



Department
for Transport

Commercial Case for High Speed 2

Outline Business Case

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Purpose

1. The Commercial Case provides evidence on the commercial viability of the HS2 programme and the procurement strategy that will be used to engage the market. It describes the organisations involved in delivering the programme. It includes consideration of the financial implications of the programme, risk allocation between parties involved in the programme and implementation timescales.

Introduction and Context

2. HS2 is a new north-south railway for Britain. The case for the new line rests on the capacity and connectivity it will provide. In developing HS2 the Government's objectives are: to provide sufficient capacity to meet long term demand, and to improve resilience and reliability across the network; and to improve connectivity by delivering better journey times and making travel easier.
3. HS2 will be built in two phases. Phase One of HS2 will see a new high speed line constructed from Euston to north of Birmingham, where it will re-join the existing West Coast Main Line allowing fast services direct to destinations on the existing line including Manchester, Liverpool, Crewe, Preston and Glasgow. New high speed trains will serve Birmingham city centre and an interchange designed to serve the wider West Midlands. At Old Oak Common in west London, a new interchange will be built connecting HS2 with Crossrail, the Great Western Main Line and the Heathrow Express. The proposals for Phase Two will see the line extended north and east, to join the West Coast Main Line north of Warrington and the East Coast Main Line approaching York. There will be new stations in the city centres of Manchester and Leeds, with intermediate stations in the East Midlands at Toton and near Sheffield at Meadowhall.
4. This case is provided as advice to Ministers to support the deposit of a hybrid Bill seeking powers to construct Phase One, and prior to consultation concluding on the preferred line of route for Phase Two. While consideration is given to the full HS2 programme, including the long-term operation of the line, this document primarily focuses on the five-year period from 2013 to 2018.

HS2 Operations

5. The Government has developed HS2 to deliver a huge increase in capacity for moving people and goods around the country, with benefits including freeing up space on the existing railway for new services and moving freight off of the roads. We want to transform links between cities, with faster journey times and new connections. We aim to deliver this by using a proven technology and to an affordable budget.
6. On current plans, HS2 will not be operational until 2026. Over this period there may be significant regulatory or structural changes to the rail industry. That makes trying to define the end state of HS2 difficult, or even misleading, to predict.
7. The operational phase of HS2 will require infrastructure and train operators to work within an agreed commercial and regulatory framework, which is fully integrated with the existing rail network. The introduction of HS2 services will require a major change to the structure and scope of existing franchises. The revision to the overall franchise programme following the Laidlaw and Brown

reviews now has the timing of HS2 as a pivotal future milestone which will require the re-specification of affected franchises to take place in the mid 2020s, to align with the opening of Phase One of HS2.

8. Railway timetables for the 2020s and 2030s will not be written until nearer the time, but it is important to deepen our understanding of how rail services might be reshaped by HS2. In partnership with the railway industry, we intend to announce, shortly, a transparent and participatory process to consider long-term issues, opportunities and options for rail services on HS2 corridors. This will consider how these services can support the delivery of economic growth on a sustainable basis.
9. Early stage modelling indicates that HS2 will deliver a significant operating surplus and consequently a commercial case could be made for the transfer of relevant parts of the operation of HS2 into the private sector. Such a sale could generate a significant income to the UK exchequer. However, government will need to strike the optimum balance between upfront income from an HS2 concession, noting that this could create a net subsidy requirement for classic rail, and taking ongoing financial benefit from annual improvements to the level of premia generated by GB Rail overall.
10. The commercial analysis (the high level findings of which are set out in the Financial Case) carried out on the 'reference case', which assumes demand stops growing in 2036-37, shows an overall additional¹ operating surplus² across GB rail of around £0.3bn a year on average in the medium term once HS2 is operational.

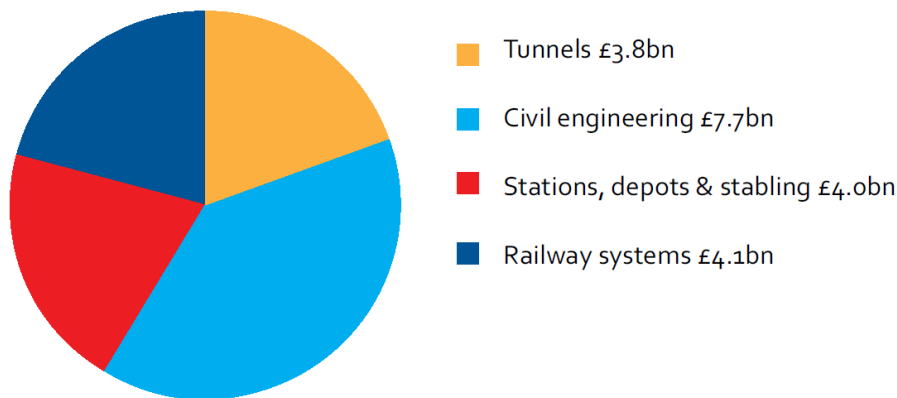
HS2 Construction

11. HS2 will be the biggest infrastructure project in Europe and will have a significant direct impact on the market, particularly in engineering and construction. The budget for the whole network, at £42.6bn (for infrastructure plus around £7bn for rolling stock (2011 prices, excluding VAT)), is over four times that of the London 2012 Olympics. Phase One alone involves 140 miles of new infrastructure and four new stations; it will take up to 8 years to construct and has target price of £17.1bn (2011 prices). The proposed expenditure of over £3bn pa on Phase One from 2018 (2011 prices), is broadly comparable to the annual turnover of one of the top handful of UK construction firms.
12. Over both Phase One and Phase Two HS2 is expected to lead to contracts worth over £10bn in civil engineering and tunnelling including viaducts, bridges and tracks; around £4bn in station and depot works; £4bn in railway systems such as signalling and power supply equipment; and, around £7bn in the design and manufacture of rolling stock.

¹ The current projection for SPRS shows it is in surplus

² 'Operating surplus' = operating revenues, minus operating costs and an allowance for a commercial profit margin. This analysis assumes that initial construction and rolling stock costs have been met in full and written off. Once renewals are required (initially from 2041/42), these are assumed to be added to a notional RAB and are financed through TOC operating charges.

Potential value of HS2 contracts by sector



13. Due to its scale, HS2 will provide significant new opportunities for the construction sector. Providing guidance help to UK businesses gear up to be ready to bid for contracts on the HS2 programme will help ensure that the market is able to provide the necessary skills and services to build HS2 and will ensure that UK businesses benefit from the programme. HS2 Ltd will proactively engage with the industry to help businesses, particularly small and medium size enterprises, to understand and prepare for the potential opportunity. This is discussed further below, in the 'market competitiveness' and 'maximising commercial benefits' sections.

Affordability and Funding

14. Due to the scale, complexity and timeframe of the project, the starting assumption is that the funding of HS2 infrastructure will come in large part from central government funds. The magnitude of the project is such that there is little prospect of finding a private sector balance sheet to bear construction and commissioning risk. The alternative, of breaking the project into parcels small enough to be handled by private sector finance, would be likely to generate unmanageable integration risk.

15. The Government will work collaboratively with Local Authorities and others who stand to benefit directly from HS2 to identify where contributions could be made to support construction of HS2. It is recognised that such third party contributions may be linked to the delivery of specific local benefits. Furthermore, the Government may seek private sector contributions, for example linked with station over-site developments, or opportunities for regeneration. These issues are considered further within the Financial Case.

16. The 2013 Spending Round provided a long term funding envelope for High Speed 2 of £42.6 billion (in 2011 prices, excluding VAT) for construction costs - £21.4bn for Phase One, and £21.2bn for Phase Two. In addition, it set a funding envelope of £7.5bn (2011 prices, excluding VAT) for rolling stock³. The table below shows how this funding envelope is divided by base estimate and contingency, more detail on funding is provided in the financial case:

³ See *Investing in Britain's Future*, published June 2013 by HM Treasury. See paragraph 3.16: <https://www.gov.uk/government/publications/investing-in-britains-future>

	Phase One	Phase Two	Rolling Stock ⁴
Base estimate	15.65	12.5	5.6
DfT held contingency	3.75	6.5	N/A
Total ('P50')	19.4	19.0	6.9
Treasury held contingency	2.0	2.2	N/A
Total Funding ('P95')	21.4	21.2	7.5

Accountancy treatment

17. The project is expected to be conventionally funded therefore the accountancy treatment will be in line with normal Government practice. Accountancy treatment is dealt with in detail in the Financial Case.

Timetable and Strategic Outputs

18. The two phases of the programme (Phase One, from London to Birmingham and Phase Two from Birmingham to Leeds and Manchester) will progress through a number of development stages outlined below.

19. Pre-development: This period of the programme broadly aligns with the period before introduction of the relevant hybrid Bill (for Phase One or Phase Two) and is the stage over which the outline route design, environmental mitigation, and other preparatory planning is carried out. With the hybrid Bill for Phase One on course for introduction by the end of this year, the pre-development stage of Phase One is very close to completion. On Phase Two, the Secretary of State's initial preferred route is currently being consulted on. The consultation will run through to 2014 when responses will be analysed, ahead of an announcement on the route by the end of 2014. Engineering design, as well as work on the environmental impact assessment will then begin from January 2015, ahead of the introduction of a second hybrid Bill into Parliament. In summary, key dates for the HS2 project are:

Phase One	Milestone
Late 2013	Deposit of a hybrid Bill on Phase One
By Spring 2014	Delivery model agreed
Phase Two	Milestone
July 2013	Consultation started on Phase Two's preferred route
Late 2014	Secretary of State's Decision on the Phase Two route
January 2015	Development of Phase Two commences
~2018	Likely deposit of a hybrid Bill on Phase Two

20. Development: The period when the preliminary design work is finalised, broadly equating to the period when the hybrid Bill proceeds through Parliament. At this stage, with programme design becoming firmer, engagement with industry on the key procurements increases. Dates beyond the 2015 General Election are speculative at this stage. The projected key dates for the HS2 project are:

⁴ Rolling stock contingency levels do not equate precisely to P50 and P95.

Phase One	Milestone
November 2013	Industry engagement on procurement strategy starts
Late 2013	Deposit of a hybrid Bill on Phase One
Mid 2014	Phase One hybrid Bill Select Committee starts
May 2015	Target date for Royal Assent for the hybrid Bill on Phase One
2015	Industry engagement on rolling stock procurement starts
Phase Two	Milestone
~2018	Likely deposit of a hybrid Bill on Phase Two
Early 2020s	Royal Assent for the Phase Two hybrid Bill

21. Pre- Delivery: This is the period before the main construction phase begins and involves finalising the planning and development work needed to ensure successful delivery of the programme. The outputs at this stage will include:

Strategy output:

- A contract structure for construction in the delivery phase, with preferred bidders where appropriate for these work packages;
- Taking forward and successful completion of the procurement process;
- Management of the short-term rental of acquired land and property assets;
- An evaluation structure to identify and measure the economic benefits, and ensure the realisation of them;
- A procurement strategy for Rolling Stock.

Efficiency outputs:

- A detailed programme of works, identifying possible efficiencies and how these will be delivered;
- Value Engineering to increase the project Value for Money.

Outputs in preparation for construction:

- Ownership of the land and property necessary for construction of the line;
- Completion of a programme of enabling works through an agreed framework;
- Acquisition of any equipment that is to be directly purchased by Government.

22. Recognising that dates beyond the 2015 General Election are speculative at this stage, enabling works for Phase One are expected to begin in 2016 as final preparations are made ahead of construction starting in 2017. Phase Two work is expected to reach this stage in the early 2020s. Projected key dates associated with this stage of the HS2 project are:

Phase One	Milestone
Mid 2015 (post Royal Assent)	Enabling works starts
Late 2015	Mobilisation for Construction of Phase One
Late 2017	Construction of Phase One Begins
Phase Two	Milestone
Early 2020s	Royal Assent for the Phase Two hybrid Bill
Mid 2020's	Construction of Phase Two Begins

23. Delivery: This stage includes the construction, testing, and commissioning of the railway, and it is at this stage that the majority of project costs will be incurred. Outputs will include:

- Completion of the tunnelling and construction of permanent way
- Completed construction of stations, including links to onward travel;
- Delivery of Rolling Stock;
- Ministerial approval for a preferred operational and regulatory structures for the railway, and any additional primary legislation required;
- Appointment of a Franchise Operator for the network, if required.

24. Key dates associated with this stage of the HS2 project are:

Phase One	Milestone
Late 2017	Construction of Phase One Begins
2018	Phase One Rolling Stock tender competition likely to start
2024	New rolling stock delivery starts
2026	HS2 London to West Midlands route opens
Phase Two	Milestone
Mid 2020's	Construction of Phase Two Begins
2032/33	Opening of the full Y network

25. Long term ownership and operation of the HS2 Network: Once the network is established, and running in a “business as usual” manner, it will be necessary to ensure the realisation of all the full benefits from constructing the line. The outputs will include:

- A high quality of passenger experience;
- Ongoing maintenance and renewals of the track;
- Ongoing growth and development at and around HS2 stations;
- A public-facing document, using the evaluation methodology to explain how benefits are being realised.

26. The key dates for this stage of the project are given below.

Phase One & Phase Two	Milestone
2026	HS2 London to West Midlands route opens
2032/33	Opening of the full Y network

What we are buying

Overview

27. This section outlines what we will buy to deliver the outputs above. It provides a high-level forward look across the programme, in order to provide further context for the procurement strategy discussed below.

Pre- Development

28. The pre-development period for Phase One is almost complete, with the Hybrid Bill scheduled for deposit before the end of 2013. Key services that have been procured for both Phase One and Phase Two, include:
- Outline route design;
 - Environmental Impact Specialists;
 - Consultation support and response analysis;
 - Legal, Financial, and Commercial advice;
29. HS2 Ltd put in place the Professional Service Framework (PSF) agreements to assist with the development of Phase One and Phase Two and a Development Partner contract for Phase One, awarded to CH2M Hill. Land and Property Services Framework Agreements are in place covering Phases 1 and Phase Two. The PSF for Phase One has been set up in four lots as follows:
- Lot 1 – Civil and Structural Design Services
 - Lot 2 – Railway Systems Design Services
 - Lot 3 – Environmental Services
 - Lot 4 – Land Referencing Services

Development

30. Procurement for the development stage is focused on services needed to support the hybrid Bill in Parliament. For Phase One the scope of the PSF contracts already in place cover the development through the hybrid Bill stage, and can also be used if necessary to provide services during the transition from the development stage into the delivery stage post-Royal Assent. Similar procurements will be needed in due course for Phase Two, including:
- Detailed engineering work;
 - Environment consultants;
 - Parliamentary Agents;

Pre- Delivery

31. Key services to be procured will include:
- Property Specialists;
 - Early industry involvement (potential contractors and end state operators);
32. To maintain the Phase One schedule the procurement of Early Works Packages (EWP) is being progressed. This will ensure that necessary preliminary work has been undertaken prior to the start of the main construction work for Phase One in 2017. To minimise the risk of putting these contracts in place before the hybrid Bill is well advanced through Parliament (and therefore when delays are a risk), frameworks are being put in place without any financial commitment on the part of HS2 Ltd. Package orders from each of these frameworks are scheduled for award by summer 2014. The frameworks are:
- Geotechnical Site Investigations;
 - Environmental; and
 - Archaeological Surveys.

Delivery

33. With the main construction phase scheduled to commence around 2017, the early preparatory work is underway to produce a procurement strategy and engage with the market to ensure the relevant industries and supply chains are geared up and ready to bid for work. The main categories of work to be delivered are shown in the table below, along with the approximate value⁵ of the procurements needed for Phase One.

Element	Includes	Value
Tunnels	Running tunnels, cross-passages, vent shafts and tunnel systems	2,910
Civil engineering	Earthworks, retaining walls, structures, highways	3,390
Stations	Station buildings	2,545
Depots and stabling	Depot buildings, facilities	720
Railway systems	Permanent way, switches and crossings, overhead line equipment, train control systems	1,560
On-network works	Works related to existing infrastructure	480
Land and Property	Property, disturbance, severance and resale values within the planned railway corridor	1,630
Rolling Stock	'Captive' and 'classic compatible' fleets	2,707

Long term ownership and operation of the HS2 Network

34. Key services for the long term operation of the service will include:

- Train and Infrastructure Operators (dependent on final operational structure);
- Developer(s) for regenerative works around station locations;
- Third Party appraisal of impact.

Organisation and Governance

Delivery Model

35. To ensure successful delivery of the output and services outlined above, the Department has carried out a comprehensive options-based assessment of

⁵ Basis of estimate: a) Base date is 2Q 2011 b) VAT, escalation, OSD, O&M, sponsor costs and funding/financing costs all excluded. c) Contingency excluded (P50 risk would add 26% to all the figures)

delivery models. This work, progressed between April and September 2013, was supported by PwC analysis and senior officials from Infrastructure UK, DfT and HS2 Ltd. Ministers are currently considering the recommendations, with a view to implementing the delivery model during 2014.

36. The proposed delivery model will see HS2 Ltd is confirmed as the delivery agent for Phase One, in addition to continuing its current role support the Department on the development of the wider high speed programme. Implementing the delivery model will include formalising the relationship between HS2 Ltd and DfT with a contractual Development Agreement. This agreement, which is currently being drafted, will be put in place during 2014, and subsequently updated to reflect the increasingly well defined outputs as the programme moves from development to pre-delivery and delivery stages. The Development Agreement will specify the scope of the works, the agreed budget, funding to meet the budget, and the rights and obligations of both parties.
37. The delivery model will also bring Network Rail into a strategic sponsorship role in the programme. Negotiations are underway with Network Rail and HS2 Ltd to complete a Tripartite Cooperation Agreement, which will confirm the role of Network Rail at both the strategic level and the delivery level. It is expected that HS2 Ltd will be the principle delivery body, with Network Rail providing support to the Department as a strategic sponsor and working closely with HS2 Ltd to ensure delivery of the changes to the existing network required to accommodate HS2 and secure the maximum benefit from the final integrated network.

Capabilities and Resourcing

38. HS2 Ltd already has considerable expertise in the project and has wide experience of dealing with the Department, and is therefore well placed to support DfT through the Bill process. The January 2012 announcement of the Government commitment to proceed with HS2, marked the start of a significant mobilisation period for HS2 Ltd. Through 2012 the company's focus was on putting in place all the underpinning arrangements necessary to enable it to deliver its remit successfully. This included implementing the organisational structure designed to support fully integrated working alongside the Development Partner (CH2M Hill), other professional services companies contracted to HS2 Ltd, and continued work on Phase Two routes. By the end of June 2012, HS2 Ltd had recruited over 100 people to fill engineering, environment, community and stakeholder liaison, land and property and support function roles. This had risen to 538 people, at the end September 2013, of which 277 were HS2 Ltd employees and the others were contractors or secondees. The organogram for HS2 Ltd is provided at Annex A, this sets out the senior team and their respective job titles, correct as at June 2013. The great majority of staff engaged on the HS2 programme work in HS2 Ltd or its contractors.
39. To prepare for the delivery phase HS2 Ltd will need to develop further its preliminary construction capability. This will include: the procurement team resource; operations team resources to assist with the assessment of pre-qualifications and tenders (and subsequently to manage the contracts); and commercial and legal resources to develop detailed contract conditions, assist with negotiations and execute commercial agreements. An initial procurement resource plan is currently being prepared.

40. Long term success of HS2 requires that the programme is designed to deliver an operating railway, and work is underway to plan how HS2 Ltd will grow the capability to provide shadow infrastructure management and shadow passenger operation services during the design and construction period. This capability will be secured early in the pre-delivery stage to ensure that decisions taken over the short to medium term are anchored in the needs of the long-term operational railway.
41. Within the Department, between January and September 2013, the number of staff working on the programme increased from 39 to more than 80, and recruitment of up to 20 additional posts is underway. These additional resources have strengthened the Group's ability to tackle both the current and future delivery challenges associated with the programme, bringing in a range of skills and expertise around programme and project management, commercial delivery, stakeholder engagement and regeneration. The organogram for DfT HSR Group, correct at August 2013, is provided at Annex B. In line with DfT Corporate Planning Process Protocol, only senior officials are shown. Recruitment to fill the vacant posts in the diagram is currently underway.
42. In preparation for the delivery phase, DfT's High Speed Rail team is undertaking a capabilities review and workforce planning to ensure that the correct skills are in place for to formal sponsorship role once the Development Agreement is in place.
43. A Programme Development and Resource Management team has been set up within the HSR Group PMO to lead on the development and implementation of a capability strategy. This strategy, which will be in place by the end of 2013, will set out how the Group will manage and develop its staff resources to ensure that everyone has the right skills and experience.

Project Delivery Partner

44. HS2 Ltd is currently working with a Development Partner, CH2M Hill. This has allowed HS2 Ltd to increase rapidly its capacity to deliver the requirements of the Phase One hybrid Bill.
45. The need for a Delivery Partner, and the scope of its role during the delivery phase, will depend on the packaging strategy and the capacity and capability of HS2 Ltd to manage the associated procurement processes and the awarded contracts. The current Phase One Development Partner scope of services covers the development stage associated mainly with Hybrid Bill procedures, but also provides for support services during the transition to the delivery stage. If HS2 Ltd decides that a delivery partner is required for the delivery stage then it would require a new procurement.
46. Recent mega projects, such as the London 2012 Olympics and Crossrail have relied on private sector delivery partners rather than seeking to fully resource the public sector delivery entity. However, the long duration of the HS2 programme creates a unique challenge – if a delivery partner were to support HS2 Ltd for the construction on the full Y network this could be a ~20 year relationship. A fully resourced delivery body, with its own internal centres of expertise would optimise the opportunity to secure and maintain best practice in major project delivery, but will be challenging to mobilise sufficiently rapidly for the build up to construction of Phase One. A compromise option would be to support HS2 Ltd, in the short to medium term, with a delivery partner whose role would be phased out over time,

as a result of a programme of skills and knowledge transfer. HS2 Ltd are considering the preferred route for mobilisation.

Governance

47. The scale of HS2 necessitates a strong governance structure, which ensures that programme is directed and controlled to ensure it achieves the Secretary of State's objectives. The current programme governance embodies the central roles of DfT (responsible for the overall management of the programme) and HS2 Ltd (performs both a delivery and advisory role in the development of the high speed rail network).
48. The current governance of the programme is maintained through the preparation of reports to the HSR Programme Board, project boards and working groups to enable progress, risks, issues and changes to be managed and decisions to be taken. Key support for the HSR Programme Board for the governance of the commercial aspects of the project is the Project Sponsorship Board, which (among other activities) monitors HS2 Ltd's delivery of the Sponsor's Requirement and makes recommendations to HSR Board on the procurement and commercial strategy for HS2. The detailed role of the boards, delegations, change control, the wider programme governance and assurance are discussed in detail in the Management Case.
49. The delivery phase, with closer involvement of Network Rail, will require a new governance structure to facilitate effective delivery but also to ensure delivery risks are identified and managed. The revised governance arrangements will be underpinned by the two key agreements: the Development Agreement between DfT and HS2 Ltd which will set out DfT's requirements from HS2 Ltd for both the construction works and for policy advice and support; and the intended Tripartite Co-operation Agreement between DfT, HS2 Ltd and Network Rail, which will set out the respective roles of the three parties including a statement of principles on their joint objectives for delivering the HS2 programme.

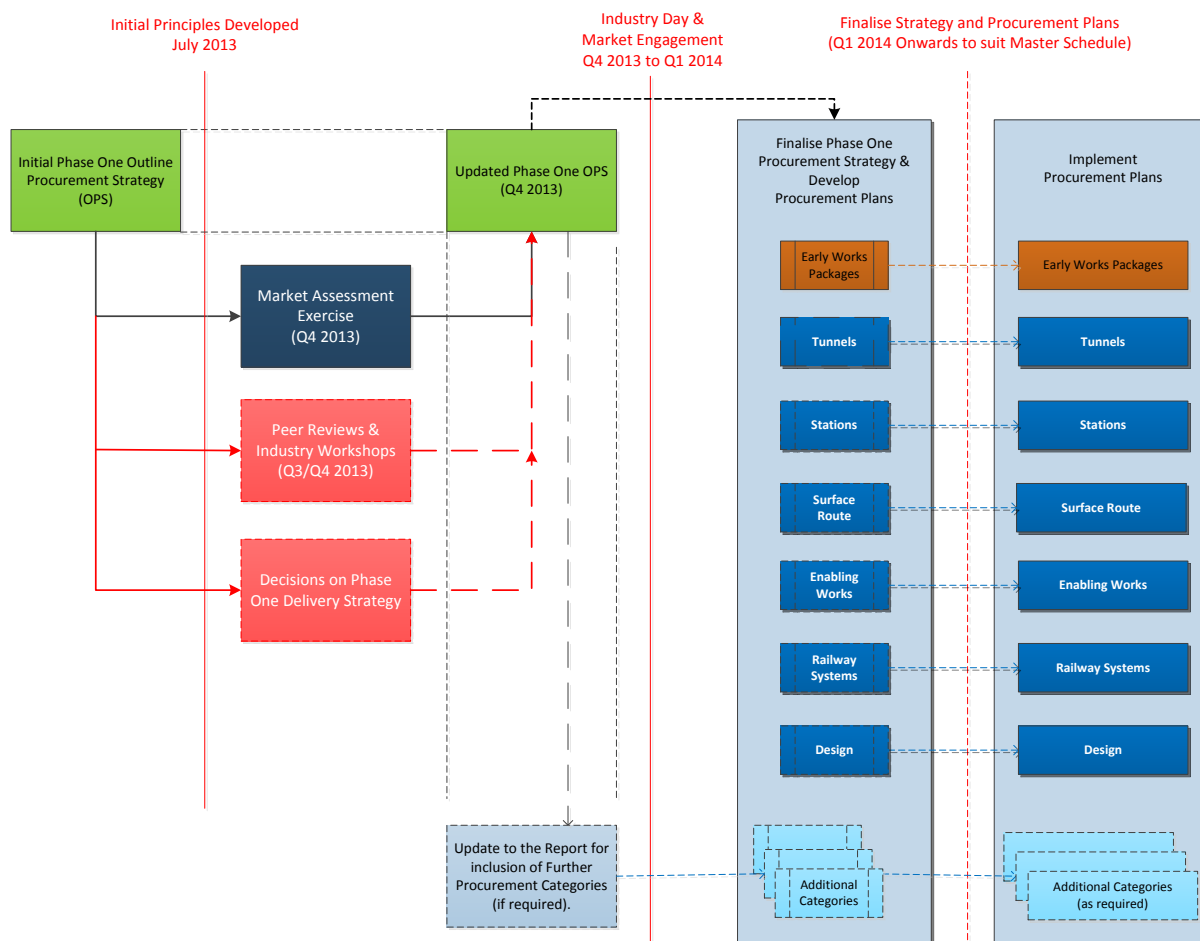
Continuous improvement and lessons learned

50. Embedding a culture of continuous improvement and ensuring that the programme takes account of lessons learned from other recent major infrastructure projects is vital for securing value for money. A key component of continuous improvement will be ensuring that work is undertaken to identify lessons from Phase One and ensure relevant ones are implemented for Phase Two.
51. An initial review of other major projects and key lessons learned based on published best practice has been undertaken by HS2 Ltd and the following learning points have been included in the procurement strategy discussed below:
 - There must be a clear linkage between the procurement and the organisation's key strategic priorities;
 - For the programme of work, the technical and contractual interfaces between work packages need careful attention;
 - There must be effective engagement with stakeholders;
 - The client organisation must contain sufficient skills and proven approach to project management and risk management;

- There must be clarity of the strategy for the development of the design with careful consideration of the handover of design responsibility at an appropriate stage which minimises the risk of abortive or duplicate design work;
- The evaluation of tenders must not be driven by initial price, but the likelihood of the supplier delivering value for money;
- Establish procedures to assess the adequacy of tender prices to encourage sustainable prices which reduce the risk of contract management difficulties and disputes; and
- There must be effective integration between the client team, supplier team and the supply chain.

Procurement strategy

52. The Outline Procurement Strategy (OPS) for Phase One is well advanced. HS2 Ltd will be undertaking a market engagement exercise based on the procurement approach described here during late 2013 and early 2014.
53. The procurement and packaging strategy assumptions will inform, and be informed by, the development of the HS2 Phase One programme, cost estimate and funding profile. The process is iterative and the version developed for the Full Business Case will take into account the views of a wide range of stakeholders including the supply chain, industry groups and associations, leaders from other major projects and government departments. The final version will be agreed after a period of industry engagement.
54. While the work to date focuses on Phase One, the principles and approaches are likely to be equally applicable to Phase Two, whilst also incorporating lessons learnt from Phase One.
55. The following diagram identifies the approach to developing the Phase One Procurement Strategy and Procurement Plans.



Design Management

56. HS2 Ltd does not propose to develop the Phase One design beyond the Preliminary Design stage. Following the production of the Preliminary Design and, as required, performance specifications, it is intended that the design for each work package will be developed and detailed by the appointed contractor and designer team under an Early Contractor Involvement (ECI) or Design and Build (D&B) contract. As shown in the packing strategy section below, ECI will be the dominant approach.

57. Each ECI contract would typically comprise two stages, with a break point at the end of the first stage:

- **Stage 1: Professional Service.** The contractor's role in Stage 1 would be to provide HS2 Ltd with the expertise needed to take ownership of, develop and optimise the design to commence construction planning, including identifying opportunities for off-site manufacture.
- **Stage 2: Detailed Design and Construction.** The contractor's role in Stage 2 would be to take responsibility for and complete the package detailed design and construct the works.

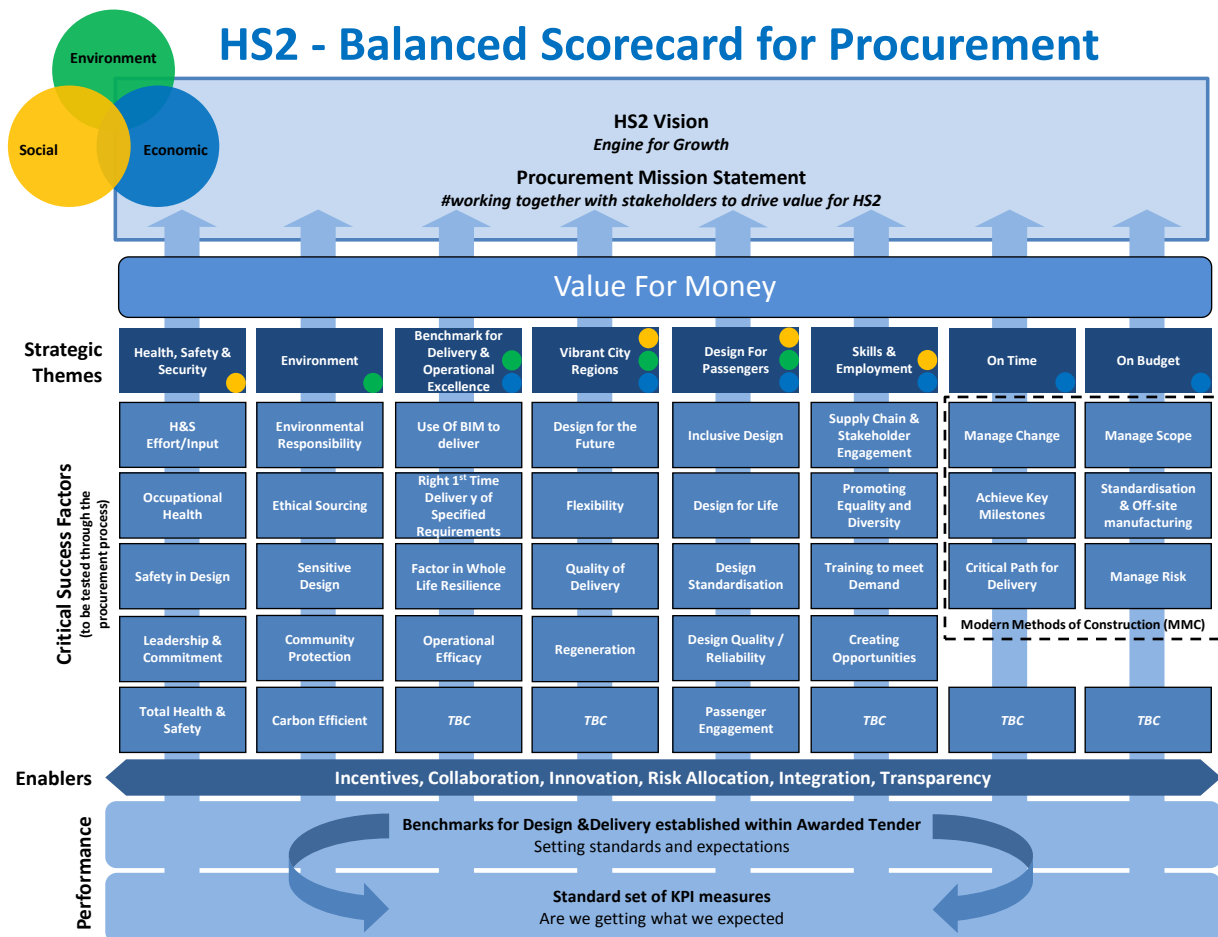
58. HS2 Ltd intends to encourage and seek to maximise opportunity for off-site construction in factory environments with assembly on-site. Off-site construction

has benefits for efficiency, time, quality and more productive use of resources. It can also reduce the impact on the communities along the line of route.

Securing Value for Money

59. All procurement activity will comply with the requirements of the Utilities Contracts Regulations. The aim of the Procurement Strategy is to support the achievement of value for money, which means delivering the Phase One objectives and commitments for the least outlay over the whole life of the railway. It is not about minimising up front prices. A 'balanced scorecard' will be used to ensure that all relevant factors are considered in reaching value for money contract awards.

60. The balanced scorecard ensures that all relevant factors (e.g. objectives, strategic themes, etc.) are considered in reaching value-for-money contract awards. The development of a balanced scorecard for Phase One will be completed once the Strategic Themes have been firmly established and agreed. The following **example** diagram highlights a range of critical success factors that could be used to develop selection and award criteria.



Packaging strategy

61. The key requirements for the Phase One packaging strategy are to ensure that:

- the scope is packaged in a way that the market can efficiently deliver;
- the packages can be effectively and efficiently managed by the client;

- the risks can be clearly identified and managed as appropriate; and
- the supply chain is able to bid for the delivery of the package scope.

62. The following outline packaging and contracting strategy will be assumed for the purposes of the market engagement exercise that is under preparation and will take place in early 2014. The proposed approach will be developed based on the industry feedback attained.

Category	Proposed approach (approx. value ²)
Tunnels	Four main packages of work (geographically based, with contract boundaries taking into account tunnel type and construction methodology) procured using an Early Contractor Involvement (ECI) approach, with the ECI teams appointed following Preliminary Design. (£2,900m)
Stations	Four main packages (one per station) procured using an ECI approach, with the ECI teams appointed following Preliminary Design. Advanced enabling works to be packaged and delivered separately. Options for combining the Birmingham stations and splitting Euston into smaller packages would be tested as part of the competition. Decisions on the provision for over-site development will be taken after Royal Assent, based on engagement with developers. (£2,600m)
Surface Route	Three to six main packages of work (geographically based, with contract boundaries taking into account the engineering requirements) procured using an ECI approach, with the ECI teams appointed following Preliminary Design. (£2,700m)
Enabling Works	Establishment of a framework agreement to de-risk main works contracts with Lots for work types and location. The framework would be established to provide flexibility to deliver individual works packages by mini-competitions in line with programme requirements. (£600m)
Railway Systems	Four to six route-wide functional packages are expected, which would be procured on an ECI or D&B basis. The design for these works packages would be developed to the stage where a robust performance specification could be included within the tender documents. Systems integration will be a key role in supporting the successful delivery of overall railway system performance. (£1,500m)
Design Services	The existing Professional Services Framework (PSF) resources can be used to help prepare ECI tender documents for packages that will need to be procured before Royal Assent. Detailed design will largely be undertaken by main works contractors. A new design framework agreement will be procured to provide the multidisciplinary design resources needed to prepare ECI and D&B contracts after Royal Assent and provide on-going Employer's Agent duties as required. The framework could also include ground movement monitoring services and building condition and inspection services. (£350m)
Rolling Stock, Depots and Signalling	Rolling stock is outside the scope of the current draft outline procurement strategy. Rolling stock procurement is discussed separately below.
Railway Operator (Infrastructure)	What procurement be required for these categories will depend on the outcome of considerations regarding the delivery strategy work due to be finalised in 2014.
Train Operator	
Systems Integrator / Systems Assurer	
Delivery Partner (project management services)	

Procurement Schedule

63. The initial schedule for the full procurement strategy will be produced and refined through 2014. This timescale will allow for the initial schedule to be informed by the industry engagement activity that is being prepared and planned for early 2014. This is key to ensuring that the procurements are planned on timescales that allow industry to respond effectively to the procurement and delivery timetables. The procurement schedule will be kept under review and refined as the hybrid Bill passes through Parliament, and the final design of Phase One is locked down.

Market competitiveness

64. The appetite of the market to take on work packages for HS2 is a key consideration that will need to be assessed within each work package. Suppliers will be drawn to HS2 because:

- The current economic climate has resulted in a contraction of opportunities for suppliers of design, professional, and construction services. With reduced opportunities in the market, the attractiveness of the HS2 Phase One section is high and encourages suppliers to be very competitive in their tenders;
- The timing of the different components of Phase One means that it does not clash with other major transport infrastructure projects. For example, Crossrail will be drawing on construction resource at a stage where HS2 will be drawing on design resource. Alignment with international transport projects (and non-transport construction) will be further considered as the procurement timetable is refined following industry engagement;
- HS2 has sparked significant international interest. Being part of a prestigious project may help the reputation of suppliers and improve their wider contract prospects. In addition, contractors may feel that early programme entry may provide them with knowledge that could help their chances of gaining further contracts in other phases of HS2;
- Experience from other major transport schemes show that there has not been any issues in attracting market leading organisations.
- HS2 is developing efficient procurement methods and is engaging with the market to ensure that work packages are attractive and well-suited to market capabilities.

65. HS2 Ltd experienced no issues during the pre-development phase in attracting interest in the project from market leading organisations.

66. The development and delivery of HS2 will provide a valuable opportunity to build UK capability in the design and construction of the different elements of high speed rail. The skills gained in the production of HS2 would provide globally marketable experience, which will be an attractive prospect to UK-based firms. This will increase the resource pool for HS2 available in the UK, and provide greater opportunities for UK based firms internationally going forward. This is discussed further in the 'maximising commercial benefits section'.

Approach to procurement

67. Each of the procurement categories and/or major work packages will have a detailed Procurement Plan, which will comply with the principles established within the Procurement Strategy. The Procurement Plans will consider and set out the detailed options and recommended approach to packaging, contracting arrangements, selection and award criteria, management of risks, the procurement schedule and a resource plan. The Procurement Plan will be approved by HS2 Ltd prior to formally commencing any procurement.
68. Due to its size, the procurement Phase One will have a cross-Government impact and interest. A wider procurement assurance framework is being developed to ensure Government stakeholders have confidence in the procurement approach. At the centre of this work, HS2 Ltd will establish and manage a procurement process, procedures, model documents, checklists and templates in the form of a Procurement Code. The Procurement Code will provide the benefits associated with consistency and will assist with maintaining the quality of procurement output, manage risks, and realise efficiencies with the procurement output.
69. HS2 Ltd intend to make tendering as efficient as possible for the supply chain by using eProcurement solutions, including the use of online eTendering and eEvaluation tools, and an online contracts management solution.

Contracting strategy

70. With the exception of the Rolling Stock, Depots and Signalling Works Category, which are still being considered, Phase One will predominantly utilise the NEC3 'suite' of contracts for all opportunities which is the only proven contract on a programme of the scale of HS2.⁶ This approach will provide HS2 Ltd with a full range of contracting strategies (including frameworks, works contracts, term services contracts and services contracts). Further, this approach will ensure consistency with other major public-sector infrastructure programmes and clients (most notably, the Olympic Delivery Authority, Crossrail, and Network Rail).

Proposed contract lengths

71. For contracts which are construction only, e.g. civils works, the contract length will be to the end of the construction contracted. To ensure whole-life costs are minimised, there may be a wish to enter into maintenance arrangements for some of the systems contracts, e.g. rolling stock, but this is still to be determined.

Proposed key contractual clauses

72. It is expected that the NEC3 form of contract will be used but any specific terms and conditions will be determined as part of the specific procurement strategy for each contract.

Proposed payment mechanisms

73. Payment terms will be determined as part of the specific procurement strategy for each contract but they will either be based on a value of work done or milestone basis, in each case the work will need to be verified prior to payment.

⁶ The geotechnical framework is a further exception.

Rolling Stock

74. The scale and value of the HS2 rolling stock order for HS2 Phases One and Two will greatly exceed all other recent rolling stock orders instigated by DfT, with a funding envelope of £7.5bn. This compares with a capital value about £1.6bn for Thameslink, about £2.4bn for the Great Western element of the InterCity Express Programme (IEP) contract and about £1bn for the Crossrail rolling stock order.
75. The scale and value of the HS2 rolling stock order is primarily driven by the size of the fleet required to operate Phases One & Two and the nature of the rolling stock to be procured. The network has been designed to support 400m long (as Eurostar) European-sized trains (currently assumed to be 2x200m units coupled together) carrying up to 1,100 people, operating at speeds of up to 225 mph (360kph) and running up to 18 trains per hour.
76. Experience indicates that a transaction of this size would not be supported by the financial markets. Consequently, the current assumption is that the trains will be funded directly by Government. However, achieving the right balance of risk and reward will be critical in order to achieve the required levels of performance on what will be one of the most intensively used parts of the UK rail network. Having an element of private finance would be helpful in securing the high levels of rolling stock performance and reliability necessary for the HS2 programme and this will be explored in greater depth as the rolling stock strategy is developed.
77. The exact nature of the contracting arrangements and the process to procure the fleet of trains is currently in development to ensure, for example, that appropriate risk apportionment between the owner, the manufacturer and the maintainer, if different, is achieved. This includes consideration of the rolling stock – infrastructure integration; i.e. ensuring that the specification and design of the rolling stock are factored into the specification and design of the infrastructure and vice versa, to minimise whole life, whole system costs. There are potentially real benefits from, for example, reduced asset maintenance costs when the “track/wheel” interface is optimised. There are also potential benefits in areas such as energy consumption costs through the adoption of regenerative braking systems. As the procurement strategies for rolling stock and infrastructure are finalised the infrastructure – rolling stock integration will be a key area of consideration.

Current HS2 Rolling Stock Assumptions

78. The current assumptions for the train fleet is predicated upon the procurement of new “Captive” and “Classic Compatible” high speed trains based on existing “off the shelf” European standard designs. This strategy recognises that the Classic Compatible trains would need to be bespoke in design as there are no high speed trains on the market which would fit the UK national network gauge.
79. As Phase Two will not be ready until 2032/33, the entire fleet of high speed trains is not expected to be required for the first day of operation in 2026. Consequently, consideration is being given to determining whether or not there is merit in taking a phased approach to procuring the fleet.

Timetable

80. The long lead times to finalise the rolling stock strategy, develop a specification, instigate and conclude a procurement process, design/test the new trains and finally introduce them into service means that this workstream is expected to need progressing in a broadly similar timeframe to the infrastructure workstreams discussed in the procurement strategy section. It is expected that the rolling stock procurement will start in 2015, with the first trains built and tested in 2024.

Risk allocation and transfer

81. As discussed above, the HS2 programme will be publically funded and delivery will be rooted in the public sector. It follows that the public sector is the ultimate holder of risk on the programme. To reduce the government's exposure to risk, in contracting every endeavour will be made to ensure that appropriate risk is passed to the private sector. All risks would be subject to an early warning process and joint management to minimise their impact.

82. The size of the nature of the project means that large contract packages will be necessary to avoid creating an unmanageable number of contractual interfaces and increasing commercial risk. A balance will be required between increasing the size of the packages and the amount of risk that can be effectively transferred.

83. At the level of individual contracts it is envisaged that these will contain incentives to minimise costs and deliver value for money. In addition, consideration is being given to an overarching Phase One incentive that would develop a set of common goals that encourage all HS2 Ltd suppliers to co-operate closely in the design, planning and delivery of Phase One works packages.

Maximising commercial benefits

84. As discussed above, a wide range of engineering, environmental, technical, financial, service and logistical resources will need to be deployed and managed to realise the objectives and to deliver the associated benefits of HS2. This planning and construction phase will last for 15 to 20 years and will provide the UK supplier base with an unparalleled opportunity for growth with consequential positive impact on the UK economy. There is a real chance to conjoin investment and industrial policy. Once HS2 is operational, other commercial contracts will need to be in place to ensure that HS2 services are run efficiently and effectively and to ensure the right balance of risk between the public and private sectors.

85. In order to maximise economic benefits, the HS2 Growth Task Force has been established ensure that no stone is left unturned in pursuit of growth on the back of HS2. The task force is led by Lord Deighton and contains members from business, local government and academia. In their initial report⁷, the task force highlighted the areas that they intend to explore in their recommendations to Government early in 2014. The task force is looking at development opportunities around stations, wider regeneration in station places, working with the supply chain and increasing skills and apprenticeships to meet the demands of HS2.

⁷ *HS2 Growth Taskforce: The Challenge*, HS2 Growth Task Force, 23 October 2013.
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/252219/hs2-growth-taskforce-the-challenge.pdf

86. Securing the maximum economic benefit for the UK requires that the HS2 project is fully aligned with this objective, from the highest layers of governance through to the individual contracts within the supply chain. At the programme sponsorship level, through the Tripartite Cooperation Agreement, we intend to instil a number of common objectives across HS2 and its interaction with Network Rail and the existing network. These will include objectives in the following areas:

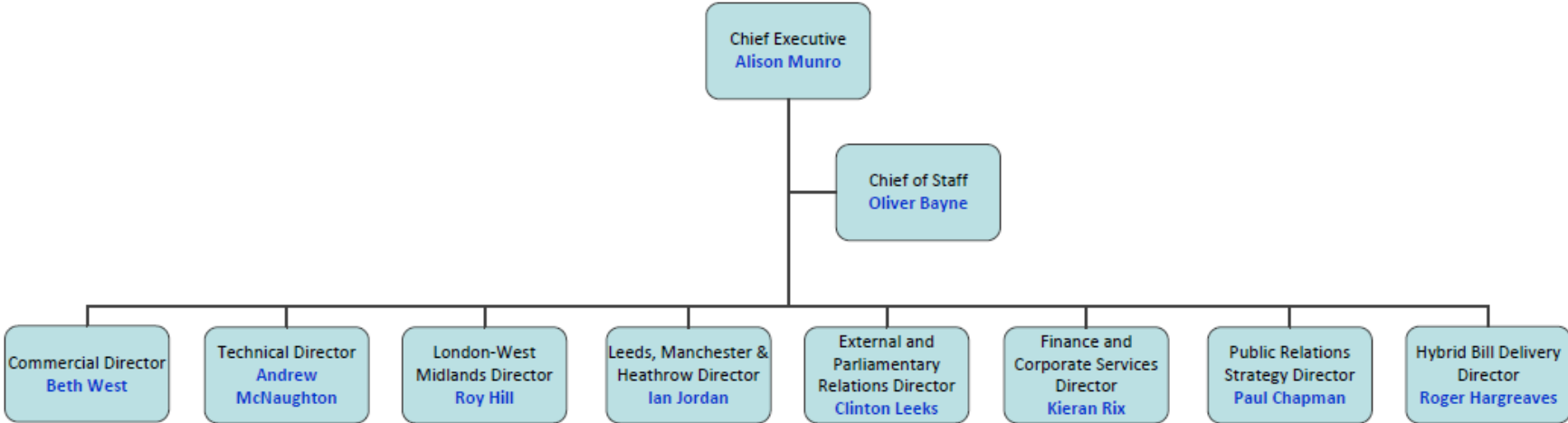
- working together to seek ways to improve cost, programme and risk efficiency through value engineering on a whole system (i.e. infrastructure, rolling stock and train operations), whole network (i.e. high speed and classic), whole life basis.
- Supporting the development and management of a procurement strategy that, in addition to delivering the project, seeks to maximise co-ordination with existing network procurement programmes and the effective management of the industry supply chain (including labour, materials, skills)

87. At the delivery level, to promote future opportunities and enable industry to engage in the development of Procurement Plans, HS2 Ltd will regularly consult and engage with the marketplace throughout the procurement stage of Phase One.

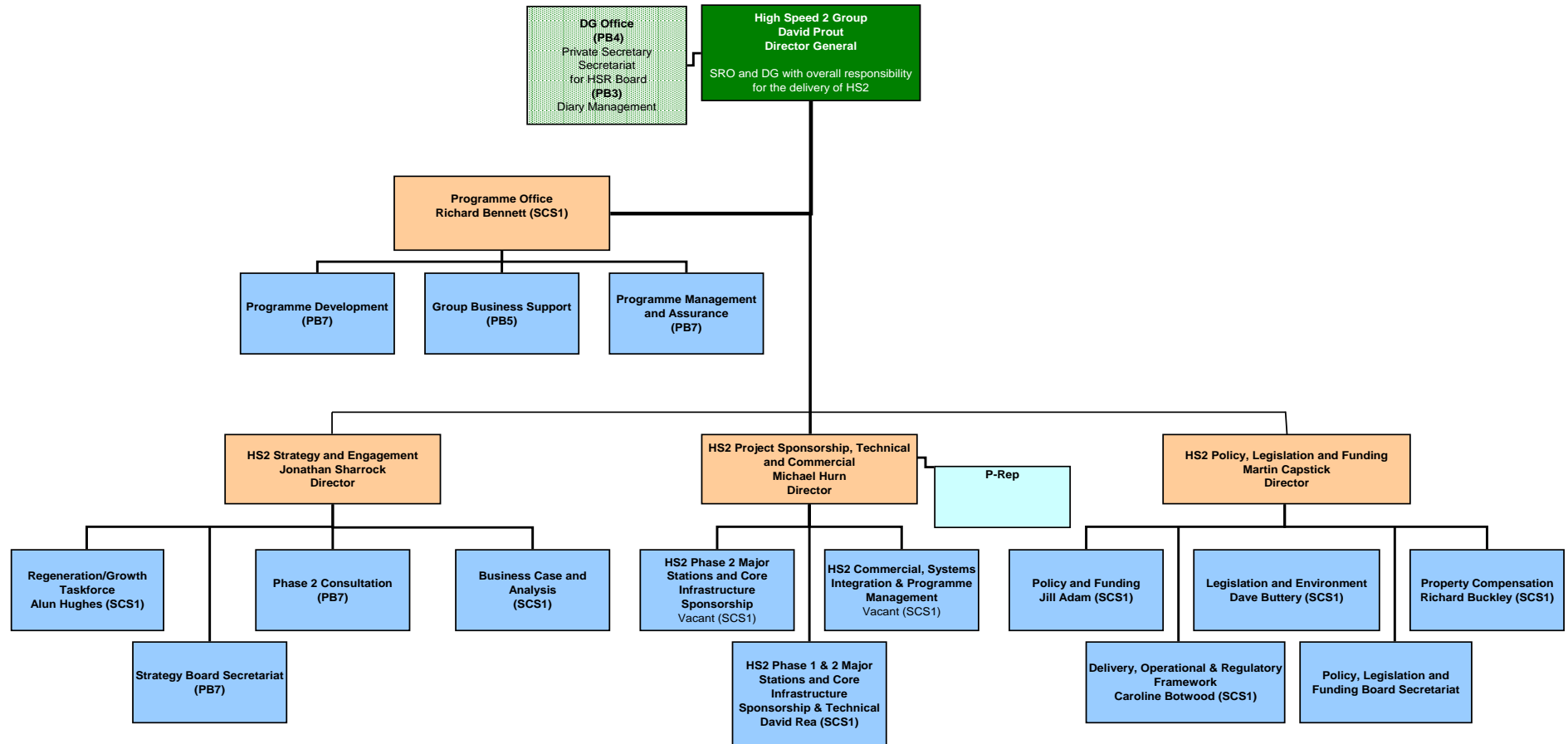
88. HS2 Ltd are developing engagement plans, which build on learning from Crossrail and the London Olympics, to ensure there is sufficient documentation and information events/forums to meet the needs and maximise the opportunities for all stakeholders. This ranges from events to promote strategic alignment at the level of trade associations and government departments, through ensuring a pipeline of information on future opportunities to the international Tier-1 suppliers, to engagement with the supply chain to help UK SMEs with no previous experience in this area benefit from HS2.

89. HS2 Ltd will take measures to ensure that any SMEs interested in Phase One opportunities are supported via publicly available supplier guidance and up to date information regarding opportunities, regular “Meet the Contractor” events and obligations placed on Phase One Tier-1, Tier-2 and Tier-3 suppliers to advertise opportunities openly.

Annex A – HS2 Ltd Organogram (Sept 2013)



Annex B – DfT High Speed Rail Group Organogram (Sept 2013)



* **P-Rep** - DfT Project Representative (P-Rep) monitors HS2 Ltd's approach to risk management; providing monthly reports to the DfT Project Sponsor, including a section on risk; and providing an independent assessment and reports on key risks in the programme.