Work Package 4.1

Capable Solution User Requirements

Vehicle Interaction Control Improvement Project

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| WBS Parent | 4. VI Collision Control Deployment (Phase 4) |
| Work Package | 4.1 Capable Solution User Requirements  4.1.1 Use Case – Technology Functional Requirements  4.1.2 Use Case – Technology Performance Requirements  4.1.3 Site Technical and Infrastructure Requirements |
| Package Owner | Project Manager |
| Owner Organisation | Your Company |
| Participants | Project manager, project team, experienced operations personnel, site and divisional HSE personnel, site technical personnel, experienced maintenance personnel. |
| Capability Required | Professional Project Management skills  Oversight by senior operations, maintenance, and technical personnel. |
| Description | Developing User Requirements for technology selection is assumed to be a core management competency for the sites and companies who adapt and apply the Vehicle Interaction Control Improvement Project Guide resources.  It is expected that the Project Manager will work with experienced personnel and apply existing site and company processes to achieve the following:  Continue to develop Capable Solution User Requirements relevant for Collision Avoidance technology.  Review the Use Cases developed during   * 2.6 VI Control Improvement Prefeasibility Option Analysis Prefeasibility Analysis * 3.1 VI Improvement Options Feasibility Scoping * 3.8 VI Control Improvement Prefeasibility Option Analysis scoping   to prepare:  **4.1.1 Technology Functional Requirements** – these define what new technology Vehicle Interaction Controls can and do not do.   1. Identify relevant company vehicle interaction requirements for new technology controls (EMESRT Level 8 and 9) based on operation type: e.g. underground coal mining, underground hard rock mining, open cut mining, refinery etc. 2. Upgrade potential, data management and fit with future mine digitisation plans and other relevant information for each option. 3. Compare site and company requirements, identify any difference e.g. additional site-specific requirements and/or restrictions e.g. requirement for machine swing interlocks, orebody precludes use of magnetic field PDS etc.   **4.1.2 Technology Performance Requirements** – site performance requirements are determined by site personnel considering the consequences of operating without the new technology control in place.   1. Review site equipment defect reporting and classification processes. 2. Working with operational personnel, set version 1 of expected performance parameters. 3. Summarise site expected performance capability, installation and maintenance costs, upgrade potential, data management and fit with future mine digitisation plans and other relevant information in that can be deployed in a Request for Proposal (RFP) and to assess responses.   **4.1.3 Site Technical and Infrastructure Requirements** – where relevant, these cover technical requirements to support the deployment, installation, and operational integration of new controls e.g. extensions of site WiFi networks, installation of private 5G networks.  Include questions on technical and infrastructure requirements in Request for Proposal (RFP).  Prepare a site functional, performance and technical specification for use when issuing a Request for Proposal (RFP), assessing, and selecting VI Collision Control technology options offered by Original Equipment Manufacturers (OEMs) and Third-party technology suppliers. |
| Completion State | **Site Capable Solution User Requirements prepared for use when issuing a Request for Proposal (RFP), assessing, and selecting VI Collision Control technology options.** |

**References:**

* Outputs from work package 2.6 VI Control Improvement Prefeasibility Options Analysis, 3.1 VI Improvement Options Feasibility Scoping, and 3.8 VI Control Improvement Prefeasibility Option Analysis
* Site Vehicle Interaction Performance Baseline
* EMESRT Vehicle Interaction [Body of Knowledge](https://emesrt.org/vici-bok/) to access resource materials;
  + [EMESRT Performance Requirement 5A (PR-5A) – Vehicle Interaction Systems](https://www.emesrt.org/wp-content/uploads/PerformanceRequirement-5A.pdf)
  + [EMESRT Functional Performance Scenarios Storyboards for Surface and Underground Mining](https://www.emesrt.org/vi-scenario-storyboards/)
  + [EMESRT Human Factors Design Reference Guide](https://www.emesrt.org/wp-content/uploads/HumanFactorsDesignGuide.pdf)
  + [Mining3 - Reference guide to support PDS sensor decision making](https://pdstoolkit.com/)
* ISO standard 21815 part 2 – CAS Interface Protocol for Level 9 intervention

ICMM ICSV – Vehicle Interaction Capable Solution definition.

* “A capable solution delivers better vehicle interaction control performance by improving the quality of decision-making from task execution through to mine operations and design.
* A capable solution considers relevant aspects of the operating environment, production requirements and equipment design.
* Where technology is a part of a capable solution, it is operationally integrated.”

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**Future recommendations and feedback**

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