



SOL-X

BY MAGELLANX 
Worker Health & Safety

Shipping Division of Major Energy & Petrochemical Company Case Study

How the company's shipping division improved crew wellbeing, Human Reliability, and safety outcome for midstream and downstream heavy industries

This case study applies to a subsidiary of an energy and petrochemical company. The shipping and maritime company provides ship management, technology services and shipping oil and natural gas.

Challenges involved in helping organisations fulfil Safety and Core Value obligations

Environmental, Health and Safety (EHS) refers to the methodology that studies and implements the various practices that protects the environment and maintains health and safety of the workers at their workplace. As the measure which assesses an organisation's business practices on sustainability and ethical issues and sheds light on the risks and opportunities involved around them, EHS gave the corporate world a new approach of conducting business responsibly, where sustainability extends beyond environmental issues.

Today's organisations must have an efficient system in place to accurately collect and standardise health and safety data and create safety performance metrics and KPIs to disclose this information to stakeholders. A strong EHS proposition not only prevents injuries and fatalities but also assists in implementing good corporate governance. The consequences of poor health and safety management are far-reaching and are not simply limited to an increased number of workplace incidents, injuries, and fatalities. As safety and compliance regulations around the world become increasingly stringent, the costs and reputational damage associated with workplace injury and illness can significantly and adversely affect an organisation.

Although there has been an increased emphasis on EHS, there is still often a wide gap between an organisation’s practices and EHS obligations. Companies are hesitant to commit to the full spectrum of EHS obligations as these obligations are complex and constantly evolving. However, organisations need to prioritise its workers’ health and safety to demonstrate successful and responsible business practices. To achieve this, organisations need to set realistic EHS targets and should not be intimidated by the magnitude of the task.



The challenges before partnering with the company in the maritime space

These challenges highlight the complexity of Digital Safety Framework implementation, emphasising the need for careful planning, strong leadership, and a willingness to adapt and innovate. Organisations that address these challenges effectively can reap the rewards of improved safety roadmaps, agile behavioural, culture and safety interventions, targeted safety trainings to accelerate organisational safety results.

- **Management of Change (MoC):** The implementation of a Digital Safety Framework is necessary from an organisational perspective. However, technological progress is typically impeded by resistance to change, wariness of new technology, and concerns of job redundancies. With these concerns in mind, our conclusion was that we must have in-house talent and collaborate with the company to develop a MoC with minimal disruptions. We also ensured that the product was developed to bring value to all stakeholders i.e. users, supervisors, HSE managers and the organisation. Focusing on the positive organisational intent, effective change management strategies, training programmes, and clear communication about the benefits of digital safety transformation will be enablers to overcome this resistance.

- **Cost of Implementation and Return of Investment (ROI):** Notwithstanding the fact that digital technology may be expensive to implement, there have been lengthy conversations to help the client understand the potential benefits along with a well-defined safety strategy. The SOL-X solution must be able to demonstrate that it can accelerate the company's Powering Progress initiatives by uncovering near real-time safety insights, focusing on people's environmental exposure in a workplace.
- **General Data Protection Regulation and Security:** With the increased reliance on digital technologies, organisations may generate and collect vast amounts of data. A commonly held concern is how organisations deal with such collected data, in particular how such data is being handled, stored, and shared. People may also be reluctant to share such information due to fear of judgment, exclusion, or negative consequences.

It is important for organisations to address these concerns by implementing strong data protection measures, being transparent about data handling practices, obtaining informed consent, and allowing individuals to exercise control over their personal information. Respecting privacy rights and demonstrating a commitment to data security can help alleviate worker reluctance to have their personal data be collected and handled by organisations.

- **Customer experience and expectations:** With the increased awareness and usage of digital technologies in other segments and industries, customer expectations have also correspondingly increased. It is our responsibility to advise clients on the value proposition of the SOL-X Solution, which is to uncover a seafarer's workplace near real-time exposure data through reports, analytics, and leading indicators for actionable insights.

The company has the required policies and procedures in place to power progress – that is the **WHY**. It is thus vital that we also redirect attention to achieve the generative culture in safety to accelerate core values and sustainability results within the organisation – which will bring us to the **WHAT** and **HOW**.

As a safety partner with the company, we collaborate with them not only by simply providing them with our digital tools and solutions, but also by following up closely and considering their preferences. By doing so, we ensure that our solution is consistently aligned with their safety enablement journey and strategies, which helps them to accelerate the implementation of safety measures and achieve better safety outcomes.

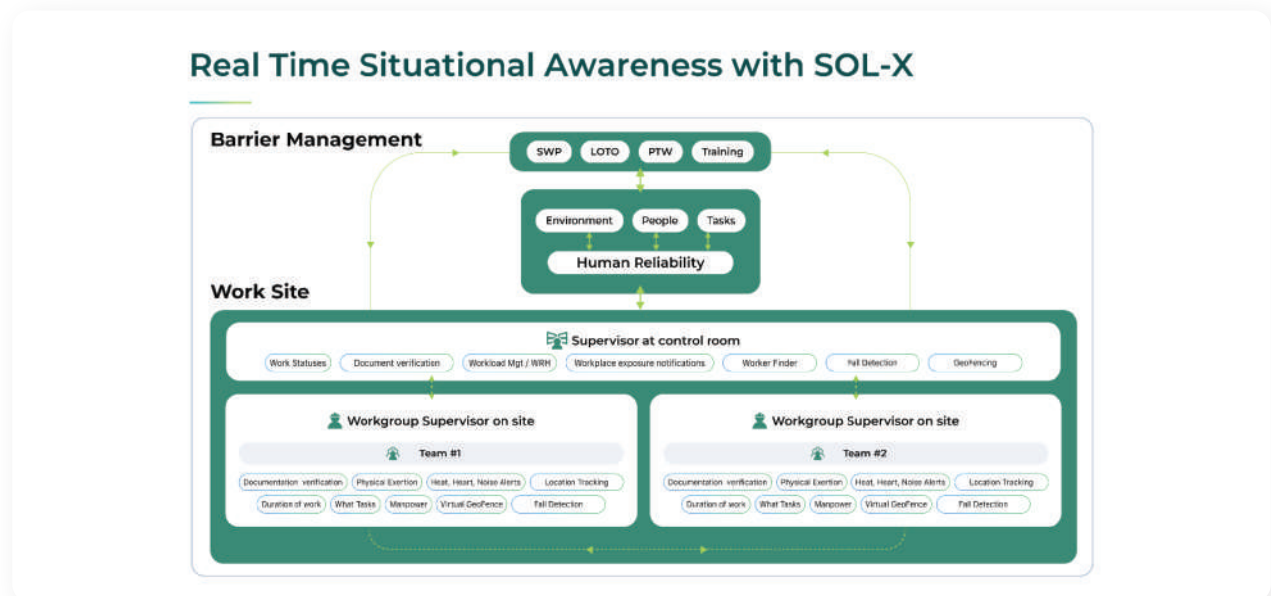
Click here: [SOL-X SmartWatch Brochure](#)

Results

One of the most hazardous industries is the shipping industry. It is also one of the most vital industries as the other industries are heavily dependent on the maritime industry. Safety has always been the foundation of it, and it is important to implement comprehensive safety standards and measures. According to the National Safety Council, the average cost of a work injury that required medical attention was \$44,000. The costs of safety and injuries can drastically increase over time, especially in organisations which lack safety measures.

Having realised this and as a commitment to improving the safety of the crew in the fleet, the company partnered with the Magellan X group to enhance safety by deploying our flagship SOL-X Connected Worker Health and Safety Solution.

Crew Situational Awareness:



For a worker, “Situational Awareness in safety” means active monitoring of his surroundings to identify threats. It is straightforward if these threats are clearly visible or if information was clearly disseminated to him during tool-box meetings. However, this may not always be the case, and as such, every seafarer may not be situationally aware of all the tasks, operations, and his surroundings.

When the SOL-X team was gathering requirements to address Situational Awareness, we felt the onus should not solely lie on the seafarers or workers themselves. We saw the opportunity to extend this Situational Awareness visibility to the supervisors, team leader and senior officers onboard. Leveraging our SmartWatch, the product feature should imitate the ‘buddy’ system which provides contextual notification and alerts.

The SOL-X solution would enable safety leaders in an organisation apply data driven interventions and process/policy improvements for the seafarers. Through continuous collaboration with the company’s shipping division to enhance the product, we will be able to gain a deeper understanding of its needs and provide a targeted approach to improve its safety culture.

GeoFence

Hazards present on vessels are dynamic in nature - depending on the vessel condition, the activities planned for the day and even the weather condition. Timely information to persons who may be affected by emergent hazards provides contextual situational awareness for them to react and ensure their safety. A combination of haptic and sound alert is triggered on the SOL-X SmartWatch whenever a worker approaches the virtual barrier zone which has been set up via the supervisor’s Dashboard. The SOL-X SmartWatch provides and thus enables contextual alerts on the ongoing tasks and operations onboard to the crew in near real-time.

Workload Management

The feature provides near real-time work/rest hour statuses following MLC 2006 requirements. When work/rest hour has been activated on the SmartWatch, near real-time work/rest hour statuses can be observed on the Dashboard. Pro-active workload management for high-risk tasks can be performed by team leaders and senior officers during unplanned scenarios. The SmartWatch will also provide alerts to the user and can be configured, for example when the number of hours worked approaches the eighth hour.

The feature capability and data collected can be used to implement policies and procedures to manage and mitigate fatigue-related risks. This may include scheduling practices that provide sufficient rest periods, monitoring and addressing signs of fatigue, and educating personnel on the importance of adequate sleep and recovery.

Crew Assist and Fall Detection

When a fall is detected, an automatic notification will be sent to the Dashboards (Bridge, Engine Control Room, and Cargo Control Room). The notification comprises the seafarer's name and last-detected location. This will significantly reduce the time needed to render necessary assistance.

Crew Wellbeing:

Seafarers exposed to excessive heat may sustain heat injury which, even if not fatal, will adversely affect their ability to perform tasks safely and according to plan. Similarly, being engaged in a highly strenuous activity for long can adversely affect their physical capacity to complete the task in a safe manner. Exposure to high levels of noise is detrimental to the wellbeing of their hearing, and the effects of such exposure, even if not immediately apparent, can be chronic and impair their quality of life long after they have ended their seafaring journeys.

The SmartWatch is built to detect seafarers' base heat exposure, noise exposure, physical exertion (high heart rate) and steps (activity). Each feature will provide contextual notifications for the users to take necessary "Take-5" steps based on the users' environmental exposure type detected and their current physical conditions.

A significant value proposition of the SOL-X SmartWatch is that, in addition to giving a seafarer crucial information on his own environmental exposure onboard a vessel, we use the same information to grant useful insights to all relevant stakeholders in the safety infrastructure.

For example, the SmartWatch will notify an individual if their surrounding temperature increases and alerts them to stay hydrated in a timely manner. On the Dashboard, supervisors can monitor environmental conditions and take the necessary steps to plan out the day for the crew in a pro-active manner. With an analysis of the data collected from the entire fleet, the heat exposure feature can help management formulate or refine the company's Heat Stress policy and preventive measures.

On a holistic level, the seafarers, their supervisors and as an organisation can take ownership of their own, their peers and their charges' wellbeing at all levels and to ensure safe journeys via multiple levels of protection.

Why we chose the company?

It is an organisation well known to be a leader in health, safety, security, environment, and social performance (HSSE & SP) that commits to conducting an environmental, social and health impact assessment for every major project. Through process safety, the company ensures that the design and implementation of its facilities have adhered to safety standards. It also ensures all the facilities are being maintained and well-inspected on a regular basis.

The organisation also has defined clear global standards and operating procedures to mitigate incidents and accidents in the workplace. Risk assessment is one of the many steps which the company takes to prevent catastrophic accidents and meet safety standards. Routine practices and emergency responses are implemented across the organisation to prepare for potential accidents such as spills or fires. The organisation regularly conducts emergency response exercises with the local emergency services and regulatory agencies. Moreover, the company believes in investing in digital technologies to improve safety performance and goal zero ambition. This fits well with our vision to materially improve the safety and wellbeing of workers in heavy industries, using contextual and near real-time on-site data.

Our partnership with the company

The Magellan X group, as a leading Digital EHS Solution provider, works with various organisations to help them accelerate their implementation of EHS measures, fulfil their EHS obligations and lead them towards a sustainable future. Understanding the organisation's goals with respect to EHS strategies is vital to providing the right solution and ensuring that it is effective in helping them achieve sustainability in safety. The ease of understanding our proposition, and the willingness to co-create together will help to improve workforce safety and wellbeing. By combining both parties' expertise and through collaborative communication, we were able to build a relationship with the company to ensure the smooth deployment of our SOL-X solution to improve crew wellbeing and safety.



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