

# **Evidence to the Eddington Review**

by

## **UK Ultraspeed**

**The importance of strategic transport  
in maintaining and enhancing  
UK competitiveness in the global economy**

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This document expands upon the strategic arguments first presented to the Eddington Review in the *UK Ultraspeed Factbook*

The *Factbook* is available for download from:  
<http://www.500kmh.com/factbooklink.html>

A DVD summarising the UK Ultraspeed project is also available. Copies can be requested via the email contact below. Alternatively an Introduction to Ultraspeed video, excerpted from the DVD, is available for download from: [http://www.500kmh.com/Resources/Ultraspeed\\_Introduction.mov](http://www.500kmh.com/Resources/Ultraspeed_Introduction.mov)

Document researched and authored by the Ultraspeed economics team, with supporting input from The Railway Consultancy Ltd.

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## Executive summary

This document starts with a review of factors affecting the UK's ability to sustain its success in the global economy, that is to say to build and maintain competitive advantage over other locations. Although historic performance has been sound, the UK cannot take future performance for granted. It must continue to innovate in creating the right environment for business. As the Chancellor put it, when visiting, China, the world's emerging economic superpower:

*In the last industrial revolution Britain realised all too late that other countries were not only catching up with us but doing better in applying technology to products and processes.*

*(This time) we can and must make the major changes necessary to compete.*

*Gordon Brown  
February 2005*



**The Chancellor at 431km/h (267mph) on a Transrapid maglev, identical to those to be used by UK Ultraspeed, during his February 2005 visit to Shanghai.**

We offer a high-level reading of globalisation, in the context of EU expansion, and assess UK competitiveness before examining threats to it, both external pressures of globalisation and internal 'disconnections' and 'eroding connectivity' between London and the regions. In this connection, strategic transport infrastructure is analysed as key component of the 'location offer' that enables countries, regions and cities to compete, and dangers flowing from Britain's recent historic under-investment in such infrastructure are discussed.

UK Ultraspeed itself is then briefly discussed, sketching a potential future for UK strategic transport that is not about demand reduction, capacity management or incrementalism but about a non-marginal, strategic investment likely to engender radically different economic performance, competitiveness and infrastructure outcomes. In this, UK Ultraspeed stands, to a degree, as a specific and advanced embodiment of the generic benefits of high speed ground transport. However, it should be borne in mind that no wheel-on-rail option would be as fast, as safe, as reliable, as nationally and regionally comprehensive, as operationally efficient, as economical, as low in land-take, as rapid to build, or as impactful as a 'locational brand anchor' for an economy at the forefront of progress. The same goes for roads, only more so.

These caveats noted, we discuss how intervention 'on a UK Ultraspeed scale' can serve both to reduce the persistent, and widening, gaps between the regions and also to enable London to further reinforce its position as the pre-eminent world city. Impacts on, and interactions with, existing infrastructure and economic drivers are examined in some detail, these effects being vital to rounded and holistic policymaking in the strategic transport field.

The UK has now reached a critical point on its competitive trajectory, as the transition to a fully global economy unfolds. A bold, well-founded, strategic transport initiative will meet this challenge by reducing regional disparities, by relieving the capacity constraints that hinder growth and by enabling the Midlands, the North and Scotland to share more equally the next phase in the UK's development. From the evidence, we conclude that strategic transport is key determinant of locations' ability to compete in the global economy and that a step-change in its UK provision will very significantly increase Britain's ability to compete.

In short, enhancing strategic transport will be vital in generating absolute competitive advantage for the UK. We conclude by recommending benchmarks against which proposed strategic transport investments should be evaluated and highlighting areas for Government action.

## Preface: strategic transport *is* strategic economics

UK Ultraspeed is a *strategic transport* project, but its main driver is *strategic economics*. By delivering a step change in connectivity and access to, from and between the major city-regions of the UK, Ultraspeed is explicitly designed both to enhance UK national competitiveness in the global economy and also to spread the locational advantages of London (the archetypal world city) to *regional economies in London's shadow where peripherality is endemic*.

UK Ultraspeed therefore warmly welcomes this opportunity to submit evidence to the Eddington Review, as it considers precisely these questions and the role that strategic transport plays as a determinant contributor to UK competitiveness in the global economy.

The bulk of this document deals, as requested by the Eddington team, with generic issues of both strategic and transport economics, rather than specifically with Ultraspeed. Full project-specific information is available at [www.500kmh.com](http://www.500kmh.com). However, to provide context for readers unfamiliar with Ultraspeed, the remainder of this preface offers a very brief headline summary of the project.

Using 500km/h [311mph] Transrapid maglev technology, Ultraspeed is designed to transform intercity travel in Britain.

As the table shows, faster-than-air journey times will make the English North and metropolitan Scotland as accessible to the UK's key gateways to the global economy as London, the M25 Belt and the Thames Valley are today.



**Illustration 1: Transrapid maglev**

Origin	Intermediate Calling Points	Destination	Approx. Journey
London or Heathrow [LHR]	–	M25/M1 Park & Ride	10 mins
London / LHR	–	Birmingham	30 mins
London / LHR	Birmingham	Manchester	50 mins
London / LHR	Birmingham, Manchester	Liverpool	60 mins
London / LHR	Birmingham, Manchester, Leeds, Teesside	Newcastle	100 mins
Newcastle	Teesside, Leeds, Manchester	Liverpool	60 mins
Manchester	–	Liverpool	10 mins
Manchester	–	S Yorkshire	15 mins
Glasgow	–	Edinburgh	15 mins
Glasgow	Newcastle, Teesside, Leeds, Manchester, Birmingham	London / LHR	160 mins
Edinburgh	–	Newcastle	35 mins

**Table 1: Ultraspeed Journey Times. As the journeys highlighted in grey illustrate, East:West journeys are also enabled as a fundamental and integral function of this essentially North:South network.**

As the map shows, Ultraspeed provides a North:South high speed backbone between key city-regions and major air gateways, notably Heathrow, and the rail link to the Channel Tunnel.

But Ultraspeed uses the sheer speed advantage of 500km/h maglev not only to create a *North:South* spine, but *also* to create an *East:West* trans-Pennine link between the key city-regions of the English North. This is mirrored further North by an *East:West* connection across Scotland which effectively creates Glasburgh/Edingow, a single 'super-city'.



**Illustration 2: UK Ultraspeed Indicative Route**

The trans-Pennine 's-shape' enables Ultraspeed to support the Northern Way policy objective of transforming three currently separate regional economies into one world-league competitor for investment and jobs, with similar benefits expected from tightening Scotland's central belt.

Ultraspeed thus provides strategic East:West connectivity *as an integral element* of a North:South trunk route. By contrast, TGV-style wheel-on-rail solutions with their much inferior maximum speeds, braking and acceleration, require direct (and thus more costly) lines from each Northern destination to London. This may actually strengthen the 'drain' to London and *deepen* disadvantage in the Northern economies as it does nothing to improve connections between, and economic agglomeration within, the key regional centres.

To conclude this preface, the following table summarises key data relating to UK Ultraspeed.

Item	Data
Route length	800km, designed for phased finance and construction
Design speed	500km/h (311mph)
Vehicle fleet	30-36 10 car Transrapid maglev units, each conveying 840 passengers (up to 1,200 possible in all-economy configuration).
Headway	Every 10 minutes each way
Capacity	Approx 30 billion Available Seat Km (ASK) of new transport capacity created p.a.
Passenger traffic	Min 40 million passengers per annum, on conservative demand modelling
Freight traffic	conveys standard airfreight containers and time-critical postal, courier and logistics traffics
Operations	Highly automated Operational Control System requiring a total of 46 staff to control the entire network, no drivers/pilots in vehicles
Revenue	±£1bn p.a. on conservative fare and yield modelling
Efficiencies	Total operations costs 35% of revenue (~2.5 x better than airlines) Total maintenance costs 33% of high speed rail Integrated systems design enables route sections to be built & operating in 2 years.
Capital cost (±30% estimate)	£20m – £25m per route km (excluding land acquisition). NB: requires 7-10 x less land than High Speed Rail and 45 x less than a motorway
Project Finance	PPP on current account 'availability payment' model akin to 'usage fees' for hospital and school PFIs etc. Delivers on-time system construction and on-spec system operation with no up-front Government payments or grants.