competitiveness. In our final chapter, we look at example businesses and show how a key barrier in our industrial culture is a lack of adequate strategic management advice to enable effective transformation of businesses across this chart.

2 MAKING THE CASE FOR CULTURE

In this chapter we explain why we use culture as our starting point, explaining how and why culture matters, and its close relationship to narrative. By way of a case study, we look at the offshoring and reshoring debate, a phenomenon across the manufacturing sector that is totally bound-up in ideas of culture.

Our conclusion is that a powerful cultural change must take place in UK manufacturing: linking investment to growth. This must be reflected in how Government and industry talk about growth and the economy, and in how Government and political parties look beyond elections to achieving industrial policy consensus.

We decided to concentrate on culture because it was so frequently cited to us as important. However, we faced accusations of being 'vague' in our analysis, by looking at something so 'amorphous' and 'wishy washy'.

It is easy to dismiss concepts like culture in this way, and criticise the diversion of analysis away from the concrete policy environment (the fiscal regime, for example) towards the less definable cultural context within which businesses operate.

As a 'working definition' of culture, we chose to use the colloquialism, 'the way we do things around here'. What this established in our minds was the idea that there are ways of doing things that are particularly British, and that culture has something to do with behaviour, and patterns of behaviour.

Across the manufacturing policy debate, the word 'culture' appears more frequently than you'd expect within a sector that is so connected with the physical, material world.

"Well it's the culture in Germany isn't it?"
"It's just not culturally British!"
"We don't invest long-term, it's not in our culture."

People are comfortable in using the term, but less comfortable in the policy world, it would be seem, in analysing it. But it is essential that we do, particularly as culture is what is used so frequently as a reason why certain portions of the sector aren't growing and investing, or why Government schemes to support growth aren't taking root.

Industrial culture is beginning to attract the attention of mainstream commentators as they grapple with its significance for the UK in 2013, outside of industry itself. For example, in October 2013, BBC *Newsnight* commissioned a film to examine how our industrial culture, and its decline in the 1970s and 1980s, influenced a whole variety of musical genres, from heavy metal to techno! What the manufacturing sector must do is examine how this change in our industrial landscape has influenced the productive industry we still have, looking inside rather than outside to broader society.

Culture is not amorphous and diffuse – it is institutional and weighty, as much as a Whitehall Department is institutional, or racism in the Metropolitan Police was 'institutional' in the 1990s. There is academic precedent for this kind of analysis across public policy studies. The rise of an 'institutional analysis' in behavioural and organisational sciences saw how the actions of individuals or firms across societies were bound within institutional norms and patterns, and weren't simply the behaviours of rational self-interested bodies. People behave in certain ways because of their contexts, and these contexts can be very powerful. The behaviours of manufacturing businesses are constrained by culturally structured norms, patterns and behaviours. By placing the rational individual, or business owner, within an institutional context, supra-individual contexts and concerns must be acknowledged.

It is our belief that the cultural context for manufacturing has been extremely powerful in shaping what manufacturing businesses do (for better or worse). During this inquiry, we have thought of 'culture' as an institution, almost like an independent variable acting on individuals' behaviours and shaping their actions. It creates norms, behaviours and patterns that impact on what people and businesses do. It sets the contexts, the rules of the game.

In short, in this analysis, business-owners are not simply rational actors responding to their own selfish motives. They exist within a framework of markers, norms and patterns, a cultural institution, independent of their own motives, but heavily impactful on their choices.

How is that cultural institution formed? Answering this question was key to this inquiry's process: we examined the interactions across the manufacturing ecosystem, to see what the cultural institution looked like. Considering the institution like a building, you can ask: What is the mortar holding up the bricks of the UK's industrial culture? How is it engineered? What is the carpet made of? What is in the paint on the walls of the corridors? We believe that we have gone some way to understanding those questions, and see the interactions and structures of business collaboration and support as absolutely critical (see chapter 3).

It's all about narrative

Cultural institutions are very closely related to the stories people tell. The way people talk about something, the way they frame a problem, the way they narrativise – this is crucial in building and fixing cultural institutions. Words, stories, examples, pictures – these are part of the institutional framework, and a change in narrative tone would give significant boost to our industrial culture.

In giving evidence to this inquiry, Dr Finbarr Livesey of the University of Cambridge argued strongly that there is a narrative vacuum around growth in the UK, and that this is having a strong negative impact on the UK manufacturing sector. The narrative around growth before 2008 was clear, but it did not include productive industry. In fact, productive industry was still within a narrative of decline, of job losses, of the erosion of local industrial character. It appears that this narrative hasn't yet disappeared, and that the cultural institutions it feeds are as strong as they were before 2008.

Government has a clear role to play in developing and promoting a new post-2008 narrative, and whilst 'the march of the makers' has been heralded, that narrative isn't clear, and hasn't grown with enough strength to form a new cultural institution affecting how businesses operate. And even though nations like Germany suffered similar shocks around 2008, their industrial cultural institution was so strong, so fixed, that it remained secure.

What should this new UK cultural narrative contain? The conclusion from our evidence, is that it must be about the long-term, about investment and reinvestment, and the close link between investment and growth.

We heard, repeatedly, how the UK industrial culture is characterised by risk-aversion at the level of management, and a fear over investing for the long-term. This is understandable, given the narrative of decline. Unfortunately, it is not yet 'the way we do things around here' to constantly invest and reinvest in plant and machinery. In one evidence session, we were told how UK manufacturers often pride themselves on the ability to retain outdated kit; a 'make do and mend' mentality.

Interestingly, the influx of foreign, direct investment (FDI) in UK manufacturing has created pockets of world-class best practice in factory management and innovation, but this has not yet permeated fully into all sections of industry. We heard how UK engineers operate very successfully within frameworks set by managers bringing their own industrial culture to the UK. The Germans bring their efficiency and investment strength, and the Japanese bring their sharing of ideas right through a company's hierarchy.

The British risk-aversion is in contrast to the origins of our industrial culture – the risk-taking, pioneering industrialists of the 19th century. It is also in contrast to the latest kinds of creative business dominating the headlines, taking inspiration from the first industrial revolution – those that have popped up in and around Tech City in East London. Totally integrated with digital technology (something we were told has not yet taken root in mainstream manufacturing) these new businesses designing apps or creating new digital systems for various kinds of businesses call themselves 'makers', they have 'workshops', and 'engineers'. In many instances, they mirror the IfM's expanded definition of manufacturing, but it is stark how distant these businesses feel from the mainstream sector. We believe that both the 'traditional' manufacturing sector, and these new tech-businesses, could learn so much from each other, the former particularly learning about agility, risk-taking, and the absolutely crucial importance of the digital world to our competitive future.

This inquiry, or this report, does not set out to criticise UK businesses or managers. We have some of the world's greatest manufacturing businesses here, of all sizes. However, to honestly reflect our evidence, there are pockets of industry that are not resilient to inevitable future external shocks, and are bound within a culture that does not support investment.

All players within the manufacturing ecosystem must adopt this new pro-investment culture. Only if it is coherent and shared will it take root and grow with enough strength to challenge the dominating culture of decline and risk-aversion that developed through the late 70s, 80s, and 90s.

It is clear that industry bodies themselves, particularly those that bring together SMEs, have to place the need to invest and reinvest at the heart of all their activities. We must saturate the narrative with this. Policy does have a role to play, however. If we believe that a pro-investment culture must take root in the UK, then Government must provide a fiscal framework that makes investment in plant and machinery, investment in design and innovation, and investment in skilled labour the absolute norm of UK manufacturing. Nearly all contributors to our inquiry focused on the value to manufacturers of pro-investment tax measures – capital allowances, investment allowances, R&D tax credits – rather than on the top level of corporation tax. Particularly for SME manufacturers, where profit margins continue to be tight and corporation tax doesn't have a strong impact, the tax system must be designed to encourage investment, rather than compound risk-aversion.

The APMG has continued to support the previous and current Governments' measures to create a more pro-investment fiscal regime. What damages this work is the history of 'to-ing and fro-ing' from Government to Government, and a fear in industry that tax incentives will disappear with a new Government. Risk aversion in industry is compounded by a lack of long-term thinking in Government, and across political parties.

As a cross-party organisation, we understand how there is consensus across parties on this issue, yet don't see that reflected in the tone that emanates from Westminster. We believe this should change; it is absolutely central to shifting the culture of UK manufacturing so that it becomes more competitive. We would like to see greater use of cross-party collaboration to set this pro-investment tone, and call on all parties to commit to pro-investment fiscal regimes beyond the 2015 Election.

The issue of reshoring: it's all about culture[6]

Over the last eighteen months, reshoring has tentatively appeared on the industrial policy radar. And looking further back, in 2009 the EEF showed that around one in seven companies with production in a low labour cost economy had returned some of that activity to the UK in the previous two years.[7] It is our belief that the reshoring trend reflects a kind of cultural shift occurring across industry, and a reverse of the prevailing wind since the 1990s.

To ensure the reshoring trend continues, we must alter the culture around manufacturing growth. Reshoring must become part of 'the way we do things around here'; it is essential to our future industrial prowess.

There are challenges around proving:

- if there have been any particular trends in reshoring;
- why it is taking place (if at all);
- in which sectors is it happening;
- and how Government could potentially encourage the activity.

As if to compound this issue, it is very difficult to encourage some manufacturing businesses to speak openly about their business decisions – why they choose to position their activities here or elsewhere; this is not a matter for public or Government discussion. However, if we are to agree that more manufacturing activity happening on these shores is a good thing (whether that be design, research and development, servitisation, or assembly) then we need to understand what conditions are most important in influencing business decisions, and analyse if those conditions can be encouraged by policy.

6 APMG (February 2013), 'Reshoring: Bringing Making Back', available online here: http://www.policyconnect.org.uk/apmg/events/reshoring-bringing-making-back
7 (January 2013), http://www.eef.org.uk/blog/post/Reshoring-is-it-real.aspx

Early in 2013, the APMG brought together examples of reshoring, to try and understand what cultural barriers there are to doing certain parts of the manufacturing process in one country above another. What we saw (following a selection of case studies and testimonies) was how closely linked to narrative and culture the reshoring phenomenon appeared. Less important, perhaps, than simply the economic rationale around cheaper labour costs abroad.

In our inquiry sessions, manufacturers told us that offshoring was part of their business plan just because 'that was what you did' in the early 1990s. The culture around manufacturing was to look at the bottom line, very much aware of labour costs. It was suggested to us that this culture was set by the kinds of advisors working with manufacturing at that time, particularly local family accountants. It is remarkable, we heard, just how powerful such advisors are across this sector.

Reshoring should not necessarily be framed as the "reshoring of jobs" but rather the "reshoring of processes", some of which can now be automated, thus negating the impacts of labour costs. The 'hidden' costs of offshoring - risk of IP theft, lack of quality control, stock 'stuck at sea', etc - appear much more important than upfront savings. Changing this narrative will be crucial if we are to reverse the culture.

One interpretation of the reshoring trend is that an increasing number of companies are seeing their future in agility and innovation: the redevelopment of products, closer relationships with customers, servitisation. It is much more difficult to be reactive to a fast-developing market if supply chains are global and potentially unreliable. Perhaps this is why many reshoring examples come from consumer-focused industries such as electronics and IT, where success in the market relies on continuous innovation of the product offering.

There are still companies off-shoring, responding to cultural patterns and norms, not adequately informed of the benefits of retaining manufacturing in the UK. Positive reshoring stories must be made available to those businesses, and permeate the kinds of advice they are receiving across their networks.

Recommendation 1

The Government should lead a cross-party initiative, in consultation with industry, to establish a long-term fiscal framework to support investment. All party manifestos should contain commitment to a broadly comparable fiscal framework for investment for ten years from 2015.

3 THE INTERACTIONS

In this chapter, we examine with whom manufacturing businesses interact, and how. 'Business support networks' are often identified as a key feature of a successful industrial landscape, and having made the case for examining culture, we now turn to perhaps the most crucial mechanism for developing and embedding cultural characteristics – how and where businesses make interactions. We argue that interactions can, and must, be designed in such a way as to make competitive business practices intuitive, rather than exceptional.

Very early in the course of our research, we decided to focus our inquiry on interactions. The business support landscape in the UK is complex, and changing. Additionally, since the APMG was founded in 2011, we have ourselves come into contact with many individuals and organisations that form part of this network, and felt it would be useful to bring together thoughts on how the interactions happen, where it is useful, and where it needs to improve.

During this section, we cover some very significant players, and policy challenges. Our focus is on the quality and nature of the interactions with the manufacturing business, and how that affects our industrial culture, and the competitiveness of that business and our nation.

If we can design the interactions correctly, it will become much more common for businesses to partake in competitive business practices, including investing and reinvesting in themselves.

Interacting with Government

Throughout our inquiry, we repeatedly heard praise for the work of the Department for Business, Innovation and Skills. Some respondents spoke of having 'friends' at BIS for the first time in many years. This openness and willingness to communicate and learn should be praised. The department was described to us as a 'supertanker, that will not turn around overnight', but it does appear that BIS has responded well to the need to better understand the manufacturing sector, and has been particularly successful in its establishment of industrial strategies, engaging with leading figures in major sectors of the economy (such as aerospace and automotive).

At the heart of the BIS approach has been to coordinate interactions at a very senior level. This will have undoubtedly encouraged an industrial culture founded on collaboration, which should be welcomed. Senior engagement at Government level, it was noted to us, remains a significant contributory factor in the decision for FDI to be targeted towards the United Kingdom. Collaboration has often been fundamental to those large businesses at the top of established supply chains; we are not certain, however, that this collaboration at the top of the supply chain has encouraged a similar degree of openness further down.

Whilst top-tier manufacturers may be able to spread competitive practices down their supply chains to some extent – many spoke to us about skills programmes, for example – there is a limit to how effectively they can alter the culture of those other businesses, or indeed the ambition of those businesses to look outside of their existing customers. The reliance on existing business models and customers does, we were told, compound anti-competitive behaviours, particularly the belief that a business only makes one kind of product for one kind of customer. And we believe that whilst sector specific industrial strategies are welcome, one unintended consequence may be to force companies further down the supply chain to think too 'vertically' about their business proposition. Many more businesses should be encouraged to think cross-sectorally: 'horizontally'.

There are limits to the capacity of BIS to interact across all sectors. One respondent told us:

> "We welcome the March of the Makers narrative from Government, but still see too much focus on 'wings and wheels', with manufacturing often perceived as large multinational players with a long supply chain of component suppliers."[8]

There remains an issue around industries that don't neatly comprise their own distinct supply chain, or which tap into the supply chains of others. We do not expect to see an expert for every manufacturing sector in the Department, or indeed an 'industrial strategy' for each one. In a sense, whilst these industries may have distinct policy challenges to overcome, many of these are due to their size, not sector. We heard repeated calls for a new kind of structure at BIS that would allow for manufacturing businesses to communicate with the department outside of a sector team, with civil servants able to advise and develop policy related to size of business, or position within the supply chain.[9] In this new model, the culture may also be set for businesses to consider themselves more 'cross-sectoral'.

It appears to us that central Government is coordinating a successful series of interactions across the highest levels of the sector, which appears too far removed from the vast number of manufacturing businesses that are not blue-chip companies. This has created a twin-track sector, with a more productive relationship between leading

8 Inquiry evidence
9 Foresight (Nov 2013), 'The Future of Manufacturing', available online here: http://www.bis.gov.uk/foresight/our-work/projects/current-projects/future-of-manufacturing

businesses and Government than ever before, but with the issue of engagement and representation of SMEs a major stumbling block in the way of creating a fully resilient and competitive manufacturing environment.

From our evidence, it appears that we are not a nation that prides itself on the way in which we engage with and listen to small and medium sized businesses, across various parts of the system. The solution requires a different approach, more creativity, and the involvement of multidisciplinary teams to both accurately establish the needs of SMEs, and then design policy that is taken up effectively.

This issue can be divided into two parts. First is the way in which businesses lobby Government (trying to affect policy change). This is very closely linked to the question discussed above: how the civil service, and particularly BIS, structures its operations. It was remarkable how few manufacturing businesses any smaller than the large multinationals actually engage with lobbying of any kind, beyond joining a trade association. Trade associations are necessary and valuable intermediaries (see below), and they should be able to engage with Government departments more fruitfully.

We believe that both manufacturing businesses, and the trade associations that represent them, should be able to talk to Government in a manner that is more closely linked to the size of their business, as opposed to their sector. We recommend a grid approach. Existing 'vertical' teams that deal with supply chain industries should be complemented by 'horizontal' teams, empowered to engage with businesses and associations on a more general basis, focusing on the size of the business, rather than the sector.

The second issue around SME engagement with Government is how well policies 'land' with businesses once they have been developed: how well they are marketed, and how many businesses they reach.

We conclude that Government needs to find a radical new way to understand businesses outside of the lens provided by predominantly working with giant companies. It's not always safe to assume that policies will naturally land with smaller companies through a top-down supply chain approach. Moreover, SME is far too imprecise a term for a category that constitutes 99% of all UK businesses. We believe it would be far better to delineate between different sizes and kinds of business, and then design channels of communication that are appropriate for each.

For the APMG, no matter what the issue under discussion – skills, access to finance, export support, procurement, business regulation, IP protection – a frequently recurring theme is the inaccessibility, or inappropriateness, of many policy instruments and government schemes, for SMEs. The sticking point always seems to be that interface, or moment of interaction, between state and business – where the

relationship is poor and real dialogue often minimal. The inadequacy of feedback loops means Government – central or local – might be providing services that aren't needed, at the same time as not picking up on problems businesses are really struggling with. Or they might be presenting support that really is needed, but in a format that makes it very difficult for all but the biggest companies to engage with.

There could be a much more healthy culture of dialogue between civil/ public servants and businesses. The tendency to design a policy or service, 'throw it over a wall, and hope it lands on a business'[10], is not a fool-proof or very effective way of working. Looking to how trade associations communicate with and monitor the needs of different sizes of business might provide some inspiration here.

Designerly approaches to understanding SMEs

Getting over this issue requires a new approach to policymaking, and a new kind of skillset in the civil service: user-centred analysis and ethnography.

> "Key to the sessions is not to come in and say 'these are the problems'. Instead it's about developing a relationship and shared understanding between two groups who need to get something done together."[11]
> - Geke Van Dijk, STBY

At one of our evidence sessions, we discussed this issue of SME engagement with Geke Van Dijk of consultancy STBY. They worked with the Amsterdam Chamber of Commerce to develop business support programmes that would have strong take-up from SMEs in the creative sector. Through a series of interviews with businesses, and a very particular method of analysis and communication with civil servants, successful programmes were developed.

The key to success was, in her view, the encouragement of civil servants to engage with *stories* about businesses, but within a rigid framework of analysis that is meaningful and transferrable. Statistics were not enough, but a qualitative process of analysis that wasn't simply presenting problems was similarly unfruitful.

The ability to interview a business owner and understand the problems they themselves can't see – 'they don't know what they don't know', a constant refrain during our inquiry – requires a different skillset from the traditional civil servant. Designers, ethnographers, creative consultants, behavioural economists – these are in short supply in Whitehall. These approaches place understanding how and why the 'user' behaves in context – the culture – at the forefront of their analysis. There has been some embracing of this technique in the Cabinet Office, but we believe that it is in business support policy, where the 'user' of the policy has proven so difficult to engage with and understand, that their expertise is most needed. As BIS rolls forward towards opening

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the 'Business Bank', likely to be a 'one-stop-shop' for Government-backed financial support packages for manufacturers, it became clear to us that it is essential for civil servants to get to grips with the way in which these policies 'land' with their 'users'.

We recommend that this Business Bank should be used as a test-bed for this approach. Strong examples of this being used include the Government Digital Service, and pilot projects around Jobcentre Plus. It has not yet been used enough on business support policies, and we believe this to be a significant game-changer if done effectively. If the Business Bank is to become a 'one-stop-shop' for business support, then it should be the focus of this new approach. We suggest the Cabinet Office and BIS undertake a series of pilot projects in and around its initial design, focussing on the interactions with manufacturing businesses.

Other parts of of the public sector

Most businesses will interact with Government through intermediaries, and there are many for whom the manufacturing sector are a key customer (such as UKTI) or were set up with and for the manufacturing sector exclusively (such as the MAS).

The challenges around engaging with SMEs as discussed above translate across other parts of the public sector – UKTI, the MAS, Catapults – these bodies all communicated the challenge of 'getting to' smaller manufacturers that are 'hard to reach'. However, both MAS and the Manufacturing Technology Centre (part of a Catapult) spoke of being close to capacity, with cuts to provision (in the case of MAS) meaning having to turn away customers.

In times of austerity, business support coming through public funds will need to be well-targeted. The Catapult Centres – modelled on the German *Fraunhofer* institute as a way of bridging the commercialisation 'gap' in British industry – are still establishing themselves, but the word from industry is positive, when they know they are out there. We look further at what Catapults can do for competitive behaviour in the next chapter, but looking at the nature of the interaction, it is clear that engaging more SMEs systematically must be at the centre of their growth and consolidation. It is expected that the Catapult Centres will soon pay for themselves through engagement from the private sector.

Whilst the largest companies invest in these institutions as a key part of their research and development strategies, it is a much greater time, skill and financial commitment for smaller businesses to do so. Once participant in our inquiry indicated that the overhead burden of engaging with any Technology Strategy Board (TSB) innovation programme was far too substantial. SMEs' involvement with Catapults is, and will need to continue to be, subsidised by a combination of those large top-tier businesses, and public money. The APMG is concerned that the Catapults, just as they reach maturity,

will also reach a cliff as their future public funding is not yet confirmed. All parties should immediately commit to a continuation of Catapult funding, particularly to enable engagement with SMEs. Without this, they risk becoming only an extension of the R&D departments of large companies.

Most manufacturing businesses will not interact with a Westminster or Whitehall official; a majority of their interactions happen at the local level. At the time of writing, the local support networks continue to be in a state of flux. Regions and sub-regions are mobilising to form Local Enterprise Partnerships, which have the potential to drastically change the structures of interactions across our industrial landscape. The APMG hopes that manufacturing businesses take as active a role as possible in these bodies, or they risk being dominated by those sectors that are more culturally prone to network and push themselves forward.

Local collaboration is important, and concern was expressed to us that the design of some Government support packages, such as the Advanced Manufacturing Supply Chain Initiative (AMSCI), were low on the take-up from some businesses who feared sharing financial information with businesses above and below them in a supply chain. BIS have asserted to us that this is not the case. The message, however, is not getting across.

Trade associations and industry bodies

The APMG began this inquiry in the wake of the Heseltine Report, which called for a rationalisation of trade associations, with a lead contact body for each large sector.[12] We registered little appetite for this, and the 'strength in numbers' of our trade associations was consistently held up as an example of a positive industrial culture. Our view of industry bodies is that they should exist where there is demand from industry, and not according to the convenience of Government.

Our method of assessing trade associations has been to look for examples of best practice (in the view of both industry and Government), that foster the most useful kinds of interactions for businesses. The same is true of Chambers of Commerce which, whilst not sector-specific, do continue to have strong representation from manufacturing businesses, particularly in areas with traditionally high employment in productive industry. We should also point out that we registered no appetite for compulsory membership of Chambers of Commerce during our inquiry, but do see the real tangible benefit of a central membership body that all businesses must sign up to, placing networking, collaboration, and the sharing of best practice at the heart of how, for example, German industry operates. It is a particularly British paradox, therefore, that our inquiry participants envied the results of a German model of membership culture, yet expressed no desire to structure interactions in a way that would make that a reality.

12 Heseltine (March 2013), 'No stone unturned in pursuit of growth', available online here: https://www.gov.uk/government/publications/no-stone-unturned-in-pursuit-of-growth.

There is, however, appetite for change. A key interaction, impacting heavily on our industrial culture, is that between trade associations and Government. We feel that trade associations should be a vital intermediary for Government, both in the dissemination of information about Government-backed programmes for manufacturers, but also in the design of these programmes from the outset. We were told how trade associations could become the central conduit through which Government markets its products, yet conversely were told how trade associations do not always have the budget to behave in this way, nor do they have 100% confidence that it is in the best interests of their members to take advantage of Government products.

We recommend, therefore, a much closer relationship between trade associations and the different parts of Government. This relationship should be characterised by openness and collaboration when programmes are being designed, and mutual support when those programmes need to be disseminated to businesses.

Some contributors to the inquiry felt that the trade associations that most fruitfully enriched the UK's competitive behaviour were those that sought to drive up the quality of their membership, some of which also had much greater conditions on membership than others. Many trade associations in the manufacturing space were not founded upon those principles, but do encourage (albeit softly) more competitive behaviours. We sense that it may become more common for trade associations and representative bodies to not only make representation to Government, but to make representation to their members more forcefully. It is for the individual bodies themselves to establish whether this is appropriate.

Indeed, many trade associations and bodies do this already, but we have not seen it as part of our industry body 'culture' – i.e. it does not typify the way we do things around here. However, we do believe that the collaborative nature of trade associations in other nations is something our bodies should seek to learn from. Take the need to invest in skills. In Germany, for example, the trade associations, the Chambers of Commerce and the government will work together to provide the opportunity to young people to undertake vocational training. The employers commit to nationally recognised standards and onsite training, and the state provides off-site training (through the equivalent of our colleges). Companies pay into a central fund controlled by the trade association, which pays for apprenticeships. This creates pressure on the companies to hire apprentices, or else they are not benefitting from the fund. In the UK, there is a "block of enlightened employers" that will always take advantage of similar schemes, but there is also a block of cynical employers that do nothing.[13]

Indeed, this is not too far away from the Group Training Association model which, whilst not happening at the level once seen in the UK, is beginning to gain traction. At the time of writing, the UK Government continues to try and ascertain the most sensible mechanism for employers to pay for apprenticeships, with the current

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'favourite' likely to be through the PAYE system. In the UK, we look for ways to make it easy, intuitive, and comfortable for employers to pay for training because there isn't, as yet, a collaborative culture where paying for a shared resource is 'the done thing'.

One barrier to this collaborative approach, we were told, is a lack of clarity about the impact of competition law upon businesses and bodies that work together. We touch on this issue once again in the following chapter.

A word on the banks…

There has been much written about the nature of the manufacturing sector's interaction with banks, and the crucial issue of access to finance. There are some very strong papers on this topic, and we commend the excellent work of both manufacturing trade bodies and banks in strengthening this relationship and trying to get around this most tricky of interactions.

One of the key characteristics of manufacturing that sets it aside from other sectors of the economy is its reliance upon long lead-times. Business plans often span decades. So besides developing a skilled workforce, one of the most critical elements of a competitive firm is ready access to long-term finance.

Setting up, running, or expanding a manufacturing business are expensive undertakings, with tangible returns sometimes taking a very long time to materialise. We believe that this is not yet adequately understood or communicated by Government, although we welcome Vince Cable's recognition of the limited access to 'patient capital' in the UK.

With the right kind of long-term finance, manufacturers would be able to better prepare for the future. They would have more confidence to pursue "risky" innovation and exporting, take on and keep apprentices, invest in equipment to help grow the business, and be more resilient in the face of a downturn. We need long-term finance to see long-term results. The overriding impression from our evidence was that readily available long-term finance, and different kinds of finance such as asset and mezzanine, would allow us to move away from the negative quality of short-termism that permeates much of the UK's industrial culture.

There are both private and publically-funded institutions that provide various finance mechanisms to manufacturers, but these are unfortunately still out of reach for many. Either rates are too unfavourable, or more often, it was said to us, the relationship interaction between the business-owner and the bank manager was not founded on trust, or mutual understanding.

There is much, structurally, about the British banking system that militates against a strong relationship with manufacturers. For example, we lack localised lending in the vein of the German *Sparkassen* (Savings Banks), which work autonomously in a specified regional area, only generating funds and lending to companies within their area.[14] Whilst we do not expect the British system to turn into the German one overnight, we believe that Government should consider ways to force a more local focus in banking, particularly for businesses.

If we are to achieve our primary goal for UK manufacturers – for them to be saturated by a pro-investment culture – this must be embedded in our banking system. Their advisors must understand the nature of the long investment cycle, and the link between investment and growth.

Those we spoke to from major lenders certainly hold that view at the very top of their organisations, and are working hard to make sure their advisors share and promote this culture change. Many businesses told us that staff in branches did not have adequate knowledge of the sector to advise appropriately. Particularly lacking was an understanding of the long-lead times in manufacturing, or indeed the high investment costs. We welcome the work by many financial bodies to educate relationship managers; an excellent example of players in the system collaborating in the best interests of the whole industrial system.

There was concern expressed, however, at the make-up and purpose of the Business Bank. We feel that BIS needs to be more explicit in describing the purpose, makeup, and output of this institution. Many do not have confidence that it will, indeed, be a 'bank', but more a collection of existing Government schemes. This will have value - the 'one-stop-shop' that some in the sector are calling for – but could potentially damage the relationship with businesses if it does not have a banking licence, and is, therefore, not strictly a bank in its own right.

14 C.V.J. Simpson (Jan 2013), 'The German Sparkassen', Civitas.

Recommendation 2

The Department for Business, Innovation and Skills should restructure its civil service manufacturing team – a 'grid' approach. Vertical teams to support and coordinate supply chain sectors and ensure growth and stability of OEMs, and horizontal teams focused on size of company, rather than sector.

Recommendation 3

The Department for Business, Innovation and Skills should work with the Cabinet Office to develop a more user-centred method for developing policy, particularly around business support, learning from the success of the behavioural insights team and the Government Digital Service.

Recommendation 4

The Cabinet Office should coordinate, with the Department for Business, Innovation and Skills, pilot projects looking at take-up of business support policies, in advance of the full roll-out of the Business Bank.

Recommendation 5

Government should forge closer relationships with a greater number of trade associations in the manufacturing sector, particularly those with a strong core of SME members, in the initial design of policy programmes, and subsequently in marketing programmes to their members.

4 THE BASKET OF COMPETITIVENESS

So far we have examined the interactions across our manufacturing sector, and made recommendations on how to change this powerful context that shapes culture and impacts on how manufacturing businesses behave. Here we turn our attention to some of the indicators of competitiveness that are affected by culture and interactions.

In some instances, we make recommendations where we believe this could encourage culture change. Our primary approach, however, has been to reflect the extremely valuable approach of the inquiry itself – to draw organisations together and have an honest conversation about our collective strengths and weaknesses. We reflect on views given during this inquiry, and try to capture some of the conversations we had when asking participants: what does competitiveness look like for your business?

'Competitiveness' eludes simple definition and can mean different things to different people or businesses, but we have highlighted some recurring themes. Irrespective of important differentiating characteristics among the various types of manufacturing businesses in the UK, there are certain common elements such as servitisation, long-term finance or automation, which can have a profound effect on the overall levels of competitiveness and future resilience.

Regardless of whether a firm is more of a service-led producer or a system integrator (see fig. 2), these elements, when selected and combined in the appropriate way, can develop the capacity to operate more holistically across the full spectrum of the manufacturing process. This, in turn, allows the firm to become more competitive.

Essentially, the basket of competitiveness is a group of different elements, or characteristics that can each play a positive role in the success of a given manufacturing business. In the basket are the available options for a manufacturer to choose to develop. We mention automation, use of design, servitisation, exporting, innovation, the development and retention of skilled labour, and alternative ownership models and management structures.

We do not assert that all these ingredients are necessary for every business. Ideally, the choice, and the decision of how far to develop each element, depends on the type of business and its particular needs. The important thing for all manufacturers to remember is that they do operate along a spectrum that includes R&D, design, logistics, marketing, and services as well as production. Being able to choose from the full range of elements in the basket can allow a business to maximise its impact on a given part of that spectrum, and better position itself competitively.

Some of the interactions as analysed in the previous chapter have contributed towards shaping an industrial culture within which many of these elements are either ignored by business owners, or are made difficult to access. There should be a whole range of competitive business practices that businesses can choose from in order to grow. This is not a 'one size fits all approach', rather encouraging diversity and innovative practices that are most relevant to securing the long-term future of a business. The question remains, however: who tells the business to change, and why should that business owner or manager listen, if it is not in their culture to collaborate, network, and they are risk averse? Whilst we hope that our recommendations in both this and the preceding chapter will help embed these behaviours in our industrial culture, there is the need for a greater focus on how we get strategic management thinking into our manufacturing businesses themselves (see chapter 5)

Automation

When people talk about automation, the image that invariably comes to mind is of giant machines replacing people on the assembly line, of jobs lost, of the worker becoming obsolete. Such an image is inaccurate, neglects the very real benefits that automation can bring to a business, and is damaging to industrial culture.

Part of the barrier towards increased automation has been a misunderstanding about the nature of *intelligent* automation, as opposed to simply automation *per se*. Automation should enable the delivery of flexible manufacturing: using the same manufacturing line to deliver several projects, thereby reducing the capital burden. If this isn't understood, automation appears too much of a significant capital cost for many small businesses: it becomes too risky.

Whilst automation will sometimes replace specific roles on the production line, there can be a positive correlation between this kind of investment in productivity and workforce protection. In essence, workers have a vested interest in the installation of automation, for the increased overall productivity is most likely to ensure their employment, usually in higher-skilled managerial roles.[15]

Automation is commonly understood in its application to the production stage of the overall manufacturing process, but an awareness, or consideration of it, can be a crucial part also of designing a product, as well as marketing strategies (price, pre-orders, etc). Automating production also frees up resources to focus elsewhere, such as in R&D, helping a business stay ahead of the curve. There may also be several better ways to use your labour force (not simply reduce it).[16]

We heard repeatedly that, as a nation, the UK was under-competitive due to its reluctance to engage in the widespread use of automation. It is our view that the benefits of automation need to be better communicated to businesses through a national campaign.

Use of Design

Design is an integral part of the manufacturing process, but its full potential is not usually exploited, and the true nature of a 'design' intervention is not fully understood by enough of the sector. Besides splashing the corporate colours or logo onto a finished product, design can have an important role to play throughout the manufacturing process, something that was identified by the post-war British Government, leading to the setting up of the Design Council.

Ellie Runcie, Director of the Design Leadership Programme at the Design Council, believes that design can help a business better understand its customers and end-users, and how to gain new insights to drive innovation. It can also help to better brand a distinctive business. In giving evidence to our inquiry, she noted that many manufacturing successes in the UK have had a strong brand that helped the business stand out in existing markets, or actually used design to create new markets and a strong brand with which they could stand out, though they were previously unknown.

As Runcie later noted, "*the biggest pressing issues for manufacturers are access to finance, short-termism, skills, regulation. Design can help overcome these issues*". The principles of design ask whether a product is viable, functional, and desireable. Designers can look for insights into what customers actually need in a given product, and enhance ways to manufacture it more efficiently and cheaply. More than that, they can take it apart, and look at all the new possibilities, help to create new IP, and how to grow in new or existing markets. "*Good design is about looking at a problem from different perspectives to come up with the right solution*".[17]

Applied broadly across an entire operation, or focused on a specific aspect of the process, making good use of design can thus be one of the most crucial elements in the basket of competitiveness that a business can refer to. It may also be one of the easiest to engage in, as incorporating it would presumably require little restructuring.

16 Lavery-Pennell (July 2013), 'The Next Manufacturing Revolution', available online here: http://www.nextmanufacturingrevolution.org/.

17 For more information about the Design Council's programmes for manufacturers, please visit www.designcouncil.org.uk

Servitisation

Servitisation is best summariseed as 'delivering outcomes rather than products'. Where a manufacturer was once simply responsible for the product that came off the line and possibly its initial sale, customers are increasingly seeking more, wanting to buy whole solutions. As discussed in chapter 2, this business model is much more prevalent in the tech-businesses of East London, but is also a part of some of our most prestigious 'traditional' manufacturing. This is contracting for capability, where an airline buys a certain amount of flying hours per year instead of simply the aircraft. As Professor Andrew Neely of the Cambridge Service Alliance told us, "*across the industry, you increasingly see manufacturers forced to reinvent themselves as solutions providers*". Servitisation is no longer simply something that only multi-national corporations can afford to incorporate; it is quickly becoming an important base ingredient for differentiation and bringing the customer closer to the manufacturing process.

A good example of how an SME manufacturer could think about its business much more in terms of outcomes would be a speciality home audio company. This hypothetical company has customers that truly value high-quality surround sound throughout the home, so they partner with a customer and construction company who prewire houses. This way they would have the infrastructure to deliver a 'ready to press play' system, rather than merely selling people a stand-alone technology system. As Professor Neely went on to say, "*When you start to have the debate about 'what is the outcome that we're really trying to sell', you can change the way you view the boundaries of your business.*"

Neely believes that there is great potential in firms getting closer to the point at which the product is being used (the approach of the designer), and paying more attention to technologies that underpin the delivery of the service through life. For example, he explained how one company monitors about 3,000 pieces of construction equipment (engine temperature, exhaust overheating, etc), and can inform the user whether a particular piece of equipment is being worked too hard, if it is approaching time to service it, or a myriad other things. They are not just selling a product, but advising on how best to use the product to help make the customer's business more successful.

The competitiveness of a business that servitises is well-known, but not yet well enough normalised across the sector. Servitisation now, however, impacts on our national competitiveness. Five years ago, only 1% of Chinese firms had servitised, and the UK could still compete on innovation and services. Now, however, in just over five years, 15%-20% of Chinese firms have servitised, making it a truly global competition.[18]

Export and internationalisation

Exporting is crucial to our manufacturing strength, has been over centuries, and will be essential to growth in the sector in the coming decades. The benefits of exporting are substantial, and, it was argued to us, whether or not a business exports is often an indicator of strength in other parts of a business. It increases both domestic and international reputation, can help attract investment, and the varying necessities and desires of foreign customers can be a real driver for innovation. Moreover, it is beneficial for the overall economy, as our balance of payments continue to cause concern.[19]

Manufacturers shouldn't simply see exporting as product-based. As with servitisation, a more complex understanding of their offer to customers shows how businesses can export different parts of the manufacturing process, from design, to products, and to services on that product. In a globalised world, the ability to export is even important in order to remain competitive in the domestic market, as there can be many foreign entrants.

Not all businesses have the ability to export, however, particularly young companies and SMEs. It can be one of the most difficult and daunting steps for those that have never done it before, and carries a large degree of perceived risk. If there is insufficient knowledge regarding the size of a particular market, for example, or the applicable design standards, a firm can suffer considerable losses. However, as one participant put it: "*if you know what you are doing, it isn't really a risk*".

A big cultural factor in companies choosing not to export is a lack of faith in their ability to do it properly, and so don't try – the benefits are not made clear to them, and they maybe had negative experiences of it in the past. Exporting should be taken seriously, it requires a robust existing business, strong management and correct, targeted advice from those with knowledge of both the industry sector and the market into which the business is exporting. This inquiry has heard how UKTI has improved in this vein over recent years, but they could still be more targeted, particularly around smaller businesses for which exporting is central to their growth potential. Training must also be taken seriously, and there are some very high standard export and international trade qualifications available.

19 ERA Foundation (2010), 'The Sustainability of the UK Economy in an Era of Declining Productive Capability', available online here: http://www.erafoundation.org/wordpress/wp-content/uploads/2012/12/ERAF_4thReport_March10.pdf.

Innovation

Constant innovation is absolutely crucial to a competitive and resilient sector. Innovation doesn't just happen. New and improved products, more efficient and responsive services, and more effective marketing, all require substantive investment and an open mind. We were told how innovation, as an overriding business approach, isn't as embedded as it should be, across as many companies as would be needed to make it truly part of our culture. One Managing Director of a manufacturing firm told us: "*We are not a manufacturer of products, we create innovative solutions to problems.*" This approach to business, placing innovation and problem solving at the heart of company ethos should, without a doubt, be part of our industrial culture.

Many manufacturers, particularly lower down on the supply chain, which might only produce a single component, can be overly comfortable in the niche they have carved out for themselves. Even if they already have a successful product, there are always opportunities to develop it for different purposes and targets, create new iterations, or even just make their internal systems more efficient. A big part of innovation can actually be about bringing costs down throughout the entire manufacturing process. The point is to never be static or content with a self-imposed status quo, but to always be pushing forward.

Traditionally, innovation would originate in dedicated R&D departments. This still occurs in many places, notably pharmaceutical companies, but there are many other sources of innovative thinking that can benefit a business in less obvious ways. Listening to the customer, for example, to gain insight into how the product can be improved. Perhaps whole new uses for a modified product might be discovered. Peter Templeton, CEO of the Institute for Manufacturing says that in a broad way, innovation is "*invention plus successful commercialisation*", and that to really get innovation into our supply chains we need a programme of executable projects that would help SMEs or larger firms get those work streams right. This requires more longer-term thinking than is common in the UK.

The best innovation comes from a well-rounded and multi-disciplinary team, with a leader that allows them to work together. According to Ellie Runcie, "*innovation is a contact sport*". When it is well played, it can push the boundaries of standards, helping companies move from good to great.

The difficulty is getting manufacturers, particularly smaller margin SMEs, to successfully commercialise their ideas; a central cultural stumbling block in UK manufacturing. There has been progress on this in recent years, looking at the Catapults and other TSB programmes for example, but the Government must ensure that this momentum isn't lost, and that the innovative culture of these programmes isn't inaccessible to those businesses that need it most (i.e. SMEs). The Catapult centres of excellent are indeed working together to ensure that innovation is shared across the system, but it will require continued effort (and funding) from central Government.[20]

As a policy instrument, the manufacturing-related Catapult centres are there to boost the UK's success in the international competition for particular kinds of manufacturing processes or sectors, but they are also driving the competitiveness of individual businesses. An interaction with a Catapult centre could be a powerful instrument in altering the culture of a business, injecting collaborative, innovative models of behaviour that would drive their future competitiveness. The centres must redouble their efforts to ensure their culture spreads to the SME community, something which may require continued funding from central Government if some aren't fully self-sufficient through private sector investment.

Development and retention of skilled labour

Probably the most valuable asset that any manufacturing business will have is a skilled workforce. Unfortunately, there is a critical lack of skilled workers in the UK, and not enough manufacturing businesses view their workforce as an asset, nor an essential investment.

The image of manufacturing and engineering has suffered greatly over the past few decades, due to a shifting economic base (towards financial services), offshoring trends and unsympathetic government policies, including the de-emphasis of core foundation practical competencies from the national curriculum.

Too little has been done, or indeed is being done, because there is too much short-term thinking in government and business. There is a lack of vision regarding the sector and its place in the economy. Engineering is not valued enough as a career path, either by government or the public. During the recent recession, UK apprenticeships were largely cut by business, while in Germany, the government unofficially prohibited the measure.[21]

Industry, at the level of the individual business, not just representative bodies, needs to cultivate stronger relationships with education providers at all levels, to begin introducing children in primary school to the possibilities and excitement of embarking upon an engineering career in manufacturing. On another level, those relationships will also help direct further education providers to focus on the particular types of skills that businesses need.

Skills take time to develop, however, and the cultivation of this skilled, adaptable workforce requires a long-term strategic view among business owners and government alike. Furthermore, the sector needs to invest in its existing workforce, and up-skill for the changing environment (to encourage a movement towards servitisation or automation, for example).

Alternative ownership models and management structures

We have been made aware of examples suggesting that the way a business is owned, structured, and managed can have a profound effect on its productivity and competitiveness. Transitioning to co-operative or employee-ownership models, and adopting a single-status workforce structure, are elements in the basket of competitiveness that involve, respectively, a fundamental change to the very foundations of a company, and a seemingly superficial management tweak. That is not to underestimate the large culture change that would need to happen in UK manufacturing for these kinds of ownership models to become commonplace.

Most people are familiar with the traditional model of business ownership according to a shareholder-employer-employee dynamic. The John Lewis Partnership is famously owned by its employees. At Gripple, a manufacturer of wire joiners, every employee is also a shareholder. The company's founder, Hugh Facey, explained that "*our people are our most important asset. Because they are shareholders, everyone is pulling in the same direction. They're the ones coming up with ideas, they're the ones who see the opportunities*".

Yet the motivation behind the transition to employee-ownership is not solely based on profit and profit-sharing. It is about creating a better working environment for employees, and guaranteeing a legacy for future generations. Gripple can never be sold, for example, and employees must sell back their shares if they leave the company. This creates a valuable source of stability, helping to ensure a long-term future for the business. In addition, profit-sharing when times are good helps to save jobs when things go badly.

Many participants in our inquiry spoke of a particularly British problem of businesses being sold to foreign investors, or to aggressive venture capitalists. It has become part of our industrial culture, we heard, for businesses (often previously family-owned) to reach a certain point of growth, and then be sold. This is concerning: a new 'valley of death' where manufacturing businesses are unable to grow past a certain point without strong investment, without a succession plan or younger family members within the management structure. Where appropriate, alternative business models and management structures may help to reverse this trend, but we did not hear any other overwhelming evidence of how else to avoid this result of our liberal, open economy. The most powerful solution to this problem is to embed ambition and strong strategic management in our manufacturing businesses, which we discuss in chapter 5.

Alternative management structures can similarly affect how workers perceive themselves and their place in the business. Simpler than outright employee-ownership, these can include such things as adopting a single-status policy throughout the manufacturing process, making the only difference in pay between workers as based on skill-set, reclaiming more autonomy from head office or parent company, or integrating

different divisions such as design, engineering, marketing and sales to work together. Roger Medwell, a former manager at NP Aerospace, credits a twenty-fold growth in business over 10 years to this type of approach.

The sector must give consideration to alternative ownership models and management structures. Like for the first-time exporter, however, it can be a daunting task to embark upon something so unfamiliar. The goal for policy-makers should thus be to encourage knowledge sharing and contribute to support programmes and organisations that facilitate these endeavours. Particularly, we believe trade associations should encourage these different models where appropriate, making clear the financial as well as social benefits.

Why is the basket of competiveness not exploited by more businesses?

The basket of competitiveness outlined above is not exhaustive. Rather, automation, the use of design, the ability to export, innovation, the development and retention of skilled labour, and alternative ownership models and management structures are simply elements of competitiveness commonly found in some of the UK's most successful businesses. Unfortunately, many firms make too little or no use of them. Recognising these elements, the question then becomes: why not? If these options are out there and well-known, why are more firms not making use of them? Other countries routinely engage in some of these areas to a much higher degree, and consistently reap the rewards.

What we have surmised over the course of this inquiry is that our industrial culture has developed in such a way as to produce a socio-economic paradigm that is actually detrimental to the competitiveness of the manufacturing sector as a whole, from the perspective of any level. Throughout our evidence gathering, academics and successful manufacturing businesses repeatedly pointed towards the same types of issues that have been plaguing the sector for years: a negative image of manufacturing and engineering, leading to too few young people pursuing careers in the field; inappropriate private or public finance mechanisms; and a pathological short-termism in how entrepreneurs and policy-makers view success.

That short-termism and negative view of manufacturing lies at the heart of our problematic industrial culture. They lead to a faulty narrative of success based on rapid market exit, a lack of clear vision in management, a business-stunting aversion to risk, and a devaluing of skilled and experienced labour. It is through interaction and network engagement that they will learn about the different elements in the basket of competitiveness, devise new ones, and acquire the means to properly apply them.

Recommendation 6

The Department for Business, Innovation and Skills should collaborate with industry on a national campaign for automation, with a focus on myth-busting, making the case for automation and job creation.

Recommendation 7

UKTI should be more targeted in its approach, and collaborate with existing bodies to promote export training where appropriate.

Recommendation 8

All parties should commit to protect funding for the TSB, EPSRC and Catapult Centres to 2020.

Recommendation 9

Government should work with trade associations to review the impact of competition law on the ability for businesses to collaborate, and clarify the legal position.

5 THE NEW PRIORITY FOR THE SECTOR: STRATEGIC MANAGEMENT ADVICE

During the course of this project, we heard many anecdotes about businesses having both positive and negative characteristics associated with our industrial culture. We also heard how many businesses went through spectacular transformations as a result of a change in business model, or with new strategic management.

The steering group felt it was important to capture these conversations in a way that would be useful for industry and Government, beyond simply reporting them here. Therefore, we present four fictional manufacturing businesses in this chapter that all exhibit characteristics we heard about during our inquiry. Some of these characteristics were reported to us as being representative of the less desirable elements of our national industrial culture. By contrast, highly successful businesses reflected the strategic harmony that they had achieved with excellent alignment between their style of business, their deployment of appropriate technologies and processes, and driven forward by knowledgeable management and skilled personnel structured to suit their business style.

In each instance, these fictional examples show the need for greater strategic management advice across UK manufacturing. Strategic management advice, and how to spread it across UK manufacturing, should be a new priority for the sector, and we recommend the Manufacturing Advisory Service take the lead in scoping this project.

Hypothetical 1: Suffolk Presse

About Suffolk Presse

Suffolk Presse makes high-quality organic elderflower cordial. With an original recipe developed by the current Managing Director, the business first started selling its product from local market stalls five years ago, thanks to a grant from the Prince's Trust. Today, it boasts a £1 million annual turnover, selling mainly to delis and other high-end shops, including Harrods and the John Lewis Foodhall. The company benefits from a strong brand, which is very closely linked with the location of its manufacture, and where many of its first customers were.

However, the market for such drinks is becoming saturated, and other companies are starting to manufacture at high-volume, cracking the supermarkets to which Suffolk Presse had hoped to start selling. Competitors are circling around the company, threatening to take it over before it similarly starts to produce at high-volumes. The company has grown in value, but hasn't grown in footprint, and the local planning committee is anti-development.

The mixologist-turned-manager has not engaged in strategic thinking, and does several jobs for which she is untrained, such as finance, HR, etc. Nor has she been networking through the local Chambers of Commerce. The company is in need of capital to grow its operations, but has no knowledge of government schemes that could help, such as the Regional Growth Fund, the British Growth Fund, or Growth Accelerator.

Diagnosis

This is a classic example of a UK manufacturing business that doesn't recognise the characteristics of competitive business styles that it could migrate to, and does not have the management skills to plan out a winning strategy. It is unaware of the need for strategic advice to be able to understand what kind of investment would be suitable to help it develop and is unable to access the expertise needed to grow.

We heard of many examples of companies that had developed a strong product, and a growing brand, but that were lost to competitors, often foreign owned. They were unable to retain the business, or source adequate investment to grow. All too often, manufacturing businesses develop from ideas belonging to someone without the management competences to recognise the need to partner, or recruit to fill the skills gaps necessary to run and grow a successful business.

Unless they can automate and reach competitive volumes, or develop differentiating niche strategies, the company will stall, and risks take-over or worse. What is clear is that this business requires increased management capability that can think long-term and be aware of the various and diverse funding streams that could bring in suitable capital.

Hypothetical 2: Zomtrax

About Zomtrax

A well-known manufacturer of autonomous tracking systems for the defence industry, Zomtrax has been operating for over thirty years, and has been quite successful with a £10 million annual turnover. Originally founded by a team of creative technicians, one of whom was a member of the Territorial Army, the management team is very focused on generating and protecting its intellectual property (IP).

It is a "vertically-minded" supply chain company, normally supplying to the same large top tier companies, on long-term project-based contracts.

Recently, however, government budget cuts affecting defence mean that the future has become increasingly uncertain, with confirmed projects few and far between. The creativity of the company's engineers and technicians has not transferred over to strategic thinking, and there is little focus on alternative applications of their IP. Management see themselves as a 'defence' company, and don't engage with other sectors, dismissing the idea that their technology might have civil or generic relevance.

Diagnosis

During our inquiry, we heard of a regular feature of some uncompetitive manufacturing businesses: they remain too attached to one business model or to one sector. This may be due to personal circumstances and ties to one sector, or simply because the kind of advice they receive is not interdisciplinary in nature and doesn't recognise how they could adapt their business style.

This business needs to understand the true cross-sectoral value of their materials and technology to adapt and innovate in different markets. This is an example of where a Design Council programme of targeted support may help, enabling the management to see their offering and their customers in a new way. They would need to look horizontally at different applications for their materials, technologies and processes and probably, in this instance, in the civil market, to research the characteristics of new opportunities and apply their creativity in new fields.

Hypothetical 3: Tallis Medical

About Tallis Medical

Tallis Medical is a well-established manufacturer of assisted living medical products. The company was founded in 1950 to cope with growing demand as the NHS found its feet, and still supplies mainly to publicly-funded hospitals. Family-owned until a management buy-out in 1990, its annual turnover is over £50 million.

While the company began manufacturing high technology in a market with a high degree of uncertainty, it now finds itself manufacturing simplified products at relatively low technology in the same market. Management has little knowledge of the digital world, its workforce is ageing, and recruiting locally has proven difficult.

Suffering from a mind-set where they don't network and engage in the latest thinking around manufacturing, and self-perception as being solely a "medical company", Tallis aren't members of any trade association or Chamber of Commerce. They have thus never heard of servitisation, and continue to see their market shrinking, as hospitals increasingly seek ways of reducing on-site costs in favour of better monitoring and providing care for people in their own homes.

Diagnosis

This is an example of a business that needs to understand how to differentiate, and their attitude to networking and interacting isn't helping them understand the changing nature of the current industry, or the new market opportunities opening up.

In their case, servitisation could be a key differentiator, to match the changing service needs in their market. This business needs strategic advice as well as help with the development of service packages and the different business processes that are needed to operate with them. Not only could a new service offering stabilise the company, it could also buy them time to acquire new skills to develop and use more effective materials and higher value adding technologies in their products.

Hypothetical 4: Davison Displays

About Davison Displays

Davison Displays makes point-of-sale displays, but their only presence in the UK is a main office and sales team, together employing between 5-10 people. They off-shored all their manufacturing activities to China in 1994 on the recommendation of their local accountant who remains their main source of business advice. Energy costs and access to raw materials were the biggest factors in making the decision.

Today, Davison has an annual turnover of £1.5 million, but does not engage in exporting whatsoever. Their main customers are big retailers, with long lead times, and long contracts. The company's online presence remains lacklustre, having never updated its website since it was originally designed in 2004. There are looming threats of Chinese manufacturers entering the UK market.

Diagnosis

Across our inquiry, we heard stories of manufacturing businesses being 'managed by spreadsheet', and with powerful advisory figures not understanding the very particular nature of manufacturing and the need to invest long-term for growth. Many companies off-shored in the 1990s, and the advice they are receiving now is not fully up-to-date with the benefits of reshoring in the 2010s, particularly if it accompanies a change in business model.

This company would benefit from shortening its lead times, and customising and diversifying its offering. If their production were in the UK, its turnaround would increase dramatically and the staff could answer queries quickly and react more effectively to the increasing speed of market change. It will be challenging to compete with low-cost labour countries on price, but as the current business model is unsustainable, they need to rethink onshore production and go into customisation – shorter lead times to beat overseas competition on innovation, speed and quality.

These examples show two of the most powerful themes that came out of our inquiry. These are two 'ambitions' for UK manufacturing, which typify a fundamental change in our industrial culture.

- The need to be interdisciplinary, collaborative and cross-sectoral in our approach to industry:
  Some traditional boundaries between sectors are disappearing, and companies need access to expertise that can show them how to shift and change effectively with new market opportunities, inside or outside existing supply chains. This is true not only of products, but of processes, technologies, materials, skills, and the operating business styles that integrate and glue them all together.

- The need to grow and nurture indigenous companies in a way that is most valuable to the UK as a whole:
  This is a new 'valley of death'; innovative ideas originating in the UK grow to a certain point, then seem to struggle to make it through the many barriers to becoming a global manufacturing operation. We must encourage retention of their most significant value adding operations in this country, helping businesses to grow, and grow here. We should encourage UK-based R&D and innovation, particularly in SMEs and supply chain companies, not just in designing product and service packages, but in the powerful competitive advantage that can result from customising and integrating the design, manufacturing, automation, and service interfaces, and capturing their own related IP in ways which make it difficult for competitors to replicate.

We have identified a gap in the industrial ecosystem: something, a new institution perhaps, is needed to provide a focus for businesses and their strategic manufacturing 'ambitions' towards high value adding activities taking place in the UK.

The Business Bank has the potential to be a game-changer for manufacturers, if it is set up, managed, and promoted in such a way as to promote a pro-investment, long-term, innovative and indigenous industrial culture. The lack of the cross-departmental focus for manufacturing is something that many reports have sought to alter, alongside the need for some kind of senior Government focus. Some have called for a Minister for Manufacturing[22] and most recently the Government Office for Science Foresight Report suggested an Office for Manufacturing, crossing Government departments.[23] These views reflect a common theme across our evidence: many sense the need for a new institution that can rid itself of previous cultures, and be truly interdisciplinary and cross-cutting. We sense that industry is searching for a focus for this new collaborative culture. Other countries have a focus for their collaborative ethos; in Germany, this is the local *Länder*.

22 (November 2011), http://www.unitetheunion.org/news/unite-calls-for-minister-for-manufacturing-to-drive-an-interventionist-strategy/
23 Foresight (Nov 2013), 'The Future of Manufacturing', available online here: http://www.bis.gov.uk/foresight/our-work/projects/current-projects/future-of-manufacturing

Could the Business Bank be a new, truly interdisciplinary institution, bringing long-term finance into our industrial culture? An overarching focus on finance in the 'old' culture could compound existing problems, creating a new institution in the image of existing ones: just another bank. It should be made clear, however, that the Business Bank should not sweep away other institutions or programmes that benefit from autonomy. The Catapults, as discussed, must retain their focus on the commercialisation of innovation, and not be subsumed into another body. The German *Fraunhofer* model is, after all, distinct from other parts of the German industrial ecosystem. But we must ensure that the Catapults feed the UK value adding economy and not always the economy of an overseas owner.

Rather than suggesting a new institution be set up, or giving this responsibility explicitly to the Business Bank, we recommend that the Manufacturing Advisory Service (MAS), already working closely with businesses to improve their activities, should look at the development of the strategic elements of its advice to senior managers of indigenous UK manufacturing businesses. Partnership will be crucial, across other publicly-funded programmes such as Design Council and UKTI, and with business schools, chambers, and trade association. MAS should ask itself whether the makeup of its advisory services is truly interdisciplinary and able to be structured to provide the kind of strategic management support, at the level that we have identified, that is needed.

Given the failure to achieve this depth and level of engagement, particularly for SMEs, through previous business support organisations and approaches over many years, this task is not to be addressed lightly. Furthermore, there are significant challenges in successfully spreading these services across the regional heartlands of manufacturing that we have in the UK, let alone more isolated and poorly networked centres for businesses with the greatest need.

We do, additionally, urge Government to keep an open mind about its ambitions for the Business Bank.

Recommendation 10

The Manufacturing Advisory Service should undertake a review of its strategic management advice, looking to expand its remit in this area with more targeted support. It should work with organisations including business schools, trade associations and Chambers of Commerce, and partner with the Design Council and UKTI amongst others, to link strategic business advice to the structural evolution of the business.

INQUIRY STEERING GROUP AND SECRETARIAT

Inquiry Steering Group

The Co-Chairs would like to thank the inquiry steering group, all of whom have committed substantial time to this inquiry, both through the evidence gathering process, and in supporting the drafting of this report.

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Professor Steve Evans	Institute for Manufacturing, University of Cambridge
Clive Hickman	Manufacturing Technology Centre
Paul O'Donnell	Manufacturing Technologies Association
Philippa Oldham	Institution of Mechanical Engineers
Jane Gray and Will Stirling	The Manufacturer Magazine

Secretariat

The APMG is powered by Policy Connect, the think tank that works with Parliamentarians, business and the public sector to help improve policy in health, education and skills, sustainability, design and manufacturing.

Jocelyn Bailey	Head of Manufacturing, Design and Innovation
Thomas Kohut	Former Manager of the APMG
Michael Folkerson	Senior Researcher, APMG

EVIDENCE SESSIONS

Session one

Brian Halliday	Divisional Director for Industry Automation, Siemens plc

Session two

Geke van Dijk	Co-founder and director, STBY
Seena Rejal	Founder and CEO, 3D Industries

Session three

Alison Kinna	Managing Director, Outokumpu Stainless Distribution
Peter Templeton	CEO, Institute for Manufacturing

Session four

Dr. Adam Marshall	Director of Policy and External Affairs, British Chambers of Commerce
Ellie Runcie	Director Design Leadership Programme, Design Council
Christopher Simpson	Managing Director, Simpson Associates

Session five

Hugh Facey MBE	Founder and Chairman, Gripple
Dr. Finbarr Livesey	Judge Business School, University of Cambridge
Stian Westlake	Executive Director of Policy and Research, NESTA

Session six

Kathy Woodward	CEO, British Printing Industries Federation
David Workman	Director General, Confederation of Paper Industries

Session seven

Prof. Andy Neely	Director, Cambridge Service Alliance

Session eight

David Archer	Chairman, IET Midlands Manufacturing Group
Dr. David Clark	Executive Secretary, ERA Foundation,
Tony Davis	CEO, Medilink West Midlands
Chris Downs	Comau UK
Jeremy Hadall	Technology Manager, Manufacturing Technology Centre
Gill Hamer	Partnerships Director, Manufacturing Advisory Service
Roger Medwell	MHM Associates (previously CEO, NP Aerospace)
Steve Nevey	Director of Business Development and Partnerships, F1 Schools
John Russell, Chairman	West Midlands Manufacturing Consortium (Manufacturing Advisory Service)
Philip Salt	CEO, Salts Healthcare Ltd
John Spencer	
Ian Williamson	Manufacturing Executive, Institute of Engineering and Technology

Session nine

Richard Holden	Head of Manufacturing, Lloyds Banking Group
Mike Josypenko	Director of Special Projects, Institute of Export and International Trade
Yvonne Miller	Senior Relationship Manager, Lombard

INTERVIEWS AND WRITTEN SUBMISSIONS

Andy Brown	British Printing Industries Federation
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Tom Bowtell	British Coatings Federation
Philip Clarke	Clarmason
Paul Davies	Institution for Engineering and Technology
Richard Evans	Mechatronic
The Food and Drink Federation	
Alex Goude	M+W Group
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Caroline Jackson	Department for Business, Innovation, and Skills
Hywel Jarman	The EEF
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ACRONYMS

AMSCI	Advanced Manufacturing Supply Chain Initiative
APMG	All-Party Parliamentary Manufacturing Group
BIS	Department for Business, Innovation, and Skills
EPSRC	Engineering and Physical Sciences Research Council
FDI	Foreign direct investment
GDP	Gross Domestic Product
IfM	Institute for Manufacturing
MAS	Manufacturing Advisory Service
OEM	Original Equipment Manufacturer
R&D	Research and Development
SME	Small and Medium-sized Enterprise
TSB	Technology Strategy Board
UKTI	UK Trade & Investment

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THE ALL-PARTY PARLIAMENTARY MANUFACTURING GROUP

About the APMG

The All-Party Parliamentary Manufacturing Group (APMG) is a cross-party coalition of Parliamentarians and manufacturing industry organisations that works to develop new industrial policy ideas, critique existing government decision-making around manufacturing, communicate within Parliament the importance of a well-balanced productive economy, and help the manufacturing community better engage with the policy process.

With renewed political focus on the need to rebalance the UK economy and begin the 'march of the makers', the APMG seeks to ensure that policies and programmes to support the manufacturing sector achieve consensus from all parties, and across industry.

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	Jonathan Reynolds MP
	Baroness Wall of New Barnet
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