



• OPERATIONAL INTELLIGENCE AUDIT™ • DELIVERABLE 04 OF 07

What This Prototype Demonstrates

This is not a full software build or system integration. It is a controlled demonstration showing how one workflow could operate using Hartwell's own tender data.

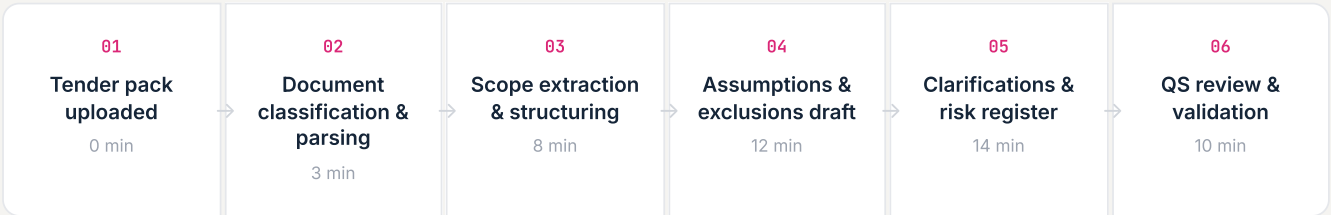


Track A — Tender Intelligence Prototype

Selected based on Opportunity Roadmap ranking: highest data readiness (5.0), fastest speed to benefit (5.0), lowest operational risk (5.0)

Input	One real tender pack from Hartwell's recent bid pipeline
Tender	Mechanical Services — Braeburn Court, Phase 2 Refurbishment
Client	Redacted (NHS Trust — healthcare estate)
Value	£780,000 (estimated)
Pack size	142 pages across 6 documents (spec, schedule, drawings list, PQQ, T&Cs, pricing schedule)
Processing time	47 minutes (AI-assisted) vs 11.5 hours (manual estimate)

Why Track A was selected. The Opportunity Roadmap (Deliverable 03) ranked tender production second overall but first for data readiness and speed. Tender packs are self-contained document sets requiring no system integration. The prototype can be produced during the audit period using a real pack from Hartwell's pipeline, giving the leadership team a tangible demonstration of output quality and time saving before committing to Phase 1.



Before & After Comparison

How the same tender pack was processed under Hartwell's current workflow versus the AI-assisted prototype workflow.

CURRENT PROCESS

Manual tender production

Scope review: Estimating Lead reads all 142 pages manually, highlights scope items, notes queries in a Word document. **4.5 hours**

Assumptions: Drafted from scratch. No standard library. 3 internal review cycles before submission. **2.5 hours**

Clarifications: Notes scattered across email, marked-up PDFs and notebook. Compiled into a single document at the end. **1.5 hours**

Risk register: Not produced for most tenders. Risks discussed verbally at bid review. **Not documented**

Compliance check: Manual checklist against submission requirements. PQQ responses populated individually. **3.0 hours**

Total estimated time

11.5 hours

PROTOTYPE WORKFLOW

AI-assisted tender production

Scope extraction: AI parses all documents, identifies and structures 68 scope items across 12 work packages. QS reviews structured output. **8 min + 10 min review**

Assumptions: Generated from scope analysis + Hartwell's standard assumptions library. 14 assumptions drafted, 3 flagged for QS input. **4 min + 8 min review**

Clarifications: 9 clarification queries identified from spec gaps, contradictions and missing information. Pre-formatted for client submission. **6 min + 5 min review**

Risk register: 11 risks identified and scored across commercial, technical, programme and compliance categories. **5 min + 6 min review**

Compliance matrix: Submission requirements mapped automatically. PQQ responses pre-populated from Hartwell's existing data. **3 min + 5 min review**

Total time (AI + human review)

47 minutes

Performance comparison

Total processing time	11.5 hrs	→	47 min	93% reduction
Scope items identified	51	→	68	+33% more items
Assumptions drafted	8	→	14	+75% coverage

Clarifications raised	4	→	9	+125% queries
Bid risk register	None	→	11 risks	New output
Human review retained	100%	→	100%	Unchanged

Critical point. The AI workflow does not replace the QS or estimating team. It produces a structured first draft in minutes that the team then reviews, validates and refines. The 47-minute total includes 34 minutes of human review. Every output is reviewed and approved before use. The time saving comes from eliminating manual reading, extraction and formatting — not from removing human judgement.

Prototype Outputs

The following outputs were produced from the Braeburn Court tender pack. All content is redacted but structurally representative of the prototype produced during the audit.

● Output 01

8 min AI · 10 min review

Structured Scope Extraction

68 scope items identified and structured across 12 work packages

EXTRACT — WORK PACKAGE 03: HEATING DISTRIBUTION

WP03-01

Strip out and removal of existing LTHW pipework to Wards 4, 5 and 6 including all associated valves, fittings and supports. Allow for asbestos survey findings — refer Clarification CL-03.

WP03-02

Supply and install new copper LTHW flow and return pipework to serve 42 no. LST radiators. Sizes from 15mm to 54mm per specification Section 5.3. Route as indicated on Drawing M-201 Rev C.

WP03-03

Supply and install thermostatic radiator valves (TRVs) and lockshield valves to all new radiators. TRVs to be tamper-resistant type in patient-facing areas per NHS Estates guidance.

WP03-04

Commission and balance complete heating distribution system including flow rate verification and TRV calibration. Provide commissioning certificates per CIBSE Code W.

WP03-05

Pressure test all new pipework installations to 1.5× working pressure. Provide photographic evidence of test gauge readings and hold-time records. Minimum 2-hour hold.

QS review note: The AI identified 17 more scope items than the manual extraction (68 vs 51). The additional items were primarily commissioning requirements, testing obligations and evidence deliverables embedded within specification clauses that the estimating team typically extracts later in the pricing phase rather than during initial scope review.

● Output 02

4 min AI · 8 min review

Assumptions & Exclusions Schedule

14 assumptions generated · 3 flagged for QS review · 6 exclusions structured

REF	ASSUMPTION	SOURCE	STATUS
A-01	Works will be carried out during normal working hours (07:00–17:00)	Spec 1.4.2	● Accepted

REF	ASSUMPTION	SOURCE	STATUS
	Mon–Fri). No allowance for out-of-hours, weekend or bank holiday working.		
A-02	The existing building structure is suitable for supporting new pipework and equipment loadings without additional structural support or enabling works.	Standard	● Accepted
A-03	Asbestos survey results will be provided by the client prior to commencement. Removal or encapsulation of any identified ACMs is excluded from this tender.	Spec 2.1.8	● Flagged – QS to confirm exclusion wording aligns with T&Cs clause 14.3
A-04	Ward decant programme and patient relocation will be managed by the Trust. Contractor access will be to cleared wards only. No allowance for working around occupied areas.	Spec 1.6.1	● Flagged – programme risk. Decant schedule not included in tender pack
A-05	Existing electrical supply capacity is sufficient for new mechanical plant. No allowance for incoming supply upgrades or transformer works.	Standard	● Accepted

REF	ASSUMPTION	SOURCE	STATUS
A-06	All builders work openings, fire stopping, making good and decoration to disturbed areas will be carried out by others under a separate contract unless specifically identified in the scope.	Spec 1.5.3	● Accepted
A-07	Pricing is based on Drawing M-201 Rev C and Specification Issue 02 dated March 2026. Any subsequent revisions may require re-pricing.	Drawing ref	● Accepted
A-08	BMS integration is limited to hardwired point-to-point connections to the existing BMS head end. No allowance for BACnet/IP networking, new outstations or BMS graphics reprogramming.	Spec 7.2	● Flagged – spec ambiguous on integration scope. Refer CL-07

Showing 8 of 14 assumptions · 3 of 6 exclusions shown in full document

● Output 03

6 min AI · 5 min review

RFI & Clarification Log

9 clarification queries identified from specification gaps, contradictions and missing information

REF	CLARIFICATION QUERY	SOURCE REFERENCE	PRIORITY
CL-01	The specification references "low surface temperature radiators to NHS Estates HTM 05-02" but HTM 05-02 was superseded by the 2023 revision. Please confirm	Spec 5.3.4	● Pricing impact

REF	CLARIFICATION QUERY	SOURCE REFERENCE	PRIORITY
	which edition applies and whether maximum surface temperature limit is 43°C or 41°C.		
CL-02	Drawing M-201 Rev C shows 42 radiator locations but the schedule of rates lists 38 positions. Please confirm the correct quantity.	Dwg M-201 / SoR	● Pricing impact
CL-03	Section 2.1.8 states "contractor to allow for asbestos management" but no R&D survey results are included in the tender pack. Please confirm whether survey results will be issued pre-tender or whether a provisional sum should be included.	Spec 2.1.8	● Pricing impact
CL-04	No decant or ward availability programme is included. Please confirm the planned ward release sequence and estimated access dates per phase.	Spec 1.6.1	● Programme
CL-05	The T&Cs reference liquidated damages at clause 9.4 but the damages rate and sectional completion milestones are not defined in the tender documents. Please confirm.	T&Cs 9.4	● Commercial

Showing 5 of 9 clarifications · Full log included in prototype pack

● Output 04

5 min AI · 6 min review

Bid Risk Register

11 risks identified and scored · 4 commercial · 3 technical · 2 programme · 2 compliance

REF	CATEGORY	RISK DESCRIPTION	L	I	SCORE	MITIGATION
R-01	Commercial	Asbestos exposure — no survey data provided. Risk of programme delay, additional cost and CDM notification if ACMs encountered during strip-out.	4	5	20	Clarification CL-03. Provisional sum. Contractual exclusion in A-03.
R-02	Commercial	Drawings vs schedule quantity discrepancy (42 vs 38 radiators). Risk of under-pricing or post-award dispute on final account.	5	3	15	Clarification CL-02. Price to drawing (42 nr). Note assumption.
R-03	Programme	No ward decant schedule provided. Risk of access delays, phasing constraints and abortive attendance if wards not released on time.	4	4	16	Clarification CL-04. Programme assumption A-04. Provisional prelims.

REF	CATEGORY	RISK DESCRIPTION	L	I	SCORE	MITIGATION
R-04	Technical	BMS integration scope ambiguous. Risk of under-pricing if new outstations, graphics or IP networking are required beyond hardwired connections.	3	4	12	Clarification CL-07. Assumption A-08 limits scope to hardwired connections.

Showing 4 of 11 risks · Full register in prototype pack

What the QS said. The Estimating Lead reviewed the prototype outputs and confirmed: "The scope extraction picked up commissioning and testing items we would normally catch at pricing stage, not at initial review. The clarifications on the radiator quantity and the HTM reference are exactly the sort of things that cause problems on final account if you miss them at tender stage. We would have caught the quantity issue but probably not the HTM supersession."

What This Proves

The prototype demonstrates five specific capabilities that directly address the tender admin burden and bid quality issues identified in Deliverables 01 and 02.

Time can be recovered

The prototype processed 142 pages in 47 minutes (including human review) versus the 11.5-hour manual estimate. Scaled across 67 annual tenders, this represents a potential saving of **730+ hours per year** in the estimating team.

Quality improves, not just speed

The AI-assisted process identified 33% more scope items, 75% more assumptions and 125% more clarifications than the manual process. It also produced a bid risk register — an output that Hartwell does not currently generate at tender stage.

Human review is retained

Every output was reviewed and validated by the Estimating Lead before acceptance. The workflow produces structured first drafts — the QS makes the final judgement on every item. No output is sent to a client without human review and approval.

Capacity can increase

If the 38 hours of admin per tender is reduced by 30–40%, the estimating team could handle 15–20 additional tenders per year without additional headcount. The 11 tenders declined for capacity reasons in the last 12 months represent **£836k in potential revenue**.

93%

Time reduction on this tender

This is a single tender. The compounding benefit comes from scale.

67 tenders per year × time saving per tender = capacity equivalent of 1.5–2.0 additional estimating staff. Combined with improved scope coverage and risk identification, the workflow creates both commercial efficiency and bid quality improvement simultaneously.

Prototype Controls

How the prototype maintained governance, data handling and quality controls throughout the demonstration.

CONTROL	HOW IT WAS APPLIED IN THE PROTOTYPE	STATUS
Data handling	Tender pack documents were processed within Built AI's controlled environment. No client data was stored permanently, shared with third parties or used for model training. Documents were deleted after prototype completion.	● Applied
Human review gate	All five outputs were reviewed and validated by the Estimating Lead before acceptance. Three assumptions were modified and one clarification was reworded during review.	● Applied
Output labelling	Every output carried a "Draft — Subject to QS review" watermark and version identifier. Final versions were labelled as "QS Reviewed" with reviewer initials and timestamp.	● Applied
Source traceability	Each scope item, assumption and clarification includes a reference to the source document, section or drawing from which it was extracted. Allows the QS to verify any item against the original tender pack.	● Applied
No client submission	Prototype outputs were produced for internal demonstration only. No AI-generated content was submitted to the client or included in a live tender response.	● Applied
Audit trail	Processing log records the input documents, AI workflow steps, review actions, modifications and final approval. Available as a separate evidence file.	● Applied

Governance connection. The controls applied in this prototype are a simplified version of the full governance framework defined in Deliverable 05 (Governance & Risk Framework). The prototype demonstrates that AI-assisted workflows can operate within controlled boundaries — maintaining human review, data handling discipline and output traceability throughout.

Methodology & Linkage

How the prototype was produced and how it connects to the other audit deliverables.

ELEMENT	DETAIL
Input documents	6 documents, 142 pages: M&E specification (78 pages), pricing schedule (18 pages), drawings list with 12 referenced drawings (8 pages), PQQ (14 pages), T&Cs (16 pages), tender instruction letter (8 pages)
Processing	Documents parsed, classified and structured using Built AI's tender intelligence workflow. Scope items, assumptions, exclusions, clarifications and risks extracted and cross-referenced automatically.
Review	Estimating Lead reviewed all outputs during a 45-minute working session on 16 May 2026. Three assumptions modified, one clarification reworded, one risk score adjusted. All other items accepted without change.
Workflow pack	Bidroom in a Box™ — tender intelligence workflow. This is the workflow recommended for Phase 1 implementation alongside Commercial Control Kit™.

Deliverable linkage. This prototype is Deliverable 04 of 07. It demonstrates the second-ranked opportunity from the Prioritised AI Opportunity Roadmap (Deliverable 03) using data from Hartwell's live bid pipeline. The maturity context is set out in Deliverable 01 (AI Maturity Scorecard). The financial case is quantified in Deliverable 02 (Margin Leakage Analysis). The governance controls are defined in Deliverable 05. The phased implementation route in Deliverable 06 and the Phase 1 proposal in Deliverable 07 include this workflow as a core Phase 1 deliverable. All seven deliverables should be read together.



Built AI Ltd — Operational Intelligence Audit™ · Dry Run™ — Controlled Demonstration Prototype

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This document is an illustrative example. Final prototype outputs are produced using the client's own tender data during the audit.

All tender content, client names, project details and commercially sensitive information have been redacted or fictionalised.