



04 October 2017

Railway Industry Association

22 Headfort Place
London SW1X 7RY
United Kingdom

Telephone: +44 (0) 20 7201 0777

E-mail: ria@riagb.org.uk
www.riagb.org.uk

Railway Industry Association response to RSG open invitation for views on the rail sector deal

In response to the Rail Supply Group's open invitation for views on the potential rail sector deal the Railway Industry Association (RIA) are pleased to put forward the views of our members.

We focus particularly on what we believe are the enablers and benefits of a sustainable, successful UK rail sector although we also include a Case Study related to digitalisation (See Appendix B). Our thoughts are informed by the cross-industry consultation, including five interactive workshops, we undertook earlier this year to support the RSG/ RIA response to the Industrial Strategy Green Paper.

Background

Rail is a vital contributor to UK plc, moving workers and freight to support the economic growth of our cities and industry. It employs 240,000 people overall (with obvious opportunity for apprenticeships) and contributes around £11bn Gross Value Added (GVA). Of that, the rail supply chain is the biggest single component with around 125,000 employees generating close to £4bn GVA¹. The supply chain includes the full range of capabilities; train and product manufacturers, railway system contractors and consultants. And this remains a growing industry with the number of rail journeys expected to double over roughly the next 25 years.

An efficient and properly resourced supply chain with a stable and predictable forward workload is therefore vital if the industry is to deliver what is required of it by the economy, by Government and by passengers and freight customers.

Also UK rail, amongst other things:

- Remains a very safe mode of travel – the safest significant rail operation in Europe
- Is important for the social infrastructure of the country, bringing people together for family and other leisure purposes, providing opportunities for the UK-based holiday and entertainment industries
- Is widely spread geographically so investment benefits regional economies
- Is recognised as a world-leader in many areas – eg London Underground, Thameslink, Crossrail and in the future Digital Railway, HS2, Crossrail 2 and Northern Powerhouse Rail; all will be significant reference sites to showcase the UK's capability and provide leverage to improve export opportunities
- Is environmentally superior to other transport modes

¹ RIA believe this is an underestimate and are undertaking research to validate this figure

- Shares parts of its supply base with other industries, such as roads, construction, automotive etc, so any intervention to improve the rail supply chain can have cross-sector benefits
- Has had relatively low levels of investment in innovation so there is perhaps greater scope for benefits to be achieved here than in other industries – the same argument could be applied to our latent manufacturing base and our export levels

The challenge is that **the rail industry needs to step up**. Continued growth in transport demand and heightened expectations for reliability, performance and passenger information mean that business as usual is not good enough. Without a step-change there is a real risk that rail will become a constraint rather than an enabler.

Similar challenges are appearing in rail markets across the globe so that addressing these in the UK now presents a one-off opportunity for our rail industry to lead the world in transforming railways. The next Section shows how that can be delivered.

Creating a sustainable, successful UK rail sector

RIA believes there is the opportunity for the supply chain to work collaboratively with the Government and rail clients to create a mutually beneficial sustainable, successful UK rail sector as illustrated by the following 'virtuous circle'.



By improving procurement processes and universally adopting best practice there is a major opportunity to create a virtuous circle where government benefits from increased productivity and from the wider economic benefits of supply chain investment in people, skills, plant and innovation. This approach will help sustain and grow an efficient, world class supply chain able to export new world leading products and reduce the level of imports. When supported by a Supply Chain Development Programme these benefits will cascade down the supply chain supporting SME growth.

Mutual Confidence



There are many examples – Crossrail, Thameslink, Northern Hub, Victoria Line Upgrade – of the rail supply chain delivering world class outcomes for their railway and government clients and ultimately for the passenger and freight users. However some programmes have gone badly wrong and railway projects are generally expensive; and so it is no surprise that government as ultimate funder has lost some confidence in the rail industry to deliver efficiently

At the same time, the supply chain continues to experience workload ‘feast and famine’ making it extremely difficult to plan for investment in the people, equipment and innovation that are needed for the future. This also means that successful delivery teams are often being broken up, limiting the ability to learn from experience and continuously improve.

The infrastructure market regularly experiences this feast and famine as demonstrated by the ‘CP5 drop off’ and the dearth of signalling projects pending the advent of Digital Railway and all this is likely to recover at around the time of major orders from HS2. The rolling stock market is another example with the current peak of new train orders likely to be followed by a trough as experienced after previous peaks. This threatens the longevity of the three Rolling Stock plants in the UK and has already severely damaged the overhaul and refurbishment market, which is the lifeblood of many UK sub-system suppliers.

This lack of confidence felt by both government and suppliers is already leading to a ‘vicious cycle’ of project delays, recruitment freezes, redundancies and a steady loss of capability which could lead to increased imports, cost increases and reduced productivity in the medium term. This cycle can, and must, be broken.

We believe that it is essential to rebuild mutual confidence in order that the industry can successfully deliver the outcomes the UK needs.

We ask for	So that supply chain can
Collaboration throughout the project cycle	Offer timely expertise to support good decision making
Smoothing of the National Infrastructure Commission pipeline/ longer term collaborative Maintenance & Renewal (M&R) relationships	Plan with greater confidence
Adoption of output specifications	Innovate to deliver the best possible solution
Intelligent Procurement which values wider economic benefit and whole life cost and supports equitable value adding relationships	Eliminate waste, drive up productivity, reduce imports, create new jobs and invest with greater confidence Drive a renaissance in the UK rail manufacturing base

Supplier Investment



The rail supply chain has recently demonstrated a willingness to invest for cross industry benefit by coming together to provide £64m of funding towards the £92m UK Rail Research and Innovation Network.

Less positively, the investment in skills and equipment within individual companies is dependent on confidence and, with some notable exceptions, RIA's members generally report that they are reducing or even stopping their investment plans. We are seeing recruitment freezes and redundancies amongst signalling suppliers for example. Electrification has been an example of where suppliers were encouraged to invest in advance of an anticipated programme which is now being curtailed. Inevitably this experience reduces the confidence of suppliers to invest in the future.

Given the new mutual confidence envisaged above the supply chain will commit to invest to deliver continuous improvement in productivity and delivery efficiency.

We ask for	So that supply chain can
The pipeline to support for the Sector Skills Delivery Plan	Create and retain 40,000 highly skilled jobs
Implementation of the Hansford Review Recommendations	Help bring in hundreds of millions of pounds of 3 rd party funding and finance
Continued co-funding of early stage Research & Development (R&D)	Reduce the risk of developing new technology and ultimately create exportable world beating offers
Increased support for exporters	Increase export earnings
Support for a supplier development programme	Increase the capability of their own supply chain and increase SME participation

Efficient Delivery



To deliver increased value for money for its UK customers, and to be competitive on the world stage, the UK rail supply chain must continuously improve its efficiency. At their best UK suppliers can match any in the world in terms of technical and delivery capability as demonstrated by many successful UK projects. However, in recent years, this capability has not been reflected in the level of exports.

There is a great opportunity for the rail industry to improve efficiency both through the adoption of new digital technology and through continuity of work, keeping teams together and supporting investment and continuous improvement. Based on our consultation we believe there is the potential to improve productivity by approximately 30%, which translates into either greater volume or lower cost to the customer.

This will need to be supported by a new ‘win-win’ approach to strategic supplier relationships so that all parties can take the steps necessary to continuously drive up productivity over a period of, say, seven to ten years. This would mean that collaborative working arrangements such as alliancing would become the norm reducing the costly ‘man-marking’ across the industry.

We ask for	So that supply chain can
A new partnership with Government and clients	Increase productivity by up to 30%
Strategic supplier relationships for key programmes/ capabilities	Cascade ‘win-win’ relationships down the supply chain to drive productivity

Better Outcomes



RIA firmly believes that the approach outlined above will deliver much improved outcomes for all parties as follows:

Beneficiary	Improved Outcome
The general public	<ul style="list-style-type: none"> • Greater economic activity • Increased local employment and high value job opportunities
Passengers and freight customers	<ul style="list-style-type: none"> • Improved rail service • Less disruption • Accelerated introduction of beneficial innovation
Government	<ul style="list-style-type: none"> • Improved rail transport contributing to wider economy • Increased value for money from rail investment • Increased delivery confidence • Increased tax revenue from growing UK supply chain • Increased UK content/ Reduced imports/ increased exports • Leverage R&D investment in other sectors eg on autonomy, big data, light weighting, energy storage • Increased SME participation in rail market
Major Clients	<ul style="list-style-type: none"> • Increased delivery confidence • Lower unit costs • Lower whole life cost • Reduced project management costs (less 'man-marking') • Reduced access requirements increasing revenue
Suppliers	<ul style="list-style-type: none"> • Increased investment in people, equipment and innovation • Increased opportunity for sustainable growth • Enhanced reputation • New and proven world class technology to export • Development Support • Supplier growth especially amongst SME
Rail Workers	<ul style="list-style-type: none"> • Increased job security • Training and development opportunities

These better outcomes further increase the 'mutual confidence', reinforcing the 'virtuous circle'.

Appendix A – Specific Proposals - Each of the ‘asks’ explained in more detail

Mutual Confidence



We ask for	So that supply chain can
Collaboration throughout the project cycle	Offer timely expertise to support good decision making

For all types of projects, including the less complex ones, there is a strong argument that **delivery will be improved and costs reduced** by a mature long-term collaborative relationship with aligned objectives between client and suppliers, and between suppliers themselves throughout the supply chain.

The industry, collectively therefore, needs to adopt a **more collaborative culture** through deploying less adversarial behaviours through all tiers of the supply chain (including Clients). What is now needed now is a smarter approach to cost reduction and **Consistent Use of Procurement and Contracting Best Practice**. There are clear lessons from recent rail projects which can be applied elsewhere when the situation is appropriate as outlined below.

Collaboration through the life cycle – Design Right, First Time

If all parties are aligned to a successful outcome they will be collectively incentivised to minimise waste and re-work and will ensure that when schemes do go into delivery, they do so at an appropriate level of maturity. In RIA’s regional workshops we were told that it is not unusual, even in less complex projects, to have 30% redesign. Sufficient time therefore needs to be invested at the start of a procurement process to get the design right first time and avoid this subsequent re-work.

Early Contractor Involvement (ECI)

ECI also has a major role to play, typically bringing in contractor construction and integration expertise before the design and programme are finalised. ECI was successfully used on Thameslink Civils projects and was recently used on the Digital Railway Programme where it identified a **potential 30% cost reduction** subject to a collaboration between client and supply chain throughout the life-cycle. (See Appendix B for a Digital Railway Case Study).

Alliancing

The Staffordshire Alliance, although not perfect, is an example of successful delivery through collaboration, aligned objectives and incentives. This challenging multi-disciplinary project was contracted with a target cost lower than estimated cost and all parties including the client were subject to pain/gain share. This created an environment where all parties collaborated and innovated to deliver to time and target cost.

We have previously submitted evidence to the Commons Transport select Committee and to the McNulty and other reviews that demand volatility adds between 10-30% to the cost of products and services affected. To support supply chain investment in the people, plant, process and innovation to drive productivity and international competitive advantage it is vital that there is visibility of a stable and smooth workload pipeline coming to market we therefore propose two measures:

1. *Smoothing of the National Infrastructure Commission (NIC) pipeline*

The creation of the NIC pipeline is a very welcome development and it can be developed further to provide greater confidence to clients and suppliers. RIA proposes a regular joint supply chain/client/ NIC deliverability review to look for opportunities to smooth the pipeline and thus minimise the likelihood of ‘peaks and troughs’. To support this we recommend a more granular breakdown of major programmes into their significant components which would be delivered by different types of suppliers.

2. *Longer term collaborative Maintenance & Renewal (M&R) relationships*

The NIC pipeline deals with publicly funded major enhancement programmes. However, a significant proportion of supply chain workload is the Maintenance & Renewal (M&R) Programmes for Network Rail, London Underground, the Train Operators; and, in the future, HS2. Longer term collaborative relationships would allow suppliers to invest in the people, plant, process and innovation to deliver continuous improvement for the client. As in other sectors, this improvement could be measured against challenging and transparent performance and cost targets to be progressively delivered through the life of the contract.

There have been previous efforts to harness this potential through five-year control periods and zero value frameworks. Whilst the intent was good, the five-year control periods have been prone to severe peaks and troughs in workload due to lack of design development and more recently funding constraints and whilst framework contracts can be successful, they need mutual confidence of an efficient volume of activity. Another approach which has proven to be successful is the pre-qualification of a ‘panel’ of suppliers to deliver a workbank whilst retaining project by project competition within the panel.

We would propose that the peaks and troughs of control periods be smoothed by moving to ten-year control periods with continuous project development using Early Contractor Involvement (ECI) approaches, so that there is always in effect at least two years’ work in a mature state of development. We would also propose that Framework, Panel, or similar arrangements, are used with a commitment to a minimum workload over a seven to ten year relationship to support supplier investment and secure the challenging performance and cost target

Rail delivers nationwide benefits

By its nature the rail network is nationwide and consequently so is the supply chain. This means that rail projects and rail careers are available throughout the UK. It also means that the initiatives proposed in this document will have a positive impact across the UK. We welcome the increasing devolution of local transport investment decisions as this will: drive up regional productivity and

competitiveness directly for the transport users; and, indirectly, through stimulating the local supply chain and underpinning their investment in skills and innovation.

Supporting SMEs

Accessing finance for capital investment or working capital is not the dominant issue that it may be elsewhere. RIA members, 60% of whom are SMEs, tell us that the more dominant issue is often the lack of confidence in the revenue stream to payback the finance. The short-term view of the potential pipeline leads to low capital investment

Adoption of output specifications

Innovate to deliver the best possible solution

Greater Use of Output Specification

Adopting a more ‘intelligent’ procurement approach by specifying outputs rather than inputs and awarding tenders on lowest whole life cost rather than lowest first cost will reduce cost of ownership and incentivise the supply chain to invest and innovate. This will require a significant change from a detailed specifier to a ‘thin client’. We would also suggest the outputs need to be specified by those closest to the customer and we hope that devolution will help and suppliers will be encouraged to engage with the customer to be able to effectively deliver their needs.

The Thameslink Programme, for example, was ambitious in adopting and contracting on an ‘output specification’ of 24 trains per hour (tph) when the perceived wisdom was that this was high risk. The difference here was that 24 tph was the output needed for the business case to work and therefore there was a ‘grand challenge’ which had to be achieved and focus was applied to delivering this output whilst mitigating the risk by ensuring that the system integration and output delivery was a supplier responsibility.

Intelligent Procurement which values wider economic benefit and whole life cost and supports equitable value adding relationships

**Eliminate waste, drive up productivity, reduce imports, create new jobs and invest with greater confidence
Drive a renaissance in the UK rail manufacturing base**

We recognise that the public procurement must ensure value for money for the taxpayer. However we believe that there is a significant opportunity to increase the value for money rail investment by considering a wider definition of economic impact than is usually the case. We suggest that the lowest price compliant tender should not be the default approach to government procurement. We propose two measures to capture greater value for money:

1. Valuing wider economic contribution

We would like to see government use the flexibility which exists in European Procurement Law to value the wider economic impact of suppliers proposals for example in terms of jobs sustained or created. Using these flexibilities would allow, for example, the inclusion of contractual requirements for skills and apprenticeships, SME participation and local inclusion as was the case with Crossrail contracts. Work undertaken by RSG suggests that there is an issue to be addressed regarding the UK’s statutory instruments which do not mirror the 2014 Directive’s intent in relation to SMEs and research & innovation.

2. Whole-Life Costing

Many procurement decisions are still made on the basis of lowest capital cost. The benefits of adopting an output specification approach to harness supplier expertise can be extended by

asking suppliers to demonstrate they are offering the lowest whole life solution. The ultimate expression of this is the supplier providing whole life maintenance services which creates a mutually beneficial situation where the supplier is committed to the performance of the railway and has a long-term income stream to support further investment. This approach has already become commonplace in the new rolling stock market but we believe there is significant opportunity to extend it to infrastructure.

Supplier Investment



We ask for	So that supply chain can
The pipeline to support for the Sector Skills Delivery Plan	Create and retain 40,000 highly skilled jobs

The railway industry is facing the joint challenges of an ageing workforce, changing skills requirements due to digitalisation and future major projects. This results in a requirement to recruit 100,000 people² over the next ten years to replace retiring staff and cope with growth. Research³ highlights the cost of not securing these new resources as £300m per annum to the rail industry and £380m per annum to Government by 2024.

In order to deliver the rail investment programme and address the demographic and diversity challenges which are common across Science, Technology, Engineering & Maths (STEM) based industries, the rail industry – led by the National Skills Academy for Rail (NSAR) – has developed a comprehensive Sector Skills Delivery Plan⁴. This will help the industry to not only deliver the investment programme but, because of rail’s nationwide presence, help rebalance the economy. To support this the rail supply chain will:

1. Implement the Rail Sector Skills Delivery Plan in collaboration with the wider rail industry
2. Double annual investment in training and retraining
3. Create and retain 40,000 highly skilled jobs as our contribution to the overall industry target of 100,000.
4. Create a similar proportion of apprenticeships in relation to the industry target of 20,000 new apprenticeships by 2020
5. Ensure that 20% of new recruits are female and fully adopt wider diversity best practice
6. Provide £10m co-funding for a campaign to promote rail as an attractive place to work building on the work of ‘Routes into Rail’ and ‘Britain runs on Rail’.
7. Collaborate with government and other sectors to improve wider skills initiatives

² Rail Sector Skills Delivery Plan December 2016

³ RSSB The Cost of Not Addressing Skills Issues in the Rail Sector, October 2015

⁴ <https://www.youtube.com/watch?v=279UGcc6yjY>

Implementation of the Hansford Review Recommendations	Help bring in £00's of 3rd party funding and finance
<p>We very much welcome the Hansford Review and Network Rails proactive response to it. To support this important initiative we call upon government to commit to implementing the recommendations on DfT, including those to provide guidance on the decision making and appraisal processes and to create an early development fund without which projects may not progress.</p> <p>The supply chain is ready to participate in consortia for 3rd party funded projects bringing their expertise to deliver a better outcome. Suppliers also welcome the initiative to allow 3rd party financed schemes and agree these are particularly suited to situations where the supply chain is better able to manage innovation risk.</p> <p>We see the following major requirements for the successful introduction of 3rd party funding or private finance and believe that with government support they are all readily addressable.</p> <ol style="list-style-type: none"> 1. An investment which can be segregated. This could be either geographically (vertically) as with a new route, a station or a depot or technically (horizontally) as with Trains, Telecoms, Signalling or Electrification Systems. We agree that the Digital Railway Programme has obvious potential. (See Appendix B for a Digital Railway Case Study) 2. An ability to take a long-term view. This provides a longer-term revenue stream and creates aligned incentives to both deliver for the customer and manage whole life costs. 3. Risks are understood and can be allocated to the appropriate party – not pushed so far down the chain that it creates perverse incentives and increased cost. 4. Any existing asset owner must be fully committed to the success of the investment and should take responsibility for existing asset condition to minimise cost. 5. The client's requirements should be specified as outputs to maximise the opportunity for innovation and efficiency. 	
Continued co-funding of early stage R&D	Reduce the risk of developing new technology and ultimately create exportable world beating offers
<p>It is notoriously difficult to introduce and commercialise new technology in the rail industry. The barriers to innovation include misaligned incentives and timeframes, risk aversion and the sheer complexity of 'ownership' of the commercial, technical and operational systems.</p> <p>In order address these barriers and create a new competitive differential for the UK rail industry in the global market place and a renaissance in exportable UK rail manufacturing, the supply chain will:</p> <ol style="list-style-type: none"> 1. Establish the UK Rail Research and Innovation Network⁵ (UKRRIN) which provides essential infrastructure to develop and commercialise new technologies and supporting skills. Already the supply chain have committed £64m to this £90m initiative. The new Network will be open to suppliers of all sizes including new entrants and will help and de-risk the commercialisation of ideas. 2. Invest an additional c£90m per annum to match government funding to 'pump prime' technology development in a similar way to the automotive and aerospace sectors. This would raise UK rail research and innovation spending to c1.5% of the roughly £12bn mainline rail turnover (excludes TfL, Light Rail and HS2) which is still low compared to other sectors. 	

⁵ <http://ukrrin.org.uk/>

3. Focus this investment on the five key technologies identified in the Rail Supply Group strategy⁶ where the UK is already strong and there is the potential to create true world class capabilities.
4. Deliver an exportable world first to exploit a potential £20bn market by implementing the 'Digital Railway' programme (See Appendix B) currently being developed.
 - There is a similar opportunity to exploit the investment in HS2 to create a high value export offering for UK industry, and there is the potential to collaborate across other transport modes and other technology sectors to create 'Connected Low Energy Transport' delivering a true 'end to end journey' experience, making the UK a world leader in a potential £900bn market.
5. Encourage government to use collaborative 'innovation friendly' procurement approaches such as Early Contractor Involvement (ECI), Output Specifications and Alliancing. Particularly promising is the Innovation Partnership⁷ where a public procurement body selects a partner(s) to develop a new technology to deliver a particular output.

Increased support for exporters

Increase export earnings

Increasing the number and volume of new and existing exporters whilst improving our inward investment strategy will enable the UK rail supply chain to deliver its full potential contribution to improving the UK balance of payments, reduce its dependence on the domestic market and create a resurgence in the economic contribution of the rail sector. We propose a partnership with Government to achieve this by:

1. Adopting a strategic approach to exports – prioritising overseas markets, including geographies and sectors, then focusing sustained public and private sector resources at these, coordinating this response along with a considered approach to inward investment.
2. Supporting UK government in the Brexit negotiations – continue to support the Government by providing input on the impacts and opportunities arising from Brexit.
3. Getting the UK supply chain export-ready by scaling up the existing UK capability and encouraging new exporters.
4. Conducting an analysis of the potential UK content by value of trains and rail infrastructure, to identify opportunities for proactive initiatives in a similar way to the automotive industry review.
5. Whilst we recognise that inward investment can bring innovation, new investment and in time, some new exporters, however we would encourage the Government to measure the value delivered in the UK, both intangible (knowledge), and tangible. It is particularly important to encourage R&D and the registration of intellectual property in the UK.
6. Investing in new world leading differentiators such as Digital and High Speed Rail and Connected low energy transport to create new export opportunities.
7. Collaborating with the Government on a rolling programme to identify and exploit agreed target markets. This programme would include support for outward missions and exhibitions at home and abroad along with targeted inward visits.
8. Development of a large-scale flagship exporting roadshow event for the industry with targeted foreign speakers and buyers invited and part funded, with clinics for UK companies, showcasing UK capability and supported by senior UK rail (e.g. NR, HS2, TfL, Crossrail, RDG, RSG etc) and government figures

⁶ Advanced control, clean energy, customer experience, high value rolling stock systems and whole life asset optimisation & through life management. See <http://www.railsupplygroup.org/wp-content/uploads/2016/01/RSG-Brochure-Jan-2016.pdf>

⁷ <http://www.legislation.gov.uk/ukxi/2015/102/regulation/31/made>

9. For Overseas Trade fairs increase funded grants for SMEs to test the market and for post-event activity.
10. Taking a more strategic approach to inward investment by increasing import substitution, encouraging the retention of R&D in the UK and ultimately turning inward investors into UK exporters.

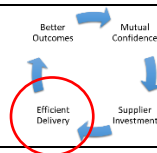
Support for a supplier development programme

Increase the capability of their own supply chain and increase SME participation

To realise the potential to make the UK rail industry a world leading sector we need to transform the capability of our existing supply chain and to encourage new entrants bringing new skills and capability.

RIA therefore proposes to introduce a structured supply chain development programme to help Tier 1 suppliers nurture and develop their own supply chain. We will particularly focus on the rail manufacturing sector as we believe this is the area with both the greatest development needs and the greatest growth potential. We will look to other sectors for successful exemplars from which we can learn and have already had dialogue with the automotive and aerospace sectors who have realised significant benefit from similar schemes.

Efficient Delivery



We ask for

So that supply chain can

A new partnership with government and clients

Increase productivity by up to 30%

Suppliers have identified an opportunity to increase productivity by approximately 30% through a new partnership with the Government and clients. The potential is evidenced from a number of sources cited earlier in this report; the loss of productivity caused by demand volatility, the level of avoidable redesign and rework, and the findings of the Digital Railway ECI workstream.

The implementation of the collaboration, pipeline smoothing, output specification and intelligent procurement recommendations in this report will create the environment which should eliminate these causes of poor productivity. This new environment will support supplier investment in people, process, plant and innovation which will sustain and further improve the productivity improvement. This investment would be expected to include Building Information Modelling (BIM) and other new digital design and construction approaches, off-site prefabrication, increased mechanisation and robotics.

Strategic supplier relationships for key programmes/ capabilities

Cascade 'win-win' relationships down the supply chain to drive productivity

The longer-term strategic collaborative relationships between client and supplier proposed elsewhere in this paper would be cascaded down through the supply chain, supported by the proposed supplier development programme.

This would mean that the Tier 1 contractor would develop the same type of collaborative relationships with their own supply chains. The Tier 1 commitments to the client on long term performance would actively encourage the same commitments down the supply chain recognising that the Tier 1's performance is as strong as the weakest link in its own supply chain.

The investment in the supplier development programme would mutually incentivise longer term relationships to drive shared performance commitments.

We are confident that this approach can deliver a 'win-win' outcome for the whole value chain from passenger and client through to the smallest SME because similar arrangements have worked successfully in other industries.

Appendix B – Case Study – Delivering a Digital Railway

The management consultancy Accenture has predicted that 25% of the world's economy will be digital by 2020 and that the next three years will be about organisations determining their place in this digital race. For a service industry like rail, digital is no longer an option, but a necessity.

But being digital is more than replacing old analogue systems with their new digital equivalents; that is just an entry requirement to the digital race. It is also necessary to embrace the power that digital technology brings to revolutionise business models and processes. By doing so, it is possible for rail to achieve the same transformation in cost and performance that has already been achieved by other industries that have already embraced digital. Investment in a digital transformation of rail offers the opportunity to prevent rail transport being a constraint on the necessary UK growth and instead become an enabler of the post-Brexit economy.

Railways are increasingly adopting digital technology to deliver both existing and enhanced services to their customers. As with other sectors this has started as a plan for digital upgrade of existing services. But there is a real opportunity for rail to learn from other sectors and accelerate the move to using digital as a route to delivering a service transformation. Railways around the world are starting to suffer from the same challenges and stresses of growth, congestion and reliance on outdated business models that are being experienced in the UK. There is therefore a one-off opportunity for UK rail to be first to gain the benefits of overcoming the traditional resistance to change in rail, thus presenting the opportunity to lead the world in a global transformation of rail transport and access a new export market estimated to be worth £30bn by 2020⁸.

This will bring challenges in terms of the need for different skills, cultural change and safely introducing new technology into an existing, complex, 'brown-field' railway system. But these are precisely the challenges that the UK can deliver with the support of the Government, including the very welcome £450m included in the Autumn Statement 2016.

In partnership with Government, the cross industry Digital Railway Programme has the potential to deliver a collaborative transformation that provides more capacity, better connections and greater reliability on the UK's main line railway.

Already this programme, is recognising that the challenge will not be resolved by the traditional rail approach, and is adopting collaborative best practice. Notably the programme undertook an ECI project in late 2016 in which they commissioned suppliers to use their combined expertise to review the programme.

The resulting report found that changing current practices so that the supply chain is engaged to deliver performance outcomes for the railway, rather than deliver against tightly specified but often poorly targeted requirements, would drive supplier investment, increase productivity and lower 'whole life' costs. Taken together it was estimated that this could reduce the cost to deploy digital train control by over 30%.

It also identified that collaboration during project deployment should minimise disruption to passenger services and identify risks early, reducing unnecessary costs and delays. The study also confirmed assumptions to feed into the business case and opportunities for early customer benefits including better passenger information, more accurate timetabling and smoother journeys with less impact on the environment.

⁸ Page 58, Building our Industrial Strategy Green Paper, January 2017.

Significantly the report validated the importance of the issues identified in the main body of this response identifying:

- Early Engagement – the need for a different relationship with suppliers harnessing their expertise early in the project.
- Confidence – providing a long-term commitment to allow suppliers to invest in the required skills and technology
- Behaviour – radically changing for the better the cultures and behaviours of project development and delivery
- Outcome focus – encouraging innovation and productivity through output specification and evaluation of whole life costs
- Collaboration – using collaborative approaches to development, procurement and delivery

It is encouraging to see that the emerging procurement strategy is adopting many of these recommendations in planning the delivery of the current generation of digital signalling technology (European Train Control System (ETCS) Level 2 and Traffic Management). But there is an opportunity to go much further and adopt the agile, lean, open and efficient methodologies that are standard in the digital world. This will be a significant challenge but one which we believe, with government support, is very deliverable.

Using this approach we believe there is a significant opportunity to accelerate the delivery of much greater customer and economic benefits by de-risking the development of the next generation of digital signalling technology (ETCS Level 3, Automatic Train Operation and Integrated Traffic Management). The rail industry has already started a technology route map for this development in the form of the RTS CDP. The challenge is having the vision, commitment and leadership to follow through and create a world leading capability for the UK. But we firmly believe it is deliverable by the rail industry working with a supportive government.

The rail industry will learn from and adopt a number of approaches that have been successfully used in other sectors and can be used for the Digital Railway Programme in combination.

The ‘**Niteworks**’ model used in the defence sector creates a collaborative environment where suppliers work together with the client to rapidly investigate and solve challenging problems. Importantly there is a standing commercial arrangement which recognises the participants’ background intellectual property and shares the benefits of the solution developed. This could be used by the Digital Railway Programme to deal with urgent emerging issues but also as a framework for collaborating on common issues such as the processes and tools required to ‘productionise’ digital railway deployment.

The proposed UK Rail Research and Innovation Network (**UKRRIN**) provides the facilities and expertise to develop, test and build confidence in the new technology which will be needed by UK rail. This can be done by individual suppliers to encourage competition or collaboratively as appropriate. The proposed Digital Systems Centre at Birmingham will provide the facilities where digital railway technology can be researched, then prototyped and tested in a realistic but simulated environment, thus minimising live on-track testing. Perhaps the most important role of these facilities is to demonstrate that any individual new product can be safely and effectively integrated into the whole system.

We intend that the UKRRIN will operate a model similar to the ‘Advanced Propulsion Centre’ model used by the Automotive Council is accelerating research, innovation and industrialisation of new technology in an area where the automotive sector has unique and differentiated capability. This

approach will be applied to cultivate unique and differentiated rail capabilities through the Digital Systems Centre formed as part of a UKRRIN.

Finally, in situations where the required outcome or product is particularly challenging and is not likely to materialise through normal commercial or even match funded R&D routes there is the **'Innovation Partnership'** included in the EU Public Contracts Directive (2014). This provides a mechanism to allow the selection of partners (rather than products as is normal in procurement) to collaboratively develop and de-risk a solution where a product is not yet available on the market. There is an analogy with the way in which the then world-leading Solid State Interlocking was successfully developed in the 1980's in a collaboration between British Rail and two UK suppliers.

This approach will result in the UK being the first country in the world to truly implement the next generation of digital railway technology and do so on what is one of the busiest railways in the world. Combined with procurement approaches which value UK content and capability this would create a world leading and eminently exportable capability.

To promote this capability to the world and facilitate the delivery of systems, transfer of knowledge, and support the necessary business process change, it is envisaged the Digital Railway Programme will need to work with a "UK Consulting" model based on those in other countries.

Appendix C – About the Railway Industry Association (RIA)

The Railway Industry Association (RIA), along with the Rail Alliance, is a major delivery arm for RSG. RIA also provides 50% of the funding for RSG, with Government providing the other 50%.

The Railway Industry Association (RIA) is the representative body for UK-based suppliers to the UK and world-wide railways. It has around 200 companies in membership who employ over 30,000 staff and turn over more than £6bn annually.

RIA's membership is active across the whole of railway supply, covering a diverse range of products and services and including both multi-national companies and SMEs (60% by number).

RIA works to promote the importance of the rail system to UK plc, to help export UK expertise around the global and to share best practice and innovation across the industry.

RIA provides its members with extensive services, including:

- Representation of the supply industry's interests to Government, Network Rail, TfL, HS2, ORR and others
- Providing opportunities for dialogue and networking between members, including a number of Special Interest Groups
- Supply chain improvement initiatives
- Provision of technical, commercial and political information every week
- Export promotional activity, through briefings, visits overseas, hosting inwards visits
- Organising UK presence at exhibitions overseas