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HSE&S WORLD



OHSSAI FOUNDATION

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Ensuring a Safe and
Productive Workplace



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Reinforced Intelligent Behaviour Based Safety (RIBBS) using Technology Interventions

Introduction

Behavior-Based Safety (BBS) is the "application of science of behavior change to real world safety problems", or "A process that creates a safety partnership between management and employees that continually focuses people's attentions and actions on theirs, and others, daily safety behavior." The almost century-long history of Behavior-based safety began with research conducted by Herbert William Heinrich in the early thirties. Many organizations have benefited out of implementing it in their organizations. However, it takes its own time to mature the

processes and have impact on the attitude and behaviour of a person.

But with technological advancement like AI, ML, IoT, AR, VR, Industry 5.0, 5G, etc., the processes can be made more error proof and can bring more impact to the behaviour of a person, irrespective of anyone observing them or not. Such interventions of Artificial Intelligence (AI) along with human interventions (HI) play an important role in influencing the behaviours without allowing to go astray. Thus, it the BBS is reinforced with the intelligence of technology in RIBBS.

Benefits of BBS vs RIBBS

BBS

- Observations based on sample touch points & tours.
- Can skip unobserved NM/JA/UC.
- Change of Guard can change the rules & be manipulated.
- Skips what is unobserved.
- Limited impact on R&R and Consequence Management.

RIBBS

- Observations are Realtime and effective after HI.
- Will Capture at NM/UA/UC.
- Rules set become standards and cannot be manipulated.
- Captures every aspect of behaviour.
- Actual log of R&R and Consequence Management.

Thus, RIBBS makes the efforts of BBS to be more effective and error proof to mature the processes and have positive Impact, thus helping in Safety, Quality & Operational Excellence of the Organization using Technological Intelligence.

Best Practices on HSE & Sustainability Management

Introduction

Building a strong safety culture in a startup can be challenging, especially when health and safety is a new domain in the organization. However, by following a structured sequence of milestones, we can achieve realistic safety goals while ensuring maximum results in minimal time.

Key Milestones

- Conduct detailed field observations and Prepare risk assessment documents based on Scope of Work and field observations captured. Identify hazards, potential risks, and establish control measures.
- Once risk assessment is completed, develop a clear policy outlining the organization's commitment to health, safety, and wellbeing. Ensure the policy covers the correct way of executing work for consistency, safety, and efficiency.
- After Policy preparation Conduct a structured Training sessions with all employees, associates & Partners & customers.
- After trainings Session with all stakeholders, introduce a policy that defines the consequences for non-compliance with safety standards mentioned in policy and establishes accountability.
- Initiate regular field audits and surveys to evaluate the implementation and performance of safety measures initiated.
- Regularly repeat the cycle of conducting audits, sharing findings, and offering follow-up training sessions until improvements are reflected.

- Share audit observations with relevant stakeholders for immediate review and action. Focus should be on correct practices and areas requiring improvement to drive continuous progress. Establish a continuous feedback loop by encouraging stakeholders to focus on audit observations and take corrective actions.

Best Practices/ innovative approach for HSE & Sustainability

In addition to the foundational steps, our ongoing commitment to safety has been strengthened by lessons learned from past experiences. Below are the best practices we have implemented to enhance our safety culture @ Constl (SPACE WORLD DIGITAL SOLUTIONS PVT LTD).

- **Effective Communication Through Regular Safety Mailers:** Regularly flash safety mailers to all stakeholders, addressing key topics related to wellbeing, safety, and health, to keep safety top-of-mind.
- **Initiating the Concept of Safety Ambassadors:** Appoint *Safety Ambassadors* from field and assign them specific tasks to drive safety practices and trainings more aggressively within the organization.
- **Developing a Unique Online Audit Mechanism:** Create an online audit system to capture field observations and evaluate progress from all stakeholders, including engineers and vendors.

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- **Leveraging social media for Knowledge Sharing:** Utilize social media platforms to share safety knowledge capsules, reinforcing safety messages and expanding their reach to a broader audience including internal and external stakeholders.
 - **Learning from External Incidents:** Share lessons learned from incidents not directly related to the organization with relevant stakeholders to promote vigilance and prevent similar occurrence.
 - **Embedding Safety into Every Activity:** Safety should be integrated into every aspect of organizational life, including walking, eating, drinking, driving, and sitting. This approach helps cultivate a strong safety culture and ensures mindfulness in all activities.
 - **Engaging family in Safety initiatives:** Connecting family of team members in driving safe work culture that includes road safety and Site safety practices, especially Wearing Personal protective equipment PPEs while executing any task.
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Sustainability Management for Annual Magazine “HSE&S World”

Introduction

In Bearys, we always look for innovation to improve HSE&S performance at site. Suggestion for improvement are sought from all stakeholders during the morning STA (Safety Task Assignment).

In civil construction, slabs often have beams, making it difficult for workers to move across the site. Many individuals also get injured by protruding rods and binding wires. Through brainstorming sessions, an innovative solution was developed, as shown in the photos below.



In civil construction, workers and staff often begin their day as early as 7:00 AM. To help them feel refreshed and start their work energetically, a morning stretching exercise is conducted before the Toolbox Talk. After these exercises, participants are noticeably more active and engaged.

Actions Initiated to Improve HSE&S Performance

New Worker Identification: During the review of HSE observations and nonconformities, it was found that nearly 80% of safety violations were committed by workers who had been on-site for less than 30 days.

When this issue was discussed among employees and workers, a key suggestion emerged: “All stakeholders should be able to identify new workers so they can provide guidance and support until they fully adapt to site rules.” While this idea was widely accepted, the challenge remained—how to make new workers easily identifiable. Some proposed using different-colored helmets, but this was ruled out due to the existing variety of helmet colors on-site. After multiple brainstorming sessions, the team decided to place a distinctive sticker on the helmets of new employees upon completing their safety induction. The details of the sticker color and its purpose were then communicated to all stakeholders.



Sustainable HSE Management with Technology Growth – The Role of Virtual Reality

Introduction

Sustainable Health, Safety, and Environment (HSE) management is no longer just a regulatory requirement; it is an essential strategy for organizations striving for long-term success. In a rapidly evolving world where environmental concerns and workplace safety are at the forefront, companies must integrate sustainability into their HSE frameworks to foster a responsible and resilient future. Sustainable HSE management not only reduces workplace hazards but also contributes to environmental conservation and cost efficiencies, ultimately enhancing corporate reputation and operational effectiveness.

The importance of sustainable HSE management lies in its ability to balance workforce safety, environmental responsibility, and business efficiency. Industries across the globe are under scrutiny to adopt eco-friendly and proactive safety measures. Traditional HSE methods, often reactive, are now being replaced by innovative approaches that prioritize prevention, resource optimization, and long-term impact. Companies that invest in sustainable HSE models witness a reduction in workplace accidents, improved compliance with safety standards, and an overall positive impact on employee well-being.

One of the most effective and sustainable solutions in modern HSE management is Virtual Reality (VR)-based training. Unlike conventional safety training programs that rely heavily on printed materials, on-site demonstrations, and extensive travel, VR-based training significantly reduces

environmental impact. This technology creates realistic, immersive simulations that allow employees to experience hazardous situations in a risk-free virtual environment. By eliminating the need for physical training setups and reducing carbon footprints associated with travel, VR training emerges as an eco-friendly alternative.

Moreover, it enhances knowledge retention, ensures consistent training experiences across locations, and enables real-time performance tracking, making it a valuable tool for industries committed to sustainable HSE practices. It is not a replacement for classroom training but a complementary tool that enhances traditional learning methods by providing hands-on, interactive experiences that reinforce safety principles.

The construction industry is one of the highest-risk most high-risk sectors, facing persistent challenges in safety management. Accidents on construction sites are often a result of inadequate safety measures, limited hazard awareness, and ineffective training programs.

Many workers lack comprehensive knowledge of potential risks, making them vulnerable to injuries and fatalities. Traditional training methods frequently fail to engage employees, leading to poor retention of crucial safety protocols. Recognizing these issues, AATRAL VR introduced an innovative stand-alone VR model for construction training, designed to bridge these critical gaps.

AATRAL VR's training program immerses workers in realistic construction site scenarios, allowing them to experience high-risk situations without actual danger. The training focuses on key areas such as fall protection, hazard recognition, and emergency response. Through interactive modules, workers learn how to use safety gear correctly, identify site hazards effectively, and respond swiftly in crisis situations. The results have been remarkable, with construction firms reporting a significant reduction in workplace accidents and an increase in safety compliance. By incorporating VR technology into HSE training, these organizations have not only enhanced worker safety but have also aligned their operations with sustainable, cost-effective training practices.

Another compelling example of sustainable HSE management can be seen in the manufacturing industry, where fire safety, work at height safety, and electrical safety are critical concerns. Factories and industrial plants face numerous hazards that can lead to severe injuries or fatalities if proper safety measures are not in place. A leading manufacturing company recently integrated VR-based safety training into its employee development programs to improve preparedness and risk mitigation.

In the case of fire safety training, employees were immersed in a virtual environment where they learned to identify fire hazards, use fire extinguishers correctly, and follow evacuation procedures. Similarly, work at height safety training allowed workers to practice using safety harnesses and identify fall risks in a controlled virtual space. Electrical safety training helped employees recognize potential electrical hazards, understand safe handling procedures, and respond appropriately in case of an emergency. By combining VR training

with traditional classroom instruction, the company successfully enhanced workforce competence while reducing the risk of workplace incidents. The adoption of VR-based training also contributed to sustainability efforts by minimizing resource consumption and ensuring consistent safety education for employees across different locations.



VR crane simulator training is transforming heavy equipment safety by immersing operators in realistic, risk-free environments where they can master complex manoeuvres without real-world consequences. By reducing the need for physical training setups and minimizing equipment downtime, it offers a sustainable and cost-effective alternative to traditional crane operation training.

The integration of technology into sustainable HSE management is a game-changer for industries aiming to achieve long-term safety and environmental goals. Companies that embrace these advancements gain a competitive edge by fostering a culture of proactive risk management, reducing operational disruptions, and ensuring regulatory compliance. VR-based training, in particular, has proven to be an effective tool in preparing employees for real-world hazards without exposing them to actual risks.

Digital Transformation in HSE Management: Enhancing Safety with Safety Shield & IB4U Apps

Introduction

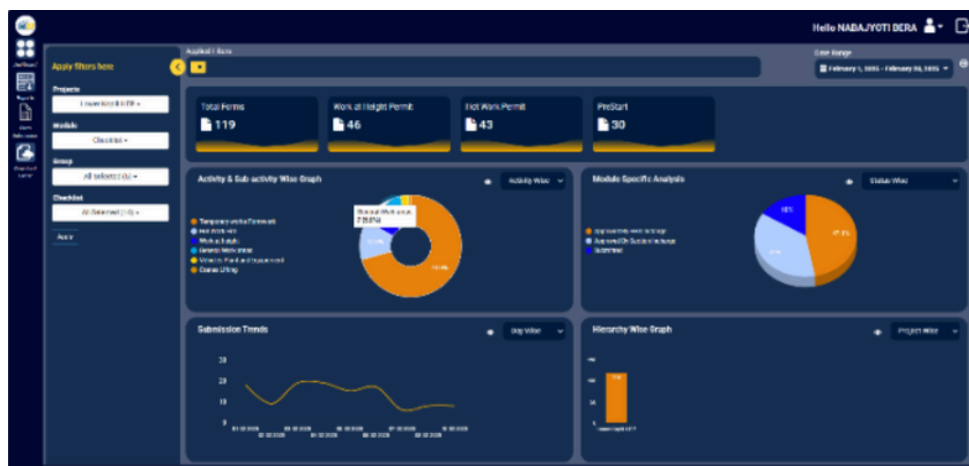
In today's fast-paced work environments, the integration of digital solutions is crucial for enhancing HSE (Health, Safety, Environment) management. Two such transformative tools, the Safety Shield App and the IB4U (Inspection Before Use) App, provide comprehensive solutions for managing safety and ensuring compliance across a wide range of industrial settings. These apps empower Safety Engineers and workers to report, track, and manage safety observations, equipment inspections, and overall HSE performance effectively.

Safety Shield App: Revolutionizing Safety Observation and Reporting

The Safety Shield App is a powerful tool designed to track, report, and enforce compliance with safety standards in real time. It provides a proactive approach to identifying unsafe acts and unsafe conditions, enabling Safety Engineers to

respond quickly and effectively. Key features include:

- **Safety Observation Reporting:** Safety Engineers can report unsafe acts or conditions directly through the app. The app helps analyse and track these observations, ensuring timely interventions and corrective actions are taken.
- **Tracking & Compliance:** The app offers a transparent system for tracking safety observations, the actions taken, and compliance with safety standards, promoting a culture of accountability.
- **Work Permit System:** A digitalized Work Permit System ensures that work activities are pre-approved and that risks are assessed before tasks begin.
- **VR Training Modules:** Virtual Reality (VR) training modules provide immersive training for high-risk tasks, enhancing hazard awareness and *readiness for real-world challenges*.



- Subcontractor Evaluation: The app allows for evaluating subcontractor safety performance, ensuring that third-party contractors adhere to the same stringent safety standards.

By integrating the Safety Shield App, organizations can enhance their safety reporting, reduce human error, and improve compliance management, contributing to a culture of proactive safety.

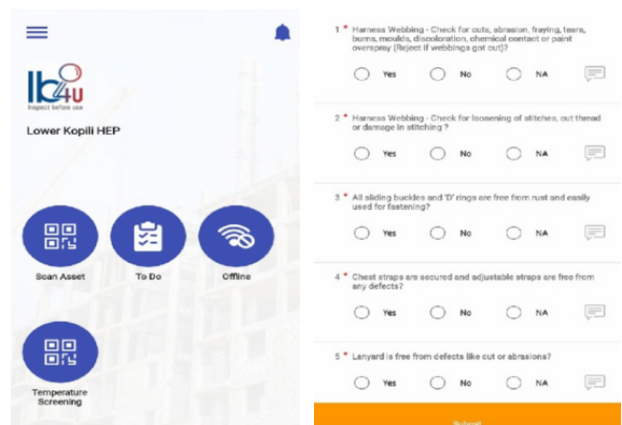
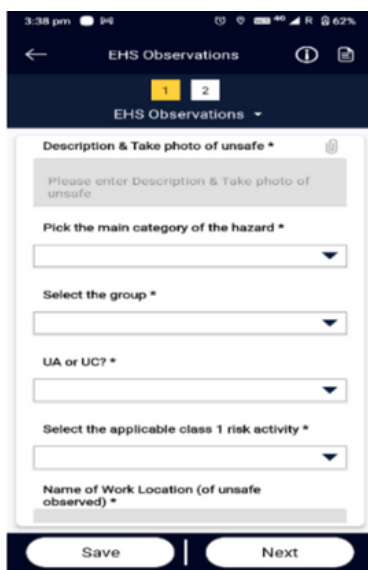


IB4U (Inspection Before Use) App: Ensuring Equipment and Safety Gadget Readiness

The IB4U App is a vital tool for ensuring that equipment and safety gadgets are thoroughly inspected and ready for use. This app supports Safety Engineers and workers in conducting inspections that ensure safety standards are met, and hazards are prevented. Key features include:

- Monthly Safety Statistics: Safety managers can track monthly project safety statistics, identifying trends and areas for improvement, and refining safety strategies.
- Incident Reporting: The app simplifies incident reporting, including near-miss incidents, first aid cases, and reportable lost time injuries, ensuring proper documentation and follow-up actions.

- Equipment & Safety Gadget Inspections: The app enables Safety Engineers to conduct detailed inspections of equipment and safety gear, ensuring that all tools are in optimal condition before use.



- Real-Time Reporting: Any discrepancies or hazards identified during inspections can be immediately reported to supervisors, ensuring swift corrective action to prevent equipment failures or accidents.

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- Documentation & Compliance: All inspection data is stored digitally, offering a clear audit trail for future reference and ensuring compliance with regulatory requirements.
 - Automated Reminders & Alerts: The app sends automated reminders and alerts to Safety Engineers and workers, ensuring that inspections are carried out on time and regularly.
 - Integrated with Safety Management Systems: The IB4U app integrates seamlessly with the organization's overall HSE management system, simplifying the tracking of inspections and compliance across the board.

By using the IB4U App, organizations ensure equipment safety, reduce downtime, and

improve overall workplace safety, leading to a more efficient and compliant environment.

Conclusion: A Safer, More Efficient Future with Digital HSE Tools

Both the Safety Shield App and IB4U App represent the future of HSE management by combining digital technology with best practices to create a safer, more efficient work environment. These apps help streamline safety reporting, incident management, and equipment inspections while ensuring continuous improvement and regulatory compliance. By embracing these innovative digital tools, companies can significantly enhance their HSE performance, reduce risks, and create a safer, healthier, and more sustainable workplace for all employees.

Integrating Health, Safety, and Sustainability for a Resilient Future at Aragen

In today's dynamic industrial landscape, robust Health, Safety, Environment, and Sustainability (HSE&S) management is not only a regulatory mandate—it is a strategic imperative. At Aragen Life Sciences, our approach to HSE&S is embedded in our corporate DNA. With over 20 years of experience as a trusted R&D and manufacturing partner, we understand that effective HSE&S management protects our people, safeguards our environment, and underpins our long-term business success.

Leadership and Commitment: The Cornerstone of HSE&S

Our journey begins at the top. We believe that the commitment of leadership sets the tone for an entire organization. At Aragen, senior management integrates HSE&S into our mission and core business objectives. This top-down commitment ensures that resources—whether human, financial, or technological—are allocated to advance safe work practices and sustainable processes. By consistently communicating these priorities, our leaders foster a culture where safety and sustainability are intrinsic to daily operations.

Innovative Strategies Driving Operational Excellence

To remain ahead in an ever-evolving sector, Aragen has embraced digital transformation and innovative risk management strategies. We use state-of-the-art tools to monitor, measure, and continuously improve our safety and sustainability performance. Whether through data-driven evaluations of work conditions or integrating best practices

across our global sites, our systems approach ensures that risks are proactively identified and mitigated. This integration of digital technologies not only enhances our operational efficiencies but also supports our broader sustainability goals.

Milestones in Sustainability: Recognitions That Inspire

Our dedication to HSE&S is validated by external accolades. Recently, Aragen received Science Based Targets initiative (SBTi) approval for our ambitious near-term and net-zero greenhouse gas reduction targets—underscoring our commitment to measurable environmental impact. In addition, being awarded the prestigious Platinum Medal by EcoVadis places us in the top 1% of companies worldwide for sustainability excellence. These milestones are a testament to our relentless drive toward operational sustainability and responsible growth.

Collaborative Initiatives and Stakeholder Engagement

Effective HSE&S management thrives on collaboration. At Aragen, we engage employees at every level—from frontline workers to executive leadership—in our safety and sustainability initiatives. By fostering an environment of open communication and participatory decision-making, we not only improve workplace conditions but also ensure that our partners and clients share in our commitment to excellence. Our global network and strong supplier relationships further amplify these efforts, creating a unified ecosystem that prioritizes safe, sustainable practices.

Charting the Future: Continuous Improvement and Innovation

Looking forward, our roadmap is clear. We will continue to leverage emerging technologies, refine our risk management strategies, and set even more ambitious sustainability targets. Our focus is on continual improvement—using data and feedback to drive change, enhance compliance, and elevate our performance across all HSE&S dimensions. This commitment positions us not only as a leader in the life sciences industry but also as a responsible corporate citizen contributing to a greener, safer world.

At Aragen Life Sciences, HSE&S is more than a set of policies—it is a comprehensive, integrated approach that drives our operational success and propels us toward a sustainable future. By embedding safety and sustainability into every process and decision, we are not only protecting our employees and the environment but also creating lasting value for our stakeholders.

Together, through innovation, collaboration, and unwavering commitment, we are building a resilient future—one molecule, one project, one initiative at a time.



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We also provide our consulting and advocacy services in the field of trainings, audits, inspections and various surveys specific to each organization requirements in the domain of HSE & Sustainability, Lean manufacturing, Gemba Kaizen and various ISO certifications such as 9001, 45001, 14001 and 39001, etc. Reach out to us for Training Programs, Audits, Surveys, etc. for your organization.

ohssai.foundation@gmail.com
www.ohssai.org