

A WPI Economics report for Heathrow Airport Limited
September 2016



WPI Economics is a specialist economics and public policy consultancy. We provide a range of public, private and charitable clients with research, modelling and advice to influence and deliver better outcomes through improved public policy design and delivery. We work with a range of organisations - from FTSE 100/250 companies to SMEs and charities and Central and Local Government.

DISCLAIMER: This document was produced by WPI Economics Limited and is provided for informative purposes only. Whilst every effort has been made to ensure the accuracy of the material in this document, neither WPI Economics Limited nor the report's authors will be liable for any loss or damages incurred through the use of the report.

WPI Economics Limited, registered address 5 Amott Road, London, SE15 4HU, is registered as a limited company in England and Wales under company number 10086986.

Contents

Introduction	5
What does the future hold post Brexit?	7
Why should the Government take action?	9
Government action: learning from the past	10
The policy response so far	11
Sowing the seeds of industrial strategy	13
Infrastructure as an answer	15
Case Study: Expanding Heathrow	19
Conclusion	23





Summary

eathrow Airport Limited commissioned WPI Economics to assess the state of the UK economy following the EU Referendum and to better understand the role that the quick approval of the third runway at Heathrow could play in ensuring the strength of the economy in the remainder of this Parliament.

We found that, while the immediate future of the UK economy is highly uncertain, action is needed to ensure that the UK makes the most of the historic chance it has to reshape its economic relationships, both domestically and internationally.

As the Government has recognised, an ambitious industrial strategy should be at the heart of this action. It must include a comprehensive and robust plan to minimise disruption and maximise growth, and to ensure that it is pro-business, pro-consumer and pro-global growth. Making this work will take both time and coordination across a wide range of departments, businesses and sectors. That means that in the short-term, while consumer and business confidence is

volatile, action is also needed to maintain and boost confidence in the UK economy and set the foundations of this industrial strategy.

Infrastructure development is the most obvious candidate to achieve this goal, helping link cities together, bringing business to Britain, and making it a more attractive place to work and invest. Delaying infrastructure decisions is no longer a feasible option, and the timing of Brexit and of the likely labour market effects means the Government must act decisively for maximum impact.

The report specifically looks at the case study of approving the third runway at Heathrow. The overall economic impact of expanding Heathrow over the lifespan of the project is well documented, but as this research shows, the early stages are also incredibly important. Building confidence, supporting up to 2,700 high-skilled jobs in the first 2-3 years, and laying the groundwork for larger construction job gains at a later date are all crucial, especially in the aftermath of the vote to leave the European Union. Fast-tracking infrastructure decisions like this must be part of the Government's new industrial strategy.



Support up to 2,700 jobs



Upper Estimate



Mid-range Estimate



Lower Estimate



value of the jobs supported is estimated at

"The direct total





Introduction

The fundamentals of the United Kingdom's economy are strong, but in the wake of the decision to leave the European Union it is more important than ever for the Government to foster the conditions businesses need to flourish.

"Action is needed so the UK can take advantage of the significant opportunities that lie ahead."

This is not because of the well documented risks that Brexit brings to the UK economy, nor is it because of the raft of forecasts that have predicted a downturn. In fact, it appears that the economy has performed well in the aftermath of the referendum result. Data released so far has certainly not borne out the immediate downturn predicted by many.

Instead action is needed so the UK can take advantage of the significant opportunities that lie ahead. Rarely does a country have the chance to reshape and rejuvenate its economic relationships both with the rest of the world and within its own borders. This is an opportunity must be seized.

There are two key areas to consider. First, while the exact economic effects of Brexit will not become clear for some time, there is significant short-term risk that a sustained period of uncertainty could manifest itself in lower confidence, less investment and slower

growth. Tackling this risk would protect the economy now. It would also support a second objective of ensuring that the UK is seen as a confident, exciting and open place to do business for investors across the world.

These twin objectives will require policymakers to take steps to demonstrate that the future of the UK is bright. Policies like the Government's commitment to stability and a new industrial strategy will be key parts of reassuring the public and maintaining the UK's position, but taking more decisive steps to boost high-skilled employment and lay the foundations for success will be key.

This report demonstrates that a key first step should be to greenlight infrastructure projects that have been stalled for too long. Infrastructure helps connect communities and cities, boosting productivity and bringing people and businesses together. It allows businesses to effectively market their goods across the country and globe. In short, it makes the UK a more attractive place to invest, and boosts the capacity of the economy overall.

"Taking more decisive steps to boost highskilled employment and lay the foundations for success will be key."

The long-term stimulus benefits from infrastructure investment are well known, but there are also substantial short-term effects. The right projects, carefully selected, offer



immediate job gains, combined with much larger-scale job creation and productivity gains 2-3 years down the line. Much more than this, these projects boost confidence, act as a shop-window for the design, management and engineering skills of the UK and create clusters of high-skilled jobs that help stimulate growth, innovation and productivity gains now.

"The question should not be whether the UK begins to move on infrastructure, but when and where it should start."



Positive decisions would remove the shackles of delay and inaction that have constrained the UK's growth potential for decades. It would signal the Government's belief in a strong, confident and truly global UK economy. The question should not be whether the UK begins to move on infrastructure, but when and where it should start.



What does the future hold post Brexit?

Much has been made of the economic risks of leaving the EU and forecasters have presented a wide range of unsettling scenarios. HM Treasury's Forecasts for the UK Economy compares independent forecasts and shows that forecasts for growth, earnings and fixed investment have been revised down, while forecasts for unemployment and inflation have been revised up.

The Bank of England have also updated their forecasts since the referendum. In their August Inflation Report the Bank forecast that the UK economy will now grow by 0.8% in 2017 (previously 2.3%) and 1.8% in 2018 (previously 2.3%). Their projections also suggest that business investment will fall by 3.75% in 2016 and by 2% in 2017.

These are worrying forecasts. However, in practice, we know relatively little about what Brexit will mean for the UK economy in either the long or short term. Macroeconomic models tend to struggle to deal with the scale of change in trade, business and consumer behaviour that Brexit might mean, and there are few direct precedents to draw on. Meaningful data on GDP post Brexit vote is yet to be released, and we will not be able to understand its effects for some time, especially as the process of leaving the EU is only just beginning.



	,		1	
Forecast for:	2016		2017	
Forecast made in	June (pre- referendum)	August (lastest)	June (pre- referendum)	August (latest)
GDP	1.8	1.6	2.1	0.7
Fixed Investment	1.7	-0.8	4.3	-2.6
Unemployment Rate	5.0	5.3	4.9	5.6
CPI Inflation	1.0	1.3	1.9	2.5
Average Earnings	2.6	2.3	3.2	2.4
	! 	!	!	!

Source: Forecasts for the UK Economy, HM Treasury, 2016



What we do know is that the leading indicators used by commentators as a gauge of future activity are moving pretty wildly.* For example, the July PMI surveys for services, manufacturing and construction activity initially signalled a significant impact of Brexit on the economy. All showed a downturn in activity and sentiment including the fastest overall drop in construction output since June 2009. A similar story of an initial shock was seen in measures of consumer confidence and wider polling of consumers (GfK) and business (Institute of Directors), which suggested intentions to reduce investment and hiring.

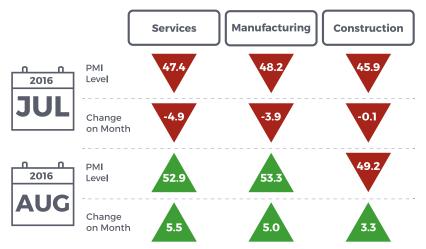
Some of these falls were sizeable. Shocks which cause a fall in any of the series of more than 4.5 points are relatively uncommon and the July falls in confidence signalled the first time since the start of the financial

crisis that all three PMI series were below 50 – meaning that not only was confidence falling, but that the fall in confidence was evenly spread across the economy.

However, the August figures have shown a more optimistic picture, with manufacturing and services rebounding, vi vii whilst construction slowed its decline dramatically. Several major banks have also retracted their forecasts of immediate recession, viii

What this suggests is that consumers and businesses are just as uncertain about the future of the UK economy as forecasters and commentators. In short, it is too early to say whether what the effect of Brexit will be and all we know for certain is that, driven by the significant levels of uncertainty over the future, confidence is currently extremely volatile.

A PMI figure of 50 represents no change. A sub-50 PMI figure represents a contraction.



Source: Markit /CIPS UK PMIs, 2016

^{*} For example, the Markit/CIPS Purchasing Managers Indexes (PMI), which generally anticipate changes in the real economy, as a change in confidence feeds through into the spending and investment decisions that businesses and consumers make.



8

Why should the Government take action?

A lack of clarity over the future of the economy does not mean that Government should not act. By taking decisive steps, the Government could tackle this uncertainty and seize an opportunity to set the economy on the right course.

Doing so would also boost consumer and business confidence. Research has shown that positive Government announcements can have a role in boosting confidence. As such, action from Government, coupled with positive and credible news coverage can help inform how consumers view the economy, thereby increasing their confidence and boosting spending and driving business growth.*

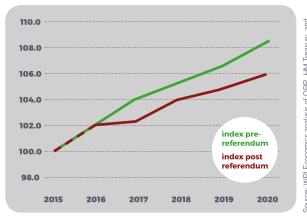
How businesses view the economy will in turn affect investment decisions, having knock-on effects on productivity, growth, earnings, and employment. Business confidence also "tend[s] to overestimate the impact of government policy on growth,"xi meaning that these effects may be magnified, increasing confidence and investment further.

It is also clear that, if the more pessimistic forecasts were to be borne out and there was not substantial Government action, then uncertainty and volatile confidence could lower investment and dampen growth. In

turn, this could put a two-sided squeeze on living standards. A combination of earnings growing less quickly than expected and inflation being higher than expected would slow real earnings growth, hitting the pay packets of consumers and affecting their living standards.*

To understand the potential scale of these impacts, WPI Economics updated forecasts by the Office for Budget Responsibility (OBR)xii with the independent forecasts summarised above. Under the OBR's Budget forecast, real earnings (earnings adjusted for inflation) were expected to rise by 6.4% between 2016 and 2020. When the OBR forecast is adjusted for these new post-referendum forecasts, it suggests that real earnings are now only expected to increase at less than two thirds of the previously expected rate, at 4.1% between 2016 and 2020. By 2020, that suggests the average household being £700 a year worse off under this new scenario. t

Real Earnings Forecasts



Source: WPI Economics analysis of OBR, HM Treasury, Bank of England forecasts, 2016

t Assuming the median Household Disposable Income of \$26,400 as per the ONS Nowcasts released in August 2016



^{*} Slower growth in earnings would come about if the economy slowed down as reduced confidence undermined investment. Firms would then have less revenue and are not able to pay their staff as much. The rise in inflation would occur because the depreciation of sterling which has taken place would mean that imports are more expensive, driving up prices.

Government action: learning from the past.

Avoiding this situation and setting the economy on the right course for the future must be at the forefront of the Government's agenda over the next six months and beyond.

Thankfully, history shows that, with the right policy framework in place and the right action taken, growth in the economy and living standards in both the short and long-term could be secured. The important thing is that the Government acts quickly and decisively.

Looking back, we can see other significant shocks to the economy that have produced large falls in confidence. The first was a result of the Asian financial crisis combined with Russia's bond default. The second was the knock on effects of the 9/11 attacks on New York and Washington. Both were hugely complex issues with global implications.xiii

These two cases are interesting for policy makers as the falls in business confidence did not lead to large impacts on the real economy, in part because of the action taken by the Bank in responding with aggressive cuts in interest rates.**

There are also more recent examples of the role of policy makers in preventing falls in confidence from impacting through onto the real economy. For example, research during the Financial Crisis highlighted the important role that Government has to play in driving both consumer and business confidence across the economy.*

More recently, in mid-late 2012 the PMIs for manufacturing and construction were below 50, while services PMI was only just above 50. Confidence was also falling month on month. In response, the 2012 Autumn Statement included a \$5.5bn infrastructure package and an update to the National Infrastructure Plan.*

While not the only reason for economic recovery, this situation does demonstrate the clear precedent that the right actions, targeted properly, can help restore lost confidence.



The policy response so far.

In the context of the recent falls in confidence, we have seen that the Bank has already acted by reducing rates by a quarter of a percentage point and expanding QE. However, with relatively constrained policy levers,* there is also a clear role for Government to intervene.

The Government has clearly recognised this, and there have been immediate steps to reassure businesses and investors. Prime Minister May's first statement having won the leadership laid out a positive progrowth message. Viii Leading figures in the Government have also moved to create certainty in the economy. The Chancellor has signalled the possibility of a "fiscal reset" and existing EU subsidies for farmers, science, and other key sectors have been guaranteed in the medium term.

The Government has also committed to a "comprehensive industrial strategy," and created the Department for Business, Energy & Industrial Strategy, demonstrating a commitment to think holistically about how to improve the UK's productivity. Similarly, a wider commitment to boosting UK trade and investment through an increased series of trade missions is a welcome step.

However, more action is needed and must go beyond simply reassuring investors and attempting to prevent a collapse in confidence. The world is changing and we need to set our sights higher. The Government should also realise that it does not need to act alone; the fiscal reset is clearly an important part of stimulating growth from the government side, but there are many other areas where investment could be increased by the private sector. Central to each of these is the Government's future industrial strategy.

While the Government's new industrial strategy will take time to develop, there are three key objectives that it should adhere to.

The strategy should be unashamedly:

Pro-consumer, pro-skills:

by creating a high productivity, high wage economy to drive future growth, prosperity and living standards;

Pro-business, pro-investment:

by showing a commitment to supporting businesses and the economy to grow; and

Pro-global, pro-growth:

by signalling to the world that the UK is committed to being an outward facing and open country that will continue to trade and cooperate with the rest of the world.



With the base rate now at 0.25%, the bank is likely at the boundary of its policy tools.

The government has already taken a number of steps to reduce uncertainty:

- Clarifying that the efect of the referendum result is binding;
- Committing itself to a new industrial strategy concentrating across the whole of the economy;
- Signalling a willingness to adopt a 'fiscal reset' and be adaptive to economic circumstances;
- Committing to replace EU funds in areas such as science and agriculture, thereby reducing immediate uncertainty;
- Undertaking substantial trade and outreach missions across the world to build confidence in the post-Brexit future.



Sowing the seeds of industrial strategy.

Pro consumer, pro skills

The Government must commit to developing a more productive, higher-skilled economy now and in the future. A more productive workforce earns more, has higher living standards and leads to stronger economic growth. Crucial to this is developing human capital. Typically studies of cities have suggested that those with "more educated residents have grown faster than comparable cities with less human capital." XVIII XIX

"Being pro-growth now and selecting the right projects will mean building confidence that will pay dividends later."

These findings are repeated across industries. Creating and nurturing human capital tends to result in higher levels of employment and growth.** In the words of the CBI, securing growth into the future will mean "putting a high-skill workforce centre stage, [as] investing in human capital not

only promotes long-term growth but is also the single most effective way of distributing its benefits more fairly."xxi

"In areas as diverse as housing, infrastructure, energy and transport, investment is waiting to happen."

In short, creating high-skilled jobs in large clusters will help generate productivity gains, laying one small piece of the groundwork for growth that is more balanced, both geographically and sectorally.

Pro business, pro investment

While the Government can set the framework for delivering skills and productivity, it is business that will drive transformation in this area. The concentration of high-skilled individuals and firms working on major programmes can lead to increased productivity within a sector. Working in 'clusters' businesses have a tendency to share technologies, work more effectively and help each other innovate. As projects finish and new ones begin, individuals involved take those lessons and working practices to other projects, boosting productivity across their sector.

On the Government's part – they have to facilitate this private action by tackling policy challenges that have systematically constrained the UK economy. In areas as



diverse as housing, infrastructure, energy and transport, investment is waiting to happen but has stalled because of planning delays and inaction from Government. Being pro-growth now and selecting the right projects will mean building confidence that will pay dividends later.

Pro global, pro growth

External trade is key to the UK's prosperity outside of the European Union. Without guaranteeing that British businesses have suppliers to buy from and consumers to sell to at competitive rates, no industrial strategy will succeed. Whilst the UK will be unable to immediately negotiate its own trade deals until it has formally exited the European Union, ensuring that there are favourable circumstances to do so are key.

Taking steps that symbolise the fact that the UK wants to be an open and outward-looking economy will be key, as are steps that enable British firms to continue to formalise their place in the global economy. To do so they need support to both ensure their goods and services can reach across the globe and to showcase the strength of UK businesses and the economy more generally.

We need a strong, new, positive vision for the future of our country.

We will forge a bold new positive role for ourselves in the world.

Theresa May 2016



Infrastructure as an answer.

There are, of course, a number of policy options open to Government if it wants to achieve these goals. One immediate option is to kick-start the series of infrastructure projects that have been stalled, and are still waiting for final government approval. Research from across the world has shown the importance of infrastructure in driving long-term economic growth. Yet the UK still lags behind in international surveys, currently standing 27th in the World Economic Forum's assessment of infrastructure quality standing action here will meet each of the objectives outlined above as being important for the UK's industrial strategy.

Pro consumer

The total employment gains from large scale infrastructure projects are huge. Between them Crossrail and Crossrail 2 could create well over 100,000 jobs. *** Building Heathrow's third runway would generate up to 180,000 jobs by 2050. *** As the construction industry constitutes some 5.9% of UK GDP**** of UK GDP**** The boost would be sizeable.

"5.9%: UK Construction as a percentage of GDP"

Other benefits of greenlighting infrastructure projects are less apparent. For example, the shorter-term benefits of infrastructure benefits are often overlooked. Recent comments from the Chancellor highlight just that point. He stated that:

"I think there is a role for big, strategic projects, but they are unlikely to be ever able to contribute to fiscal stimulus because of the timelines involved."xxix

"By limiting infrastructure employment to construction alone, and viewing it largely in terms of stimulus spending, policymakers have not considered the breadth of infrastructure jobs."

Source: Brookings Institute, 2014

This can obviously be true, but granting approval to major infrastructure projects also has short-term benefits as major projects need significant preliminary work. Architects must design the structures, engineers must make plans to turn those designs into reality, lawyers must ensure that plans comply with all appropriate regulations, land must be purchased, and planning permission must be gained. A study of U.S. infrastructure spending concluded that "by limiting infrastructure employment to construction alone, and viewing it largely in terms of stimulus spending, policymakers have not considered the breadth of infrastructure iobs."xxx

By comparison with the construction jobs in the latter stages, the numbers of jobs in the early stages of development may be small, but are typically highly skilled and often come hand-in-hand with graduate recruitment and training opportunities, **xxi meaning that





projects can help to develop the skills and productivity of the UK workforce. It is also clear that, without these short-term jobs, the job creation potential of major schemes will be delayed. That means that the Government must think ahead. If it wants significant job creation programmes up and running by the end of this Parliament and when the UK is likely to leave the EU, decisions will need to be made now.

"The UK still lags behind in international surveys, currently standing 27th in the World Economic Forum's assessment of infrastructure quality."

Pro business

UK firms have long-complained about the quality of UK infrastructure and the lack of appetite from Government in taking action to remove barriers to development and growthxxxii. While, 94% of UK firms say that the quality of infrastructure is a decisive factor when planning their investment decisions, over half (53%) are not confident of seeing tangible improvement in the next five years. More than six in ten are unhappy with the pace of progress. XXXIII The British Chambers of Commerce have recently stated that Britain's infrastructure "remains woefully inadequate for a dynamic economy". By taking a new approach and pushing forward stalled and new projects, which the CBI estimates as totalling some \$411bn of projects, the Government can clearly signal its commitment to business and growth.xxxiv

"94% The amount of UK firms who say that the quality of infrastructure is a decisive factor when planning their investment decisions."

Large-scale infrastructure projects are also clear examples of where a number of different companies working together in a 'clustered' manner can innovate, pass best practice to each other and develop and discover more efficient techniques. If this occurs, the gains will spread far beyond the UK's immediate infrastructure needs to other crucial areas such as housebuilding. Increases in productivity in this area could be vital for the future of the UK economy and, in particular, the construction sector which lags other countries in terms of productivity.**

Pushing ahead with projects now and bringing in high concentrations of high-skilled jobs, particularly in STEM sectors, could see that trend reverse. In this sense, such large and complex infrastructure projects act not just as an immediate boost to growth, but could also help be part of the wider solution to the UK's skills shortages, building a sustainable workforce that can lead on the future of the UK's infrastructure sector and help boost productivity within it.

Increasing productivity could reduce infrastructure costs over the long-term.





Pro global

Government delay and indecision can act as a negative signal to the rest of the world. Commenting on the Government's inaction in deciding on increased airport capacity in the South East of England, the Airports Commission summarised that:

"Delay will be increasingly costly and will be seen, nationally and internationally, as a sign that the UK is unwilling or unable to take the steps needed to maintain its position as a well-connected open trading economy in the twenty first century."

"It it wants significant job creation programmes up and running by the end of this Parliament and when the UK is likely to leave the EU, decisions will need to be made now."

This is one clear example of where greenlighting infrastructure projects can go well beyond simple job creation. Here, the commitment of Government to the project would likely have significant confidence impacts and boost the attractiveness of the UK as a place to invest in the short and long term. It would be a high-profile demonstration of the fact that UK is committed to taking the decisions required to succeed in an increasingly competitive world.



Case Study:

Expanding Heathrow

A cross the full range of critical infrastructure in the UK, there are examples of projects (large and small) that have been stalled for years because of planning delays and government inaction. One option capable of driving high skilled job creation, signalling the UK's commitment to future growth and acting as a shop window for the skills and talent of the UK to the rest of the world, would be taking ahead plans to develop a third runway at Heathrow.**

To understand the potential short-term impacts of the Government giving the goahead to the development of the third runway, WPI Economics undertook modelling using case studies developed with major firms who would be involved in the first phase of the project,* developing an understanding of the potential numbers, types and profile of jobs that would be needed.

Jobs now and in the future

Our modelling suggests that, as work on planning and design increases dramatically, and as members of Heathrow's supply chain work to deliver the expansion within an ambitious time-scale, there would be an immediate economic boost. We estimate that within the first 2-3 years, expansion

Granting permission to expand Heathrow now would in the next 2-3 years...

Support up to 2,700 jobs

c.2,700

Upper Estimate

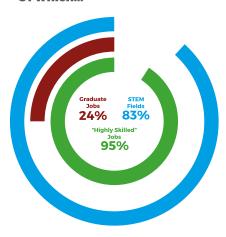
c.2,450

Mid-range Estimate

c.2,200

Lower Estimate

Of which...



With an average salary of...



Source: WPI Economics analysis, 2016



would support between 2,200 and 2,700 jobs. As well as this immediate boost to the economy, it would serve as a visible down payment on the economic gains that would be delivered by expansion, with the Airports Commission estimating that in total around 180,000 jobs could be created by 2050.xl

These jobs would also, almost universally, be concentrated in the high-skilled and high-paid sectors involved with the early stages of infrastructure development, such as architecture, surveying, design, and engineering. Over 80% of the jobs will be those with a STEM or equivalent background, and 95% of them would be in occupations classed as 'highly-skilled'. These positions would create a high level of economic value, reflected in the high average wage of the jobs, which we estimate at £57,000 per supported job. The direct total value of the jobs supported is estimated at £110m. When accounting for indirect value as a consequence of spending undertaken by those employees, the total impact would be even higher still.

Approving Heathrow's expansion immediately would mean that the initial work, and therefore hiring, would occur as the time-line for Brexit begins to accelerate. Whilst the exact dates are not yet known, if the design and planning process began now, an immediate boost to confidence could be stimulated through the creation of high-skilled jobs, combined with the wider job creation beginning to occur just as Britain may be exiting the EU in 2019.[†]

"The direct total value of the jobs supported is estimated at £110m."





Boosting skills and productivity

As well as supporting over 2,700 jobs in the next three years, the jobs themselves will help to address the skills gap. Approximately 25% of the supported jobs would be new graduate-level recruits, suggesting that progressing with Heathrow would help bring a new pipeline of talent into sectors such as engineering and design and act as an important contribution to boosting the skills and productivity of the UK economy.

The expansion of Heathrow could also have much broader impact on productivity. It is a complex, high profile project where, by working closely together, the major firms involved expect to innovate and drive the frontier of design and efficiency.

These would then be lessons that could be learned and applied across construction and infrastructure projects across the UK. This is the case for three reasons, first because the nature of the structure of the project and companies involved will necessitate a high degree of cooperation, including seconding employees directly to work with members of other companies. Second, the challenges faced are predominantly logistical and design-based, as opposed to overcoming regulatory or safety barriers as in energy projects. Last, the concentration of construction around one particular site, as opposed to across a large distance as in the case of roads or train lines, means that the companies will have to co-locate and work across company lines. All of these

characteristics make Heathrow well placed to create clusters of high-skilled jobs that will help enhance growth and productivity.

Ver the past decades Heathrow has been involved in leading edge thinking on projects such as the highly successful Terminal 5. Since then, improvement in the UK construction industry's productivity has significantly underperformed other UK sectors.

The Heathrow Expansion Programme represents the next opportunity for Heathrow to build on that experience and success. Heathrow are superbly positioned to procure with a vision that can set new benchmarks for UK design quality, construction productivity and operation effectiveness.

Jason Millett COO Major Programmes and Infrastructure, Mace Group



A boost to business and a shop window for the UK economy

Finally, greenlighting the third runway and a number of other critical infrastructure projects would clearly demonstrate, both domestically and internationally, that the UK is serious about business and growth in the UK.

Most obviously, alongside the development of other infrastructure projects, it will demonstrate the Government's commitment to growth and start to tackle the UK's historic under-investment in critical infrastructure. Wider benefits would also be provided by the role that development would play in promoting the quality and strength of UK business. Firms we spoke to talked of the iconic nature of the of the project and how it would provide a significant boost to the reputation of the firms involved and the UK more generally.

With the need to become increasingly globally competitive and extend our trading reach post Brexit, the chance to promote and increase the strength of UK business on a global stage should not be missed.

eathrow's Expansion Programme will represent a showcase for British talent and ingenuity on a world stage. Heathrow will continue to innovate, and set standards for infrastructure that the rest of the world will follow. We are proud to play a part in this evolution, and look forward to designing the leading edge buildings, spaces and places that will define the next generation of airports across the world.

Jolyon Brewis, Partner, Grimshaw Architects LLP



Conclusion

The UK economy is at a crucial juncture. The government has a vital role in supporting the delivery of continued economic stability and growth. Safeguarding public services, building more housing, diversifying the economy, and adapting the structures of the UK as it disentangles itself from Europe are just a few of the tasks the government faces. All of them will affect the extent to which the government can deliver for ordinary working people, and all depend on a stable economy.

A new industrial strategy will be vital to this. This will take time to develop, but in the short term, the priority should be to push the message that Britain is open for Business now and that, despite the effects of Brexit, the Government will remain committed to ensuring that the UK is still one of the best places in the world to invest and do business. There are some clear steps the Government should be prioritising:

- 1. **Building confidence** by taking decisive action and demonstrating that the UK is still an open and globally-facing country.
- 2. Approving major infrastructure projects, taking advantage of the economic circumstances to both boost short-term economic growth, and laying the foundations for the UK economy to prosper in the future. The third runway at Heathrow is an obvious example.
- **3. Focusing on skills**, prioritising projects that create immediate high-skilled jobs and have a demonstrated commitment, through their project structure and planned skills development schemes.
- **4. Preparing for the future** by addressing the UK's infrastructure deficit and supporting the highly-skilled workers needed to build and maintain it in the future.
- **5. Improving productivity** in construction by supporting projects that are innovative in nature, and likely to lead to knock-on effects on innovation and construction productivity.



- i. HM Treasury, 'Forecasts for the UK economic: a comparison of independent forecasts', 2016
- ii. Bank of England, 'Inflation Report', 2016
- iii. IHS Markit, 'Market/CIPS UK Construction PMI July', 2016
- iv. Institute of Directors, 'First signs Brexit will hit jobs IoD poll', IoD, 2016
- v. GFK, 'Report: UK Confidence', 2016
- vi. IHS Markit, 'Market/CIPS UK Services PMI September', 2016
- vii. IHS Markit, 'Market/CIPS UK Manufacturing PMI September', 2016
- viii. Kennedy, S., 'Morgan Stanley Economists Join Goldman Revising U.K. Outlook', Bloomberg, September 6, 2016
- ix. Starr. M., 'Consumption, sentiment, and economic news', American University Working Paper Series, 2008 Available at: http://www.american.edu/cas/economics/repec/amu/workingpapers/2008-16.pdf Accessed 22/08/16
- x. Ibid. Starr. M. 2008
- xi. Salmond. R, 'Political Business Confidence Cycles', 2009
- xii. Office for Budget Responsibility, 'Economic and fiscal outlook,' OBR, 2016
- xiii. Smith, D., (2016). 'Confidence has crumbled but it can be rebuilt'. Sunday Times, July 31, 2016.
- xiv. Smith, D., (2016). 'Confidence has crumbled but it can be rebuilt'. Sunday Times, July 31, 2016.
- xv. Oakley, M., (2011). 'Looking to the future of growth', Policy Exchange, London.
- xvi. HM Treasury, 'Autumn Statement 2012', 2012
- xvii. Prime Minister's Office, 'Statement from the new Prime Minister Theresa May Transcript', UK Government, 2016
- xviii. Glaeser, E. & Saiz. A., The Rise of the Skilled City, NBER, 2004
- xix. Südekum, J., 'Human Capital Externalities and Growth of High- and Low-Skilled Jobs', Institute for the Study of Labor, 2006
- xx. Ciccone, A. & Papaioannou. E., 'Human Capital, The Structure of Production, and Growth', ECB, 2006
- xxi. Hardisty, H., 'Tomorrow's growth: new routes to higher skills', Confederation of British Industry, 2013
- xxii. Porter, M. E., 'Clusters and Economic Policy: Aligning Public Policy with the New Economics of Competition,' Harvard Business School, 2007
- xxiii. Egert, B., Kozluk, T., & Sutherland, D., 'Infrastructure and Growth: Empirical Evidence', CESifo Working Paper Series, 2009
- xxiv. Mace, 'National Infrastructure, Local Benefits: creating vibrant regions and economic growth through infrastructure.' Mace Insights Q1, 2016.
- xxv. Crossrail, 'Crossrail in Numbers', Accessed at: www.crossrail.co.uk/news/crossrail-in-numbers, March 2016
- xxvi. Transport for London, 'Research confirms benefits of Crossrail 2,' TfL, 2015
- xxvii. Airports Commission, 'Local Economy Impacts: Assessment', 2014
- xxviii. Office for National Statistics, 'Construction output in Great Britain: June 2016 and Apr to June 2016', ONS, 2016
- xxix. Milliken, D. & Schomberg, W., 'Hammond rejects major investment surge, backs 'modest' projects', Reuters, September 9, 2016
- xxx. Kane, J. & Puentes, R., 'Beyond Shovel-Ready: The Extent and Impact of U.S. Infrastructure Jobs', Brookings Institute, 2014
- xxi. Ibid. Kane, J. & Puentes, R., 2014
- xxxii. Mace, 'National Infrastructure, Local Benefits: creating vibrant regions and economic growth through infrastructure.' Mace Insights Q1, 2016.
- xxxiii. CBI, (2015). 'Turning momentum into delivery: CBI-AECOM infrastructure survey', Confederation of British Industry, 2015.
- xxxiv. Ibid. CBI, 2015
- xxxv. CIOB, 'Productivity in Construction: Creating a Framework for the Industry to Thrive', The Chartered Institute of Building, 2016.
- xxxvi. CBI, 'Engineering our future: Stepping up the urgency on STEM', Confederation of British Industry, 2014
- xxxvii. Ibid. Airports Commission, 2015
- xxxviii. HM Treasury, 'Investing in Britain's future,' 2013
- xxxix. Ibid. Airports Commission, 2015
- xl. Ibid. Airports Commission, 2015

