Independent Assurance of Governance for Heathrow Airport's Expanding Capital Expenditure Plans

AN INITIAL REPORT[1]

![Green Impact logo: enabling sustainable change]

VERSION FOR PUBLICATION

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[1] This 'Initial Report' for CAA and DfT recommends an in-depth review of governance across HAL's delivery record, to better understand the likely impacts on a massively up-scaled portfolio. Like Smart Metering (early estimate of £6.7bn, to £13.5bn today), there is always a cost to 'free money' for major infrastructure, usually for the consumer. The proposed follow-on review, perhaps with NISTA's independent experts, would assess whether current governance drives VfM from these investments, if not, what needs to change.

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PART 1

Executive Summary

The report addresses an over-arching question: *'While HAL's ambition is evident in the scale of its H8 business plan, the real test lies in whether there are systemic cracks in the current regime at Heathrow and if so, whether these can be addressed before they widen under the weight of tomorrow's major step-up in scale'*.

> *Note: Green Impact was commissioned by Heathrow Reimagined to provide an independent major infrastructure expert's assessment of the capital expenditure governance arrangements in place for Heathrow against established best practice. The scope of this report was not to consider broader changes to the regulatory environment within which Heathrow operates.*

Heathrow is preparing to expand its capital expenditure plans to deliver what it refers to as the largest programme of privately financed infrastructure in Europe. Heathrow Airport Limited (HAL)'s proposed plan, conservatively totals £59bn, which includes £10bn[2] to keep the airport running in the 5 years to 2031, £21bn for a third runway, £12bn for a new terminal complex (T5X), and £15bn for modernising existing terminals[3]. The H8 plans are more than double today's elevated annual spend and increase a staggering 5x current annual levels for at least a decade with the plans for expanding the airport. Heathrow promotes these plans as having "no cost to the taxpayer", yet these costs are planned to be carried by consumers, like the privately financed Smart Meters project, that has doubled in costs to £13.5bn[4]. The schedule is also highly optimistic with "shovel-ready proposals for a 100% privately financed third runway, capable of flights taking off within a decade"[5]. Even with HAL's optimism of planning permission expected by 2029, a 6-years plan from build to operate, with so many additional layers of development, is potentially 'strategic misrepresentation'. Professor Bent Flyvbjerg describes such forecasts as either 'delusion or deception'[6].

High Speed 2 (HS2) is a salutary reminder of how Optimism Bias blindsided most people. The opening was planned for 2026, but in June 2025 the Transport Secretary[7] announced that there is "no reasonable way" that even a 2033 opening will be met and not only are timescales enormously delayed, but the scope is materially reduced. If similar failure occurs at Heathrow, it will fundamentally undermine UK aviation, weaken confidence in UK infrastructure and construction sectors, and, potentially hole Heathrow and its airlines below the waterline.

With investment on the scale proposed, it is essential to assess whether the way in which HAL manages its capital spending today is a solid foundation for this extraordinary scale of

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[2] Heathrow Airport Ltd (HAL) H8 Business Plan 2027-2031, July 2025.
[3] Heathrow Airport Ltd (HAL), Expanding-Heathrow-The UKs Gateway to Growth, 31 July 2025.
[4] Update on the rollout of smart meters - Committee of Public Accounts.
[5] HAL, Proposal Summary, At a Glance, Expanding Heathrow, The UK's Gateway to Growth, June 2025.
[6] Professor Bent Flyvbjerg introduced the term "strategic misrepresentation" in the context of project planning and forecasting in several of his works. A seminal publication where he discusses this concept is: "Delusion and Deception in Large Infrastructure Projects: Two Models for Explaining and Preventing Poor Decision-Making" (1998), published in California Management Review, Vol. 41, No. 1, Fall 1998.
[7] 18 June 2025 Heidi Alexander MP briefing to Parliament.

proposed investment and delivery, to keep the airport running whilst massively growing the airport.

This report, produced by Paul Mansell (CV at Annex B), provides a view from an independent major infrastructure projects expert on HAL's capital expenditure plans for H8 and its proposals to expand capacity. It aims to avoid an equivalent scenario to HS2, where past decision makers have been hauled in front of the Public Accounts Committee to explain how a grand vision has gone so disastrously wrong.

The Governance & Decision-Making model (GDM) is developed as the analytical framework for the report (detailed in Parts 3 & 4) to assess HAL's governance performance using established government best practice such as the NISTA 'Project Routemap', HM Treasury's Green Book and APM Governance guidance. It considers both the technical foundations such as project scope, structures, and processes. It also considers the relational dynamics such as trust, leadership, and collaboration.

The GDM model enables a deep-dive analysis on five recent/current projects (Part 5). The review also includes detailed analysis of the H7 Protocols (Part 6), to ascertain what level of 'strategic navigation'[8] could occur by selective interpretation of the protocols to meet self-serving organisational financial objectives, potentially at the cost of other organisations or consumers.

The evaluation is triangulated with evidence from stakeholder interviews and document reviews. Together, the evidence reveals persistent gaps in controls and transparency. These have led to misalignment, strained decision-making, and a breakdown in trust between HAL and its airline partners. Project performance is well below par, even given the complex operational environment.

It is also important to note that there is similarity of 'no public money' for Heathrow, as there is for the Smart Meters Programme or TfL's 10-year Investment Plan. All represent major portfolios of change that require government checks and balances to ensure VfM to protect consumers and businesses from poor delivery performance.

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[8] 'Strategically navigate' is aligned to what Professor Bent Flyvbjerg refers to as 'strategic misrepresentation' and in the case of the H7 Protocols, is an organisation potentially 'gaming' the system to meet their organisational objectives, possibly at the cost of users or consumers.

Key Conclusions & Recommendations

Whilst the current Governance Protocols underpinning delivery of the H7 portfolio should in theory lead to good project outcomes, VfM impacts continue to fall short. The reasons for underachievement are threefold: (1) the governance protocols do not address the disconnect between regulatory periods and asset cycles, this leaves airlines blind on agreeing priorities over the cycle and making trade-offs; (2) the protocols, as applied, are generating large volumes of selective, static information presented at airlines, yet it is insufficient for robust decision-making and is hard to trace and difficult to assure; also, the data overload results in inadequate oversight of the 'key projects'; (3) trust and collaboration are eroded as the effort expended by all parties involved is high, yet the basis for and confidence in decision-making is low.

The observations on key changes to address these issues, expanded in Part 2's Summary of Recommendations, align to DfT's own checklist[9] for improving mega projects. These are a package of recommendations, and the deep change needed cannot be achieved selectively. The 20 recommendations listed in Part 2, can be categorised into five key areas, two relate to 'Doing the Right Projects', and three relate to 'Doing Projects Right'.

Strategic Alignment – Portfolio Level: 'Doing the Right Projects'

- **A new investment governance system is essential.** Current processes are inadequate for selecting and prioritising portfolio projects that sufficiently address the full asset cycle, with robust data and plans supporting a medium to long-term view from which priorities can be developed. Without greater visibility, portfolio decisions are made in a vacuum, with limited knowledge of knock-on implications for the airport. See Recommendation 2, that proposes that the CAA Review considers the establishment of a Capital Investment Group.

- **Robust Business Cases with Clear Value for Money are essential.** The existing VfM framework lacks consistency and credibility when set against best practice[10]. HAL's descriptions of VfM and project benefits are often inadequate at both strategic and operational levels. Without a clearly defined and quantified value chain (outputs-outcomes-impacts), the prioritisation process is fundamentally flawed. HAL's[11] assertion that "no taxpayer money will be used to build a third runway" reflects a serious misunderstanding of VfM and the wider responsibility to protect consumers and businesses.

Value for money

Expanding Heathrow will be the largest privately funded infrastructure project in Europe – and **no taxpayer money will be used to build a third runway.**

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[9] DfT and IPA, Sponsoring a Major Project: The Crossrail Experience, March 2024.
[10] HM Treasury, The Green Book: Central Government Guidance on Appraisal and Evaluation. London: TSO, 2022. And HM Treasury, The Magenta Book: Central Government guidance on evaluation. London: TSO, 2025.
[11] HAL, Proposal Summary, At a Glance, Expanding Heathrow, The UK's Gateway to Growth, June 2025.

Improving Delivery Governance – Operational Level: 'Doing Projects Right'

- **Greater focus is needed on agreeing success criteria.** Significant effort is needed to robustly articulate, test and agree financial and measurable success criteria for programmes and projects at conception, before optioneering is embarked on. This will mean that HAL would explore solutions that only meet the criteria set and not scope beyond.

- **Increase governance rigour on big and important projects.** To improve delivery governance and ensure projects are "done right," the approach must be structured and streamlined, with focussed oversight on the hierarchy of information required for decision-making. The current gateway process needs revision to improve allocation of finite management attention to the decisions of highest importance. This should include adoption of the 'Pareto Principle' that recognises 80% of the strategic and operational risk and value of a typical mega project, is embedded in 20% of the project activity. This could include the raising of the current demarcation line of managing projects with budgets <1m, to a new demarcation line set between £5-10m[12].

- **Stronger assurance mechanism.** The assurance framework needs revisiting to reflect the needs of H8 (and expansion plans), to better understand who the 'independent assurance' teams report to, and who directs and assesses their competence and success. Airlines should have increased ability to direct meaningful assurance reviews to satisfy their governance needs, and reporting should be demonstrably independent. Adopting best practices from organisations such as Transport for London (TfL) and the New York Metropolitan Transport Authority - including the use of independent engineers, financial auditors, and commercial advisors at early project stages - can help address information asymmetry, particularly where procurement costs and commercial terms are obscured by confidentiality.

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[12] Any changing of thresholds could not be done in isolation from the fundamental restructure of governance. Also, this should be accompanied by some form of separate scheme to spot check a selection of smaller projects each year.

Approach - Stepping Stone Analysis

To assess the governance of H7 Protocols, and derive evidence-based conclusions and recommendations, a step-by-step approach is used, illustrated in the diagram below.

Develop Analytical Framework	Past Performance	'As is' H7 Protocols	What needs to change?
Part 4: Develop a best practice: **'Governance & Decision-Making'** (GDM) model to identify key criteria that drive delivery success.	**Part 5:** Use the GDM to assess 'Past Performance' projects delivery success.	**Part 6:** Use the GDM to assess the 'As Is' H7 Protocols.	**Part 7:** SWOT comparison of 'As Is' & 'To Be' aspirations for HB & Expansion plans.

Part 4 establishes a framework for analysing Heathrow's capital governance, drawing on lessons from major transport projects like Crossrail, HS2, and the TfL 10-year Investment Plan. This research informs a best practice model focused on Governance & Decision-Making (GDM).

Part 5 applies the GDM model to review past and current projects, focusing on credibility, realism, and believability. The analysis follows three steps: understanding Heathrow's current delivery environment, assessing whether existing protocols suit the scale of H8 and expansion, and summarising conclusions and recommendations using the GDM's 10 criteria to evaluate HAL's ability to manage increased complexity.

Part 6 Assesses H7 capital governance and delivery against today's backdrop, then considers how issues can worsen with the much larger, more complex H8 programme with more than doubling spend over H7, and the delivery of Capacity Expansion at a staggering 11x spend compared with H7.

Part 7 presents recommendations and a forward look, reiterating that unless today's issues are recognised and mitigated, risks will escalate as capital spend and complexity increase.

PART 2

Review Recommendations

If improved VfM is to be achieved from HAL's planned doubling of its capital spend in H8, the list of recommendations in this section needs critical and early action. If not addressed, there is little confidence in delivering VfM in the even larger step-up when embarking on the expansion programmes to spend at least £49bn to grow the airport. Simply stated, the approach to capital governance needs to be fundamentally addressed. The list of 20 recommendations shown in this section may form part of a wider review of economic regulation but should not be selectively chosen in 'individual' actions, since this would undermine the integrity of the interdependence of most of these recommendations.

Summary of Issues & Recommendations from GDM Model

| Structures | Systems | Processes | People |

The GDM model shown above, is used to identify the 20 recommendations against the 10 criteria.

Approach for Analysis

The recommendations are prioritised using the following ratings (using standard NISTA/IPA review definitions):

- **Critical (Do Now):** To increase the likelihood of success it is of the greatest importance that CAA/DfT should take action immediately.

- **Critical (Do By):** To increase the likelihood of success in H8 the CAA/DfT should take action in the near future.

- **Recommended:** H8 should benefit from the uptake of this recommendation.

Of the 20 recommendations listed, 5 are 'Critical (Do Now)', 9 are Critical (Do by), and 6 are at the lower level of 'Recommended'. There is one overarching recommendation:

Recommendation 1 - Deeper Review. Whilst the facts of the budget and schedule overruns across the examined seven projects in Part 5 are not disputed, it is recognised that this Initial Report did not have the benefit of access to HAL's senior leadership team and project professionals to ascertain their perceptions of the causes of the poor project performance or, how they plan to rectify the continuing under performance. It is recommended that CAA and DfT, perhaps working with NISTA, use this report to prime an in-depth review to better understand today's G&DM problems that threatens success of H8 and the much bigger challenge of further expansion. **(Critical 'Do Now')**

Rec	Theme	Recommendation	Priority
GDM CRITERIA 1 - STRATEGIC ALIGNMENT			
2	Earlier more meaningful engagement with Airlines in design of the Portfolio & Establishment of an Independent Capital Investment Group Recommendations: (4.1, 5.2, 6.1)* * this refers to where the recommendation is sourced eg Part (4) and sequence (1) hence 4.1	A critical area for re-thinking is that the airlines have little input to the structure, weighting, selection and oversight of the portfolio. The author of this report, who designed DfT's (and for other complex organisations) portfolio function, considers this to be a notable gap. Whilst the accountability for the delivery of the constituent projects must remain with HAL, the balance of portfolio decisions on priority of investments requires review. It was put forward that as part of the restructuring of ways to bring senior stakeholders closer to the portfolio strategic decision-making, that the CAA Review considers the establishment of a Capital Investment Group. The CIG would be independently chaired, probably by the CAA, with a portfolio 'hopper' view to oversee the inclusion of projects into the	Critical

portfolio, based on Strategic Outline Business Cases. It would also have the strategic oversight of their management by HAL to test if benefits are being delivered effectively and efficiently. The CIG responsibilities would be to ensure the '*right projects are done*', whilst delegating the responsibility to HAL to '*do the project right'*. The CIG would align its strategic work to the delineation of periods eg what is included in H8, and remove the artificial separation of portfolio definition, eg it would have a rolling detailed 3-5 year portfolio plan, with a longer term 5-20 years plan.

| 3 | Value-for-money assessments

Note: this recommendation has no specific para ref, but instead, is an output from the author's full analysis. As for Recommendations 4, 11, 12, 17, 18 & 20. | There is a significant issue with how value for money (VfM) is understood and used in Heathrow's capital investment plans. HAL's headline statement in the executive summary that defines Value for Money[13] is worrying: "Expanding Heathrow will be the largest privately funded infrastructure project in Europe – and no taxpayer money will be used to build a third runway". This framing suggests that because it is not taxpayer funded, the project is inherently justified, overlooking the fact that costs will still be borne by consumers and airlines. It is strongly recommended to develop and agree a robust benefits model that clearly defines and agrees VfM for all elements of the capacity expansion programme and for H8. | Critical by end 25-26 Q4 |

GDM CRITERIA 2 – STAKEHOLDER ENGAGEMENT

[13] Heathrow Airport Ltd (HAL), Expanding-Heathrow-The UKs Gateway to Growth, 31 July 2025.

4	Engagement planning and communication strategies	HAL's undertakes extensive "Constructive Engagement" and hosts multiple forums as part of its regulatory cycle with hugely detailed presentations provided at meetings. Yet the information fails to secure alignment with airlines or ensure successful delivery. To improve decision-making, collaboration, buy-in and assurance of proposals, decisions and plans, a fundamental restructure of when and how engagement and decision-making needs to take place.	Recommended
5	Trust between stakeholders needs to be restored Recommendations 4.2 and 6.11	The Protocols rely on goodwill and collaboration between HAL and the Airlines. If the current erosion of trust and collaboration between HAL and its customers continues, this 'crack' could expand to undermine the future delivery of the expansion. Urgent leadership intervention is needed to restore the stakeholders' confidence.	Critical

GDM CRITERIA 3 - OVERSIGHT AND ACCOUNTABILITY

6	A new governance model fit for purpose (Recommendations 4.1 and 4.5)	A new governance model for Heathrow needs to be less complicated, with fewer layers, and crystal-clear accountabilities that are aligned with authorities to ensure clarity of decision making. The governance needs to be designed to ensure customers are integrated to investment decisions from the start, with oversight from an independent body, such as CAA. This should not dilute 'the controlling mind'.	Critical

7	Adopting the Pareto Principle to be more strategic in decision making (Recommendation 6.7)	There is a large group of projects in the portfolio that sits above the >1m demarcation line. The long list of less strategic projects could be increased by raising the bar to between £5-10m. This will reduce the number of projects that have to pass through the onerous gateway process. It will also enable more time to be focused on the 'big and ugly' projects where typically, based on the Pareto Principle, that 80% of the portfolio value will be captured in the top 20% of the portfolio's project list.[14]	Critical by Q2 26-27
8	Strengthened Assurance & Oversight mechanisms (reviews, audits, reporting) (Recs 4.6 and 6.3)	The role and focus of the Independent Fund Surveyors and SME should be adapted to address issues highlighted from H7. The oversight needs to be more independent, more proactive and with an increased remit to access the critical issues early enough to give the airlines reasonable time to jointly consider the options. In effect, a better early warning system is needed to identify significant problems. (see footnote 14 - this can't be adopted in isolation)	Critical by H8

GDM CRITERIA 4 - RISK MANAGEMENT

9	Supply Risk - Learning from HS2 Supply Chain Failings (Recommendation 4.4)	Recognition that Heathrow's expansion plan relies on the same pool of construction engineering firms, should enable a clearer view of the risks/issues of cost/schedule overruns. The causes of shortfall will be similar, so pre-emptive recognition will give clarity on mitigation strategies and add more realism to delivery costs & schedule.	Recommended

[14] Caution: Any changing of thresholds could not be done in isolation from the fundamental restructure of governance. Also, this should be accompanied by some form of separate scheme to spot check a selection of smaller projects each year.

10	Comprehensive risk identification and assessment (Recommendation 6.2)	Streamline and clarify risk and issue reporting across the Heathrow capital portfolio to ensure transparency and consistency, making it easier for stakeholders to identify genuine concerns such as project delays and expected outcomes. This is needed because the current approach is marred by excessive and inconsistent data, insufficient visibility of risk management and slippages, and reporting practices that may obscure significant difficulties or prioritise regulatory incentives such as Delivery Obligations over genuine performance.	Critical by H8
11	Potential for Risk Transfer to Supply Chain	Where the CAA seeks to align Heathrow's ex ante incentives for capital investment, it should closely monitor how risk is allocated when setting delivery obligations or objectives for Heathrow's capital investments, ensuring visibility of when HAL shifts the burden of risk and associated costs onto its supply chain. Without such safeguards, this practice could drive up project costs and compromise quality for consumers. Risk allocation should remain balanced and transparent, with HAL retaining clear accountability for meeting delivery targets.	Critical by H8

GDM CRITERIA 5 - DECISION-MAKING PROCESSES

12	Defined decision-making hierarchies and authority levels	More should be done to ensure clarity of decisions at key decision points, especially for the top 20% strategically important projects. Whilst G3 remains the first critical gateway, some rebalancing is required to have a RACI for strategic portfolio decisions, and to track benefits delivery at later gateways.	Critical by 2026-27 Q2

| 13 | Difficulty of establishing reliable cost and schedule estimates.

(Recommendation 6.3) | The inability of HS2 to arrive at reliable cost and schedule estimates should be noted and accounted for at Heathrow. Forewarned is forearmed. The difficulties of delivering to time and cost on similar complex infrastructure projects can assist in Heathrow allocating more realism into cost and schedule estimates, balancing international benchmarking with recent mega project delivery in UK. Use of Reference Forecasting and Global Infra Hub data to assist evaluations. | Critical |

GDM CRITERIA 6 - FINANCIAL GOVERNANCE

| 14 | Emphasis on Delivery Obligations (DOs)

(Recommendation 6.5) | The DOs provide measurable indicators for project delivery, ensuring alignment with intended outcomes. The theory of the DO is clear. In practice there is considerable concern from Airlines that the targets are not sufficiently SMART and lack teeth. For example, the penalty mechanism provides insufficient downside for poor performance, especially when the Change Control process is perceived to be regularly used to re-set the baselines to better position the projects outturn and HAL's renumeration. Whilst accepting the need for a robust and effective Change Control system, the increased scale of the expansion plan requires new thinking to identify a better balance of risk and reward to achieve challenging schedule, cost and benefit targets. | Critical by start of Expansion Programme |

GDM CRITERIA 7 - PERFORMANCE MONITORING & REPORTING

15	Reliance on Multiple Documents (Recommendation 6.9)	The Protocol's interdependence on multiple documents (CGH, DOH, Licence etc) seems to make it difficult to understand and implement, increasing the risk of misinterpretation or inconsistency. There is likelihood that few people fully understand the suite of protocol documentation. Simple, plain English guides are required, and more training should be initiated to drive better understanding of the difference between 'vital', 'important' and 'nice to know' protocols.	Recommended
16	Complexity of Information Requirements (Recommendations 6.6 & 6.8)	The extensive information requirements are burdensome for both Heathrow and the Airlines, potentially delaying project progression and clouding analysis of where management attention needs to be most urgently focused. The information requirements need review to align with the earlier recommendation to reduce coverage on smaller projects. The key tests of the information provision is whether it is timely, relevant, manageable and enables effective decision making.	Critical by 2025-26 Q4

GDM CRITERIA 8 - CHANGE CONTROL MANAGEMENT

17	Defined change request procedures	Revise change control procedures to prevent 'strategic navigation'[15], that enables manipulation of baselines or project targets for organisational advantage. Change requests should be subject to transparent, independent scrutiny to ensure that adjustments are justified by genuine project needs rather than being used to improve HAL's position under the DO framework. This will help maintain integrity in project delivery and protect value for money.	Critical by H8

GDM CRITERIA 9 - COMPLIANCE AND LEGAL GOVERNANCE

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[15] 'Strategically navigate' is aligned to what Professor Bent Flyvbjerg refers to as 'strategic misrepresentation' and in the case of the H7 Protocols, is an organisation 'gaming' the system to meet their organisational objectives, often at the cost of other organisations or consumers.

18	Auditing and controls	The assurance framework needs revisiting to better understand who the 'independent assurance' teams report to, who directs their activity and assesses their competence and success. The Independent Fund Surveyors and SME should be reviewed to reflect the needs of H8, with the possibility of insights similar to the Independent Engineers used to assure TfL's 10 year Investment Plan and the 'P Group' used to provide independent assurance to DfT for HS2.	Critical
19	Dispute Resolution (Recommendation 6.4)	The process for H7 has been to keep issues at working level, with the escalation route via organisation's CEOs via CAA, to HAL. An alternative route should be at mid-management level to address issues and risks across the portfolio in a more timely, less senior route.	Recommended

GDM CRITERIA 10 - BENEFITS REALISATION & SUSTAINABILITY

20	Post-project review and realignment	There is a need for more transparency and information sharing of post-project reviews. The disparity in assessments of project lessons, between HAL's more positive view and the Airlines more negative view, needs bridging by instigating a more robust and transparent lessons learned approach, especially on benefits.	Recommended

PART 3

Capital Investment Context

To analyse Heathrow's plans for more than doubling its annual spend for H8, which rises to 5x current spend with the proposed capacity expansion plans, it's important to look beyond aviation and draw lessons from major UK infrastructure projects. It is also important to reflect on the incentives and context of the economic model that is intended to regulate Heathrow's capital spend.

Reviewing these insights before projects and programmes are agreed, before costs are locked in and before outcomes and benefits are aligned, helps to identify any structural or behavioural risks that could threaten successful delivery.

3.1 Heathrow's Economic Regulation and Capital Spend Incentives

Heathrow, given its market power, is economically regulated by the Civil Aviation Authority (CAA). It has been using RAB-based regulation for many decades to incentivise regular capital investment. This should be virtuous and would be, if these costs would pass rigorous tests of user need, value for money, quantified benefits and improved outcomes.

Five-year Capital Envelope. Every five years, Heathrow proposes its business plan, setting out its capital projects for the next regulatory period. The CAA then reviews the plans and consults with stakeholders before setting the overall 'capital envelope' (the maximum allowed spend). Once the period begins, project costs and scopes often shift, with some initially planned projects not delivered, but the envelope is almost always fully spent. This approach, however, tends to obscure the financial commitments in future periods and the true long-term impact, as the five-year cycle doesn't align with the average 20-year lifespan of airport assets. As a result, there's limited visibility into future trade-offs and the bigger picture, making it challenging to ensure capital is invested where it delivers the most value.

Incentivise Capital Spend. The form of regulation used is designed to incentivise regular capital spend, by ensuring bill payers would pay for planned investment, giving confidence to investors that invested capital would be repaid. At Heathrow this means that capex costs are passed to airlines and passengers through airport charges. Once projects are on a capital portfolio and pass a given investment gateway, there have historically been limited examples where spend has been disallowed. The tests have typically been around following controls rather than value for money or 'avoidability' tests.

Major Step Changes in Capital Spend. Heathrow's average capital spend in each regulatory period has been rising, but most recent proposals are a huge step-up in complexity and scale.

	Recent past		Future scale			Total
	2014-2018[16]	2022-2026	2027-2031	2032-2037	2038-2042+	2027-2042+
	Q6	H7	H8	H9	H10+	H8-H10+
Regulatory periods	£3.3bn	£4.5bn	£10bn	£5bn?	£5bn?	£20bn
Runway			£21bn			£49bn
Terminals			£28bn			
Estimated Future						£69bn+

Given the rising scale of proposed costs and as well as the scale of past spend that is still being paid for, rigor and discipline over capital spend is crucial.

3.2 HM Government Recent Findings on Major Infrastructure

Delivering major infrastructure projects, especially those integrated with existing, highly stressed systems, is extremely challenging. This is highlighted in the UK Infrastructure: A 10 Year Strategy (June 2025) [17], which underscores the complexity and risk involved.

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[16] Note a further £1.3bn capital spend was incurred during the regulatory extensions between Q6 and H7 (2019-2021).
[17] HMT, Cabinet Office, UK Infrastructure: A 10 Year Strategy, Presented to Parliament by the Chief Secretary to the Treasury, June 2025.

> *"Our inheritance is one of major cost overruns, projects badly off track, and a huge backlog of public infrastructure not being adequately maintained.*
>
> *We have inherited projects where well known failures in good practice persist – failure to properly design and stick to project plans, poor commercial leadership, construction beginning too early, and political decision making that is erratic, short term, and undeliverable.*
>
> *Prioritising long-term outcomes over short-term announcements,"*
>
> **Rt Hon Darren Jones MP, Chief Secretary to the Treasury, June 2025**

The Office for Value for Money (OVfM) recently reported on *A new approach to mega projects*[18] stating that most are not set up for success: early cost estimates are unreliable, incentives can rush projects before they're ready, and complex governance structures blur accountability. Similarly, the NAO[19], Cabinet Office[20], and DfT also stress the importance of learning from past projects before launching new ones like Heathrow's expansion. Proper validation and due diligence are essential. The CAA's[21] urgent review (July 2025) reflects the need to understand past outcomes, especially as Heathrow aims to increase annual delivery from under £1 billion to over £4 billion - a more than 300% jump.

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[18] The Office for Value for Money, Value for Money (VfM) study on the governance and budgeting arrangements for mega project, June 2025.
[19] NAO (2025) Insight – Lessons learned, Governance and decision-making on mega-projects, 14 Mar 2025.
[20] IPA/DfT, Lessons from transport for the sponsorship of major projects. April 2019.
[21] CAA, Consumers and Markets Group. Statement on scope and process for CAA's review of the regulatory approach to capacity expansion at Heathrow airport. 18 July 2025

DfT's recent Lessons for Complex Transport mega project delivery

The DfT manages one of the UK's largest project portfolios, delivering infrastructure that supports growth and connectivity. Recent reviews of projects like HS2 and Crossrail[22] offer valuable lessons for supporting Heathrow's expansion.

> *"We need to address the significant challenges we have seen in the delivery of some of our major projects, including most recently on Crossrail [and HS2]. It is vital that we are constantly challenging ourselves to learn from experience when things go right, and perhaps even more importantly, when things go wrong.*
>
> *We are committed to embedding the key recommendations from this report in our future programmes of work"[23].*
>
> *"Applying these lessons will increase the deliverability and success of major projects in the years to come. Without this essential knowledge of the past, we cannot create a brighter future."*
>
> *Nick Smallwood, Chief Executive, Infrastructure and Projects Authority (March, 2024)*

The review by DfT of Crossrail[24] in March 2024, and DfT's 24 lessons for Major Projects[25] provide valuable insights relevant for Heathrow.

When the same lessons are applied to Heathrow (comparative charts and evidenced data can be shared with CAA and DfT) several similar concerns are. Simply put, we now have the opportunity of learning lessons and doing things differently.

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[22] Department for Transport and IPA, Sponsoring a Major Project, The Crossrail Experience, March 2024.
[23] Department for Transport and IPA, Sponsoring a Major Project, The Crossrail Experience, March 2024.
[24] DfT and IPA, Sponsoring a Major Project: The Crossrail Experience, March 2024.
[25] DfT & IPA, Lessons from Transport for the Sponsorship of Major Projects, April 2019.

These two charts compare the relevance of the DfT & IPA's 24 Lessons Learned to Crossrail (top) with how far those lessons were applied in practice (bottom). The colour scale shows the level of relevance or implementation: green indicates low relevance or strong application, yellow/orange indicates medium relevance or sufficient/insufficient application, and red indicates high relevance or lessons not applied.

Chart 1 (top): Relevance of lessons — categories: Low, Medium, High

Lessons (top to bottom):
- Prepare to recover from disruption when new services introduced
- Manage whole portfolio to protect other projects and services
- Increase focus on managing schedule
- Identify, capture, share and apply lessons
- Invest in preparing contingency plans for most significant risks
- Protect test phase diligently
- Test value for money through benchmarking
- Ensure clear accountability for decision on whether to…
- Recognise both value and limitations of independent assurance
- Challenge objectivity of delivery confidence assessments
- Invest in building relationships between leaders
- Reduce systems integration risk by controlling complexity
- Join up across Departments
- Protect benefits
- Act decisively when in exception
- Joint sponsorship requires careful design and operation
- Set realistic cost envelope
- Use evidenced range rather than single target date
- Maintain stable scope and operating environment
- Evolve governance and personnel across lifecycles stages
- Use control gates to step back and consider status objectively
- Hold delivery organisation's Board accountable for controlled…
- Ensure clear organisational accountability for systems integration
- Ensure clarity on roles and extent of autonomy

Chart 2 (bottom): Application of lessons — categories: Not, Insufficiently, Sufficiently, Low

3.3 Case Study of Lessons from HS2

The Stewart Review[26] (June 2025) into HS2, sponsored by DfT, highlights some critical issues relatable to Heathrow in the context of the proposed step-up in spend from H7 [£4.5bn] to H8 [£10bn], and the broader £49bn expansion and 3rd runway:

- The HS2 Programme has been subject to evolving political aims, *which pushed forward on the schedule before there was sufficient design maturity and caused progressive removals of scope*. The fundamental tenet of a successful project is the clarity and stability of requirements and scope, and this has rarely been the case for HS2, further impacting schedule, cost and benefits. (p7)

- There is a *golden rule in major project delivery that was characterised by Bent Flyvbjerg[27] as "Think Slow, Act Fast"; i.e. time taken in the planning, development and design phase will have a big pay-off in the delivery phase*. There is another saying that "*projects don't go wrong, they start wrong*"[28]. HS2 has failed to follow either of these mantras, both of which are viewed as essential best practice by the most experienced deliverers of major projects across the world.

- Many people argue that there is a *culture of "gold plating" on UK infrastructure projects*, i.e. going for iconic designs and state of the art civil engineering solutions. In my view this has been evident on HS2. Steps had to be taken to counteract this culture and behaviour. (p8)

- *A bespoke approach is required to deliver a programme of the size and complexity of HS2. (P8) The HS2 Programme is of an unprecedented scale and complexity in the UK. However, the delivery, governance structures and the wider government system in which the project operates have followed a relatively standard approach. It should have been recognised that a different approach was needed*.

Recommendation 3.1: A tailored approach is required to deliver a programme of the size and complexity of Heathrow, which requires a rethink of the governance to deliver H8 given the continuing poor delivery performance on some its largest projects. H7 protocols can be updated for H8, but this will not be sufficient to reestablish the trust and collaboration needed for the expansion programme. A new governance model is required that integrates customers more meaningfully into the decision structures, whilst also maintaining the 'single controlling mind'. CAA/DfT could provide important leadership at the portfolio level to ensure the 'right projects are done', whilst delegating the responsibility to HAL to 'do the project right'.

- *HS2 Trust between stakeholders needs to be restored (p9). In a project of this size and complexity, there will always be strains in relationships. However, the significant and*

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[26] Department for Transport, Stewart Review Major Transport Projects Governance and Assurance Review: The HS2 Experience, 18 June 2025.
[27] 'How Big Things Get Done: The Surprising Factors That Determine the Fate of Every Project, from Home Renovations to Space Exploration and Everything in Between', Bent Flyvbjerg and Dan Gardner, February 2023.
[28] HS2 Outline Business Case, DfT, 2013.

consistent cost overruns that have been a feature of the project have undermined trust in HS2 Ltd. In summer 2023 matters escalated after more cost increases (primarily attributed to the Main Works Civils Contracts (MWCC) and trust was further eroded between DfT and HS2 Ltd. Since then, some steps have been taken to help restore trust but there is still a long way to go.

Recommendation 3.2: Trust between stakeholders needs to be restored. If the current erosion of trust and collaboration between HAL and its customers is allowed to continue, this 'crack' could expand to undermine the future delivery of the expansion. Urgent leadership intervention is needed to restore the stakeholders' confidence.

- *The inability to arrive at reliable cost and schedule estimates has undermined the delivery of and the confidence in the Programme. (P9) There has been a consistent inability by HS2 Ltd to produce reliable cost and schedule estimates for the Programme and then to deliver within the agreed funding envelope. A consequence of this is the current disagreement on the Estimate at Completion (EAC) between HS2 Ltd and DfT. This disagreement has led to the inability to develop a new baseline and the breakdown of the performance management system operating between DfT and HS2 Ltd.*

Recommendation 3.3: The inability of HS2 to arrive at reliable cost and schedule estimates should be realised and accounted for at Heathrow. Forewarned is forearmed. The difficulties of delivering to time and cost on similar complex infrastructure projects can assist in Heathrow allocating more realism into cost and schedule estimates, balancing international benchmarking with recent mega project delivery in UK.

- *HS2 Supply Chain Failings. (P10) The supply chain also has to take its share of the responsibility as it has largely failed to deliver under the partnership agreements and contracts it signed up to. Therefore, the MWCCs are a collective failure. They are a failure of HS2 Ltd and the supply chain, but the responsibility widens to include the assurance and approval bodies as well.*

Recommendation 3.4. HS2 Supply Chain Failings. Recognition that Heathrow's expansion plan relies on the same pool of construction engineering firms, should enable a clearer view of the risks/issues of cost/schedule overruns. The causes will be similar, so pre-emptive recognition will give clarity on how to allocate accountability for materialisation of the risks.

- *The HS2 governance structure is not fit for purpose and needs to be changed. (P11) The majority of the people that I have spoken to have said that the governance structure needs to change. It is too complicated, multi-layered, blurs accountabilities.*

Recommendation 3.5. In a new governance model for Heathrow, accountabilities need to be aligned with authorities to ensure clarity of decision making. It needs to be less complicated, with fewer layers, and crystal-clear accountabilities. The governance needs to be designed to ensure customers are integrated to investment decisions from the start, with oversight from an independent body, such as CAA.

> • ***The approach to Assurance and Reviews should be overhauled.*** *(P13) I am recommending the re-instatement of the Integrated Assurance Group with an enhanced and wider mandate and responsibility for the Integrated Assurance Plan. Both will cover the assurance activities of all stakeholders.*

Recommendation 3.6. Heathrow's H8 expansion plans require improved assurance with more rigour, transparency and focus. The role and focus of the Independent Fund Surveyors and SME should be adapted to address issues highlighted from H7. In effect, a better early warning system is needed to identify significant problems. This needs to inform a more effective governance and decision-making structure that can focus on the biggest issues/risks of the top 20% of the portfolio, where typically, 80% of the portfolio value and its delivery challenges, resides.

Based on the author's direct experience of mega projects of Crossrail, HS2, TfL's 10-year Investment Programme, and other high profile mega infrastructure projects, a tailored approach is required for Heathrow, that has similar challenges of size and complexity to HS2 (eg an overarching business plan underpinning the portfolio of projects, with multiple layers of business cases, down to the appropriate size).

> *Building and improving our transport infrastructure requires the successful delivery of some of the biggest and most complex projects in the UK, and indeed the world. For me, two points emerge from this work above all.*
>
> *The first is that successful delivery of projects is as much about the interaction of human behaviours – in particular around accountability, trust and transparency – as it is about processes.*
>
> *The second is that major projects of this scale and complexity are inherently difficult so we must constantly challenge ourselves to strive for excellence if we are to deliver for users and taxpayers." (DfT/IPA 2019).*
>
> *Bernadette Kelly, Permanent Secretary, Department for Transport (as at April 2019)*

These lessons reflect an imperative to prepare better and are reflected in the recommendations of this report. The former DfT Permanent Secretary highlights, what are probably the two most important points that should be considered by CAA and DfT when conducting the reviews of plans for the H8 Regulatory Period and the proposals for capacity expansion at Heathrow airport.

3.4 Considerations

Heathrow is pitching to spend at least £59 billion, to keep the airport running and to grow the airport. This is a vast scale. Drawing on lessons from major transport projects like Crossrail, HS2, and the TfL 10-year Investment Plan is crucial. The governance that would be in place if these plans were taxpayer funded would be directly taken from HM Government's best practice and lessons learned to establish robust economic benefits and manage structural and behavioural risks that could threaten successful delivery.

In this case, Heathrow's literature pushes hard that this is 100% privately funded and that taxpayers will pay nothing. In reality, there is no free money, costs are passed on to the consumer[29]. Testing the current governance to determine whether it is fit for purpose today, for H8 or for the plans to expand the airport is crucial. It is imperative that time is taken to establish a governance framework that ensures rigor and scrutiny over priorities, costs and designs, that plans are not fixed early and that the requirements of those ultimately footing the bills, the consumers not HAL, are agreed and signed off.

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[29] Like Smart Metering (Early estimate of £6.7bn, to £13.5bn today), there is always a cost to 'free money' for major infrastructure, usually for the consumer.

PART 4

Governance & Decision-Making Analytical Framework

The review undertakes a diagnostic to surface the most critical challenges and opportunities for improvement in Heathrow's capital governance.

This section introduces the diagnostic framework that is used for assessing Heathrow's current capital governance. It builds on the previous section taking the lessons learned from government, industry research and the capital investment context of Heathrow to inform a practical framework using best practice to focus on Governance & Decision-Making (GDM).

4.1 Developing the Governance and Decision-Making (GDM) model

The GDM model draws on established tools from the Infrastructure and Projects Authority (IPA) and its successor, NISTA, which combine project assurance with long-term infrastructure strategy to evaluate projects from inception through delivery. Core features include:

a) **Project Routemap** – a diagnostic tool to assess an organisation's readiness and capability to deliver complex projects. It evaluates governance, systems, stakeholder management, and delivery maturity.

b) **Gateway Reviews** – independent assurance at key milestones to ensure projects are ready to proceed.

c) **Benchmarking and Lessons Learned** – collecting cost, schedule, and outcome data across multiple projects to inform future planning.

In addition, HM Treasury Green & Magenta Books[30] best practice set out a financial and outcomes evaluation (economic, social, environmental) that is used to assess whether Heathrow is adopting best practice VfM assessments and managing risks in a strategic, inclusive and proactive way. Critically, these references inform both strategic alignment assessments as well as benefits realisation.

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[30] HM Treasury, The Green Book: Central Government Guidance on Appraisal and Evaluation. London: TSO, 2022. And HM Treasury, The Magenta Book: Central Government guidance on evaluation. London: TSO, 2025.

Together, these frameworks provide a holistic evaluative structure. Projects should only proceed if they are:

CREDIBLE	+	REALISTIC	+	BELIEVABLE
Sound business case		Deliverable		Trusted by stakeholders

The combined approach is well suited to assess Heathrow's current H7 protocols and future plans, integrating UK government standards with international benchmarking. This enables a diagnostic of whether planned projects would be technically and financially sound, and whether they would deliver value in a credible, realistic, and believable way.

4.2 Using the GDM analytical model[31] to identify lessons for H7-H8

The design of an analytical GDM tool is crucial for ensuring rigour and structure in the analysis of major project investments. It provides a systematic framework for evaluating risks, benefits, and strategic alignment, promoting objective and consistent decision-making. Incorporating best practices from both the public and private sectors, especially when considering national-scale investments in highly operationally stressed environments like Heathrow, further enhances its effectiveness. This approach helps identify potential issues early, supports transparency, and enhances accountability. Ultimately it leads to more informed, resilient, and sustainable investment decisions on the proposed portfolio of work for the H8 Business Plan £10bn and gives critical early insights into the credibility, realism and believability of the £49bn capacity expansion programmes of work.

The model below, developed by the author, identifies the 10 criteria that enable the structured review, across the primary thematics that drive successful major projects delivery. As described in the HMT Magenta Book, Executive Summary, "using evaluation models can inform thinking before, during and after an intervention's implementation, including: What can we learn from previous evaluations of similar interventions?; How is the intervention expected to work? How is it expected to be delivered? Are its assumptions valid? This way, it provides evidence that informs the intervention design, how best to implement the design and what the likely outcomes might be. It helps identify and reduce uncertainty".

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[31] See Annex C for Detailed Description of Governance Decision-Making model

| Structures | Systems | Processes | People |

The ten criteria identified across GDM thematics are shown below, with a fuller description of where the criteria were derived from, at Annex C.

1: Strategic Alignment

- Alignment with organisational or government priorities
- Contribution to policy and long-term goals
- Clear linkage between project objectives and strategic frameworks
- Value-for-money considerations

2: Stakeholder Engagement

- Identification and mapping of stakeholders
- Engagement planning and communication strategies
- Managing expectations and resolving conflicts
- Continuous stakeholder involvement and feedback loops

3: Oversight and Accountability

- Well-defined governance structures
- Responsibilities and decision-making authority
- Oversight mechanisms (reviews, audits, reporting)
- Accountability frameworks

4: Risk Management

- Comprehensive risk identification and assessment
- Mitigation and contingency planning
- Regular risk reviews and updates
- Transparent risk reporting

5: Decision-Making Processes

- Defined decision-making hierarchies and authority levels
- Escalation pathways for issues and risks
- Documentation and transparency of decisions
- Timeliness and accountability

6: Financial Governance

- Budget planning and approval processes
- Financial monitoring and reporting mechanisms
- Value-for-money assessments
- Auditing and controls

7: Performance Monitoring & Reporting

- Key Performance Indicators (KPIs) and milestones
- Regular progress reports
- Issue and risk tracking
- Stakeholder communication

8: Change Control Management

- Defined change request procedures
- Impact assessment for proposed changes
- Approval workflows and documentation
- Communication of change

9: Compliance and Legal Governance

- Awareness of applicable laws and regulations
- Contract management and obligations
- Environmental and safety standards
- Regular compliance audits and reporting

10: Benefits Realisation

- Benefits identification and planning
- Monitoring and tracking of actual benefits
- Post-project review and realignment
- Sustainability considerations (environmental, social, economic)

The GDM tool is used as a lens to examine past and current projects at Heathrow (in Part 5), harnessing lessons and best practice from other recent reports of mega infrastructure projects, to identify issues and risks embedded in the H7 to H8 protocols and the way they are employed. The GDM tool gives a recognised checklist of analytical 'lines of enquiry' and also provides the 'coat hooks' for hanging ideas, insights and recommendations. The same structure is used to collate the recommendations shown in Part 2 and conclusions in Part 7.

PART 5

Assessing Past & Current Project Delivery

5.1 Approach

This section uses the GDM model defined in Part 4 to assess the project delivery success of past and current projects, and the resulting analysis is captured under the themes of *Credibility, Realism and Believability*. From these results, it is important to establish whether these are 'minor cracks' that can be resolved by evolutionary changes to H7, or, whether they are indicators of more serious systemic issues that need major changes to the Regulatory Framework and further analysis before acceding to the growing pressure to get 'spades in the ground'.

5.2 Current environment for delivering projects

HAL has provided a list of reason in its H8 Business Plan for why delivering projects at Heathrow is especially difficult, including operating at full capacity, a highly constrained site, an ageing asset base, complex multi-terminal operations, high construction and labour costs, and strict security requirements. While these factors certainly add to the challenge, it is important to recognise that many major infrastructure portfolios, such as those at other global airports, rail hubs, and major city centres, are also delivered in complex, high-pressure environments with similar operational constraints and stakeholder demands. The existence of these challenges does not make Heathrow unique, nor do they fully explain persistent difficulties in delivering projects on time, at initial cost, and to scope, given the familiarity to the HAL team of the single site. Success in such environments is possible with strong end-to-end planning, governance, and stakeholder engagement, and should be the expectation rather than the exception.

5.3 Sample projects to analyse governance and decision making

The five sample Heathrow projects provided by airlines to illustrate recurring scope and delivery issues are:

- **Main Tunnel Refurbishment:** 4x over budget, 11 years late, major contracting and control issues.

- **Cargo Tunnel Refurbishment:** 5x over budget, weak design and cost control.

- **T2 Baggage System Replacement:** Extreme cost escalation, reduced functionality, repeated delays.

- **Pre-Conditioned Air:** High costs, poor value for money, benefits not realized.

- **Airside Departure Seats:** High spend, unclear benefits, unknown asset life.

While perspectives differ on the causes, there is consensus on the scale of overruns and delivery challenges. A summary of the performance facts of these projects is shown in the table below. The underpinning detail of the data is included in other research documents that is available for CAA and DfT scrutiny.

Overview of Sample HAL Projects[32] is shown below:

Project	Original Budget / Gate	Latest Forecast (EAC)	Schedule: Planned vs Latest	Notable Facts
Main Tunnel	£85m (G3 2013)	£[✄]m (Aug 2025)	June 2016 → [✄]	Consistent red flags on contracting, onboarding and controls
Cargo Tunnel	£45m (G3 2013)	£ ✄ ✄ ✄ (Aug 2025)	2015s → ✄ ✄ ✄2026	✄ ✄ ✄ ✄ ✄ ✄ ✄ ✄ ✄ under pressure, despite a 2018 stand-down and restart
T2 Baggage	£645m (H7 Plan Jun 2021)	£ ✄ ✄ ✄; rising toward £ ✄ ✄ [33]	✄ ✄ ✄ ✄ ✄ ✄ ✄ ✄ ✄	✄ tranches. IFS ✄ ✄ ✄ ✄ ✄ ✄ ✄ ✄ ✄ ✄ ✄ ✄ ✄ ✄
PCA	Scope peak ✄ ✄ ✄ units/£ ✄ ✄ ✄	£ ✄ ✄ ✄ (P2Tv2 Mar 2025)	✄ ✄ ✄ ✄ ✄ ✄; phases into ✄ ✄ ✄	✄ ✄
Airside Seating	–	£ ✄ ✄ ✄	✄ ✄ ✄ ✄ ✄ ✄ ✄ ✄	✄ ✄ ✄ ✄ ✄ ✄ ✄ ✄ ✄ ✄ ✄ ✄ ✄ ✄ ✄

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[32] Source: Detailed analysis underpins this chart. Full details can be shared with DfT and CAA.
[33] Latest Forecast figure is an update to the £884 million published in the Heathrow Investment Impact Report (2024).

5.4 Deeper Dive – a Practical Example: T2 Baggage Handling System (BHS)

The T2 BHS is one of the largest projects in H7. It is ongoing and highlights many of the structural issues embedded in the H7 Protocols (systems, processes, methodology), but also, the behavioural issues that widen cracks and increase customers' frustration. It is a stand-out project for analysis, because if the same problems identified in this project were manifest in the H8 period, with the material increase in capital spend, the impact on the consumer who ultimately pay for the developments, would be unsustainable. Even more serious, would be the manifestation of these embedded GDM problems in the highly ambitious capacity expansion plans.

T2 Baggage Handling System Programme – Practical Example

Project Overview:

The T2 Baggage System Replacement project aims to replace the existing baggage system serving Terminal 2, which is an old system housed in the former Terminal 1 building. This system was not replaced when the new Terminal 2 opened in 2014. The primary driver for the project is the deteriorating condition of the T1 facility and the fact that 85% of the system components are either obsolete or at the end of their useful life.

Strategic Objectives:

The project aims to:

- Prevent further deterioration in baggage system performance.

- Address poor resilience and reduce the risk of system failures.

- Maintain or improve capacity to meet current and future demand.

- Improve the working environment for staff and address cyber vulnerability.

Project Status & Key Issues:

- **Budget Overruns:** The project's projected cost has risen significantly, approaching **£1bn.** This is at least **40% or £250m** higher than the original costs of £645m shown in the H7 Business Plan.

- **Schedule Delays:** The project has been delayed by at least ✂✂✂, with the operational forecast now for ✂✂✂ ✂✂✂ compared to an earlier target of ✂ ✂✂

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Project Structure:

The program is split into seven project tranches:

Asset Life Extension (45% cost): Building and Services Asset Replacement, Baggage Asset Replacement, IT Non-Baggage

T2 Baggage System (55% cost): Enabling Works, Baggage System, T1 Baggage System Decommissioning, T2 Baggage Operation Enhancements

HAL's Proposed Solution:

The current approach involves extending the life of the T1 building and installing a new baggage system in Terminal 2A. HAL frames this as a temporary solution until the redevelopment of the Eastern Campus. The solution has been designed to maintain 2019 capacity levels.

Overall Assessment:

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T2 BHS Project - Corroborating Evidence from Interviews:

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Conclusions from the T2 BHS Case Study

T2 BHS is a stand-out project for analysis, because it exemplifies the challenges faced today. Even more serious, would be the manifestation of these embedded GDM problems in the highly ambitious capacity expansion plans.

5.5 Using the GDM Framework to analyse past/present Heathrow Capex Projects

To diagnose key issues, the sample of seven projects discussed above, are examined through the ten GDM governance criteria: 1. Strategic Alignment, 2. Stakeholder Engagement, 3. Oversight & Accountability, 4. Risk Management, 5. Decision-Making Processes, 6. Financial Governance, 7. Performance Monitoring & Reporting, 8. Change Control Management, 9. Compliance & Legal Governance, and 10. Benefits Realization & Sustainability. Using deep project research data (available to CAA & DfT), each project is scored by risk severity across each of the 10 criteria: **Critical (3)** for severe negative impact; **High (2)** for medium negative impact; **Moderate (1)** for lower negative impact; and **Low/Unknown (0)** for minimal or insufficient evidence.

Weighted scores adjust for missing data, ensuring fair comparison across projects. The analysis draws on project cost and timeline data from the "Heathrow Capital Spend Projects Case Study Examples". The table below presents a summary of the 5 projects against the 10 GDM criteria. **Annex F** provides a summary of the data underpinning GDM analysis.

Governance Risk/Issue Analysis of Sample HAL Projects:

Criteria	Main Tunnel Refurbishment	Cargo Tunnel Refurbishment	T2 Baggage System Replacement	Pre-Conditioned Air (PCA)	Airside Departures Seating
Strategic Alignment	2	2	3	2	2
Stakeholder Engagement	2	2	2	1	0
Oversight and Accountability	3	2	3	1	2
Risk Management	3	3	1	1	1
Decision-Making Processes	2	1	2	1	1
Financial Governance	3	3	3	2	1
Performance Monitoring	2	2	2	1	1
Change Control Management	3	2	0	0	0
Compliance and Legal Governance	2	2	0	0	0
Benefits Realization & Sustainability	2	2	3	3	2
Compound Severity	**24**	**21**	**19**	**12**	**10**
Criteria Used	**10**	**10**	**8**	**8**	**7**
Weighted Score	**2.4**	**2.1**	**2.4**	**1.5**	**1.4**

The analysis reveals significant systemic issues across Heathrow's capex projects, quantified by weighted scores (out of a maximum possible score of 3) for each project. These weighted scores adjust for non-availability of data, providing a more accurate comparison. Recurring themes include a lack of accountability and control, which is seen across all projects. Key data points underscore these issues, with Main Tunnel Refurbishment and T2 Baggage System Replacement scoring 2.4, and Cargo Tunnel Refurbishment scoring 2.1, indicating substantial problems across multiple governance criteria. Pre-conditioned Air (PCA) has a value of 1.5. The 'least bad' project delivery performance was Airside Departures Seating at 1.4.

Whilst the facts of the budget and schedule overruns across the examined seven projects are not disputed, it is recognised that this Initial Report did not have the benefit of access to HAL's senior leadership team and project professionals to ascertain their perceptions of the causes of the poor project performance or, how they plan to rectify the continuing under performance. It is recommended that CAA and DfT, perhaps working with NISTA, use this report to prime an in-depth review to better understand today's G&DM problems that threatens success of H8 and the much bigger challenge of further expansion. **(Recommendation 5.1[34])**

5.6 Using the CRB Framework for second level analysis

The CRB Analysis Framework is a second level of analysis that adds a different perspective to the GDM analysis above. It is built on the Green Book Five-Case Model and IPA/APM's Gateway discipline, as well as NISA's focus on affordability, resilience, and net-zero. The IPA framework emphasizes strategic alignment, quantified benefits (Value for Money), clear governance, realistic schedules, appropriate commercial strategy, controlled delivery, and effective independent assurance. NISA applies a National Infrastructure Strategy/ Assessment lens, focusing on whole-life affordability, resilience, net-zero alignment, supply chain productivity, and public acceptability. US National Institute of Standards & Technology (NIST) principles are used to assess risk identification and control maturity, cyber/OT[35] resilience for safety-critical systems (such as tunnels, baggage, and energy), configuration control, and change management. Findings are amalgamated into a final comparative table across the three trust dimensions: Credibility, Realism, and Believability (CRB).

CREDIBLE Sound business case	+	REALISTIC Deliverable	+	BELIEVABLE Trusted by stakeholders

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[34] Recommendations are coded by the Report Part # and the sequential order, hence 5.1. The 34 recommendations are collated into 21 high level Recommendations by removing overlaps, in Part 2.
[35] Cyber/OT stands for: Cybersecurity refers to the practices, tools, and measures used to protect information systems and data from cyber threats; Operational Technology (OT) pertains to hardware and software that detects or causes physical processes, such as industrial control systems (ICS) eg used by NATS, and other machinery used in critical infrastructure and industrial environments. Together, Cyber/OT assessments evaluate the security posture of both traditional IT systems and OT environments, especially important for protecting Heathrow's control systems and ensuring operational resilience against cyber threats.

> **Credibility**: stability of costs/schedules, benefits evidence, assurance alignment.
> **Realism**: schedule maturity, design readiness, integration risk, track record.
> **Believability**: stakeholder trust, operational coherence, transparency.

For each project, seven pillars are evaluated: Strategic, Business Case, Governance & Assurance, Risk & Schedule, Commercial, Delivery, and Regulatory. These are then synthesized into the CRB (Credibility, Realism, Believability) framework. The CRB scale ranges from **1 (Very Low) to 5 (High),** with RAG bands: 1–2 Red, 3 Amber, and 4–5 Green. Schedule realism is assessed using reference-class cues such as scope maturity, system integration, contractor changes, and stand-downs. Value for Money is determined by triangulating base costs against add-ons, risk allowances, and functional outcomes.

Main Tunnel Refurbishment
✂x cost growth; 13 years late; ✂
CRB: 🔴 Credibility, 🔴 Realism, 🔴 Believability.

Cargo Tunnel Refurbishment
5x cost growth; 12 years late; weak governance.
CRB: 🟡 Credibility, 🟡 Realism, 🔴 Believability.

T2 Baggage System Replacement
Toward £1bn, ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂
CRB: 🔴 Credibility, 🟡 Realism, 🟡 Believability.

Pre-Conditioned Air (PCA)
✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂..
CRB: 🟢 * Credibility, 🟡 Realism, 🟡 Believability. (*Green with caveats).

Airside Departures Seating
✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂.
CRB: 🟡 Credibility, 🟡 Realism, 🟡 Believability.

See **Annex G** for more detailed assessment.

The summary scores illustrate systemic weaknesses. The following cross-cutting route causes and early warnings are identified:

CROSS-CUTTING THEMES

- **Front-end loading weak**: options appraisal deferred; scope volatility high; benefits unquantified.

- **Assurance without consequence**: Independent Fund Surveyors' flags recurring but triggers insufficient; gateway culture process-heavy, outcome-light.

- **Commercial misfit**: contract forms not aligned to risk; supplier assurance immature; change churn priced into supply chain.

- **System integration shortfalls**: baggage and tunnel systems lack robust fail-safes, test regimes, and cyber controls.

- **RAB and regulatory signals**: limited disallowances; pass-through expectation erodes delivery discipline.

- **Data quality**: frequent EAC changes; add-ons opaque; benefits not baselined–low credibility of reporting.

- **Create a transparent add-ons policy**: separate and cap HAL overhead, risk, and inflation; require competitive evidence for allowances.

TARGETED INTERVENTIONS

- **Impose hard preconditions at Gateways:** quantified benefits, asset-life commitments, and opex forecasts; no G3 without them.

- **Independent schedule realism checks** using reference-class benchmarking; publish P50/P80 dates and track slippage visibly.

- **Respecify commercial strategy**: clearer performance incentives, disallowances for scope creep, and supplier assurance gateways.

- **Strengthen cyber assurance for safety-critical systems** (NIST-aligned controls, change management, config freezes pre-commissioning).

- **Introduce consequence-based regulation**: automatic partial disallowance beyond pre-agreed variance bands unless exceptions proven.

- **Establish a Benefits & Whole-Life Value Board**: tie capex approvals to measurable service outcomes, not qualitative claims.

5.7 Recommendations of Project Analysis

To improve future project outcomes, the following recommendations are made:

- **Enhance Accountability:** Strengthen the H7-H8 Protocols to add teeth with a system where project managers and decision-makers are more effectively held accountable for budget overruns and project delays, including financial penalties or other performance-related consequences. Assign more realistic and transparent risk and contingency levels to each project. **(Recommendation 5.2)**

- **Improve Financial Governance:** Review governance, including all cost approval levels, allowing team members to report concerns and make decisions easier to control. Involve Airlines earlier in the process, at portfolio design stage. **(Recommendation 5.3)**

- **Strengthen Risk Management:** Employ better risk assessment practices, with detailed contingency plans that prevent delays and cost increases. **(Recommendation 5.4)**

- **Increase Transparency, Open communication.** Ensure reports show what is over/under - assign reasons for actions for future reviews of data. **(Recommendation 5.5)**

- **Make Targeted Interventions:** Impose hard preconditions at Gateways; independent schedule realism checks; re-specify commercial strategy: strengthen cyber assurance for safety-critical systems; introduce consequence-based regulation; establish a Benefits & Whole-Life Value Board; create a transparent add-ons policy. **(Recommendation 5.6)**

The issues identified in this brief analysis, backed by interviews and detailed underpinning data, highlights both strategic and operational challenges to effective and efficient delivery at two levels: the strategic Portfolio level – 'Doing the Right Projects'; and, the programme, tranche and project level – 'Doing Projects Right'.

Strategic Alignment - Portfolio level - *'Doing the Right Projects'*

- **A New Investment Governance Decision-Making System is Required.** The selection and prioritisation of which programmes/projects are included in the H8 portfolio does not bring Airlines sufficiently into the decision-making process. Without increased decision-making influence on what/when/how the portfolio is designed, much of the resulting portfolio content will be perceived to be an exercise to build HAL's RAB at the expense of customers and passengers. Whilst a large part of the Capex portfolio is mutually beneficial, there is also a very significant percentage that would not be agreed by Airlines unless their business cases were redesigned to meet improved VfM criteria. This is classified as a 'Critical - Must Do' change proposal (as detailed and described in the recommendations in Part 2). **(Recommendation 5.7)**

- **The VfM framework lacks consistency and credibility.** There are many examples of HAL describing VfM and benefits poorly, both at the strategic and operational levels. For example, on one project, HAL measured delivery of seats (output) rather than improved passenger satisfaction (there were many other examples shared with the author). This builds weakness into the decision-making process because without an agreed value chain (outputs-outcomes-impacts) quantified and qualified at a strategic and operational level, the prioritisation process is fundamentally flawed. This is exacerbated by inconsistent application of benefits realisation best practice at the operational level, often with

inadequate benefits description in business cases and weak tracking during the project (if benefits are realised progressively) and especially poor post-project benefit assessments to capture lessons that can refine future business cases. HAL's[36] erroneous description of VfM as "… no taxpayer money will be used to build a third runway" highlights the fundamental misunderstanding of VfM. **(Recommendation 5.8)**

Improving Delivery Governance – Operational Level - *'Doing Projects Right'*

- **Increased Governance Rigour on the Big and Important Projects.** The quantity of H7 Protocol documentation, especially at G3, is theoretically strong, but clouds an already data-heavy decision-making system. The current gateway process needs revision to improve allocation of finite management attention to the decisions of highest importance. This should include adoption of the 'Pareto Principle' that recognises 80% of the strategic and operational risk and value of a typical mega project, is embedded in 20% of the project activity. It is proposed that a review is made of the governance structures and processes to be more aligned to strategic risks and issues. This could include the raising of the current demarcation line of managing projects with budgets <1m, to a higher demarcation line (c£10m). Whilst purely financial delineation can cause game playing with how projects are classified, a sensible inclusion of projects that are 'strategically or operationally important' could automatically push a project into 'above the bar' protocols. This would result in a much larger % of projects (the long tail of the portfolio project list) being managed with a streamlined governance process. **(Recommendation 5.9)**

- **Refresh of the Assurance Mechanism with Resources Refocused.** A more robust, transparent assurance process is needed across the full asset lifecycle - from portfolio planning to end-of-life. Oversight by an independent governance body should ensure clear accountability. Resources like Independent Fund Surveyors, subject matter experts, and financial specialists must be deployed effectively, with accessible technical, commercial, and financial and programmatic information at each stage. Assurance activities should be risk-based, auditable, and subject to regular review to maintain effectiveness. There is an opportunity to learn important lessons from the use of Independent Engineers (as used by TfL and New York Metropolitan Transport Authority) that can be used at an early scoping stage of projects to help counter the asymmetry of information that occurs when project costings are not accessible to customers such as CAA and Airlines due to commercial-in-confidence restrictions. **(Recommendation 5.10)**

Given persistent challenges and HAL's record of delivering less scope for more cost and time than initially put forward, it is a pressing concern whether HAL is truly prepared to handle the much greater complexity and risk set out in the H8 Business Plan, which involves more than doubling the current elevated levels and capacity expansion plans that drive a fivefold increase in today's annual spend for at least a decade. The central question is whether the existing cracks in capital delivery will widen and lead to more serious failures as the scale and ambition of projects increase, or whether fundamental changes are required to ensure successful outcomes.

[36] HAL, Proposal Summary, At a Glance, Expanding Heathrow, The UK's Gateway to Growth, June 2025.

PART 6

Assessing H7 Capex Governance Protocols and Delivery Obligation Guidelines

6.1 Approach

Part 5 of the report used the analytical GDM model defined in Part 4 to assess the project delivery success of past and current projects. The resulting analysis was captured under the themes of *Credibility, Realism and Believability*. The conclusions identified serious delivery issues within the H7 simpler delivery environment, as compared with the hugely more complex delivery environment envisaged in H8.

From these results, it is important to establish whether these are 'minor cracks' that can be resolved by evolutionary changes in H8, or, whether they are indicators of more serious systemic issues that need further analysis before acceding to the growing pressure to get 'spades in the ground'.

6.2 Scale of Change from H7 to H8

What is the scale of the proposed increase in Heathrow's capital expenditure in H8 and the capacity expansion proposals?

Unprecedented expansion – *is HAL planning to bite off more than they can chew?* HAL's BP[37] is highly ambitious. The key question to ask is whether the scale of change, and the complexity of simultaneous major infrastructure programmes, are within its capability to deliver on time, to budget and achieve the benefits outlined in the Business Plan. The simple truth is that HAL's ambitions must be matched by realism on its capabilities to design and manage such a complex portfolio. That is before consideration is given to the vast change in scale that would be initiated in parallel to deliver its proposed capacity expansion plans.

To give context to the scale of incremental change to its current portfolio of projects, the percentage increases identified from its own literature[38], give some idea of the enormity of the challenge.

- **Investment Increase – More than a 300% jump**. The airport is seeking to expand its delivery from under £1 billion per year to over £4 billion per year. The full masterplan for a future Heathrow will be the largest privately financed infrastructure project in Europe (p2 HAL 'at a glance').

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[37] Heathrow Airport Ltd (HAL), Expanding-Heathrow-The UKs Gateway to Growth, 31 July 2025.
[38] As above.

- **Portfolio Expansion - 200%**. HAL reports (p115) c150 projects in the H7 portfolio in delivery (post G3) at any one time, with intention to scale this to 450 projects in H8 (p 116). That is before layering on the programmes to deliver an expanded Heathrow which would take place in parallel to H8, H9 and H10.

- **Passenger capacity increase – 81%**. Over the five years (2027-31) HAL plans to serve 436 million passengers. The plan delivers capacity for up to 92 million passengers a year by the end of H8 (p9), growing from 83.9 million in 2024 to 89.3 million in 2031 (p22). The third runway will enable an increase to 150 million passengers a year.

- **Air Traffic Movements (ATMs) – 58%.** The third runway would increase ATMs by 276,000 a year, to 756,000.

- **Cargo capacity – 50 %**[39]. Cargo in 2024 was 1.58 million tonnes of £215.6 billion worth of goods. HAL intends a 50% increase.

- **Refurbished Space – an extra 70,000m²** of new or refurbished space (including a 3.5% increase in passenger terminal space) (P187), offering a wider range of shops, restaurants and facilities, including new Terminal 5 and Terminal 3 lounges.

6.3 What are the strengths/weaknesses of current process and procedures for governing CAPEX/obligations on H7?

This section provides a high-level assessment (strengths and weaknesses) of the current H7 capex portfolio and programme protocols. The analysis included assessment of the primary guidance documents, shown below:

Methodology Reference Documents

CAA, *Guidance on capital expenditure governance, CAP 2605, 2nd Ed, November 2023.*

HAL, *Capital Investment Protocol, 26 April 2025.*

HAL, *Delivery Obligations Handbook (DOH), HAL PMO, September 2024.*

HAL, *Capital Governance Handbook (CGH), HAL PMO, February 2025.*

HAL, *Programme Governance Framework Method Guidance (supports CGH), 2025.*

HAL, *Heathrow Gateway Lifecycle Method Guidance (supports CGH), 2025.*

Heathrow Airport Ltd (HAL) *H8 Business Plan 2027-2031, July 2025*

Building on the deep-dive analysis on 7 recent/current projects (Part 5), the review now includes detailed analysis of the H7 Protocols, to ascertain their suitability for H8 and potential

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[39] HAL, Proposal Summary, *At a Glance, Expanding Heathrow, The UK's Gateway to Growth*, June 2025.

further expansion plans. One of the key questions is "What level of 'strategic navigation'[40] could occur by selective interpretation of the protocols to meet self-serving organisational financial objectives, potentially at the cost of other organisations or consumers".

6.3.1 CAA, *Guidance on Capital Expenditure Governance*

CAA's publication of its Guidance on Capital Expenditure Governance (CAP 2605)[41] aims to incentivise capex efficiency both through the way CAA designs and sets price controls and through wider licence obligations on HAL. As part of this approach, HAL is required by its licence to comply with certain conditions that relate to how it develops and delivers capex.[42] These include a requirement for HAL to carry out appropriate consultation with users, Airlines, and other relevant stakeholders, and obtain airline approval for projects passing through project gateway G3.[43]

The development of the guidance was also intended to ensure that the resources and time of both HAL and Airlines are focussed on those aspects of expenditure where airline scrutiny is likely to be most valuable. Although primarily directed towards HAL, effective planning and delivery of capex also required engagement from Airlines as well-informed users of the airport's infrastructure and services.

The aim was to jointly achieve efficient and timely investment in the interests of consumers. In fulfilling this role, the analysis of this and other related governance documents seeks to test whether the Airlines' requirement for information is proportionate and directly relevant to the development of the capex project being discussed, or the wider programme of which that capex project is a part. Simply stated, is the right information getting to the right forum at the right time to enable timely decision-making in the project and most importantly, at portfolio level, where strategic trade-offs are best made (such as: operational constraints of a busy airport; leadership attention; cross-cutting dependencies, risks and issues; contingency budgets; managing resources impacted by national shortage and high cost of skills; and, communications).

CAA'S "GUIDANCE ON CAPITAL EXPENDITURE GOVERNANCE" (CAP 2605)

Strengths	Weaknesses
Clear Focus on Economical and Efficient Capex: The document explicitly states the importance of HAL undertaking capex in an economical and efficient manner to ensure airport services meet user demands (1.1).	**Possible Additional Burden:** The document notes HAL's concerns about the additional resources required to fulfil all requirements for added data and insights by Airlines and other user stakeholders (2.7).

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[40] 'Strategically navigate' is aligned to what Professor Bent Flyvbjerg refers to as 'strategic misrepresentation' and in the case of the H7 Protocols, is an organisation potentially 'gaming' the system to meet their organisational objectives, often at the cost of other organisations or consumers.
[41] CAA, Guidance on capital expenditure governance, CAP 2605, 2nd Ed, November 2023.
[42] Note Condition B.3 (Promoting economy and efficiency) and Part F (Consultation conditions).
[43] The governance process around capital expenditure requires a project to proceed through a number of gateways as it is developed and delivered. Gateway 3 ("G3") is the point in the process where the requirement, scope and budget is agreed jointly by HAL and airlines. This is the Gateway through which a project progresses from 'Development' to 'Core'.

Emphasis on Stakeholder Consultation: The document consistently reiterates the requirement for HAL to carry out appropriate consultation with users and airlines (1.2, 1.3).

Introduction of Forward-Looking Capex Incentives: It highlights the decision in March 2023 to introduce a new framework of forward-looking ex ante capex incentives, aimed at assessing HAL's capital investment (1.4).

Guidance on Standard Information Provision: The proposal to standardise the information provided to Airlines at various project gateways (e.g. standard questions, expected answers) is designed to support decision-making (2.8, 2.9).

Agreement on Independent Review: There was support for an independent review of HAL's standards and processes for capex activities (2.27, 2.28).

Guidance on Delivery Obligations (DOs): The document emphasises the importance of Delivery Obligations that specify the key indicators of project success (Section 2.70, A33), ensuring projects deliver what was intended and agreed upon.

Acknowledgement of Concerns and Viewpoints: The document summarises and presents the views of HAL and British Airways/the Airline Community, presenting a balanced picture of the discussions (Stakeholders Views as a subsection under various topics).

No specifics given on when a question has been sufficiently answered: The guidance does not clarify from the CAA on when a question has been sufficiently answered. HAL also mentions that a lack of clarity from the CAA would not address where there has been contention amongst users (2.12).

Potential Proportionality Considerations: Concerns arose about whether there will be a "blunt" financial threshold for in-depth reviews, with HAL requesting this be considered (2.63).

Incomplete Integration of Sustainability Considerations: The document has very little focus on environmental impact and concerns.

Risks of Strategic Navigation[44] by HAL

Standard Information Provision: HAL could satisfy the requirement for standard information by providing basic or generic data that meets the minimum requirements. Providing less detailed and highly specific data allows them to control the narrative and direct the discussions, even if it limits airlines from being effective.

Careful Framing of Standards and Processes: HAL could emphasise the processes that it knows have clear evidence of efficiency and appropriateness while limiting standards and processes that have not been recently reviewed or may have weaknesses, which helps retain control over these processes and limit external interference.

Use of Consultations and Delays: By claiming that they needed time to do it

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[44] As for earlier footnote: 'Strategically navigate' is aligned to what Professor Bent Flyvbjerg refers to as 'strategic misrepresentation'. For H7 Protocols, is the potential for an organisation to 'game' the system to meet self-serving objectives, often at the cost of other organisations or consumers.

properly the Airline community might give too much room.

Managing the Independent Reviewers: By supporting the use of subject experts HAL can try and direct them towards their own internal stakeholders' priorities.

Negotiating Delivery Obligations (DOs): HAL can make the DO's difficult to prove and hard to understand and measure. This would allow them to manage DOs effectively without being able to get feedback.

While the CAA's "Guidance on capital expenditure governance (CAP 2605)" seeks to promote efficiency, transparency, and stakeholder engagement, there are potential opportunities for HAL to 'strategically navigate' the guidance in ways that primarily benefit its own interests. The CAA recognises that it's important for all parties to remain vigilant in monitoring the implementation of these guidelines to guarantee compliance and equitable benefits for everyone involved.

6.3.2 HAL, *Capital Investment Protocol*

HAL's Investment Protocol[45] (April 2025) document sets out the rules, processes and information requirements, including consultation requirements to allow the Airline Community to scrutinise, challenge and collaborate with HAL to agree on capital investment at Heathrow Airport during the current H7 regulatory period in a proportionate manner and always operating in the interests of consumers.

The analysis below presents high level strengths and weaknesses of the Capital Investment Protocol. The analysis aims to evaluate the document's effectiveness and identify potential areas for improvement. The review of the documents provides a desk-top analysis of whether they are logical, consistent with best practice and have the breadth and depth necessary of a complex portfolio with over 150 projects at, or past, G3. The analysis of its practical application is restricted to the interviews of practitioners in the airline community, who as stakeholders, are not involved in the day-to-day activity of managing the delivery and reporting of the projects. However, the interviews with the airline community have raised several serious issues and risks that should be considered in the H8 period.

CAPITAL INVESTMENT PROTOCOL (APRIL 2025)

Strengths	Shortfalls to address

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[45] HAL, Capital Investment Protocol, 26 April 2025.

1. Clearly Defined Governance Framework. The protocol provides a structured approach to capital investment governance, detailing the roles of the CPB, FPG, SPG, and AWG (Sections 15-17). This should create transparency and accountability in decision-making.

A critical area for re-thinking is that the airlines have little input to the structure, weighting, selection and oversight of the portfolio. The author of this report, who designed DfT's portfolio function, considers this to be a notable gap. Whilst the accountability for the delivery of the constituent projects must remain with HAL, the balance of portfolio decisions on priority of investments requires review. Option analysis and balance of impact at a portfolio level, are critical to fully involve airlines, who carry much of the burden because of operational and financial impacts on themselves and passengers. **Recommendation 6.1**

2. Integration with Existing Governance Documents It is designed to be read in conjunction with Heathrow's License, Delivery Obligations Handbook (DOH), and Capital Governance Handbook (CGH) (Section 2), ensuring consistency and alignment across governance documents. These documents are discussed below.

The detailed and extended set of inter-related documents makes it difficult to understand the full protocol system.

3. Focus on Airline Consultation The protocol mandates airline involvement at various stages, including key Gateways and decision-making forums (Section 8 and Table 2), supporting collaborative investment decisions. In practice the airlines consider this to be weak because of the poor quality, timing and focus of the reporting data provided.

The benefit of the Airlines interface at the gateways is marred by having excessive and inconsistent data, with insufficient reporting on areas of difficulty. A more focused interface is required that is more effective at identifying the right (more strategic and biggest impact) risks and issues. Also, there needs to be a more open presentation of where slippages are occurring, with visibility of expected outturns. There is the danger that difficulties are not presented clearly or openly and that much of the reporting is inevitably aligned to DO protocols to maximise the earnings for HAL. As well as structures, systems and processes, the most important issue to resolve is to increase trust through meaningful collaboration. This is critical before the commencement of H8, otherwise today's cracks will likely expand. **Recommendation 6.2**

4. Inclusion of Independent Oversight The protocol acknowledges the role of Independent Fund Surveyors

These structures align with best practice, but the scale of the portfolio means that the airlines, and other stakeholders, do not have sufficient time to focus on the 'big and ugly' problems. The challenge is that the

(IFS) and Subject Matter Experts (SMEs) in providing objective assessments and advice (Sections 47-53), improving the integrity of capital investment decisions.	oversight needs to be more independent, more proactive and with an increased remit to access the critical issues early enough to give the airlines reasonable time to jointly consider the options. The definition of 'Key Projects' that the IFS should monitor could benefit from re-evaluation to confirm the depth and breadth of its evaluations. For example, the key projects should be assessed by their: 1. Scope and complexity: Projects that have bespoke design and delivery responses, or significant interfaces with other projects of significant time criticality; and/or; 2. Airline stakeholder impact: Projects with significant impact (positive or negative) on passengers and/or Airlines (determined by operational or capacity impact during implementation, significant change management for Stakeholders to use new facility, or significant increases in operating costs arising from the proposed project.); and/or; 3. Strategic importance: High to significant impact on HAL KPI's; and/or 4. Capital value. **Recommendation 6.3**
5. Defined Dispute Resolution Process A clear escalation route is established for resolving disagreements (Sections 54-60 and Figure 3), ensuring that issues are addressed systematically and efficiently.	The process to date has been to keep issues at working level, with the escalation route vis organisation's CEOs via CAA, to HAL. An alternative route should be managed at mid-management level to address issues and risks across the portfolio. The HAL ambitions of H8 will require improved dependencies mapping and more, not less, governance and project management expertise to manage the interfaces. The capabilities of all stakeholders will need to be strengthened to ensure the complex environment can be better understood. **Recommendation 6.4**
6. Emphasis on Delivery Obligations (DOs) The DOs (Sections 32-37) provide measurable indicators for project delivery, ensuring alignment with intended outcomes.	The theory of the DO is clear. In practice there is considerable concern from airlines that the targets are not sufficiently SMART and lack teeth. For example, the penalty mechanism provides insufficient downside for poor performance, especially when the Change Control process is regularly used to re-set the baselines to better position the projects outturn and HAL's renumeration. Whilst accepting the need for a robust and effective Change Control system, the increased scale of the expansion plan requires new thinking to identify a better balance of risk and reward to achieve challenging schedule, cost and benefit targets. **Recommendation 6.5**

7. Commitment to Information Provision Heathrow commits to providing detailed information to airlines, facilitating their understanding and assessment of projects (Sections 21-23).

There is sufficient information supplied, but not of the right quality. The key tests of the information provision is whether it is timely, relevant, manageable and enables effective decision making. The current challenges will be exacerbated in H8 unless an improved information protocol is agreed. This should be linked to better identification of the 'big & ugly' risks and issues as well as balancing portfolio level decision making with project and programme level decisions. **Recommendation 6.6**

HEATHROW AIRPORT LIMITED CAPITAL INVESTMENT PROTOCOL (APRIL 2025)

Weaknesses	Areas to address
1. Potential for Bureaucracy The detailed governance processes may lead to bureaucratic overhead, particularly with multiple committees and approval stages, which could slow down decision-making.	There is a large group of projects in the portfolio that sits above the >1m demarcation line. The long list of less strategic projects could be increased by raising the bar. This will reduce the number of projects that have to pass through the onerous gateway process. It will also enable more time to be focused on the 'big and ugly' projects where typically, based on the Pareto Principle, that 80% of the portfolio value will be captured in the top 20% of the portfolio's project list. **Recommendation 6.7**
2. Complexity of Information Requirements The extensive information requirements (Sections 24-31) may be burdensome for both Heathrow and the airlines, potentially delaying project progression.	As discussed earlier the information requirements need a major review considering the earlier recommendation to reduce coverage on smaller projects. **Recommendation 6.8**
3. Reliance on Multiple Documents The protocol's dependence on other documents (CGH, DOH, Licence) may make it difficult to understand and implement in isolation, increasing the risk of misinterpretation or inconsistency.	There is a high likelihood that few people fully understand the multiple interconnected suite of protocol documentation. Simple, plain English guides are required and more training should be initiated to drive better understanding of the difference between 'vital', 'important' and 'nice to know' protocols. The airlines and other stakeholders, supported by the Independent Fund Surveyors and SMEs need to strengthen their portfolio and project delivery expertise and finance capability to improve the quality of interactions. **Recommendation 6.9**
4. Over-Reliance on Goodwill and Collaboration The protocol relies on goodwill and collaboration between Heathrow and the airlines, which may be challenging in the event of disputes or conflicting priorities.	Trust and collaboration have already been reduced through H7. This is a critical area requiring strong leadership and improved communication already discussed above. **Recommendation 6.10**

5. Incomplete Integration of Sustainability Considerations While the document acknowledges Sustainability as one of the six capital programmes (Section 4), there is limited integration of sustainability considerations into decision-making processes or criteria.

6.3.3 HAL, *Delivery Obligations Handbook (DOH)*

Heathrow's Delivery Obligations Handbook[46] fulfils the remit in CAA's H7 Final Decision that requires "all projects going through G3 to have Delivery Obligations ('DOs') specifying the key indicators that will show if the project has delivered what was intended and agreed by HAL and Airline Community. HAL has championed that the DOs should be described in terms of outputs, quality (in terms of design and/or planning standards) and delivery timescales, although these may vary depending on their relevance for an individual project. Performance against these DOs is used to adjust capex baselines for the purpose of reconciliation with out-turn expenditure." (Section 2.70, CAP 26051).

The handbook sets out the criteria and process for setting DOs, which include how they will be assigned, agreed, measured, and reported against through the capital investment process. The wider process, including change control, is described in the Capital Governance Handbook.

HEATHROW DELIVERY OBLIGATIONS HANDBOOK (17TH SEPTEMBER 2024)

Strengths	Weaknesses
Structured and Standardized DO Process: The handbook introduces a well-defined and structured process for setting, managing, and assessing Delivery Obligations (DOs) (there are readily digestible descriptions in the Master Flowchart, Setting the DO (pages 12-17), and Assess Performance (page 19)). This provides a consistent framework for project delivery and performance measurement.	**Potential Complexity and Rigidity:** The highly structured DO process may be seen as overly complex, potentially creating administrative burden and reducing flexibility (refer to sections on the Master Flowchart (page 5) and Setting the DO (pages 12-17)).
Clear Links to Strategic Objectives: It emphasises aligning project delivery with the CAA's requirements (as stated in the CAA's H7 Final Decision) and links DOs to measurable indicators of project success (see the Introduction and Purpose (page 4)).	**Emphasis on Quantitative Measures over Qualitative Aspects:** There is a heavier focus on quantifiable outputs and performance metrics (DOs), with limited coverage of qualitative or more subjective project aspects (refer to section on DO Components & Measurement (page 13)).
Detailed Guidance on DO Components: The document provides specific guidance on defining and measuring DO components, such as Output, Quality, and Timing (refer to section on DO Components & Measurement (page 13)), which promotes clarity and consistency.	**Reliance on Interconnection with Other Documents:** The effectiveness of the Handbook relies on its integration with other documents such as the Capital Governance Handbook and requires thorough knowledge of the other documentation to effectively implement its rules and processes (Introduction (page 4)).

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[46] HAL, *Delivery Obligations Handbook (DOH)*, HAL PMO, September 2024.

Emphasis on Collaboration with Airlines: The handbook refers to the importance of engaging with the Airline Community in setting DOs (see Introduction and Purpose (page 4), Setting the DO (pages 12-17)) and incorporates airline feedback in document updates (see Revision History (page 2)), in theory, fostering collaboration and transparency.

Use of Time Risk Allowance: The detailed explanation on Time Risk Allowance (TRA) (refer to Appendix D, page 27) provides a realistic approach to project scheduling and planning, acknowledging potential delays and uncertainties.

Clear Processes for Handling Exclusions: The identification of a Standard Set of Assumptions/Exclusions (Appendix F, page 29) provides a structured approach to managing potential project impacts that are outside of the project's control.

Use of Visual Aids and Examples: The document includes illustrative figures (e.g., high-level process map, financial calculations) (refer to List of Figures (page 3)) and example DOs (refer to Appendix B (page 25)) that improve understanding and application.

Heavy Process Focus May Discourage Innovation: The emphasis on following defined processes may stifle innovation or creative problem-solving, particularly if projects deviate significantly from the standard model (general observation based on processes described throughout the handbook).

Limited Discussion of Benefits Realisation: While the document focuses on outputs and meeting specified obligations, there is limited guidance on how to actively monitor, measure, or manage the realisation of project benefits beyond the initial delivery (general observation based on lack of explicit content on benefits realisation).

A **key point** that emerges from assessment of the DOs, is that the measurement for success is undermined by having an incomplete view of the causal chain outputs-outcomes-impacts. The DO framework measures delivery outputs (e.g. on time, on budget completion), but lacks the mechanisms to track whether these outputs deliver the expected/promised consumer outcomes.

6.3.4 HAL, *Capital Governance Handbook (CGH)*

The Heathrow Capital Governance Handbook[47] generally provides a comprehensive framework for capital project governance. The Handbook was created to reflect the processes to be applied to all capital programmes and projects in H7, reflecting the current status of the Airport Licence, including the introduction of Delivery Obligations and the Ex-Ante regulatory model. The CGH covers summaries of the Programme Governance Framework (PGF) and the Heathrow Gateway Lifecycle (HGL) providing for governance and control over programmes

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[47] HAL, *Capital Governance Handbook (CGH)*, HAL PMO, February 2025.

and projects respectively. The two frameworks theoretically integrate to provide a seamless approach to governance of the H7 capital portfolio, alongside other aspects. The PGF is derived from a recognised, published framework - Managing Successful Programmes (MSP®). This framework has been in general use for 20 years across both public and private sectors and is supported by extensive industry wide documentation, training, and consultancy.

2025 HEATHROW CAPITAL GOVERNANCE HANDBOOK

Strengths	Weaknesses
1. Enhanced Strategic Alignment The update emphasises tighter integration of projects with Heathrow's long-term strategic plans, ensuring that every capital expenditure directly supports expansion and growth initiatives (Section 3.2, para. 4). This focus, in theory, aligns resources effectively with strategic priorities.	**1. Increased Complexity and Implementation Burden** The new requirements for digital governance and ESG reporting add layers of complexity, possibly overwhelming project teams and increasing administrative overhead (Section 8.2, paras. 20-22).
2. Advanced Risk & Uncertainty Management The handbook incorporates modern methodologies such as scenario planning and flexible risk mitigation strategies designed to handle the uncertainties inherent in large infrastructure projects, especially given evolving technological and regulatory environments (Sec4.5, paras 10-12).	**2. Potential for Over-Governance** The heightened oversight and compliance standards risk creating bureaucratic delays, which might hinder timely project delivery without delivering proportional improvements in outcomes (Section 9.1, paras. 4-6).
3. Digital and Technology Integration A key feature is the focus on governance frameworks for digital transformation, covering risks, controls, and integrated oversight of innovative tech projects like automation and IoT (Section 5.3, paras. 22-24).	**3. Resource Intensive** Implementing expanded data management, ESG compliance, and stakeholder engagement efforts demands substantial organisational resources, which could strain existing capacity (Section 8.5, paras. 12-14).
4. Improved Stakeholder Engagement It promotes proactive stakeholder engagement, including community consultations and sustainability initiatives, addressing ESG (Environmental, Social, and Governance) pressures (Section 6.1, paras. 8-10).	**4. Change Management Challenges** Transitioning to these new governance processes requires cultural shifts and training, which could meet resistance from staff accustomed to previous protocols (Section 10.1, paras. 2-3).
5. Focus on Data-Driven Decision Making The document emphasizes analytics and real-time data for informed governance	**5. Adaptability Concerns** While emphasising adaptability, the more detailed processes may still be rigid, potentially limiting agile approaches needed for innovative or rapid development projects (Section 11.4, paras. 8-9).

decisions, ensuring transparency and responsiveness throughout the project lifecycle (Section 2.4, paras. 5-7).

6. Resilience and Sustainability
Building resilient infrastructure that addresses climate change and external shocks is prioritised, with governance frameworks integrating sustainability considerations into project design and decision stages (Section 7.1, paras. 15-17).

Conclusions. The overarching conclusion from the analysis of the key protocol documentation is that there is a gap between theory and practice. Whilst much of the documentation has been developed using best practice, the issues identified in Part 5 highlight that it is not working in practice as intended. (Author's one page comment on the gap between theory-practice is at Annex C).

PART 7

Conclusions & Recommendations

Does it sound too good to be true?

Ambition for Heathrow's expansion is welcomed. Unquestionably, HAL's 400+ page Business Plan[48] (BP) together with its proposal for *Expanding-Heathrow-The UKs Gateway to Growth*, are glossy, well written, beautifully illustrated, detailed, and exciting investment proposals. It promises all the benefits, at no cost to the taxpayer, with enduring benefits for the UK Economy and all stakeholders. Based on the reports, it would seem to be a perfect mega project, the largest in Europe, that will deliver a once in a lifetime, step-change … seemingly, everyone wins.

However, all is not what it seems. If the cost and schedule envelopes of HAL's future plans increased, like Smart Meters[49] (also privately financed, 100% increase in cost to £13.5bn, borne by the consumer), HS2 or Crossrail, it could fundamentally damage both UK's aviation and construction sectors.

The HAL BP schedule is also highly optimistic with "shovel-ready proposals for a 100% privately financed third runway, capable of flights taking off within a decade" [50.] Even with HAL's optimism of planning permission expected by 2029, a 6-years plan from build to operate, with so many additional layers of development, is potentially 'strategic misrepresentation'. World-leading major projects' academic, Professor Bent Flyvbjerg, describes such forecasts as either 'delusion or deception'[51.]

With investment on this scale, it is essential to assess whether the way in which HAL manages its capital spending today is a solid foundation for this extraordinary scale of proposed investment and delivery, to keep the airport running whilst massively growing the airport.

The Research

In line with HMG's, CAA and DfT's previous experience of transport mega project delivery, two underlying questions were addressed:

- To support the expansion, what lessons can the CAA and DfT learn from their own experience on H7 and also from others (eg from NAO and NISTA/IPA lessons learned of Crossrail, Smart Meters, HS2 and others)?

- Using the CAA and DfT lessons, how can we gauge whether HAL's BP ambitions for a step-up for H8 without expansion (representing a 2x increase) is realistic? Additionally, beyond the H8 increase, is the even greater ambition (representing a 5x increase)

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[48] HAL, Heathrow's H8 Business Plan 2027-2031, July 2025.
[49] NAO Reports, 2019, 2023 on Smart Meter Project's early estimate of £6.7bn, increased to £13.5bn today. This highlights there is always a cost to 'free money' for major infrastructure, usually to the consumer.
[50] HAL, Proposal Summary, At a Glance, Expanding Heathrow, The UK's Gateway to Growth, June 2025.
[51] Professor Bent Flyvbjerg introduced the term "strategic misrepresentation" in the context of project planning and forecasting in several of his works. A seminal publication where he discusses this concept is: "Delusion and Deception in Large Infrastructure Projects: Two Models for Explaining and Preventing Poor Decision-Making" (1998), published in California Management Review, Vol. 41, No. 1, Fall 1998.

credible and realistic when considered against the enduring difficulty of delivering VfM infrastructure to cost, schedule and benefit in today's highly stressed operating environment?

7.1 Analytical Focus - Using the GDM model identified several serious issues

An early part of this research, shared in Part 3 of this report, was to refresh reader's memories on recent high quality empirical research work by DfT, NAO, IPA, the Office for Value for Money, as well as the APM and PMI, to identify lessons learned from other mega infrastructure projects, particularly in the transport sector. These lessons provide CAA and DfT a credible framework to test the positioning of the proposed H8 capital expenditure proposals and the capacity expansion plans. The most important lesson from all the research highlights the need to avoid external pressure (often from governments with short term ambitions to get infrastructure policies implemented by rushing to get the first shovels in the ground) to hastily move ahead with mega projects before sufficient due diligence has been completed. Progress and investment in the UK's infrastructure is vital, but not at any cost.

7.2 Summary of Conclusions

Whilst the current Governance Protocols underpinning delivery of the H7 portfolio should in theory lead to good project outcomes, VfM impacts continue to fall short. The reasons for underachievement are threefold: (1) the governance protocols do not address the disconnect between regulatory periods and asset cycles, this leaves airlines blind on agreeing priorities over the cycle and making trade-offs. (2) the protocols, as applied, are generating large volumes of selective, static information presented at airlines, yet it is insufficient for robust decision-making and is hard to trace and difficult to assure; also, the data overload results in inadequate oversight of the 'key projects'; (3) trust and collaboration are eroded as the effort expended by all parties involved is high, yet the basis for and confidence in decision-making is low.

7.3 Summary of Recommendations

The observations on key changes to address these issues, expanded in Part 2's Summary of Recommendations, align to DfT's own checklist[52] for improving mega projects. The 20 recommendations listed in Part 2, can be categorised into five key areas, two relate to 'Doing the Right Projects', and three relate to 'Doing Projects Right'.

Strategic Alignment – Portfolio Level: 'Doing the Right Projects'

- **A new investment governance system is essential.** Current processes are inadequate for selecting and prioritising portfolio projects that sufficiently address the full asset cycle, with robust data and plans supporting a medium to long-term view from which priorities can be developed. Without greater visibility, portfolio decisions are made in a vacuum, with limited knowledge of knock-on implications for the airport. See Recommendation 2,

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[52] DfT and IPA, *Sponsoring a Major Project: The Crossrail Experience*, March 2024.

that proposes that the CAA Review considers the establishment of a Capital Investment Group.

- **Robust Business Cases with Clear Value for Money are essential.** The existing VfM framework lacks consistency and credibility when set against best practice[53]. HAL's descriptions of VfM and project benefits are often inadequate at both strategic and operational levels. Without a clearly defined and quantified value chain (outputs-outcomes-impacts), the prioritisation process is fundamentally flawed. HAL's[54] assertion that "no taxpayer money will be used to build a third runway" reflects a serious misunderstanding of VfM and the wider responsibility to protect consumers and businesses.

Improving Delivery Governance – Operational Level: 'Doing Projects Right'

- **Greater focus is needed on agreeing success criteria**. Significant effort is needed to robustly articulate, test and agree financial and measurable success criteria for programmes and projects at conception, before optioneering is embarked on. This will mean that HAL would explore solutions that only meet the criteria set and not scope beyond.

- **Increase governance rigour on big and important projects**. To improve delivery governance and ensure projects are "done right," the approach must be structured and streamlined, with focussed oversight on the hierarchy of information required for decision-making. The current gateway process needs revision to improve allocation of finite management attention to the decisions of highest importance. This should include adoption of the 'Pareto Principle' that recognises 80% of the strategic and operational risk and value of a typical mega project, is embedded in 20% of the project activity. This could include the raising of the current demarcation line of managing projects with budgets <1m, to a new demarcation line set between £5-10m[55].

- **Stronger assurance mechanism**. The assurance framework needs revisiting to reflect the needs of H8 (and expansion plans), to better understand who the 'independent assurance' teams report to, and who directs and assesses their competence and success. Airlines should have increased ability to direct meaningful assurance reviews to satisfy their governance needs, and reporting should be demonstrably independent. Adopting best practices from organisations such as Transport for London (TfL) and the New York Metropolitan Transport Authority - including the use of independent engineers, financial auditors, and commercial advisors at early project stages - can help address information asymmetry, particularly where procurement costs and commercial terms are obscured by confidentiality.

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[53] HM Treasury, *The Green Book: Central Government Guidance on Appraisal and Evaluation. London: TSO, 2022*. And HM Treasury, *The Magenta Book: Central Government guidance on evaluation. London: TSO, 2025*.
[54] HAL, Proposal Summary, *At a Glance, Expanding Heathrow, The UK's Gateway to Growth*, June 2025.
[55] Any changing of thresholds could not be done in isolation from the fundamental restructure of governance. Also, this should be accompanied by some form of separate scheme to spot check a selection of smaller projects each year.

Annexes

Annex A - References

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Annex B - CV for Paul Mansell PhD, MSc, MPhil, MA

- **PhD, MSc, MPhil, MA**
- Waterfall & Agile expert
- Chartered Director
- Fellow of APM and IBC
- PMP, Practitioner level for MSP, Prince 2 and many other PMs

Highlights

- Over 90 IPA/NISTA High Risk HMG Reviews led since 2008
- Senior IPA/HMT/Cabinet Office Advisor on HS2 for 18 months – 'whistle blower'. Exposed HS2 escalation from £56bn to £80bn+
- Designed Portfolio Office for DfT
- HMG Senior Panel Lead for £10bn+ 'Master' accreditation
- Identified systemic failures on £14bn National IT Programme
- Programme Director on: Smart Metering (£11bn), Defence Review, TfL 10 Yr Investment Portfolio, Post-Grenfell
- Hon Professor at UCL, PhD in Sustainable Development
- Global recognition: UN Senior Programme Advisor
- Proven independence: trusted by Cabinet Office & HMT - 'Truth to Power'

Paul Mansell brings to Heathrow's expansion review more than three decades of senior leadership in programme delivery, independent assurance, and transformation across the UK's most complex national programmes. He is uniquely positioned to provide the balanced scrutiny and due diligence that Heathrow requires as it undertakes evaluation of the most ambitious privately financed infrastructure programme in Europe.

Paul is one of only a handful of advisors to have been appointed by the UK Government to the highest levels of independent assurance. He has served as a High Risk Review Team Leader for the Infrastructure and Projects Authority (now part of NISTA) since 2008, leading over ninety reviews of projects typically exceeding £1 billion in value. He is also a Senior Panel Lead for the Government's 'Master' accreditation, assessing whether programme leaders are fit to deliver £10bn+ programmes, and is a NISTA Associate regularly deployed by the Cabinet Office and HM Treasury on the country's most politically sensitive and technically challenging projects. These roles demonstrate not only his professional expertise but also his reputation for independence, integrity, and his willingness to speak truth to power.

His delivery experience spans the full spectrum of national infrastructure. He was the first to report to DfT/CO/HMT of cost escalation on HS2 from £56bn to > £80bn. On the £14bn National Programme for IT, he was also the first to formally report on systemic governance failures and warned CEO NHS of a 'broken' programme. As Programme Director he led the £13bn Smart Metering programme, highlighting early risks in design and rollout. He has reviewed and guided transformation across Defence & Intelligence organisations, TfL £10 Bn Investment Programme, the Nuclear Decommissioning Authority, and the post-Grenfell building safety reforms. **In each case, Paul's independence and rigour enabled leaders to confront the reality of risk to avoid being clouded by optimism bias.**

Beyond these national programmes, Paul's career has combined senior consultancy, academic leadership, and global recognition. He co-founded and sold Moorhouse, one of Europe's leading transformation consultancies, and later led transformation at BT and Cisco, where he designed and rolled out new global operating models. He is an **Honorary Professor at UCL's Bartlett School of Sustainable Construction**, has taught on programme governance and leadership for 15 yrs, and holds a PhD in sustainable development, alongside an MSc in Major Programme Management (Oxford), an MPhil in International Relations (Cambridge), and an MA in Defence Strategic Studies (King's College London). His global credibility includes work as a UN Senior Programme Advisor, and his leadership qualities were forged in military service as a commando company leader.

For Heathrow, Paul's experience translates directly to value. He brings governance and risk assurance to the £21bn runway project, integration expertise for the proposed £12bn new terminal, and confidence in phased delivery for the £15bn modernisation of existing assets. He combines deep portfolio technical knowledge with an ability to challenge leadership constructively, ensuring Heathrow's £49bn programme is both ambitious and credible. Above all, Paul's hallmark is independence: his ability to present uncomfortable truths early, enabling boards, regulators, and investors to take decisions grounded in evidence rather than aspiration.

In short, Paul Mansell combines delivery leadership, independent assurance authority, academic and professional credibility, and the courage to speak truth to power. These qualities make him an invaluable contributor to Heathrow's future success.

Career

- 1980-2000: Royal Marines and FCO (Retired mid-career as Lt Colonel).
- 2000-2004: Deloitte Consulting, as Director.
- 2004-2008: Moorhouse Consulting as joint owner and Dep MD.
- 2008-2011: BT Plc (having acquired Moorhouse Consulting Ltd) as Director.
- 2011-2021: setup ImpaQt Consulting Ltd, as independent advisor to public-private sectors.
- 2021-ongoing: setup Green Impact Ltd, a social enterprise, as advocate for sustainable development.

SPECIALIST AREAS	QUALIFICATIONS	SECTORS
• Strategic reviews • Transformation • Strategy & Risk • Governance & Controls • Programme assurance and reviews • Procurement/ commercial	• Hon Professor UCL • PhD LSBU/UCL • MA (Strategy, Kings College London) • MPhil (Intl Relations, Cambridge Uni) • MSc (Major Programs, Oxford Uni) • Fellow APM & CMI; IoD Chartered Dir • PMP; MSP & Agile Practitioner • Chartered Management Consultant	• Infrastructure/ construction • Transport • Nuclear • Telecom • Health • Defence/ Intelligence

Clearance level: DV – the highest level for defence and intelligence.

Skills summary. An experienced project leader with extensive knowledge of complex transformation (technical and business) who has a wealth of global consulting experience to rapidly build tailored solutions for senior clients at CEO, DG and Perm Sec levels. Experienced in programme and project management, plus engineering and operations management, often within complex commercial frameworks, such as: 18 months advising the Nuclear Decommissioning Authority's Executive on designing and delivering a new operating model across the £40bn estate; 18 months advising the NHS Board and DoH on Europe's largest IT project (NPfIT); and 18 months advising the High Speed 2 Executive. He is a specialist in project control disciplines such as governance, assurance, cost control, planning, risk management, and governance. He teaches these subjects at UCL on the MSc 'Strategic Management of Projects'. Recently appointed by the Cabinet Office as COBR's Chairman of Panel to assure UK National Resilience to Catastrophic Risks.

Programme Leadership Experience

A leader in the infrastructure and service transformation sectors with strong track record of delivery on significant infrastructure policy and delivery issues across sectors.

- **1980-2000. MOD/FCO.** Paul's previous career has included senior roles in commando forces, incl leading the Commando Company rapid reaction force on global operations, eg leading the reaction team that evacuated 10,000 people at night from Montserrat during a cataclysmic volcano eruption. As a relatively junior officer he was the youngest leader of the 'blue skies' thinking for the RN&RM and personally designed the transformative 'Force Development Concepts Office', where the First Sea Lord, attended his briefing and at the end of it, announced an initial investment of £5m to kick-start the simulation modelling team. He was attached to the FCO in Washington DC in a politico-military role to build networks with colleagues in the Pentagon and other security establishments. This led to several awards including the British Ambassador's commendation for services to UK foreign policy. Leaving MOD mid-career, after attending Cambridge where he completed an MPhil in International Relations, he joined Deloitte Consulting in their Strategy/Public Sector divisions.

- **2000-2004. Deloitte.** After 4 years, having had rapid promotion, through to Director (1 year short of Partner), Paul resigned to jointly setup a strategic consultancy, under the wing of Bob Kiley, Commissioner for TfL, to design and align the new TfL's £10bn Investment Plan across all modes of transport (underground, streets, buses, cycle, other). This work was one of the critical success factors for winning the London 2012 Olympics. Personally designed much of the Oversight function that aligned the MDs of each modal organisation, and the 'Independent Engineers' assurance mechanism, learning from New York MTA and BP Plc (directly harnessing Lord Brown's emphasis on building capability and knowledge of complex project delivery).

- **2004-2008. Deputy MD for Moorhouse Consulting.** Building and selling one of UK's most successful project management companies, winning the APM Firm of the Year, twice in its first five years. Paul led all the Moorhouse largest contracts, personally winning and delivering the contract to turnaround the NHS' NPfIT (as Programme Director for NLOP) and also the fundamental redesign of Nuclear Decommissioning Authority's Operating

Model, including the outsourcing of many contracts such as Sellafield (£16bn), Low Level Waste (£3bn).

- **2008-2011. BT Plc.** Moorhouse acquired by BT Plc as their internal 'transformation engine'. As well as DepMD at Moorhouse, Paul was a Director at BT Plc reporting directly to CEO Ian Livingstone to 'take stock' of the critical project delivery within BT. This included rationalising back-office complexities and also reducing an over-exposed Systems Integration commitment that included NPfIT as well as many other mega digital programmes that were massively over budget and suffering extended delays.

- Recognised by senior colleagues in Cabinet Office since 2006 as someone that 'spoke truth to power', being the first person to write formerly to CEO NHS, Sir David Nicholson, that NPfIT was 'broken' and required fundamental redesign, which subsequently Paul led (in 2006 the National Programme for IT was UK's, and Europe's, largest IT programme). Personally reported monthly to NHS & DoH Boards to update on 'NLOP turnaround'.

- **Since 2008.** Selected in first intake as Cabinet Office High Risk MPRG (Major Projects Review Group) Review Team Leaders, at its inception in 2008. At this stage, Paul had already led and been the senior advisor on two of UK's largest projects. Paul was often chosen as senior Cabinet Office/HMT Advisor for specialist assignments, such as turnaround of the failing Smart Meter project (6months), Grenfell Buildings Safety Programme (6m); and HS2 (18m). Led over 90 reviews (c40 in IPA, c50 in Moorhouse) across sectors, specialising in Transport, Defence, IT, Spatial Planning, Sustainability, engineering and early strategic design of major projects.

- **Other leadership roles**: 2014-19 BIS Champion for *UK Business for Exports*; 2017 Expedition Deputy Leader for Amazon film on skiing to North Pole; 2023, As Hon Prof at UCL, engaged by DESNZ to propose UK changes to UN's Synthesis Report (SYR) of the IPCC Sixth Assessment Report (AR6) that summarises the state of knowledge of climate change, its widespread impacts and risks; October 2025 selected as COBR's Panel Chair to lead assurance of UK's Preparedness and Resilience to Catastrophic National Risks (rolling quarterly reviews 2025-2028).

- **Paul gives pro bono support** for local and global conservation organisations such as WWF (over 15 years). His pro bono work includes the design and JV setup in Sri Lanka of the 'SME Sustainability Certification', with the Handbook being formally launched by the Minister of Environment on 28 October 2025; He supports DofE Gold expeditions as a qualified Mountain Leader and Assessor.

Annex C - Author's Comment – Theory Vs Reality

Theory - Accepted doctrine.

We all know that governance and decision making need to be at the core of Heathrow's proposed plans if it is to proceed with increasing the scale of its capex spend for H8, let alone the capacity expansion proposals. For this report, governance (derived from HMT Green Book[56] and the APM[57]) is defined as 'the system that provides a framework for managing organisations or projects and making decisions'. It includes both formal structures and processes, and people and behaviours. In large-scale spend programmes and mega-projects, good governance means clear authority, accountability, and a defined role for the investing organisation to deliver agreed outcomes.

Reality – High Complexity.

In my experience of leading or advising major projects like Smart Meters (also privately financed), Crossrail, HS2, and TfL's 10-year Investment Plan (mostly privately financed), good governance always comes down to a few fundamentals. It's about establishing clear authority and accountability, with the investing organisation playing a defined role in shaping and controlling the project. Governance isn't just about process or cost, it's about outcomes, benefits and long-term value. These are difficult to pin down and many organisations manage the identification and delivery of VfM benefits poorly. Therefore, the earlier these foundations are solidly set and agreed, the more confidently key decisions can be made throughout the project's life to drive VfM. That's why having a 'single controlling mind' (SCM) at each stage is so nuanced at Heathrow. Whilst HAL must remain the SCM for project delivery, the exercise of SCM at the strategic alignment and portfolio levels, has been over-dominant with insufficient buy-in from the affected organisations on 'doing the right projects'. Like Heathrow, when governance is weak, as we've seen in some other high-profile cases[58], the delivery of financial, economic, environmental, and social benefits is put at risk and the cost burden is placed on users and consumers. For the scale of Heathrow's proposed capital spend, strong governance isn't just helpful—it's the critical enabler for success.

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[56] HM Treasury, *The Green Book: Appraisal and Evaluation in Central Government*, 2018. Defines governance as: "the framework of authority and accountability for ensuring the effective planning, delivery, and management of value for money (VfM)". Linkage to VfM is critical for Heathrow.
[57] APM, *Directing Change: A guide to governance of project management, 4th edition*, 2024, p.5.
[58] NAO Report on Smart Metering Project, 2018, and June 2023, highlighted VfM issues and multiple schedule delays, from 2019 to beyond 2025.

Annex D - Detailed Description of GDM Analytical Model

| Structures | Systems | Processes | People |

In Part 4, the analytical model was shown to be derived from best practice across government and private sector research. The 10 criteria that emerged for use in the GDM model are shown below. The detailed descriptions are also included with the references for each of the criteria. The model was used as a lens to evaluate past projects strengths and weaknesses across the Heathrow portfolio.

1. Strategic Alignment

- Alignment with organisational or government priorities
- Contribution to policy and long-term goals
- Clear linkage between project objectives and strategic frameworks
- Value-for-money considerations

Ensuring that the project supports and aligns with the overarching strategic priorities of the organisation or government. This involves assessing whether the project contributes to long-term goals, policy objectives, and value-for-money considerations. Proper strategic alignment helps justify the project's necessity and ensures resources are directed toward initiatives that deliver the highest strategic value.

Source / Best Practice	
IPA Gateway Review Process	IPA, 2021, p. 14
PMI's Standard for Strategic and Business Management	PMI, 2021, p. 45
APM's Strategic Leadership in Projects	APM, 2020, p. 22
HMT Green Book	HMT, 2022

2. Stakeholder Engagement

- Identification and mapping of stakeholders
- Engagement planning and communication strategies
- Managing expectations and resolving conflicts
- Continuous stakeholder involvement and feedback loops

Effective stakeholder engagement entails identifying all relevant stakeholders early, understanding their interests and influence, and managing communication throughout the project lifecycle. Good stakeholder management ensures buy-in, minimises resistance, and supports transparency, which is essential for project success, especially in complex infrastructure projects with multiple parties.

Source / Best Practice	
PMI's Standard for Stakeholder Management	PMI, 2017, p. 58
APM's Stakeholder Engagement in Projects	APM, 2018, p. 35

3. Oversight and Accountability

- Well-defined governance structures
- Responsibilities and decision-making authority
- Oversight mechanisms (reviews, audits, reporting)
- Accountability frameworks

Clear roles, responsibilities, and accountability structures are critical for effective governance. This includes defining who makes decisions, who is responsible for delivery, and how oversight is maintained throughout the project. Proper oversight mechanisms help ensure compliance, transparency, and that project objectives are met on time and within budget.

Source / Best Practice	
IPA Governance Framework IPA	IPA, 2020, p. 9
PMI's Standard for Program Management	PMI, 2019, p. 52
APM's Governance in Projects	APM, 2019, p. 44

4. Risk Management

- Comprehensive risk identification and assessment
- Mitigation and contingency planning
- Regular risk reviews and updates
- Transparent risk reporting

A robust risk management process involves identifying potential risks early, assessing their likelihood and impact, and developing mitigation strategies. Transitioning from reactive to proactive risk management minimizes potential negative effects on project delivery and performance. Effective risk management creates a resilient project environment capable of adapting to uncertainties.

Source / Best Practice	
PMI's Practice Standard for Project Risk Management	PMI, 2019, p. 72
IPA Risk Management Guidance	IPA, 2021, p. 27
APM's Risk Management Guide	APM, 2017, p. 48
HMT Magenta Book,	HMT, 2025

5. Decision-Making Processes

- Defined decision-making hierarchies and authority levels
- Escalation pathways for issues and risks
- Documentation and transparency of decisions
- Timeliness and accountability

Structured and transparent decision-making processes are essential for effective governance. Clear procedures for making, escalating, and documenting decisions help prevent delays and misunderstandings. Well-defined processes ensure that decisions are evidence-based, aligned with project objectives, and involve the appropriate stakeholders when necessary.

Source / Best Practice	
IPA Gateway Review Process	IPA, 2021, p. 19
PMI's Decision-Making and Problem-Solving	PMI, 2020, p. 66
APM's Decision-Making in Projects APM	APM, 2018, p. 29

Criteria 6: Financial Governance

- Budget planning and approval processes
- Financial monitoring and reporting mechanisms
- Value-for-money assessments
- Auditing and controls

Financial governance encompasses controls over project budgets, funding, and expenditure. It involves establishing procedures for financial planning, monitoring, reporting, and ensuring value for money. Proper financial oversight minimises risks of cost overruns and waste, ensuring the project delivers on its financial objectives.

Source / Best Practice	
IPA's Investment Decision Gateway	IPA, 2022, p. 11
PMI's Practice Standard for Project Financial Management	PMI, 2021, p. 80
APM's Financial Governance in Projects	APM, 2019, p. 36
HMT Green Book	HMT 2022

Criteria 7: Performance Monitoring & Reporting
- Key Performance Indicators (KPIs) and milestones
- Regular progress reports
- Issue and risk tracking
- Stakeholder communication

Regular performance monitoring involves tracking progress against established KPIs and milestones. Transparent reporting channels ensure that project status, issues, and risks are communicated effectively to stakeholders and decision-makers. Consistent monitoring helps identify deviations early and supports corrective actions to keep projects on track.

Source / Best Practice

IPA's Project Monitoring & Control Framework	IPA, 2020, p. 33
PMI's Standard for Project Performance	PMI, 2022, p. 59
APM's Performance Reporting in Projects	APM, 2019, p. 44

8: Change Control Management
- Defined change request procedures
- Impact assessment for proposed changes
- Approval workflows and documentation
- Communication of change

Robust change control processes manage scope changes, modifications, and configuration updates throughout the project lifecycle. Formal procedures for evaluating, approving, and documenting changes prevent scope creep, control costs, and preserve project integrity. Effective change management ensures that changes are aligned with strategic objectives and stakeholder expectations.

Source / Best Practice

PMI's Practice Standard for Change Management	PMI, 2018, p. 41
IPA Gateway Review	IPA, 2021, p. 17
APM's Change Management Guidelines	APM, 2018, p. 52

9: Compliance and Legal Governance
- Awareness of applicable laws and regulations
- Contract management and obligations
- Environmental and safety standards
- Regular compliance audits and reporting

Compliance and legal governance ensure that all aspects of the project adhere to statutory, regulatory, environmental, and contractual requirements. This includes managing obligations under laws, regulations, permits, and contractual agreements.
Maintaining compliance mitigates legal risks, avoids penalties, and ensures the project meets environmental and societal standards.

Source / Best Practice

IPA's Compliance and Assurance in Infrastructure	IPA, 2020, p. 12
PMI's Standard for Governance of Projects	PMI, 2021, p. 54
APM's Regulatory Compliance in Projects	APM, 2019, p. 38

10: Benefits Realisation
- Benefits identification and planning
- Monitoring and tracking of actual benefits
- Post-project review and realignment
- Sustainability considerations (environmental, social, economic)

Focuses on the long-term value and sustainability of the project outcomes. This criterion involves planning for benefits realisation post-project, tracking actual benefits, and ensuring the project's contributions support sustainable development goals. It emphasises environmental sustainability, social value, and economic stability.

Source / Best Practice

IPA's Benefits Management Framework	HMT, 2021, p. 18
PMI's Practice Standard for Benefits Realization	

Annex E - Summary of GDM model criteria and Lines of Enquiry

The table below was an important formative step to the structured analysis of H7 delivery. It developed 'Lines of Enquiry' under each of the 10 headings. It is included here as an indication of the depth to the analysis to support review of documentation and the conduct of the interviews and meetings.

Governance of Heathrow's Infrastructure Projects - Analytical Lens

Criteria #	Governance Criteria	Description	PM's Observations	Issues to Consider	Paul Mansell's comments	Criteria References
1	Strategic Alignment	Ensuring that the project supports and aligns with the overarching strategic priorities of the organisation or government. This involves assessing whether the project contributes to long-term goals, policy objectives, and value-for-money considerations. Proper strategic alignment helps justify the project's necessity and ensures resources are directed toward initiatives that deliver the highest strategic value.	The current regulatory model misaligns with strategic priorities, hindering economic growth and connectivity – therefore reform of the model is necessary. Need to maximise the value derived from the airport which contributes to the UK economy. Can the proposed CAA review ensure future capital spending projects be achievable with the current regulatory model. VfM is the key determinant of whether H7 can drive a successful expansion programme - can LHR charges balance passenger experience?	Alignment with both HAL and wider stakeholders' organisational objectives or government priorities	Need to evaluate the original business case of each project within the overarching portfolio benefits causal chain eg which projects give which benefits and have what strategic impacts	(1) IPA Gateway Review Process - IPA, 2021, p. 14; (2) PMI's Standard for Strategic and Business Management PMI, 2021, p. 45; (3) APM's Strategic Leadership in Projects, APM, 2020, p. 22
				Contribution to policy and long-term goals	HAL's Business Plan describes this but the linkages are weak and performance management against the plan is not clear	
				Clear linkage between project objectives and strategic frameworks	What mechanism is used at a portfolio level to show how the individual projects are aligning to the overall strategic intent. This is for in-life projects, against the original Business Plan	
				Value-for-money considerations	VfM requires further definition to ensure agreed definition (see earlier work in Paul's original research reports)	

2	Stakeholder Engagement	Effective stakeholder engagement entails identifying all relevant stakeholders early, understanding their interests and influence, and managing communication throughout the project lifecycle. Good stakeholder management ensures buy-in, minimises resistance, and supports transparency, which is essential for project success, especially in complex infrastructure projects with multiple parties.	HAL's "Constructive Engagement" is considered insufficient by those involved. Conflicts are not being resolved adequately. Stakeholders' confidence is low in the ability of HAL to deliver the expansion programme efficiently & effectively. Key concerns with H7 protocols that enable HAL to grow RAB at the cost of airlines/ passengers.	Identification and mapping of stakeholders	Need to categorise stakeholders and ensure those businesses with the largest /critical investments are 'brought into the tent'.	(1) PMI's Standard for Stakeholder Management, PMI, 2017, p. 58; (2) APM's Stakeholder Engagement in Projects, APM, 2018, p. 35
				Engagement planning and communication strategies	Joint communications	
				Managing expectations and resolving conflicts	See decision making	
				Continuous stakeholder involvement and feedback loops	Transparency of data is key - addressing the right issues early enough	
3	Oversight and Accountability	Clear roles, responsibilities, and accountability structures are critical for effective governance. This includes defining who makes decisions, who is responsible for delivery, and how oversight is maintained throughout the project. Proper oversight mechanisms help ensure compliance, transparency, and that project objectives are met on time and within budget.	There is a lack of effective scrutiny on HAL's capital expenditure plans and the CAA and stakeholders have insufficient information to make appropriate decisions. The governance is too complex and clarity of decision making lost in a sea of data. Need for fundamental review to strengthen oversight of Heathrow's practices. The existing accountability framework is flawed, which is ineffective at safeguarding passenger rights.	Well-defined governance structures	Does the governance structure (CPoB; FPoG; SPgG; AWG) have the right attendance; frequency; data provision; RACI; etc	(1) IPA Governance Framework, IPA, 2020, p. 9 (2) PMI's Standard for Program Management, PMI, 2019, p. 52; (3) APM's Governance in Projects, APM, 2019, p. 44.
				Responsibilities and decision-making authority	A RACI chart defining who has A,R, C, I is critical and linking accountability to authority (NB NPfIT lessons)	
				Oversight mechanisms (reviews, audits, reporting)	see decision making process - it needs the right date to get to the right forum at the right time to drive timely decisions	
				Accountability frameworks	There is need to ensure that accountability is linked to authorities.	

4	Risk Management	A robust risk management process involves identifying potential risks early, assessing their likelihood and impact, and developing mitigation strategies. Transitioning from reactive to proactive risk management minimizes potential negative effects on project delivery and performance. Effective risk management creates a resilient project environment capable of adapting to uncertainties.	Main extant risks stemming from the current system: inefficient spending, harm to consumers, and weakening of Heathrow's hub status. HReimagined team believe existing regulatory cycle is insufficient, necessitating a fundamental review to address inherent risks and correct existing issues.	Comprehensive risk identification and assessment	How are the risks and issues categorised? Is it an effective system? How accurate is the Monte Carlo analysis to prevent ugly surprises? How are 'Black Swans' identified and what contingency is allocated to manage?	(1) PMI's Practice Standard for Project Risk Management, PMI, 2019, p. 72; (2) IPA Risk Management Guidance, IPA, 2021, p. 27; (3) APM's Risk Management Guide, APM, 2017, p. 48
				Mitigation and contingency planning	what influence do key stakeholders (HR consortium); What is the process for agreeing spend of contingency?	
				Regular risk reviews and updates	is the horizon scanning for longer term risks as good as short term?	
				Transparent risk reporting	Are the right risks identified and is the mitigation appropriate	
5	Decision-Making Processes	Structured and transparent decision-making processes are essential for effective governance. Clear procedures for making, escalating, and documenting decisions help prevent delays and misunderstandings. Well-defined processes ensure that decisions are evidence-based, aligned with project objectives, and involve the appropriate stakeholders when necessary.	H7 details the regulatory procedures and processes but the system appears complex and the flow of data is likely to confuse stakeholders who are not embedded with the project delivery teams. Decisions are seemingly presented as 'fait accompli' to stakeholders. The DO model has been designed in a way that has little impact on HAL for poor performance.	Defined decision-making hierarchies and authority levels	What is the difference between portfolio level decisions and individual project decisions. At portfolio level, are decisions made on the basis of avoiding 'gold plating' and considering 'smaller-better'. Mega infrastructure projects are often not the best.	(1) IPA Gateway Review Process, IPA, 2021, p. 19; (2) PMI's Decision-Making and Problem-Solving, PMI, 2020, p. 66; (3) APM's Decision-Making in Projects, APM, 2018, p. 29.
				Escalation pathways for issues and risks	Do key stakeholders get the right information at the right time and are the issues that handicapped previous projects	

					managed more effectively	
				Documentation and transparency of decisions	Is the right information shared with the right people early enough to inform the key stakeholders.	
				Timeliness and accountability	Is there effective historic trend analysis for risk and issue management	
6	Financial Governance	Financial governance encompasses controls over project budgets, funding, and expenditure. It involves establishing procedures for financial planning, monitoring, reporting, and ensuring value for money. Proper financial oversight minimizes risks of cost overruns and waste, ensuring the project delivers on its financial objectives.	HR suggest there are weaknesses in current budget planning oversight and calls for them to be updated and reconsidered. Better frameworks needed and implementation of more oversight. There is a belief by stakeholders that the HAL VfM equation if flawed. Heathrow's charges are excessively high and the passenger experience does not reflect this.	Budget planning and approval processes	Does the H7 protocols ensure that spend is managed effectively and efficiently?	(1) IPA's Investment Decision Gateway (IPA, 2022, p. 11); (2) PMI's Practice Standard for Project Financial Management (PMI, 2021, p. 80); (3) APM's Financial Governance in Projects (APM, 2019, p. 36)
				Financial monitoring and reporting mechanisms		
				Value-for-money assessments	Are the right projects included in the portfolio - eg are the Projects Right, which is different to Are they done right?	
				Auditing and controls	Is the auditing transparent and how are previous lessons incorporated into the assurance processes?	
7	Performance Monitoring & Reporting	Regular performance monitoring involves tracking progress against established KPIs and milestones. Transparent reporting channels ensure that project status, issues, and risks are communicated effectively to stakeholders and decision-makers. Consistent monitoring helps identify deviations early and supports corrective actions to keep projects on track.	Performance monitoring measures can be compared to a number of other airport peers, particularly Heathrow's European counterparts. Improvements can be made.	Key Performance Indicators (KPIs) and milestones	Are the KPIs at portfolio and project level transparent and effectively reported against. How is 'lag' data balanced with 'look forward' analysis to predict outturns more effectively?	(1) IPA's Project Monitoring & Control Framework (IPA, 2020, p. 33); (2) PMI's Standard for Project Performance (PMI, 2022, p. 59); (3) APM's Performance Reporting in Projects (APM, 2019, p. 44)
				Regular progress reports	What information is shared and how are warning signs controlled and monitored?	
				Issue and risk tracking	Are risk and issues managed separately? What level of Opportunity	

						management is used to capture upside?	
				Stakeholder communication	How transparent is the process for sharing the big and the ugly?		
8	Change Control Management	Robust change control processes manage scope changes, modifications, and configuration updates throughout the project lifecycle. Formal procedures for evaluating, approving, and documenting changes prevent scope creep, control costs, and preserve project integrity. Effective change management ensures that changes are aligned with strategic objectives and stakeholder expectations.	The structure of the DO mechanism for performance outside parameters needs fundamental review. Currently it does not penalise poor delivery performance. On a scaled programme the size of HAL's Business Plan the negative effects of this would be multiplied with likelihood of massive cost and time overruns similar to H2. Undermine aviation & construction sectors, long term damage to UK economy.	Defined change request procedures	Is the escalation trip points (tolerances) clear and appropriate for sharing changes and are the H7 incentives appropriate for driving efficiency in choices. Eg that poor performance has a downside for HAL	(1) PMI's Practice Standard for Change Management (PMI, 2018, p. 41); (2) IPA Gateway Review (IPA, 2021, p. 17); (3) APM's Change Management Guidelines (APM, 2018, p. 52)	
				Impact assessment for proposed changes	What analysis is done and is there historic trend analysis on how effective the impact assessments have been?		
				Approval workflows and documentation			
				Communication of change	How effectively is this done when tolerances are exceeded?		
9	Compliance and Legal Governance	Compliance and legal governance ensure that all aspects of the project adhere to statutory, regulatory, environmental, and contractual requirements. This includes managing obligations under laws, regulations, permits, and contractual agreements. Maintaining compliance mitigates legal risks, avoids penalties, and ensures the project meets environmental and societal standards.	Need for rethinking key parts of H7 to ensure CAA's duties and the legal framework governing Heathrow, is watertight for managing the HAL expansion programme.	Awareness of applicable laws and regulations	How well are the H7 protocols applied/abided by HAL and others?	(1) IPA's Compliance and Assurance in Infrastructure (IPA, 2020, p. 12); (2) PMI's Standard for Governance of Projects (PMI, 2021, p. 54); (3) APM's Regulatory Compliance in Projects (APM, 2019, p. 38)	
				Contract management and obligations	Are the obligations clear? Are the obligations delivered as intended to the spirit as well as the letter of H7?		
				Environmental and safety standards			
				Regular compliance audits and reporting	Is the auditing transparent and how are previous lessons incorporated into the assurance processes?		

10	Benefits Realisation & Sustainability	Focuses on the long-term value and sustainability of the project outcomes. This criterion involves planning for benefits realisation post-project, tracking actual benefits, and ensuring the project's contributions support sustainable development goals. It emphasises environmental sustainability, social value, and economic stability.	Monitoring and tracking of actual benefits: This needs to be part of any improved performance review or future oversight committee. Post-project review and realignment: the need for more transparency and information sharing. Sustainability considerations (environmental, social, economic): a key area for improvement in the future.	Benefits identification and planning	Quality of benefits planning and clarity of linkage to portfolio level	(1) IPA's Benefits Management Framework (IPA, 2021, p. 18); (2) PMI's Practice Standard for Benefits Realization.
				Monitoring and tracking of actual benefits	From the early business cases through to benefits delivery?	
				Post-project review and realignment	Are the past lessons accepted and used to drive improved performance for H7?	
				Sustainability considerations (environmental, social, economic)	Sustainability, both during the project and for post project operational performance	

Annex F - Summary of GDM Outputs of 5 projects

The table below presents a summary of the 5 projects against the 10 GDM criteria

Criteria	Main Tunnel Refurbishment	Cargo Tunnel Refurbishment	T2 Baggage System Replacement	Pre-Conditioned Air (Pca)	Airside Departures Seating
Strategic Alignment	Critical (3): Major misalignment; 11 years over schedule and £✂ ✂ ✂ over budget.	Critical (3): Major misalignment; 5x budget and 12 years late; £210m vs45m.	Critical (3): 40% over budget and delay ✂ ✂ ✂; now almost £1bn (from £250m over H7 Business)	High (2): ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂	High (2): ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂.
Stakeholder Engagement	High (2): Issues with contracts and suppliers.	High (2): Poor cost control and questionable spending.	High (2): ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂	Moderate (1): ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂	Unknown (0)
Oversight and Accountability	Critical (3): No accountability for✂ ✂ ✂ budget and 11-year delay.	High (2): Lack of consequences for delays.	High (2): ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂	Moderate (1): ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂	High (2): £✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂
Risk Management	High (2): ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂	High (2): ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂	Moderate (1): ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂	Moderate (1): ✂ ✂ ✂✂ ✂ ✂✂ ✂ ✂ ✂ ✂.	Moderate (1): ✂ ✂ ✂ ✂ ✂✂ ✂ ✂✂ ✂ ✂
Decision-Making Processes	Moderate (1): Split contracts proved ineffective.	Moderate (1): Design reviews indicate issues.	High (2): ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂	High (2): ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂	Moderate (1): ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂.
Financial Governance	Critical (3): Poor financial oversight; costs increased 4x last year.	Critical (3): £✂ ✂ ✂ overspend highlights poor cost control.	High (2✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂	High (2✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂	Low (0): ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂
Performance Monitoring & Reporting	High (2): Ineffective reporting as overruns are passed on.	High (2): ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂	High (2): ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂	Moderate (1): ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂.	Moderate (1): ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂.
Change Control Management	Moderate (1)	Moderate (1)	Unknown (0)	Unknown (0)	Unknown (0)
Compliance and Legal Governance	Unknown (0)	Unknown (0)	Unknown (0)	Unknown (0)	Unknown (0)
Benefits Realization & Sustainability	Unknown (0)	Unknown (0)	Moderate (1): ✂ ✂ ✂ ✂ ✂✂ ✂ ✂	High (2): ✂ ✂ ✂ ✂ ✂✂ ✂ ✂.	High (2): ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂
Compound Severity	24	22	19	13	12
Criteria Used	10	10	8	8	8
Weighted Score	2.4	2.2	2.4	1.6	1.5

Notes:
1. Weighted score allocated RAG on basis of >2 is red, 1-2 is amber, <1 is green
2. Detailed analysis underpinning the evaluation shown above can be accessed from Heathrow Reimagined

Annex G- Assessment of Credibility, Realism, Believability

High Level table showing summary of comparative CRB ratings across 5 projects

Project	Credibility (1–5)	Realism (1–5)	Believability (1–5)	Headline Rationale
Main Tunnel Refurbishment	2	1	2	*[illegible]*
Cargo Tunnel Refurbishment	2	2	2	Safety-critical link; benefits undermined by prolonged overruns; VfM degraded with 5x cost growth.
T2 Baggage System Replacement	1	2	1	*[illegible]*
Pre-Conditioned Air (PCA)	2	2	2	*[illegible]*
Airside Departures Seating	2	2	2	*[illegible]*

Detailed tables showing summary of CRB ratings for the 5 projects

Main Tunnel Refurbishment

Strategic/Business (IPA/NISA)	✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂
Governance & Assurance	✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂
Risk & Schedule (NIST/IPA)	Two-year baseline was unrealistic; ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂
Commercial	✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂
Delivery & Ops	✂ x cost growth (£85m→£✂ ✂), 11-year ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂
Regulatory	Cost/time passed through with negligible consequence; frequent in-year EAC changes reduce forecast credibility.
CRB Synthesis	Credibility: 2/5	Realism: 1/5	Believability: 2/5

Cargo Tunnel Refurbishment

Strategic/ Business	Safety-critical link; benefits undermined by prolonged overruns; VfM degraded with 5x cost growth.
Governance	Delayed stand-back review; cost duplication and proportionality issues; late contractor change to ✂✂ ✂ ✂ ✂ ✂ ✂ / ✂✂ ✂ ✂ ✂ ✂ ✂ ✂ .
Risk & Schedule	Severe design delays; under pressure, despite a 2018 stand down and restart
Commercial	✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂✂
Delivery & Ops	✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂✂
Regulatory	Minimal disallowance (~£12.3m) despite 5x overspend–limited incentive to course-correct.
CRB Synthesis:	Credibility: 2/5	Realism: 2/5	Believability: 2/5

T2 Baggage System Replacement

Strategic/ Business	✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂
Governance	-✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂ ✂ ✂ ✂.
Risk & Schedule	✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂
Commercial	✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂
Delivery & Ops	-✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂.
Regulatory	-✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂✂
CRB Synthesis:	Credibility: 1/5 | Realism: 2/5 | Believability: 1/5

Pre-Conditioned Air (PCA)

Strategic/ Business	-✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂.
Governance	✂✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂
Risk & Schedule	-✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂.
Commercial	✂✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂
Delivery & Ops	-✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂ ✂ ✂ ✂.
Regulatory	✂✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂ ✂ ✂ ✂✂✂✂ ✂ ✂ ✂
CRB Synthesis:	Credibility: 2/5 | Realism: 2/5 | Believability: 2/5

Airside Departures Seating

Strategic/ Business	-✁✁ ✁ ✁ ✁ ✁ ✁ ✁✁✁✁ ✁ ✁ ✁ ✁ ✁ ✁ ✁✁✁✁ ✁ ✁ ✁ ✁ ✁ ✁ ✁✁✁✁ ✁ ✁ ✁ ✁ ✁ ✁✁✁✁ ✁ ✁ ✁ ✁ ✁ ✁✁✁✁ ✁ ✁ ✁ ✁ ✁.
Governance	✁✁ ✁ ✁✁✁✁ ✁ ✁ ✁ ✁ ✁ ✁ ✁✁✁✁ ✁ ✁ ✁ ✁ ✁ ✁ ✁✁✁✁ ✁ ✁ ✁ ✁ ✁ ✁ ✁✁✁✁ ✁ ✁ ✁
Risk & Schedule	-✁✁ ✁ ✁ ✁ ✁ ✁ ✁ ✁✁✁✁ ✁ ✁ ✁ ✁ ✁ ✁ ✁✁✁✁ ✁ ✁ ✁ ✁ ✁ ✁ ✁✁✁✁ ✁ ✁ ✁ ✁ ✁ ✁ ✁✁✁✁ ✁ ✁ ✁ ✁ ✁ ✁✁ ✁ ✁ ✁.
Commercial	✁✁ ✁ ✁✁✁✁ ✁ ✁ ✁ ✁ ✁ ✁ ✁✁✁✁ ✁ ✁ ✁ ✁ ✁ ✁ ✁✁✁✁ ✁ ✁ ✁ ✁ ✁ ✁✁✁✁ ✁ ✁ ✁
Delivery & Ops	-✁✁ ✁ ✁ ✁ ✁ ✁ ✁ ✁✁✁✁ ✁ ✁ ✁ ✁ ✁ ✁ ✁✁✁✁ ✁ ✁ ✁ ✁ ✁ ✁✁✁✁ ✁ ✁ ✁ ✁ ✁ ✁ ✁✁✁✁ ✁ ✁ ✁ ✁ ✁ ✁✁ ✁ ✁ ✁.
Regulatory	✁✁ ✁ ✁✁✁✁ ✁ ✁ ✁ ✁ ✁ ✁ ✁✁✁✁ ✁ ✁ ✁ ✁ ✁ ✁ ✁✁✁✁ ✁ ✁ ✁ ✁ ✁ ✁✁✁✁ ✁ ✁ ✁
CRB Synthesis:	Credibility: 2/5 | Realism: 2/5 | Believability: 2/5

Airside Departures Seating