



CASE STUDY

TOOL TRACKING AND MANAGEMENT



BAE SYSTEMS AUSTRALIA HUNTER CLASS FRIGATE PROGRAM



The Organisation

BAE Systems Australia is Australia's most versatile defence and security company. From air and maritime sustainment to shipbuilding, BAE Systems Australia have a long and proud heritage of providing advanced defence technology which protects both people and national security, keeping critical information and infrastructure secure.

BAE Systems Australia is leading the design and build of a fleet of Hunter class frigates. The Hunter Class Frigate Program (HCFP) is transforming Australia's shipbuilding industry by supporting the building of a world-class, continuous naval shipbuilding capability for our nation.

Customer Drivers

As they forge ahead in building a continuous naval shipbuilding capability within Australia, BAE Systems Australia showcases a resolute commitment to embracing Digital Transformation. Within the framework of the Hunter Class Frigate Program at the Osborne Naval Shipyard, this commitment takes shape through the integration of digital solutions and cutting-edge technologies.

One notable innovation is the introduction of a digital 'tool tracking' capability, with the objective of establishing a capability that can be adopted across the shipbuilding enterprise. The implementation of digital tool tracking has been identified as a pivotal opportunity to enhance shipbuilding productivity, elevate quality standards, bolster safety measures, and ensure comprehensive Tool Accountability.

"This integration of digital technology into our business and ways of working will result in fundamental changes to how we operate to deliver better value to our Customer. The right technologies coupled with the right people, processes and operations will give our organisation the ability to adapt quickly to opportunities, meet new and evolving business needs, and drive future growth and innovation."

The Solution

The tool tracking capability has effectively superseded labour-intensive paper-based processes with a streamlined digitally automated system for overseeing thousands of tools at the Osborne Naval Shipyard. This implementation encompasses the following key features:

- Authentication of employees using security pass scanning
- Effortless tool issuance with job card association facilitated through wireless scanning
- Robust tool calibration and service management
- Validating Suitably Qualified and Experienced Personnel (SQEP) during tool issuance, significantly improving safety by ensuring proper tool qualification before distribution

The tool tracking system incorporates automatic employee authentication through precinct security pass RFID swiping, tool/job card scanning hardware, and SQEP compliance checks, utilizing unique identifier tags on tool and consumable assets in Tool Cribs for continuous monitoring; it records Job Cards to trace tools used for each specific job, ensuring comprehensive traceability, including tracking tools not returned within the designated time-frame and those returned to a different location (tool crib).





The system rigorously records details for both tools and consumables. This includes critical information like historical issuance and return dates, projected return dates, unique identification tags, serial numbers, tool classifications, calibration and service histories, qualification certificates, present location, and status (e.g., Issued/Available/Quarantined/Retired/Lost/Faulty). Additionally, it keeps track of inventory counts and any relevant notes.

Business rules consider employee qualifications and certifications. Alerts are generated if a tool is issued to an employee without the necessary compliance or if an employee is issued a tool type they already possess.

From a maintenance standpoint, the system proactively generates alerts to prevent the issuance of a tool if its calibration and/or servicing status (e.g., Quarantined, Retired, Lost, Faulty). Moreover, the solution serves as a valuable asset for overseeing maintenance activities related to tool calibrations, servicing, and Break-Fix status, while also efficiently managing spare parts inventory. Additionally, the system offers a comprehensive array of reports detailing the status and availability of tools and consumables, empowering the organisation to facilitate strategic planning and meet essential compliance requirements.

Delivery

The tool tracking implementation project, which commenced in March 2021, culminated in the successful deployment of the Hardcat Lebosi Asset Management System by December 2021. This accomplishment was made possible through the exceptional collaboration between the BAE Systems Australia IM&T and Facilities teams and the Hardcat team, demonstrating a highly cooperative and efficient working relationship.

This project was exclusively executed using a fully remote delivery model, where all typical project interactions were conducted through collaborative tools and shared workspaces. During the Discovery phase, the emphasis was placed on creating a 'Strawman' representation of the BAE Systems Australia data structures. This approach facilitated rapid prototyping of a customer-specific solution and early validation of necessary configurations. Continuous user interaction and feedback played a pivotal role in swiftly refining the solution, ultimately leading to its final implementation in readiness for customer acceptance.

The project's success was significantly attributed to the robust collaboration between Hardcat and BAE Systems Australia. Together, we seamlessly delivered the tool tracking requirements for the Osborne Naval Shipyard. The trust and partnership fostered during this project have laid a solid groundwork for ongoing collaboration. This includes the deployment of the Hardcat Lebosi asset management solution, harnessing its capabilities to benefit various sectors within the broader BAE Systems Australia shipbuilding enterprise. Furthermore, it ensures continued support for BAE Systems Australia's evolving digital technology transformation needs in Asset Management.





Outcomes and Benefits

Throughout 2022 and 2023, Hardcat Lebosi has effectively enabled the issuance, return, and calibration of thousands of tools from the HCFP's initial three tool crib locations. This innovative tool tracking capability has systematically replaced traditional manual paper processes with streamlined digital workflows and automation where possible.

Evaluating the anticipated benefits resulting from the implementation of digital processes compared to manual methods reveals substantial potential for efficiency gains throughout the entire Hunter program. A comprehensive analysis suggests that adopting advanced digital workflows can improve time efficiency, enhancing operational productivity and effectiveness. This transition not only streamlines tasks but also fosters an environment of enhanced accuracy and speed, propelling the program towards optimised performance outcomes.

The implementation of Hardcat Lebosi has delivered a range of significant outcomes for the BAE Systems Australia organisation, including:

- Improved safety through qualification validation and comprehensive traceability
- Enhanced compliance via traceability and robust reporting capabilities
- Substantial reduction in losses through the visibility of all issued items
- Increased operational efficiencies, notably in the swift issue and return of tools
- Effective qualification management with associated training and qualification checks
- Enhanced inventory tracking with complete visibility of all issued items
- Individual accountability established by tracking tools and providing insights into their usage (what, where, who, and when)
- Optimisation of asset lifecycles through maintenance tracking and cost collection processes





The BAE Systems Australia tool tracking solution has demonstrated its agility and adaptability by extending its capabilities to encompass consumables like PPE, a development successfully implemented in June 2022. Furthermore, it has seamlessly scaled up to accommodate the growth of the project group and has found application in various other business divisions.

Leveraging the versatile 'Enterprise ready' asset agnostic features of Hardcat Lebosì, there are future plans to enhance the deployment further. These plans include the management of HCF Emergency Response Team equipment from Permit Offices, presenting exciting opportunities for continued optimisation and expansion.



Testimonial

"Building collaborative relationships with industry-leading Australian software companies is a crucial component of our Digital Shipyard journey. The right technologies coupled with agile empowered teams and streamlined processes will give our organisation the ability to adapt rapidly to opportunities; meet new and evolving business needs; drive future growth and innovation, and ultimately deliver enhanced value to our customers. We extend our appreciation to Hardcat for their exceptional service throughout the Tool Tracking system implementation. Their unwavering commitment to supporting BAE Systems Australia in enhancing and evolving this critical capability for the future is truly commendable."

Nathan Paulson Digital Transformation Project Manager – BAE Systems Maritime



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