

HealthX Call-for-Innovation with Woodlands Hospital (WH): Optimising Surgical Instruments for Safer, More Efficient Surgeries

Clarification and Responses (Publish 29 July 2026)

Q1. Call-For-Innovation Process: Proposal Submission and Expected Outcomes

What are the specific proposal submission requirements (i.e. use cases to fulfil) and expected outcomes for this Call-For-Innovation?

Response: The Call-For-Innovation stated that a proposal for this challenge should demonstrate a solution that meets all, or the majority, of the requirements outlined in the five (5) use cases stated (including abnormalities described as per the use cases). Where certain requirements are not currently supported, industry partners should be willing and open to exploring the development and enhancement of their solution to address the requirements specified in the use case descriptions.

The key objective of this AI-enabled solution is to detect damage, defects, missing parts, stains, and rust immediately after instruments emerge from the washer-disinfector, ideally without requiring neat arrangement. The system must automatically flag these abnormalities using clear visual cues tailored for a noisy Central Sterile Supply Department (CSSD) environment. This is to maintain staff safety, minimise manual handling time and streamline the re-washing workflow.

Industry Partners to advise on specific technologies - example integrated weighing scales and/or specialised lighting for protein stain detection - to maximise detection accuracy as needed.

The current Call-For-Innovation is looking for a co-developed Proof-Of-Concept (POC). Should the POC shows potential results, further discussions can be conducted for further developments. The final project duration for deployment (after POC) will be determined based on the development timeline mutually agreed upon by all three parties: the selected Industry Partner, Synapxe, and WH.

Q2. Call-For-Innovation Process: Proof-Of-Concept (POC)

What are the evaluation criteria and target specialities prioritised for the POC?

Response: Evaluation will be based on both target AI performance during the POC and broader practical considerations described in the challenge statement.

Target POC performance (to be validated during the trial)

- Instrument counting: approximately 95% accuracy.
- Biostain detection: high accuracy.
- Damaged-instrument detection: high accuracy.

Additional success metrics and acceptance thresholds will be jointly defined during the POC and used to verify improvements against the current baseline.

Operational and evaluation factors

Assessments will also consider technical feasibility, clinical relevance, scalability and integration, user experience, data privacy and security, and cost effectiveness, as set out in the Call-For-Innovation.

Workflow and human interaction

The system must automatically identify, and flag failed instruments (stains, damage, missing items) and trigger human review.

Proposals must describe the end-to-end workflow for flagged items, including notification, quarantine/reprocessing steps, re-scan/clearance, and the recommended level and role of human involvement to resolve flags.

The proposal should also demonstrate how the solution's detection and counting capabilities integrate with existing packing workflows and how success will be measured relative to the current baseline.

Q3. Call-For-Innovation Process: Commercial and Funding Model

What is the commercial and funding structure for this Call-For-Innovation?

Response: The Call-For-Innovation seeks industry partners willing to co-develop solutions with the project sponsor, WH, and is open to multiple commercial models — for example pilot-based, service-based, outcome-driven, or bundled approaches — provided proposals show accuracy in counting and contaminant detection and scalability.

Innovation funding is available to support the co-development POC, with grant amounts determined by the final POC cost and awarded on a case-by-case basis. As this is a collaborative development effort, contributions from both the project sponsor and the industry partner are expected. The Call-For-Innovation initiates the Outcome-Based Spiral Contracting Framework – subject to successful POC outcomes, further discussions will be conducted to determine the next steps, with outcomes delivered iteratively in short sprints to keep objectives aligned.

Q4. Integration, Deployment & Security Requirements

What are the requirements for the proposed AI-enabled solution, covering integration, deployment and security?

Response: Proposals should include the solution's integration capabilities and how their proposed solution architecture would support future interfaces; note that specific integration requirements and technical assessments will need to be established between the selected industry company and the relevant system owners (e.g., T-DOC) at a later phase.

Proposals should also describe deployment requirements and the support that will be provided, as the selected Industry Partner will be expected to advise and share detailed deployment guidance.

Cybersecurity compliance (for example, SOC 2 Type II and ISO 27001) is strongly encouraged and should be described in the proposal submissions.

Integration is not currently mandated, but the hospital is considering future interfaces with existing systems (for example, T-DOC); there is no decommissioning

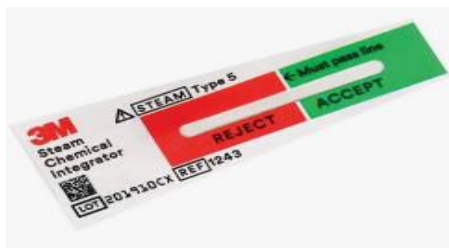
timeline for current systems (such as SSET and/or T-DOC) because this is a newly acquired hospital system.

Q5. Availability of Existing Images and Data

Will existing images and related data (for example: labelled images, sample packed-set photos, historical inspection/pilot images, surface discolouration, chemical indicator photos, and physical-defect samples) be made available for AI training and co-development of the POC, and if so, what formats, access conditions, and any restrictions or quality standards apply?

Response: Image and datasets sharing with Industry Partners will be considered case-by-case and image library database will only be provided to the selected Industry Partner after Pitch Day.

Sample of chemical indicator:



The hospital can supply a preliminary library of instrument images (mainly new instruments in good condition) and some defect image - subject to the industry partner assessment of image suitability for the POC. The proposed system is expected to analyse these images, recognise the 'normal' baseline and raise an alert for any tool that deviates due to damage, defects, missing part, stains, or rust. If provided images and datasets are insufficient in quantity or quality, the selected Industry Partner should deliver an end-to-end capability to capture, process and

upload additional images, including specifying or supplying appropriate imaging hardware, capture protocols, processing pipelines, file formats and annotation standards.

The selected Industry Partner should assess whether the historical inspection data or pilot data (if used to train AI models) is suitable, and provides a distinct advantage to our project, ensuring its use does not introduce hallucinations or interfere with our POC. The report data must separate past training data from the POC to ensure that the entire database reports are not skewed or contaminated by previous data.

Finally, proposals should state required image quality criteria, secure transfer and storage methods, ownership/usage rights, and compliance with applicable security and privacy requirements.

Q6. CSSD workflow - Clean Zone

What are the inspection and workflow activities that occur in the Clean Zone, and which specific stage(s) of the CSSD process do the described use cases fall under? Are trays scanned in batches or as single-line items?

Response: All Call-For-Innovation use cases apply after washing/decontamination and immediately before wrapping with sterilisation crepe/wrapper; sterilisation processes (for example, autoclaving) are out of scope for this Call-For-Innovation.

The key objective of this AI-enabled system is to automatically detect damage, defects, missing parts, stains and rust immediately after washer disinfectant processing, without requiring instruments to be neatly arranged. Industry Partners are to advise and recommend technologies to maximise detection accuracy (for example, integrated weighing, specialised lighting and/or spectral imaging for protein stains, and high-quality image capture) as needed and demonstrate how these will work in a noisy CSSD environment. The system must automatically flag abnormalities with clear visual cues and alerts, minimise manual handling, promote staff safety, and streamline rewashing/quarantine workflows.

Proposed setups should integrate with current packing workflows without creating bottlenecks and should measurably improve inspection and counting versus the existing baseline.

Both batch and single-line configurations will be considered. Industry Partners should propose the layout that optimizes their AI solution's performance; proposals should include a proposed layout that optimises their AI detection and counting performance and supply validation data demonstrating accuracy and agreed acceptance criteria.

Q7. Requirements

(a) What are the physical, hardware and infrastructure requirements for imaging at packing stations and how many unique hardware brands are currently available on site?

Response: The Call-For-Innovation seeks an integrated solution (software plus hardware) that fits and enhances the hospital's existing CSSD environment.

Proposals should justify the hardware footprint and layout (preferably a standalone unit where feasible), collaborate with hospital staff to optimise placement within available space, and offer cost-reasonable options; note the hospital's current inventory includes roughly 100 vendors.

As the hospital currently lacks dedicated image-capture infrastructure at inspection stations and detection of stains is done manually, the selected Industry Partner must advise on image-capture hardware, data storage and processing workflows to deliver reliable, high-quality imagery.

Explain how the system will store and manage data and describe integration or interoperability with the hospital's existing instrument tracking platform (for example, T-DOC) to support traceability through the reprocessing workflow.

(b) What are the existing technologies used for instrument tracking?

Response: CSSD currently uses T-DOC for instrument tracking and traceability throughout the reprocessing workflow; Industry Partners may propose any suitable AI solution that has demonstrated accuracy and performance through relevant validation studies. The proposed solution should complement and integrate with existing workflows where appropriate and be designed primarily to enhance instrument inspection and counting during the packing process.

RFID technology is excluded from the POC scope.

Note: A separate, unrelated project on instrument tracking (for example, laser embossment or KEYDOT labelling) is in progress and will not interfere with this Call-For-Innovation.

(c) What are the detailed specifications and requirements for the instruments and tool sets used in the stated use cases and for the POC?

Response: 10 specialty sets based on procedure frequency and instrument complexity are selected for the POC trial. To explore POC viability, this selection ranges from micro-simple instruments to highly complex multidisciplinary sets.

All instruments are usage related; true cutting-edge instruments include chisels, rongeurs and punchers. The five specified use cases and proposals shared may be used as an example. Note that instruments outside the five primary use cases may still show similar defects (misalignment, bluntness, etc.).

Access to tools is permitted based on project needs, and physical inventory will strictly remain on-site as it is currently circulating for live operations.

(d) What are the technical requirements for surface-stain scanning and what target scan speed/throughput is required or acceptable per surgical set for demonstration of performance under expected operational conditions?

Response: The proposal should state if the proposed solution's surface scanning technology can achieve 100% accuracy and full 360-degree visibility. This

performance standard must be maintained when processing batches or streams of multiple instruments within the packing zone. With advancement in technology, Industry Partner can explore looking into Surgical Instrument with lumens.

On average, a staff currently spends 148 seconds on manual inspection and 275 seconds on manual counting per surgical set. To encourage a co-development of the AI-enabled system, the selected Industry Partner can collaborate with WH to optimise the system and to advise on the acceptable scan duration based on industry standards, rather than setting a rigid maximum duration.

The system should actively identify missing instruments, instrument mix-ups, and extra instruments by cross-referencing library data. Ultimately, the goal is to significantly reduce processing times across both phases without compromising counting and stain detection accuracy.