

EDINBURGH TRAM PROJECT INCEPTION TO PROCUREMENT – LESSONS LEARNED

Background and purpose

The Edinburgh Tram Project (“ETP”) was first considered in the white paper “Scotland’s Transport Future” published in 1998. Ten years later we signed the contract to construct the system. During that period :

- the Holyrood Parliament building was completed, populated and the cost overrun investigated (twice)
- the Edinburgh City-Region transport strategy and funding based on the congestion charging scheme came and went
- two feasibility studies into light rail in Edinburgh were performed
- three Local Transport Strategy documents were published by CEC
- EARL came and went
- two Tram Bills were successfully subjected to parliamentary scrutiny
- four light rail schemes were canned in England at a late stage of development
- Major stakeholders were created : Network Rail and Transport Scotland
- the political complexion of the Holyrood Parliament and the City of Edinburgh Council changed with consequential changes to project political sponsorship

All of these external events (and many others) had some influence on the development of the project. Others of a more internal nature included :

- radical change to tie’s Board, management and people and successive changes to project governance required to keep pace with the demands of the project
- the creation of TEL to oversee then operate tram and bus integration
- turnover among consultants (some natural, most enforced)
- introduction of Transdev

Against this backdrop, the project contracted for in May 2008 will deliver c80% of the originally designed Line 1 and Line 2 track and a much higher percentage of patronage. The cost estimate for Phase 1 prepared in 2005 has survived to point of contract in May 2008 within 5% of the 2005 estimate ; and the revenue commencement date has moved out by only 4-5 months. Overall you might conclude that this represents a reasonable performance.

Lessons emerge from both successful aspects of the project and from weaknesses. The purpose of this paper is to address what went well and what did not, so that future projects will benefit from the insights. Many people in the current team contributed but I take responsibility for translating their thoughts into this text and for any misrepresentations which may have crept in. It was notable how consistent were the views on key lessons learned across the team.

Reference throughout to tie management and Board should be read as including members of TEL in the many places where this is obviously relevant. Note that there are comments on CEC and other stakeholder involvement which reflect views from our team – those parties have not had a right of reply at this stage.

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Main lessons learned

- The project development period would benefit from tougher project management discipline (see below) which should lead to agreed scope and preliminary funding approval in a shorter period.
- The success of the delivery entity (in this case tie) is critically dependent on the calibre of people it employs. The chemistry within the team is also critical in a demanding environment. If a separate delivery entity such as tie is deployed, it must be able to recruit at market rates for the job it has to do and apply high-quality HR processes to the recruitment and evolution of that team to get best value.
- All stakeholders and influencers should be included in a comprehensive communications programme from an early stage. There should be a bias in favour of internal rather than external resource at senior level to achieve maximum impact.
- The on-the-street dynamics of an integrated transport system should be addressed at an early stage in light rail projects to assist both operational and financial planning.
- The biggest perceived weakness in the procurement strategy was the de-coupling of design and construction. Notwithstanding the quality of the strategy, the end-result was a highly-complex negotiation and set of contractual documents. In addition, the risk to the Infracore procurement of failure by SDS is highly significant. If a strategy of de-coupling design from construction is deployed in future these factors must be given a thorough assessment.
- Selection of preferred bidder proved to be premature, although the driver to crystallise selection was valid and the result was acceptable. The lesson is in the run up to selection. Anticipation of undesirable weakness in the selection basis and management of expectations on selection timing would have – with hindsight – been a better process than selection followed by very difficult close-out negotiations.

Lessons learned - Overall project governance

Overall programme

The overall time taken from inception to revenue service of 13 years cannot be regarded as evidence of an efficient process. In UK terms, as the NAO noted in 2004, this is not unusual, but compares badly to international experience.

In broad terms, there were three stages :

1. Project development
2. Parliamentary process and procurement
3. Construction

Sequential processes were avoided where possible : Stage 1 incorporated both project development and the preparation of the Parliamentary Bills ; Stage 2 incorporated parliamentary process, procurement of construction and vehicle contracts, procurement and execution of MUDFA and the same for SDS design services ; in the latter stages of the construction period, operational preparation and marketing will be prominent.

However, 13 years is 13 years. Few steps can be eliminated but major time savings may be available :

LESSONS – OVERALL PROGRAMME

- The project development period would benefit from tougher project management discipline (see below) which should lead to agreed scope and preliminary funding approval in a shorter period.
- The steps taken within Holyrood to shorten periods to achieve Royal Assent are welcome. But there must be continued pressure, while accommodating proper scrutiny.
- There should be a common sense presumption throughout the process that the project will proceed, enabling advance works wherever possible and consistent with risk management.
- Project governance and decision-making responsibilities and funding commitments must be clear from the outset to avoid excessive “return loop” reviews

Political consensus

There has been consistent broad-based political support for the project. This manifested itself at several levels – national and local policy statements, public sector funding support, the contribution of Council Elected Members to project governance. A hiatus occurred immediately following the May 2007 Election which was unhelpful in strictly project terms. However, the hiatus was a function of democracy and no-one could argue that political scrutiny has migrated into resistance. Despite the long development period, this has been an important driver of progress.

LESSONS – POLITICAL CONSENSUS

- The political backdrop will vary project to project, but tram extensions within Edinburgh will be subject to similar political conditions. Accordingly, project efficiency (without taking a position on political drivers) will be best served if a consensus in favour can be maintained. The most effective method of doing so is consistent, clear and open communication with all parties.

Creation of tie Limited

Whatever the views may be on execution (see below), the creation of an entity with a dedicated team and focus on project delivery has helped to punch through many difficulties.

At a process level, the ability to synthesise stakeholder views is a key skill. In a multi-stakeholder environment there are inevitable conflicts which the delivery vehicle is best-placed to resolve by mediation, facilitation or exhortation.

LESSONS – USE OF A DEDICATED DELIVERY ENTITY

- Creation of a dedicated team is necessary for the success of any major project. Tie has now developed the infrastructure to support efficient delivery and a similar model should bring similar benefit to other projects
- There is merit in the creation of a separate legal structure because it creates full accountability which would be more difficult in a departmental structure
- The additional costs of a separate entity require to be controlled but also weighed against the benefits in efficient delivery.

Creation of a high-quality team within tie / TEL

We recruited a capable and experienced in-house management team. The degree of esprit-de-corps was a significant factor in concluding the procurement, notably through stressful and aggressive negotiation in the final stages when there was much at stake and our hand was weak. Deployment of multiple layers of management to get the desired result on specific issues was another feature leading to success overall. A flexible, accessible and unbureaucratic tie management style was another asset.

LESSONS – DELIVERY ENTITY TEAM

- The success of the delivery entity is critically dependent on the calibre of people it employs. The chemistry within the team is also critical in a demanding environment. If a separate delivery entity such as tie is deployed, it must be able to recruit at market rates for the job it has to do and apply high-quality HR processes to the recruitment and evolution of that team to get best value.

Project Governance and control

The tram project is being delivered in a complex multi-stakeholder environment. In addition to achieving broad consensus on the main project drivers, it is necessary to ensure that roles, accountabilities and responsibilities are clear ; that efficient decision-making processes are installed ; and that governance operations are transparent and so far as possible simple.

The governance model deployed for the project evolved with the project in a controlled manner and generally worked well. The introduction and operation of Delegated Authority Rules from an early stage maintained control over cost. Sub-committees of governance bodies were created and actively managed, notably in the procurement workstream, to good effect. Communication throughout the final twelve months and especially the final three months of difficult negotiation, was open and comprehensive.

The biggest weakness was a tendency toward duplication in reporting. The negotiation of operating agreements between tie, TEL and CEC took far too long (see below on CEC interface).

LESSONS – PROJECT GOVERNANCE AND CONTROL

- Good governance processes are essential to effective project delivery. All parties must be prepared for constant evolution as the demands of the project change and ineffective or duplicate processes are identified.

Management of Independent validation

The project has been subject to a number of external reviews - Readiness and Gateway Reviews using OGC methodology, internal audit inspections and scrutiny by Audit Scotland which supported re-confirmation of the project's robustness following the May 2007 election. Tie has managed these positively and openly, with swift action on any adverse findings. In general the reports have been positive.

LESSONS - MANAGEMENT OF INDEPENDENT REVIEWS

- It is standard that such external reviews should be applied to major projects and if properly planned and prepared for, the process should be both efficient and useful.
- Planning and execution of these reviews (where they can be predicted) should be embedded in project programmes.

Learning from outwith the project

Important reports on other projects can be a useful source of learning. tie examined the 2004 NAO Report on light rail schemes in England (and its follow up reports) and other relevant documents such as the Fraser and Audit Scotland Reports on the Scottish Parliament. Findings were built into ETN planning wherever relevant.

LESSONS – LEARNINGS FROM OUTWITH PROJECT

- Relevant external reports should be actively sought out and learnings absorbed

(2) Project execution

Development of project

The development stage is a difficult period for most public sector projects, when political interest is most invasive (rightly) and hard evidence least available. The project was developed from 1998 to 2003, culminating in the acceptance by the Holyrood Administration of a Preliminary Business Case and the award of a £375m grant.

Tie was not created until 2002 and it is arguable that time could have been saved by using a more focussed delivery entity earlier. The backdrop also needs borne in mind. The tram project was one subset of the wider Edinburgh Integrated Transport Initiative including the introduction of congestion charging. A focussed delivery vehicle, properly populated, may have enabled faster progress.

Again not uncommon, was the heavy reliance on third party consultants to prepare key analysis and decision-making documents, which too often suffered from a formulaic approach. It is arguable that inadequate challenge and quality control was applied. In particular, the basis of cost estimates was weak and ill-defined ; there was a shoulder-shrugging reliance on the new concept of “Optimism Bias” to balance a lack of rigour in estimation ; audit trail from one document and set of estimates to another was unclear ; and there was a marked unwillingness on the part of too many of the consultants to demonstrate a robust and transparent process. Very few of the primary advisors from that period have played a part in the later stages of the project.

LESSONS – DEVELOPMENT OF PROJECT

- Project development stage to be managed more rigorously under normal project management disciplines, though allowing adequately for informed and creative input and proper consultation.
- Briefs for external consultants in the development stage to be tighter and include demonstration of process quality control, transparency of analysis and clear communication of basis of conclusions.

Pervasive processes – which worked well from the outset

Two critical processes have been well-handled from the outset :

Health & Safety management

The health and safety dimensions of the project have been front of mind from an early stage. Vigilance is required constantly, but this must be a given in any future project.

Risk management

Disciplined risk management procedures have been operated from the beginning of the procurement phase. Governance bodies and senior management have been able to maintain good visibility of key risks from the extensive documentation submitted to formal meetings. However, stratification of big-picture critical risks could have been better to ensure senior level visibility of those risks.

LESSONS – PERVASIVE PROCESSES WHICH WORKED WELL FROM OUTSET

- Health & Safety and risk management procedures must be embedded from the start.
- Sufficient attention must be paid to identification and reporting of big-picture risks to ensure that senior management have full visibility of those risks

Pervasive processes – which improved in later years

A number of processes were less well-handled initially, but showed considerable improvement in the later period. The main examples are :

Internal management control over project direction

The desire to allow successive project directors appropriate autonomy led to inadequate visibility, control and challenge from the (tie) centre. An example of this was the “silo” developed through to 2006. Another was the concentration of knowledge of tie technical and commercial positions through to end-2007.

HR processes

Tie’s HR processes were adequate in the early years, but fell behind what was needed once activity picked up pace up to 2006. In addition to the need noted above for heavy-weight advice on recruitment of senior management, problems emerged within the team such as :

- Too many changes were made to the tie procurement team complement
- The project engineering resource was inadequate until a late stage
- Too much reliance on external resources (TSS) to provide quality control over the SDS design process and inadequate management of this resource
- Inadequate internal communications and stakeholder relations people

Engagement with major commercial stakeholders

There was insufficient depth to relationships with major stakeholders such as BAA and Forth Ports. Although relationships have been positive and constructive, a more structured and proactive approach with a medium-term gameplan covering all aspects of the relationship would with hindsight have helped all parties.

Budgetary respect (“a budget is not an invitation to spend”)

In the early development stages when activities are less well-defined, budgetary control is more difficult. However, there is a need for discipline to avoid “spending to budget” which was not always evident in early years. The imposition of Delegated Authority Rules and better financial reporting in 2003-4 curtailed these inefficiencies and latterly a much stronger sense of budgetary respect has developed.

Communications and stakeholder relations

Considerable effort went into formal consultation processes in the early years of the project, including the parliamentary process. These were generally effective. However, insufficient attention was paid to informal stakeholder communications, particularly within political circles. There was over-reliance on external consultants to handle communications until 2006 when an in-house team was deployed.

LESSONS – PERVASIVE PROCESSES WHICH DEVELOPED IN QUALITY

- If a delivery entity is deployed, it is essential that there is effective tension between the project team and those experienced members of management with an over-arching responsibility. Regular management challenge meetings and reports (aligned with external reporting) is a necessary quality control discipline.
- Professional HR practice is an essential driver of a delivery entity’s success and must be installed ahead of resource requirement
- Investment in the relationship with major commercial stakeholders and a good quality mutually agreed gameplan will pay dividends, particularly when problems arise
- Budgetary control within agreed funding – self-evidently – is essential and habits should be created from commencement
- All stakeholders and influencers should be included in a comprehensive communications programme from an early stage. There should be a bias in favour of internal resource at senior level to achieve maximum impact.

Parliamentary process

Each of the Bills required nearly 2.5 years to reach Royal Assent. This was primarily driven by the timetable requirements of Parliament. Tie and its advisors generally acquitted themselves well in an adversarial environment and the quality of information provided in both written and verbal form was consistently commented on favourably. It should be remembered that this was the period of maximum objector hostility.

Tie was very reliant on external consultants and it is questionable whether all of their evidence was fully understood within tie, though this was understandable in the more complex technical areas when Parliament’s own advisors led the questioning.

Although the outcomes are robust, it would have been more prudent to maintain better visibility over the developing terms of third party deals done to support parliamentary process. These deals often have direct consequences for design and construction cost and real-time review may have been beneficial.

LESSONS – PARLIAMENTARY PROCESS

- The main lesson has already been absorbed by Parliament - the need to reduce the time spent and cost of the process.
- Less reliance on consultants and proactive engineering focus on third party deals would be “second-order” features of an improved process for any future legislative process.

Service integration

The tram project was developed in isolation from the operation of bus services in the city. Tentative integration dialogue commenced in 2004 but did not gain traction until 2006. Fully integrated bus and tram services are an essential driver of success for the project and public ownership of Lothian Buses offers an advantage virtually unique to Edinburgh. Although excellent work has been done since that time, as set out in the Final Business Case, failure to commence the integration dialogue at an earlier stage created unnecessary difficulty.

LESSONS – SERVICE INTEGRATION

- The on-the-street dynamics of an integrated system should be addressed at an early stage in light rail projects to assist both operational and financial planning.

Interface with CEC

There have been difficulties throughout the project, though generally of a practical nature rather than policy or principle level. The early governance structure did not allow sufficient meaningful dialogue and there was a degree of mistrust at that time which did hamper progress.

Tie did not develop a workable interface management plan early enough and there was a tendency to report when issues arose rather than routinely. Tie would comment that there was a lack of coordination between CEC departments, a degree of suspicion and unwillingness to engage and that important parties such as CEC Legal were not sufficiently involved.

Latterly, with serious momentum in the project and a stronger likelihood of success, the interface worked much better. Dedicated CEC people were deployed to the tram project and co-location was enforced. The introduction of the Legal Affairs committee – which in fact provided effective coordination between tie and all of the key CEC Departments – proved very successful in breaking down mistrust and achieving effective coordination and deadline discipline.

LESSONS – CEC (MAJOR STAKEHOLDER) INTERFACE

- The interface with the principle stakeholder requires to be planned and managed as a distinct workstream.
- The importance of the interface requires to be continuously reinforced by the words and actions of senior people in both organisations
- The benefits of dedicated people and co-location cannot be over-estimated

Development and execution of procurement strategy

Strategy

The bones of the procurement strategy are well-known and the development and approval of the strategy was executed effectively. The components which have a universal (or near) thumbs up are :

- Early Operator involvement (Transdev)
- Combined utility aspect of the MUDFA works and the advance nature of those works (AMIS)
- Separation of Tramco (CAF) from Infraco, then novation to create the consortium

The parties involved, while no pussycats, handled their responsibilities professionally and the anticipated benefits were largely realised. The component which created difficulty was the advance design works and de-coupling of design and construction (SDS - PB). This was a serious challenge and views differ on whether the strategy or the execution was flawed.

The benefits of the strategy were to accelerate the programme and to reduce cost by extracting design risk from the Infraco procurement while leaving the private sector with the residual design risk. The theory was robust.

In practice however, the major flaw – and the underestimated risk – was the failure of PB to deliver professional management or any sort of quality in their work since 2005. Tie was slow to react to the early poor performance of PB and we did not apply top-class contract management disciplines. The interface with CEC consents and approvals also proved problematic.

However, the poor quality of PB's work and their consistent failure to hit deadlines were constant features. Numerous attempts were made to engage at senior levels within PB but there has been no discernible improvement in their performance up to Financial Close.

It is questionable whether PB were ever comfortable with the relatively draconian novation commitment. Their dilatory performance was probably an attempt to time-out the need for novation while design work was incomplete. The failure to complete the design work at Infraco tender stage created major difficulties which still resonate.

Some of the difficulties experienced were predicted in the market-testing exercise and may have borne more detailed consideration at that stage. There is no question that the risk of SDS failure and the implications for the Infraco procurement were not sufficiently appreciated.

Bidder selection process

There is general agreement that the tender processes deployed by tie and the quality of evaluation and documentation were of a high standard.

Legal support in mid-2007

Tie has enjoyed a close working relationship with principal legal advisors DLA. In 2007, a decision was taken by the project team to substantially replace DLA with internal resource as a means of saving cost. The internal resource was not adequate and exclusion of external advisors probably cost more than it saved.

Synchronisation among different teams in DLA could have been better, too much time was spent on contract alignment at late stages

The use of two firms within the project has generally not been problematic. D&W handled the parliamentary support and provided good input in areas such as land assembly and TROs. DLA handled all aspects of the procurement. The area which has caused some difficulty is the deployment of D&W on the third party agreements, which have a direct interface with the Infraco contract suite. They also have a direct interface with the Parliamentary process. Better management of communication between DLA and D&W could have been achieved.

LESSONS – PROCUREMENT STRATEGY AND EXECUTION

- The procurement strategy deployed by tie was innovative and has been broadly effective in delivering the anticipated benefits in terms of cost and risk transfer. It is a model which could well apply to future extensions.
- The biggest perceived weakness in the procurement strategy was the de-coupling of design and construction. Notwithstanding the quality of the strategy, the end-result was a highly-complex negotiation and set of contractual documents. In addition, the risk to the Infraco procurement of failure by SDS is highly significant. If a strategy of de-coupling design from construction is deployed in future these factors must be given a thorough assessment.
- In a complex legal environment, consistency of advice is essential. Reversion to in-house resource was a mistake, though without lasting consequences, which should have been avoided.
- The legal interface between agreements struck in support of the parliamentary process and those embedded in the Infraco contract need careful attention.

Network Rail interface

The Network Rail interface was anticipated to be a challenge and this was borne out. From a public policy perspective, the time and cost invested in the range of agreements necessary to manage NR's interests in the project and to protect their own assets and operations is hugely complex and as a monopoly supplier there is little incentive for efficient process.

An acceptable end-result was achieved but with difficulty and at substantial cost.

LESSONS – NETWORK RAIL INTERFACE

- There is a public policy imperative to examine ways in which NR's role in light rail projects can be made more efficient.

Negotiating strategy and contract development

In Autumn 2007, tie had a difficult dilemma – in order to sustain momentum in the project, retain bidder interest and minimise external scepticism about deliverability the pressure was to select a preferred Infraco bidder ; however, the delay in design progress and the extent of qualification in the legal draft documents meant that a higher than desirable risk existed in making that selection.

At the end of October 2007, the decision was taken to select and run the final stage of the process, with the under-bidder held as an option. Although the contract negotiations proved to be protracted, the single biggest challenge was in getting SDS to deliver their work programme and novate their contract.

A number of opportunities to improve the execution of the negotiations are noted below, but only the first few are of significance against a backdrop of a weak position. It needs to be borne in mind that the cats were ultimately herded into acceptable position.

- Lack of a documented negotiation strategy with regular update and sufficient visibility outwith the negotiating team to offer guidance and challenge
- Decision to presume € / sterling neutrality or better in Tramco contract wasn't sufficiently challenged and proved to be wrong
- Didn't field the right degree of firepower until late stages, but the step change in January 2008 was a good example of swift adaptation to difficulty
- Permitting bidding consortium to deploy separate firms of legal advisors.
- Permitting bidding consortium to be led by their lawyers without sufficient challenge.
- Too little focus on key issue resolution and too much on minor matters, until early 2008.
- Too many unreal deadlines.

A substantive lesson relates to the coordination of key documents. Alignment and involvement of key players in the development of ERs, Infraco Proposal and SDS Design should have been much more inclusive and coordinated. Especially SDS involvement in ERs.

LESSONS – NEGOTIATING STRATEGY AND EXECUTION

- Selection of preferred bidder proved to be premature, although the driver to crystallise selection was valid and the result was acceptable. The lesson is in the run up to selection. Anticipation of undesirable weakness in the selection basis and management of expectations on selection timing would have – with hindsight – been a better process than selection followed by very difficult close-out negotiations.
- In the context of such difficult negotiations, a number of tactical lessons can be learned. Of greater significance are two matters : 1) need to develop, document, evolve and critique the negotiating strategy ; 2) the project specification documents need to be shared and approved by the key players on a rolling basis to avoid disconnects and unnecessary negotiations.

Business Case delivery

The preparation of Business Cases on such a complicated project is a challenging task. Tie took over preparation in 2005 after exiting the financial advisors who were adding insufficient value. Several iterations were required but all deadlines were met and the documents have been acknowledged as being of a high standard.

A further important attribute is that the successive business cases did not shirk the changes in circumstances. The documents identified the affordable options as cost estimates changed and were clear about remaining risk factors.

LESSONS – BUSINESS CASE DELIVERY

- A disciplined project management approach to business case preparation, ownership clearly within the client organisation and a bias toward openness are key drivers of a high quality outcome.

Cost control and QRA

A strength of the negotiation process management was the control exercised over the changes to cost estimates. The changes were communicated clearly to governance bodies alongside changes to the risk profile, enabling those bodies to understand developments and approve final positions on a sound basis.

LESSONS – COST CONTROL AND QRA

- Rigorous monitoring and reporting of the finalisation of negotiated cost positions is a critical aspect of governance and decision-making.

Funding

Getting to an agreed deal between CEC and TS took too long (and a change in Holyrood administration). It should have been clear from the outset how the grant (and whether it was to be indexed or not) and the CEC contribution were to face off.

LESSONS - FUNDING

- Accepting the realities of negotiations between local and national government on funding, the project is best served by clarity as to funding sources from an early stage.

Developer contributions

In any future project, we should agree in advance how best to maximise contributions as an integral part of the project plan, with clear responsibilities for action. On the ETN, there was insufficient coordination between project development and developer negotiations which affected leverage over the private sector.

LESSONS - DEVELOPER CONTRIBUTIONS

- Developer contributions can be a significant source of funding and it is important to coordinate project development and contribution negotiations