UK Automotive International Competitiveness Report 2015

Peer-reviewed by the Automotive Council

Executive Summary

The UK automotive sector is a true success story. Driven by high levels of investment by vehicle manufacturers and supply chain companies in advanced manufacturing and R&D, it produces more than 1.5 million vehicles a year and employs 160,000 skilled individuals directly in manufacturing.

The Automotive Council has been instrumental in driving this growth. Formed in 2009, the Council has enhanced dialogue and cooperation between the UK government and the automotive sector, helping the industry deliver sustained growth. However, it must ensure that its resources are focused on areas which have the greatest impact on the competitiveness of the UK business environment.

Key Automotive Council initiatives include the £1 billion Advanced Propulsion Centre, which is aiming to place the UK at the global forefront of low-carbon vehicle development. Other important work has identified £6 billion of additional annual supply chain opportunities for UK companies. The Council is leading action to realise these, in particular through the valuable work of the Automotive Investment Organisation (AIO). The Council is also spearheading efforts to secure the workforce of the future, with world-class apprenticeships and other training being developed to support long-term growth.

The potential for the UK's automotive sector is significant – but the competition for business is severe, and competitor nations are moving fast. The future will see further change – not least in the nature of the manufacturing industry. Over the coming years we will see growth in advanced, high-flexibility manufacturing with increasing interconnectedness and the ability to customise to individual customer need. The UK has relatively high wages, and its automotive manufacturing sector is based on a model of exporting high-value, high-technology vehicles to consumers around the world. It is also – as this report will make clear – one of the world's most productive automotive industries. These points should be considered when making any interventions around investment and skills.

That is why the International Competitiveness work-stream was set up as part of the Automotive Council's Business Environment and Skills working group: to develop a set of Key Performance Indicators (KPIs) to guide the automotive industry and government going forward. It will provide clear and consistent evidence on positive factors which must be maintained, and on areas in which action to improve is needed – and will enable progress to be tracked over time. These KPIs could also be used by automotive companies to inform future investment decisions on R&D and manufacturing.

This report is based heavily on KPI data garnered from a variety of sources – an industry 'health check' to be maintained and monitored – supplemented by a survey of senior industry views. It highlights areas of competitive strength which the UK must fight to maintain. The impressive productivity and flexibility of British automotive workers; the cooperative approach to labour relations that we enjoy; the strength of our universities and their strong relationships with industry; and the political stability which comes from a strong, democratic system – these are all competitive advantages that have demonstrably influenced decisions to invest.

The report also highlights areas where action should be considered as a priority. Among them, it is clear that we have a key challenge to recruit and retain the skilled engineers, technicians and manufacturing operators needed to sustain an innovative manufacturing sector in the long term.

Through this work, it has also become clear that the real world of investment decisions is a complex one, with many varied factors coming into play. Therefore, the Council also plans to devote some resource to maintaining and monitoring a more comprehensive database.

By doing so, government and industry can constructively approach the opportunities offered by the sector, targeting limited resources at the areas which will make the biggest difference for the long-term health of the UK's automotive industry and economic performance – while monitoring and safeguarding the UK's overall attractiveness for investment in the automotive industry.

Contents

About the Automotive Council

The Automotive Council was established in 2009 to enhance dialogue and strengthen co-operation between UK government and the automotive sector. The Council operates through three major working groups:

- **Technology:** To develop technology roadmaps and advise on automotive R&D investment opportunities to foster a stronger UK engineering, supply and manufacturing base.
- **Supply Chain:** To establish the challenges facing the UK automotive supply chain and improve the supply chain's long-term competitiveness.
- **Business Environment and Skills (BE&S):** To ensure the UK automotive industry has the best business environment to operate in, including access to the right skills.

For more information visit the Automotive Council website: www.automotivecouncil.co.uk

Introduction

The UK is a global leader in many aspects of the automotive sector, and has experienced growth in vehicle production and investment not seen in many of our close competitor countries. However, the world around us is not standing still, and we need to understand how to maintain the UK's competitive advantage – and ensure that challenges are acknowledged and tackled head on.

Investment in the UK automotive sector is a major driver of growth: in 2015 alone, more than £2 billion has been committed to manufacturing and R&D. Recent major developments include Jaguar Land Rover's new Ingenium engine plant in Wolverhampton; the Advanced Propulsion Centre (APC) at the University of Warwick; the two-millionth Nissan Qashqai built in Sunderland; and Bentley in Crewe becoming the global centre of excellence for Volkswagen Group W12 engines. This is all in addition to the announcement of significant new investments into production and/or R&D facilities for the London Taxi Company, Honda and Ford. In the main, however, such decisions are not made in the UK, but in global headquarters located overseas, so it is important to promote the UK's competitive advantages.

Meanwhile, between its inception in 2013 and March 2015, the Automotive Investment Organisation (AIO) helped to secure £750 million investment into the UK automotive supply chain, securing or creating more than 10,000 jobs in the process. This has been integral in the re-shoring of more than £1 billion of annual automotive component manufacture back to the UK since 2012.[1]

This report is intended to illustrate where the UK has a competitive advantage over other countries, and to identify where additional attention from government and industry is needed. It will assist the Automotive Council in ensuring it focuses its resources on the areas that will offer the greatest return for the UK automotive sector, and in ensuring that the UK remains one of the more attractive places for investment.

The report has been undertaken by the UK International Competitiveness work-stream, a sub-group of the Business Environment and Skills group. The group has a diverse range of representatives from bodies associated with the UK automotive industry, including vehicle manufacturers, supply chain companies, academic bodies and government.

The report is based on hard statistical evidence and more qualitative evidence gathered from surveys and case studies. Given the complexity of the system and the data available, there is often a need for informed judgement when reviewing the findings. The nature of this exercise risks a greater focus on challenges over strengths, but this in no way implies that the UK system is not performing well against international standards.

Through the work of the Automotive Council's UK International Competitiveness group, it has become clear that monitoring a wide set of KPIs is desirable to deliver the best value. Anecdotally, a single car factory would expect to track and report between 30 to 100 KPIs monthly (this report measures eight); an investment decision would require in-depth study of countries and regions taking into account at least as many metrics.

[1] Source: Automotive Investment Organisation

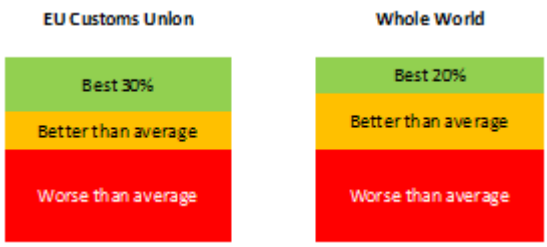
Data

KPI Dashboard

Central to this report is the tracking of eight selected KPIs in relation to the UK automotive sector's international competitiveness (see next section: Key Performance Indicators, and Appendix A for methodology). The UK is ranked by number against other countries both in the EU Customs Union (EUCU) – nine selected EU countries, plus Turkey – and worldwide. The results are shown below, and can be found in full, with analysis, at: **www.automotivecouncil.co.uk/business-environment-and-skills-group/internationalcompetitiveness**

KPI 1: Labour cost EUCU: 7/10 Global: 8/15	**KPI 2: Labour productivity** EUCU: 1/10 Global: 7/16
KPI 3: Labour flexibility EUCU: 1/11 Global: 2/25	**KPI 4: Availability of engineers** EUCU: 11/11 Global: 13/17
KPI 5: Availability of skills EUCU: 7/11 Global:	**KPI 6: University-industry collaboration** EUCU: 1/11 Global: 2/25
KPI 7: Government investment in R&D EUCU: 6/11 Global: 13/24	**KPI 8: R&D tax relief** EUCU: 5/8 Global: 15/21 *(Large company rate)*

Key:



Matrix of competitiveness drivers

In addition to the KPIs, a matrix of further 'competitiveness drivers' has been developed to gauge the UK's performance across a wider range of initiatives. The full matrix can be found on the Automotive Council website at the link above.

Key Performance Indicators

Based on the work carried out to date, the following list of eight KPIs has been selected based on the methodology outlined in Appendix A, and validated by the Automotive Council as critical for investment decisions in the UK automotive sector.

These eight KPIs are those which were most highly rated as ‘important’ in influencing potential investment in manufacturing and R&D.

- **KPI 1: Labour cost**
- **KPI 2: Labour productivity**
- **KPI 3: Labour flexibility**
- **KPI 4: Availability of engineers**
- **KPI 5: Availability of skills**
- **KPI 6: University-industry collaboration**
- **KPI 7: Government investment in R&D**
- **KPI 8: R&D tax relief**

Additionally, three important drivers were identified – for which there is no readily available KPI:

- **Political stability**
- **Government strategic engagement with industry**
- **Accessibility of financial incentives**

A full list of the KPIs considered – including the eight above and the remaining 30 competitiveness drivers – are all listed in the matrix accompanying this report.

KPIs 1 and 2: Labour cost and productivity

Labour productivity in automotive is a strength for the UK: growth in automotive will help maintain its competitive advantage.

Labour cost and productivity are both seen as key to investment in UK automotive manufacturing and R&D. The UK has a good story to tell.

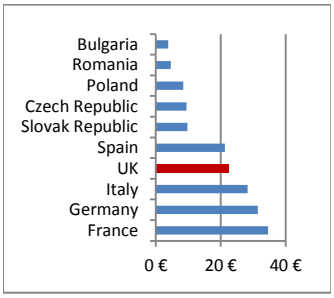


Figure 1: Hourly Labour Cost (Eurostat)

Although hourly wage compares favourably with other economies in Western Europe, when compared to alternative investment locations in new EU states or globally, wages are higher (although wage inflation in developing economies means that the gap is closing over time).

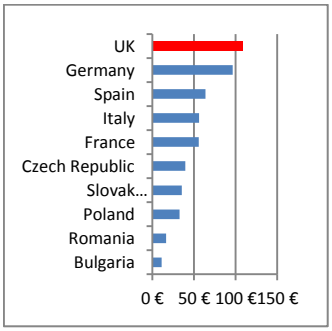


Figure 2: Productivity in Automotive - €000/employee (Eurostat)

However, there is a compelling argument to be made around productivity – in particular in the automotive sector.

Productivity is a key business efficiency measure, indicating the added value generated per employee. It is relevant to all aspects of business – in the context of automotive, both in manufacturing and R&D.

The UK as a whole has recently seen negative press regarding the "productivity gap" – the lack of productivity gains during a time of economic growth. Information available relating to the automotive industry shows a different story. Detailed comparative data for automotive productivity is available for Europe, and the specific measure chosen for this report is Euros generated per employee annually. At almost €100,000, the **UK has the highest productivity of all major automotive producers, even ahead of Germany – with a trend of increasing productivity over the past 10 years.**

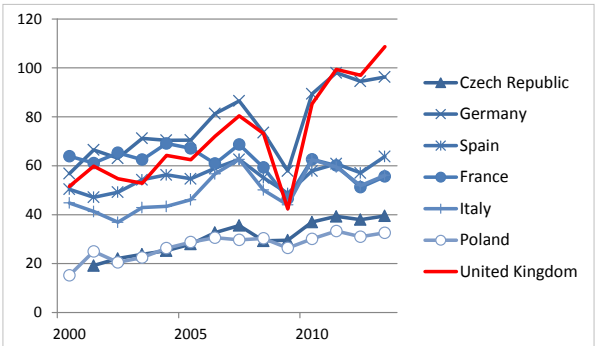


Figure 3: Productivity in Automotive - Historical Series (Eurostat)

This performance in part reflects the trend toward process efficiency following the global financial crisis and the shift toward production of high-value premium manufacture which forms an increasing proportion of the UK's automotive manufacturing output.

In past studies of vehicle makers that have ranked the main global car plants, the UK has consistently performed well. While these studies are no longer conducted, overall UK automotive productivity growth in recent years tends to suggest that the UK's competitive position is at least being maintained, if not improved.

Recommendation: To ensure potential investors are made fully aware of the strength of the UK automotive industry's performance in productivity, to dispel the impression gained from widespread generic press reports that UK has a poor productivity performance.

KPI 3: Labour flexibility

Labour flexibility is a major strength for the UK, and recognised as such. We should strive to retain this key competitive advantage.

The efficiency and flexibility of the labour market are critical for ensuring that workers are allocated to their most effective use in the economy and provided with incentives to give their best effort in their jobs. Creation of high-value, highly skilled and flexible jobs is crucial to sustaining the growth of the industry long-term.

This is relevant to investment in both R&D and manufacturing. High labour flexibility allows easy shifting of workers from one economic activity to another, rapidly and at low cost – and allows for wage fluctuations while minimising social disruption. Critically, it gives companies the confidence to rapidly take on employees to meet high market demand – and those employees will perform high-value, high-productivity work.

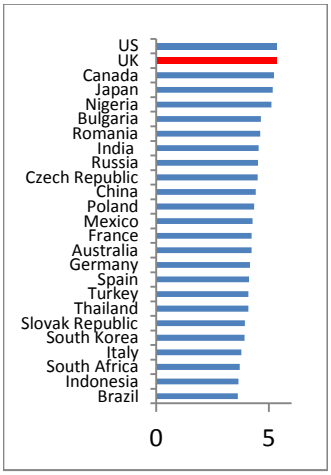


Figure 4: Labour flexibility (Global Competitiveness Report Survey)

Flexibility is seen as a key strength of the UK. KPI 3 – *Labour flexibility – Global Competitiveness Index* – ranks labour flexibility based on cooperation in labour-employer relations, flexibility of wage determination, recruitment practices, redundancy costs and effect of taxation on incentives to work. **Together with the US, the UK ranks top of the countries included in this survey.**

This key competitive advantage for the UK is supported by the UK's constructive employee-labour relations environment. The Global Competitiveness Index scores the UK as third of all countries surveyed in this respect, and second only to Germany in the EU Customs Union (EUCU) – nine selected EU countries, plus Turkey.

Recent investment decisions – notably the choice of Ellesmere Port for production of the new Vauxhall Astra – highlight not only the competitive strength of the UK in this context, but also the importance of the measure for driving real investment decisions. This has not gone unnoticed in other countries – and those companies and plants abroad making the case for investment are starting to develop strategies to enhance their own flexibility.

Recommendation: Government, industry and trade unions should continue to work together to maintain the UK's strong record and competitive advantage in labour flexibility. A future report should provide case studies to demonstrate this strength. It is essential that any update to the Employment Rights Act is done in such a way that this competitiveness advantage is maintained.

KPI 4: Availability of engineers

Engineers are critical to the success of automotive investments – and there is a serious gap in supply. Industry, government and academia should take radical action to address this.

Availability of engineers ranked as the lowest of all eight KPIs. No international indicator of number of engineers in the economy – graduates of engineering courses who go on to careers in engineering – has been identified. Instead, a measure of students graduating from tertiary education with degrees in Engineering, Manufacturing and Construction was selected as it shows the potential entrants to the profession over subsequent years.

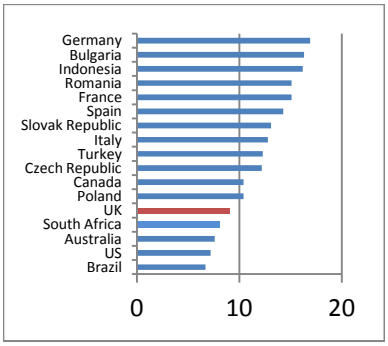


Figure 5: % Graduates in Manufacturing, Engineering and Construction (UNESCO)

Availability of engineers is relevant to investment in both R&D and manufacturing. Without a strong pool of engineering talent, neither R&D nor manufacturing investments will be able to create the value required to pay back capital outlay, nor to provide the innovation on which the UK's automotive industry relies for its long-term competitiveness. This risk is compounded as we move to ever more advanced vehicle and production technologies.

In simple terms, **the availability of engineers is critical – and perhaps the highest barrier to bringing high-value investment to the UK.**

For total STEM (Science, Technology, Engineering and Mathematics) graduates, the UK performs somewhat better than average. However, looking specifically at graduates in Engineering, Manufacturing and Construction, the situation is worse: **the UK rates 14th of the 17 countries for which data was available**.

Initiatives such as *See Inside Manufacturing* have started to improve the image of manufacturing among young people and among those teachers who will recommend them to take up careers. We need to do more of this. We also need to take action to retain engineering graduates in the UK and in the industry. We should take every opportunity to demonstrate the attractiveness and potential of a career in automotive to graduates seeking employment. Finally, it is important to remember that the talent gap is already an issue. We should not risk the flexibility to transfer skilled engineers from overseas to fulfil current and urgent need.

Further investigation for future KPIs to track the strength of the UK's engineering talent pool would be useful – obtaining a qualification does not indicate the utilisation of skills.

As referenced in KPI 5 below, the Automotive Council's Skills work-stream has made some significant progress in this area.

Recommendation: Government, industry and universities need a coordinated approach to train and retain the engineering pool by professionalising the image of the career and appealing to "Generation Y".

KPI 5: Availability of skills

The skills deficit is recognised as a key risk that could reduce the UK automotive supply chain's capability to competitively deliver high-quality parts. Industry is tackling this systematically – and should continue to do so, to the benefit of the wider manufacturing industry.

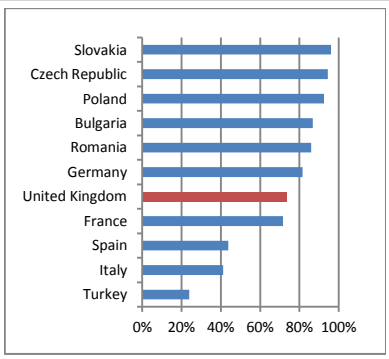


Figure 6: Proportion of craft workers and operators qualified at upper secondary level and above (Eurostat)

Availability of skilled operators is a key measure for the industry. Our chosen KPI shows the proportion of operators qualified at upper secondary level and above. The results of the survey suggest that this is a key priority and a challenge facing the UK, looking both at the skill of people employed and the ability to hire them.

The UK automotive industry offers the promise of substantial growth over the medium and long term – and with that growth comes the opportunity to create dynamic, high-value and highly productive employment across the country. But this rapid growth also poses problems: while the flexibility of British workers – and their high levels of productivity – have allowed the recent expansion of manufacturing volume in the UK to be achieved at some pace, **without addressing the issue of skills there is a risk that the opportunities offered in vehicle manufacturers and in the supply chain will be missed**.

Simply put, if sufficient highly skilled manufacturing workers are not available to UK suppliers or potential investors, parts supply to Tier-1 companies and vehicle manufacturers will not be achievable at the correct quality, volume or cost. In the short term, this means that investment would be made elsewhere – and the long-term risk is that the UK loses its hard-won reputation for supplying high-quality products.

The Automotive Council Skills work-stream was established in 2013 to coordinate the UK automotive industry, in partnership with government, to support and develop the skills needed for sustainable success. Having studied the strongest of the UK's competitors, the work-stream has developed a roadmap towards a world-class environment for skills in UK automotive.

Industry-standard job families and frameworks have been agreed through the work of the Council's Skills work-stream, along with career 'routemaps' for the automotive industry. The industry is working systematically to improve basic skills for school-leavers, and is developing a strong and consistent approach to apprenticeships – with Automotive Council members aiming to directly recruit at least 10,000 apprentices over the next five years.

All of this will help ensure a pipeline of talent to meet current needs. At the same time, industry must invest and address its requirement in the future. The industry is evolving rapidly – it is critical to be ready as vehicle and manufacturing technology advances. Developing courses and training for young people to support this evolution is crucial – as is re-skilling workers to play a productive role over the coming decades.

The Skills work-stream is working to achieve this – it is essential that this work should continue as a priority. Through this activity, industry can develop a model of traineeships and apprenticeships to meet the future requirements of automotive manufacturing – **and this coordinated industry approach will strengthen the availability of skilled operators for the benefit of UK manufacturing as a whole**.

Recommendation: Industry, through the Automotive Council's Skills work-stream, has worked to agree a roadmap towards supplying the skills required for long-term sustainability. OEMs and suppliers should continue to work together across industries, and supported by government, to further this critical activity.

KPI 6: University-industry collaboration

The UK's excellence in research, and its high reputation for collaboration, are both key to unlocking the automotive industry's potential to drive innovation in the UK economy.

Innovation depends on strong links between the public sector, private sector and academia. The UK is placed exceptionally well to benefit: not only is it home to some of the world's most highly regarded universities (three of the top 10 according to the Times Higher Education Supplement[2]), **it scores second in the index of university-industry collaboration, the KPI chosen for this area.**

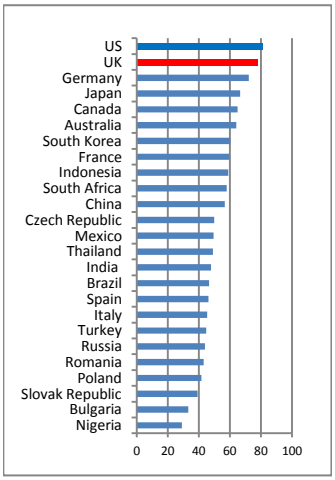


Figure 7: University-industry collaboration (WEF survey)

The UK is home to significant private sector automotive R&D operations. Ford (Dunton), Jaguar Land Rover (Gaydon), and Nissan (Cranfield) add value to the UK economy, and the country is home to world-class testing facilities such as MIRA and Millbrook Proving Ground.

That these facilities are based in the UK is in no small part due to the availability of world-class research. The gap between university research and realisation of commercial potential has been called the 'valley of death' – great ideas from UK academia not realised by companies – or ultimately realised by companies based outside the UK. Too often, great science fails to make the transition to applied research or promising applied research fails to be commercialised by UK companies.

Government and industry are working together to improve this – and initiatives like the Advanced Propulsion Centre, manufacturing Catapults and Innovate UK are internationally visible examples of good practice. We should continue cooperation between universities, industry and the government towards a shared goal of discovering, developing and taking to market the best in innovation.

Recommendation: Government, industry and academia should continue to work in partnership to further develop the UK's potential based on world-class research – and organisations like the Advanced Propulsion Centre, manufacturing Catapults and Innovate UK should continue to support the transfer of research into commercial application.

[2] https://www.timeshighereducation.com/world-university-rankings/2016/world-ranking#!/page/0/length/25

KPI 7: Government investment in R&D

Investment by government in R&D and innovation is good for business in the UK. Automotive provides a real opportunity – government should continue targeted investment toward industry-wide success.

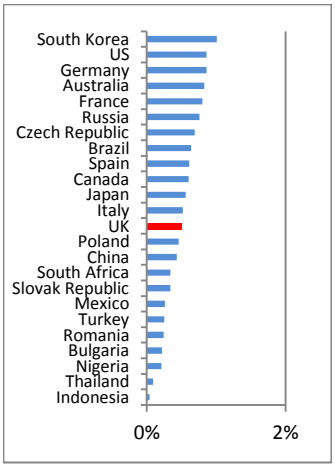


Figure 8: GERD by Government (Global Innovation Index)

Government spending on R&D is a major factor in encouraging the 'R&D ecosystem'. **Top-performing countries – such as the US, Germany or South Korea – typically spend between 0.8-1% of GDP on R&D, while the UK spends around 0.5%** – in the bottom half of not only the countries surveyed globally, but also of those surveyed in the EUCU.

Meeting government's objectives of rebalancing, delivering sustained economic growth, reducing the trade deficit and improving overall productivity will rely heavily on the ability of manufacturing industries to develop, produce and export world leading products. In this regard, **investment in advanced manufacturing R&D should be protected.** Elsewhere in this report we cover the excellence of the UK's universities. Continuing investment in R&D will allow the realisation of that potential by **transforming ideas into profitable business, and providing the growth in high-value industry which will support deficit reduction by boosting the private sector, which can in turn increase the number of UK jobs and, as a result, tax receipts for the Exchequer.**

Investment in automotive R&D provides high returns. Government and industry have co-invested into a number of initiatives that are already reaping benefits. The High Value Manufacturing Catapult, which has encouraged Foreign Direct Investment (FDI), reports a return of more than £6 of gross value added on every £1 of government investment[3]. The Advanced Propulsion Centre (APC), meanwhile, was established with funding of £500 million from government matched by industry, and government has also committed an industry-matched £100 million over five years into developing connected and autonomous vehicles.

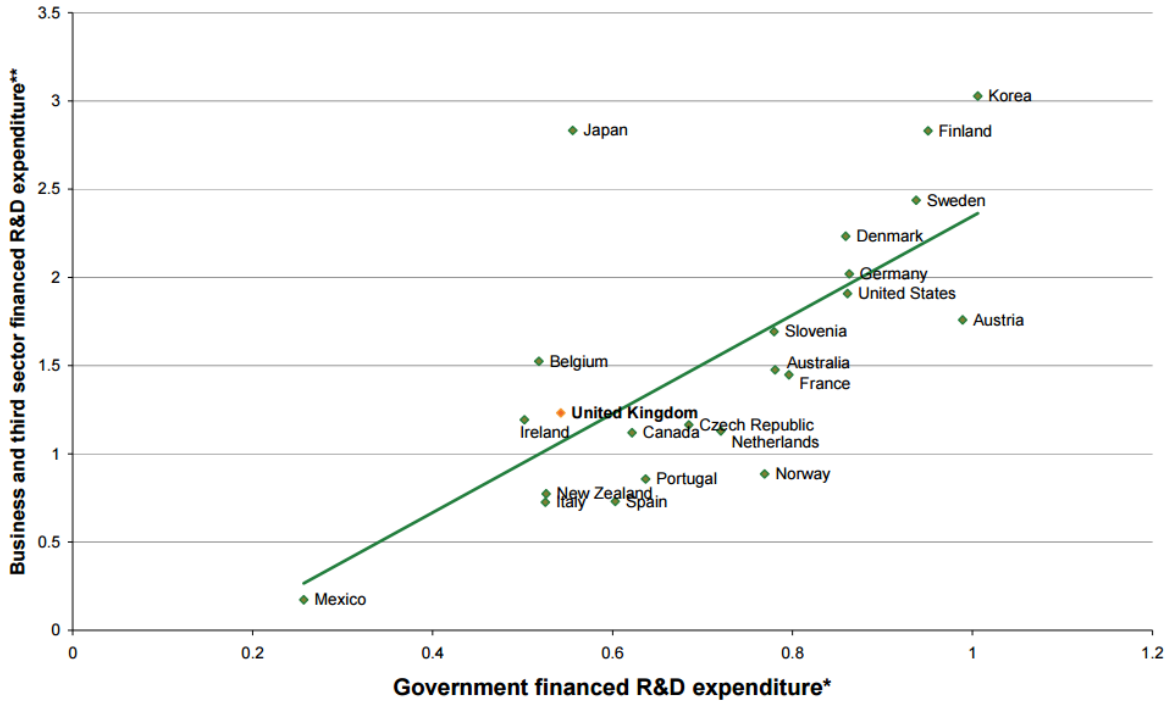
These investments promise the possibility of the UK taking a significant role in developing low-carbon automotive powertrains which will greatly enhance the attractiveness of vehicles designed and manufactured in the UK. The UK also has strength in software design – an increasingly core component of added value in automotive. Where the UK shows strength, funding should be targeted at specific institutions or clusters, which can then reach the critical mass to bring good ideas to market.

The investment that government has made in automotive R&D in recent years is viewed as a vote of confidence in the industry as a whole by foreign investors. Critically, the investment has not been made by 'picking winners', but by targeting interventions to develop and strengthen UK automotive manufacturing as a whole. This serves to encourage a robust and competitive industry able to attract significant investment by companies from the UK and across the globe on its own merits – and in turn, promotes investment by industry.

The following graph (Figure 9) shows the correlation between private and public sector R&D spends.

[3] Hauser review: https://www.gov.uk/government/publications/catapult-centres-hauser-review-recommendations

Figure 9: Government- and private sector-financed R&D as % of GDP in 2011[4]



Recommendation: Investment in automotive R&D provides real returns. Government should continue to invest in targeted, industry-wide initiatives to deliver growth, and to secure the UK's potential as a high-value R&D and manufacturing hub for automotive; longer-term, it should aim to compete with the best.

[4] Tera Allas report for Department of Business, Innovation and Skills: *Insights from international benchmarking of the UK science and innovation system:* https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/277090/bis-14-544-insights-from-international-benchmarking-of-the-UK-science-and-innovation-system-bis-analysis-paper-03.pdf

KPI 8: R&D tax relief

R&D tax incentive regimes represent a highly competitive area of global fiscal policy, as governments worldwide compete for private sector investment in innovation and technology.

R&D tax incentives generally reduce a company's corporate tax liability. The values of incentives typically range from 5% to 30% of qualifying expenditure depending on the jurisdiction.

Many governments consider R&D an essential component of their innovation-led economic growth plans**. Providing a competitive R&D incentive environment is a key consideration in encouraging increased investment in advanced technology. Furthermore, the country in which R&D is performed is often the location of resulting production, with a multiplier impact on jobs.**

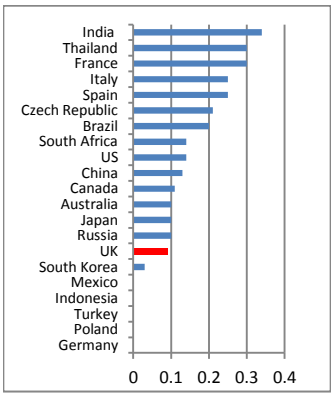


Figure 10: Effective cash rates (large companies)

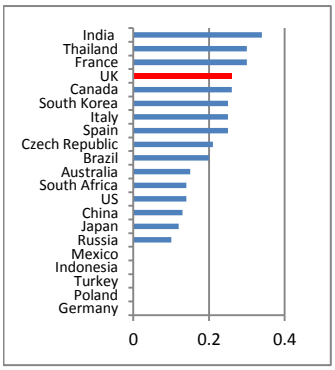


Figure 11: Effective cash rates (SMEs)

Governments can offer direct support through grants or indirect fiscal incentives, of which R&D tax credits are an example. Grants often support targeted sectors or specific types of R&D, while tax incentives are broad-based in their application and give private companies autonomy over which investments they fund and receive tax benefit from. The majority of OECD countries now offer fiscal R&D incentives.

Global comparison of regime competitiveness

Comparison of global R&D tax incentive regimes is challenging. The definition of qualifying expenditure varies across jurisdictions, as does the accessibility of the incentive and certainty around payment. Some governments place restrictions around the amount which can be claimed and the location of intellectual property ownership and many will only provide benefit if the company has taxable profits. More progressive regimes such as in the UK also allow companies in a tax loss position to receive a cash benefit, similar to a grant. When comparing the competitiveness of regimes globally, it is helpful to differentiate between regime 'design' and regime 'generosity', ie the value of the incentive as a percentage of the investment.

The KPI chosen shows the effective cash headline rates of R&D tax incentives globally for both SMEs and large companies. While headline rates do not communicate the strength of the regime design, an in-depth global investment appraisal has been carried out by the Automotive Council and PricewaterhouseCoopers (PwC) which shows headline rates are broadly directional in communicating the value (or generosity) of incentives available to investors. While headline rates have been chosen for simplicity, more in-depth analysis is available on request. Fiscal R&D incentives are not offered by all jurisdictions, notably Germany where instead significant grant regimes are operated.

How competitive is the UK tax incentive regime?

The UK operates a split scheme, differentiating between SMEs and large companies. In both instances, it is acknowledged that the **regime design is among the best in the world following government's move to above the line credit in April 2013.** The generosity of the SME scheme is also very competitive globally. **The generosity of the large scheme, however, is not globally competitive.** Importantly, an SME for R&D purposes is defined as a company or organisation with fewer than 500 employees, and either an annual turnover not exceeding €100 million or a balance sheet not exceeding €86 million[5]. A company may not be considered to be an SME if it is part of a

[5] The SME tax relief was extended to larger SMEs with effect from 1 August 2008 (FA07/S50). From that date, the references in the Appendix to Commission Recommendation 2003/361/EC of 6 May 2003 to 250 persons, €50m and €43m are to be read as 500 persons, €100m and €86m (see CIRD91900). Different countries define SMEs and large companies in different ways, which adds complexity to any direct comparison.

larger group that exceeds these thresholds – although it may effectively act as one in investment decisions. **This places a significant portion of global automotive companies' supply chain within the large company bracket**, with larger companies representing the highly mobile capital that governments look to attract.

Recommendation: Developments in global R&D tax incentive regimes move at an exceptionally fast pace, highlighting their competitive nature. The UK has an opportunity to leverage the strength of its regime design, by increasing the R&D tax credit (R&D Expenditure Credit) rate for large companies to a globally competitive level.

An increased headline rate would not only enhance the incentive value of the R&D credit in absolute terms, but would also greatly enhance the perception of the UK as an attractive place to develop and exploit Intellectual Property.

Additional drivers

The following drivers are seen as critical – but as yet no KPI has been identified or developed.

Political stability

Within the survey, respondents were given the opportunity to list additional key factors they felt were influencing investment decisions. A large number of comments regarding political stability in the context of the European Union were raised. While political stability did not emerge as final KPI *per se*, when taken together with these additional comments, the issue was judged to be of sufficient note to merit covering in this report.

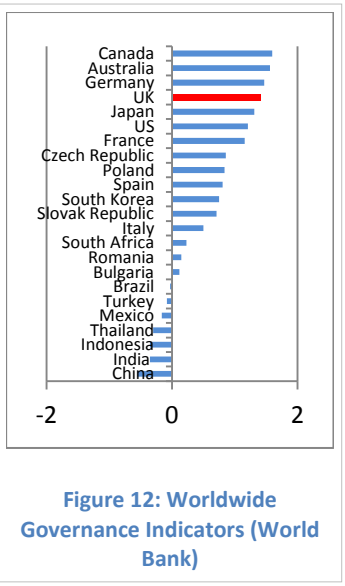


Figure 12: Worldwide Governance Indicators (World Bank)

The political stability and good governance of the UK is highly regarded internationally.

Political stability is a key competitive strength for the UK. The chosen KPI is an average of the World Bank's *Worldwide Governance Indicators*:

- Voice and accountability
- Political stability and absence of violence
- Government effectiveness
- Regulatory quality
- Rule of law
- Control of corruption

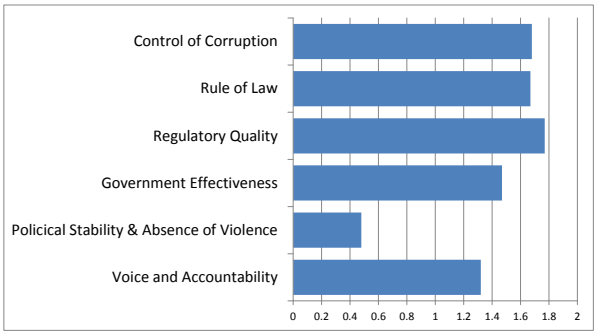


Figure 13: Worldwide Governance indicators – breakdown for UK

The UK scores well: fourth globally and second in the EUCU. Individual **KPIs on regulatory quality, rule of law and control of corruption stand out. These make the UK an attractive place to do business**.

It is also true that the UK benefits from a form of 'soft power' – in terms of its level of international connection, the presence of significant expatriate communities, and in the fact that the country uses English as its first language.

Europe is a significant market for manufacturing companies in the UK. Moreover, the UK's car industry is reliant on an integrated, European supply chain.

A huge strength of the UK's approach over recent years has been a coordinated national approach to automotive, with regionalised delivery. The UK competes with other countries to secure investment, and we should not pit regions in contest against each other to the detriment of the country's overall attractiveness.

Recommendation: Political stability is vital, and good governance needs to be maintained for the benefit of the industry in future years.

Government engagement

Government engagement with the auto industry is seen as critical for maintaining and strengthening the UK's automotive industry and for driving consideration of the UK for new investment. The work of the Automotive Council across several administrations is a demonstration of this. Development of new vehicles can take five to 10 years, and decades for new technologies. Decoupling policy from the electoral cycle not only helps provide a stability of business environment, it also gives foreign investors an invaluable feeling of trust that investments can be made with confidence, for the long term. **It is critical to continue a strong dialogue, and to maintain policy consistency to ensure potential investors can have confidence in the UK's potential as a place to do business.**

The Automotive Council and Advanced Propulsion Centre (APC) are good examples of this. The UK is seen as being strong in engagement – but other countries with an agenda to protect and grow automotive industries are improving their offerings fast. Within Europe, Spain, Germany and Italy stand out; Turkey is increasingly active within the EUCU; and, globally, countries such as India and Mexico see automotive as a significant economic driver and are prepared to work strategically to attract the best in international investment.

Accessibility of incentives

Accessibility of incentives has been seen as highly bureaucratic in the UK. Typically, grants need to be implemented rapidly to influence project investment, and the long process between applications and approvals can jeopardise projects. Supply chain opportunities often have a one- to three-month window, and a lengthy application process means investment often goes elsewhere.

No guarantee of success means that in smaller businesses there is often little appetite – or resource – to undergo lengthy application and due diligence processes prior to receiving funding.

Clearly, any incentives need to comply with state aid rules. Anecdotally, however, how this compliance is achieved appears to vary from country to country – with more successful regimes tending to make grant offers more readily, but having more robust claw-back rules. This would facilitate quicker support to take advantage of emerging opportunities.

Recommendation: For both of these indicators, the Automotive Council should develop a metric to measure and track performance – for example, a survey of companies with investments in multiple countries/regions.

What would success look like?

The Automotive Council has set ambitious goals for the UK's automotive industry. Its objective is to achieve production volume of at least two million vehicles by 2020 – with a supply chain continuing to increase local sourcing, eventually achieving levels close to 60% (seen as a realistic upper boundary[6]). Accomplishing this would be an investment in the UK's future – in high value, productive, stable jobs; in globally competitive private sector R&D; in balance of payments; and in value added to the UK's economy.

The potential for the UK's automotive sector is significant. Even without investment in new factories, vehicle production has potential to increase significantly beyond those levels through increasing production in current facilities and re-commissioning of mothballed lines. The greater the local sourcing that can be achieved by investment in suppliers over the next five years, the greater multiplier effect that production would have on employment, and the greater the intensity of R&D taking place in the UK's automotive sector, the higher the value the investment will be.

However, competition for business in the automotive industry is severe, and the UK's competitor nations are moving fast. Even since the establishment of Business Environment and Skills work-stream in 2013, the environment has changed.

Examples of development in European automotive (see Appendix C)

Spain: Annual production up from 2m to 2.5m units, with target of 3m

- 2012 industry-government plan to grow vehicle production to 3m units per year
- Presence of significant global players, all having made recent major investments

Turkey: Production volumes up from 1.1m to 1.4m units, on target for further rises

- Customs union with EU
- Fiat, Ford, Hyundai, Renault and Toyota designated Turkey as location for core models

Germany: Close to 6m annual production volume

- Unions recognising threat of UK and Spanish flexible labour agreements

The future will see further change – not least in the nature of manufacturing processes. We will see growth in advanced, high-flexibility manufacturing with increasing interconnectedness and the ability to customise to individual customer need. This is sometimes called 'Industry 4.0' – a term originating from Germany which refers to the latest advances in manufacturing (eg automation and data exchange) as the fourth industrial revolution. For a country like the UK, with relatively high wages and a model of supplying high-value, high-technology vehicles to customers worldwide, the impact on OEMs and suppliers is likely to be large. These trends should be considered when making interventions – for example, when targeting investment in advanced manufacturing, or in the design of education for the next generation of engineers and skills.

Of course, neither industry nor government has unlimited resources. Industry supports government's activity to rapidly reduce our budget deficit to allow the stable economic environment which will allow the private sector to flourish, and recognises the consequent requirement to sharply target intervention. And in a relatively high-wage economy the automotive industry – which is committed to providing high-value, high-skill work – must continue to improve its efficiency and effectiveness.

In that environment, success for the UK International Competitiveness work-stream would be to provide a strong base of evidence to allow targeted activity by the automotive sector, and targeted policy interventions by government. A successful set of competitiveness drivers will allow the UK – in

[6] Growing the Automotive Supply Chain – Local Vehicle Content Analysis (http://www.automotivecouncil.co.uk/wp-content/uploads/2015/09/UK-local-sourcing-content-research-September-20151.pdf)

a time of limited resource – to stay ahead of European and global rivals, and to achieve the medium- and long-term vision of the Automotive Council.

The European Competition

In 2012, as Spain emerged from recession, its automotive trade association, ANFAC, announced its national plan, supported by government and industry, to grow vehicle production to three million units a year. If successful, this would represent a sustained annual increase of one million units a year, at least 73,000 more jobs, a reduction of €10 billion in logistics costs, and a 4% rise in the value of Spain's total exports worldwide. Although it has not yet reached 2.5 million per annum on a consistent basis, Spanish vehicle production is unmistakably on a growth curve, with all of the major vehicle companies in the country having announced major investment plans in the recent past. As in the UK, many Spanish plants are the sole or major European production facilities for the models concerned and, as a result, these plants are integral to the vehicle companies' European production strategies. Moving production away from Spain is, on the basis of recent experience, most unlikely.

With the switch of production of the Ford Mondeo, S-Max and Galaxy from Belgium to Spain, following a $2.6 billion (€2.35 billion) investment, Ford's Valencia plant is now the largest Ford plant outside North America. Opel's Zaragoza plant is also its largest in Europe. PSA's Vigo plant, the company's largest factory, is the European hub for its compact high-bodied (compact MPV and van) production. Meanwhile Renault, despite pressure from the French government, has made its Spanish plants at Palencia and Valladolid the centres of production for its Captur and Kadjar crossover models.

Turkey is also recognised as a highly effective economic location for manufacturing vehicles for sale in the EU; a customs' union guarantees Turkish-made vehicles the same access to the EU as vehicles made in the EU. Fiat, Ford, Hyundai, Renault and Toyota have all designated Turkey as the sole or principal European production location for a number of core models; like Spain, these factories are integral to the companies' strategies and are firmly embedded in the country. Having produced around 1.1 million to 1.2 million vehicles a year in recent times, it is on target to make nearly 1.4 million this year (including heavy trucks). A total exceeding 1.5 million or more units a year is expected in the near future.

As well as attracting significant investment from the vehicle companies, Spain and Turkey (as well as the Czech Republic and Slovakia, which have the added benefit of proximity to German car plants alongside rising vehicle production of their own), are seeing significant investment from suppliers. A combination of government support and encouragement, competitive labour costs and rising vehicle production – along with a drive for increased local content – makes a compelling case for investment by suppliers in these countries.

And in the meantime, vehicle production in Germany continues at not far off six million vehicles a year, and it is likely that production will exceed this level in the not too distant future. German unions have, belatedly, accepted the threat that flexible labour agreements in the UK and Spain mean for some of the out-moded German factories: Opel's plant at Bochum has closed but Ford's Cologne workforce successfully won the right to build all of the firm's European Fiestas, against 'low-cost' Romania. The fact that Ford can economically make small, low-margin B-segment cars in Germany while France has lost or will soon lose production of the Citroen C3 and most Renault Clio variants, and Fiat is transferring production of the successor to the Punto from Italy to Poland, is a clear indicator that in terms of production efficiency, labour costs and other key KPIs, Germany remains the country to beat in terms of winning and retaining automotive investment in the long run.

Recommendations

Recommendation 1a: **To promote the UK's key strengths for automotive investment**

The UK emerges as highly competitive in a number of key areas, in particular the flexibility and productivity of its automotive workforce, plus strong collaboration with academic institutions.

Government and industry should work to promote these key strengths with consistent, understandable messages to industry, investors and the wider business community.

Recommendation 1b: **To take urgent action to tackle the UK's priority challenges for automotive investment**

Through this work a number of key challenges, particularly in areas prioritised by companies planning to invest have been identified.

Through the Automotive Council, industry should work in partnership with all related government departments, and other stakeholders, to tackle these as an urgent priority.

Recommendation 2: **To maintain the timeliness of the indicators**

The Automotive Council and the Department for Business, Innovation and Skills (BIS) should commit to **maintaining the list of indicators and tracking the UK's position over time.** This should be used by industry and government in informing activity and policy, and in judging their success.

BIS and industry should **provide analyst/secondee resource to assist with update and analysis.**

Recommendation 3: **To maintain the relevance of the indicators**

Automotive companies represented on the Automotive Council should **commit to anonymously providing information on their priority drivers for investment, and their perceived competitiveness, annually or biannually** – so that the industry and government can have confidence that they are prioritising action most effectively.

They should also seek to gain a wider evidence base by **actively engaging supply chain partners.**

*In order to avoid 'survey fatigue', we would recommend **additional surveys be coordinated with surveys proposed by other work-streams or working groups in the Automotive Council.***

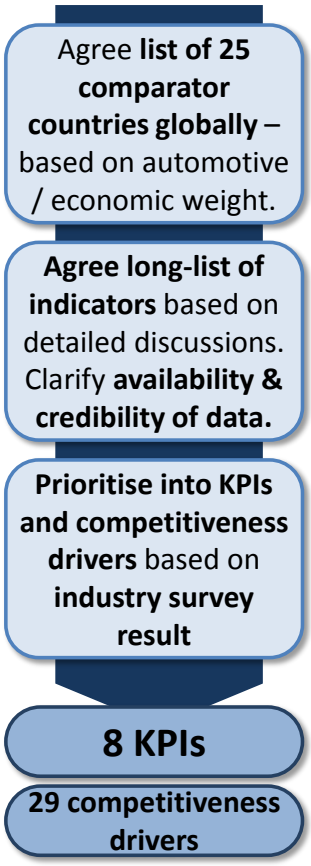
Recommendation 4: **To ensure the indicators are used to drive improvement in competitiveness for UK automotive investment**

The status indicators and changes should be regularly reported to the Automotive Council so the Council can understand our competitive status as it evolves and improves from the ongoing work.

Based on that evolution, **specific conclusions regarding industry effectiveness and policy interventions should be proposed, based on detailed root-cause analysis undertaken by the industry and BIS.**

These proposals should be addressed by government and all other stakeholders.

Appendix A: Methodology



Previous reports into the international competitiveness of the UK automotive sector have often focused on the macro- and micro-economic factors that influence the overall health of the system. However, investment decisions made in the boardrooms of automotive companies will typically be based on a more diverse and idiosyncratic set of drivers. It is vital that the UK works to maintain and improve its competitiveness in these areas to continue the strong record of investment in R&D, supply chain and vehicle manufacture that we have seen in recent years.

This piece of work has focused on investigating the key priorities for taking investment decisions from the view of business people working in the automotive sector.

Research conducted for the report comprised three elements:

1. A list of comparator countries was agreed based on the strength or potential of their automotive sector – with the understanding that as the global economy evolves this list will evolve with it.

   The countries are as follows:

   - **Australia**
   - **Brazil**
   - **Bulgaria**
   - **Canada**
   - **China**
   - **Czech Republic**
   - **France**
   - **Germany**
   - **India**
   - **Indonesia**
   - **Italy**
   - **Japan**
   - **Mexico**
   - **Nigeria**
   - **Poland**
   - **Romania**
   - **Russia**
   - **Slovak Republic**
   - **South Africa**
   - **South Korea**
   - **Spain**
   - **Thailand**
   - **Turkey**
   - **US**

2. A long-list of KPIs was developed and, over the course of several months, narrowed down to those factors which were felt to be of greatest relevance. For each of these an ideal data source was identified[7].
   Key criteria for inclusion in the list are:
   - credibility of source;
   - timeliness and frequency of data update; and
   - range of comparator countries for which the data is available
   Where no suitable data source was publicly available, we have noted the gap and will seek to close it in future work.

3. A survey of companies[8] in the automotive sector to generate a short list of KPIs from the long-list of identified indicators, based on priority in influencing investment decisions in:
   - manufacturing parts and vehicles;
   - research and development; and
   - building Greenfield sites or corporate HQs

[7] See Appendix C
[8] See Appendix B

The final short-list of KPIs was as follows:

- **KPI 1: Labour cost**
- **KPI 2: Labour productivity**
- **KPI 3: Labour flexibility**
- **KPI 4: Availability of engineers**
- **KPI 5: Availability of skills**
- **KPI 6: University-industry collaboration**
- **KPI 7: Government investment in R&D**
- **KPI 8: R&D tax relief**

The full list of competitiveness drivers can be found in the matrix linked to earlier in the report.

This approach allowed us to identify the top KPIs affecting global investment decisions, and therefore the UK's position against them, together with a longer list of critical factors to maintain the UK as a competitive candidate for investment

Our goal is to be among the best in Europe and to compete with the best in the world. Therefore, for each KPI, the UK's performance is rated twofold using a traffic light system: against other countries in the EU Customs Union, and against countries worldwide.

- **Green –** where the UK is in the top 30% (broadly top three) in the EU Customs Union/top 20% (top five) globally;
- **Amber –** where it is above average; and
- **Red –** where the UK's performance is below average – and so requiring urgent action wherever possible

Appendix B: Findings – survey of industry's perceptions of the UK

"Using your professional judgement, please rank the importance and perception of the factors listed below (low/med/high), in terms of influencing decisions to invest in the activity/activities most relevant for your company in the UK."

To further validate the benchmark KPIs – and to narrow them down to a shorter list – a survey was developed to gather feedback on decision-making criteria used in industry, and to gain insight into potential investors' perceptions of the UK's performance. This was carried out in Q1 2015.

Participants were surveyed on all KPIs – and the list was then narrowed down to eight KPIs and 30 'competitiveness drivers'.

The survey covered three types of investment location decision:

- Manufacturing
- R&D
- Establishment of a Greenfield site or HQ

The survey results are based on responses from **eight passenger car manufacturers, 10 major supply chain players and one construction equipment manufacturer.**

For the purposes of prioritisation, the top five KPIs attached to importance to investment were selected. Because several indicators ranked in the top five for two or more investment decision types, this resulted in a total of eight KPIs.

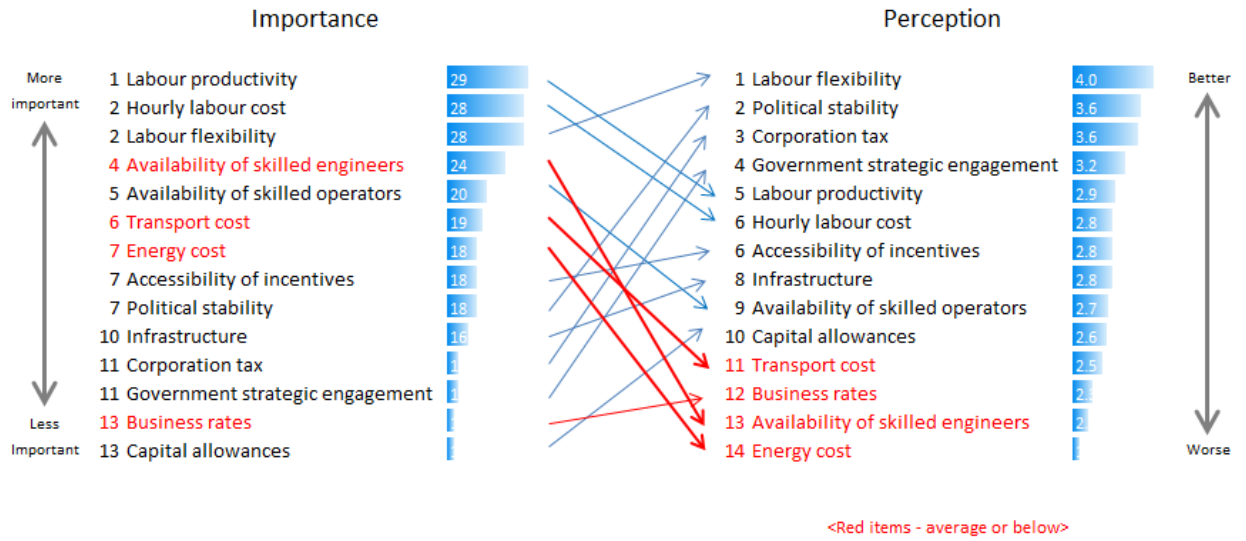
The summarised results of the survey are shown in Appendix A.

Some results are striking – for example, availability of skilled engineers was ranked as the most important driver for R&D investment, but perception of the UK's performance in this key area was ranked worst among all R&D drivers. Similarly, in manufacturing, although 'transport cost' and 'energy cost' were excluded from the final set of top KPIs, it is notable that both lie in the upper half of the list when ordered by 'importance' but perform at or below average in terms of perception (see Figure 14 below). This illustrates the importance of maintaining a fuller list. Although the decision was taken to narrow down to a set of eight KPIs, the more comprehensive set of indicators listed should be seen as drivers of the UK's competitiveness.

Survey findings have been invaluable in validating and prioritising KPIs. It is recommended that industry should commit to participating in a repeat survey initially yearly, then every two years, to keep priority KPIs relevant – particularly in the light of developing economic and technological trends.

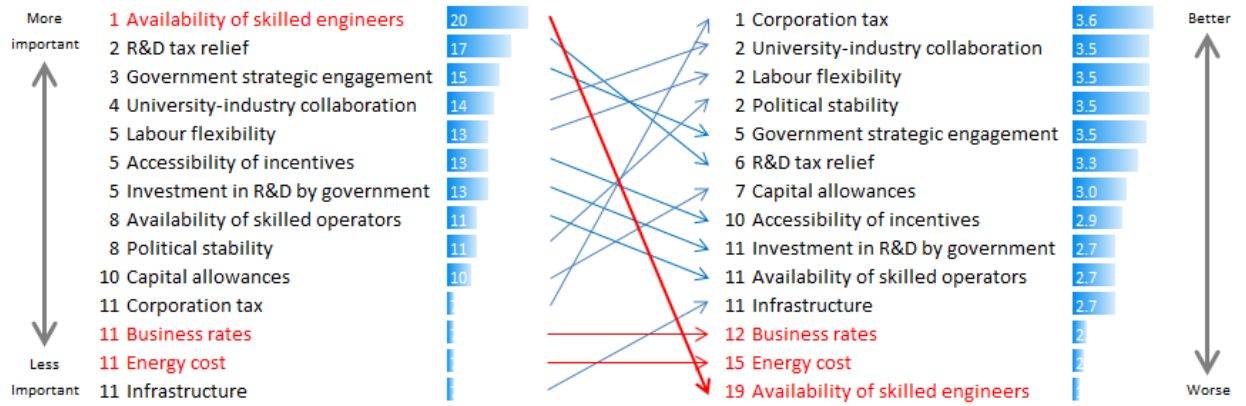
Figure 14: Survey results

Manufacturing

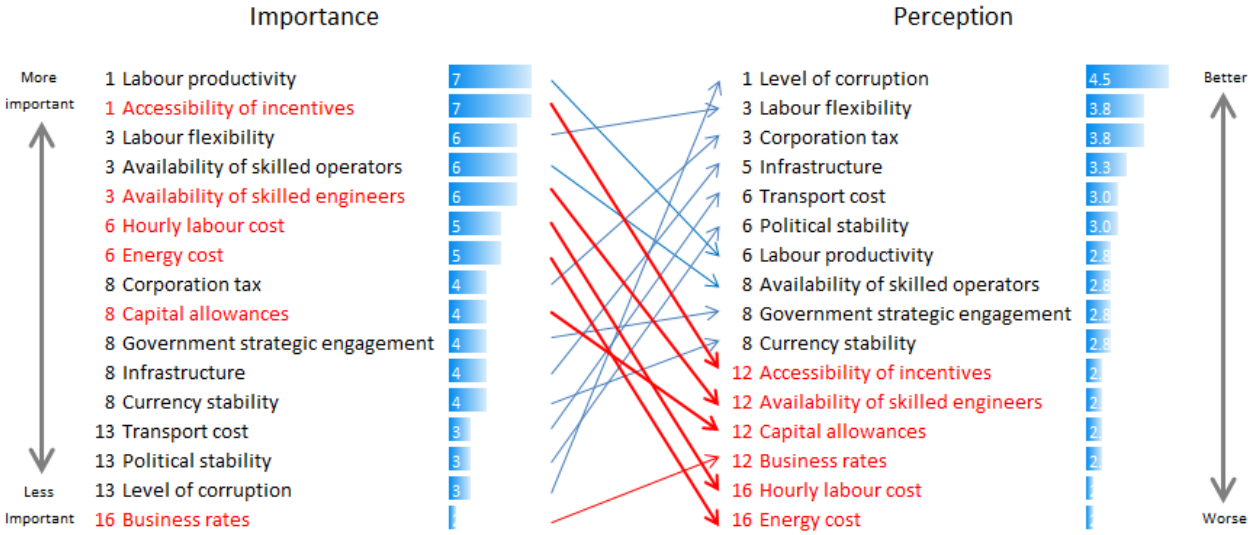


<Red items - average or below>

R&D



Corporate HQ or Greenfield site



Appendix C: Sources of data

Wherever possible, data has been gathered from readily available sources.

Global Innovation Index (Cornell University, INSEAD, World Intellectual Property Organisation)
https://www.globalinnovationindex.org

- University/industry research collaboration
- GERD performed by business
- Information and communications infrastructure
- PISA scales in reading, maths and science

Global Competitiveness Report (World Economic Forum)
http://www.weforum.org/reports/global-competitiveness-report-2014-2015

- Gross tertiary enrolment
- Cooperation in labour – employee relations
- Labour flexibility
- Infrastructure (roads, railroad, ports, electricity supply, quality of electricity supply)
- Burden of government regulation

UNESCO Institute for Statistics
http://www.uis.unesco.org/

- Graduates in Science and Engineering
- Graduates in Engineering, Manufacturing and Construction
- Gross secondary enrolment
- GERD performed by government

OECD
http://stats.oecd.org/

- GDP/hour worked
- Business rates (4100 recurrent taxes on immovable property)

Eurostat (European Commission)
http://ec.europa.eu/eurostat

- Productivity in automotive
- Gas price
- Electricity price

World Bank
http://data.worldbank.org/

- Diesel cost
- Manufacturing value added
- Worldwide governance indicators (www.govindicators.org)

US Bureau of Labour Statistics
http://www.bls.gov/bls/blswage.htm

- Hourly compensation costs in manufacturing

KOF Swiss Economic Institute
http://globalization.kof.ethz.ch/

- Index of Globalisation

Transparency International
http://www.transparency.org/research/cpi/overview

- Corruption Perceptions Index

KPMG tax tools and resources
http://www.kpmg.com/global/en/services/tax/tax-tools-and-resources/pages/corporate-tax-rates-table.aspx

- Corporation tax rates

Ernst and Young tax Global Tax Guide
http://www.ey.com/GL/en/Services/Tax/Worldwide-Corporate-Tax-Guide---Country-list

- Capital allowances

OICA (Organisation Internationale des Constructeurs d'Automobiles)
http://www.oica.net/category/production-statistics/

- Production volume
- Production growth (calculated based on 2010 production volume)

A Damodaran, Stern school of Business
http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/ctryprem.html

- Country Risk Premium

PwC (PricewaterhouseCoopers) – Survey conducted on behalf of Automotive Council UKIC
Further information/details of data derivation available on request

- R&D tax relief for large and small companies

Where different currencies are used in the report, these are as used in the source data – no additional exchange assumptions have been made.

All information correct as taken from source at the time of writing.