



Innovative Compliance: How AI Helps Meet the Challenge of Environmental Regulations

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ehsAI reduces costs up to 80% by converting complex compliance documents, like regulations and permits, into compliance, in seconds.

Companies around the world must comply with industry and government regulations for environment, health and safety (EHS) or face heavy fines, litigation and serious repercussions for their brand. At the same time, the cost of compliance is high, and is getting higher as more rules and regulations are mandated, updated and changed. Smart companies are looking for smart solutions to this problem. One way to reduce the cost of compliance is to start lowering its human component, i.e., through automation. This is where ehsAI comes into the picture.

ehsAI is an innovative compliance technology company that uses artificial intelligence and machine learning to help organizations reduce the costs and risks of permitting and compliance. ehsAI's SaaS (software as a service) solution leverages machine learning to reduce the costs associated with the translation of complex environmental and health and safety documents—like permits, plans, consent decrees, standards, applications, procedures and regulations—into succinct, accurate and consistent compliance requirements.

The patented ehsAI algorithm mimics the thought process of an EHS permitting and compliance professional, quickly and accurately standardizing what has been to date an expensive, manual and error-prone task. ehsAI functionalities include transforming a complex document into precise compliance requirements that can be used in scenarios such as the following:

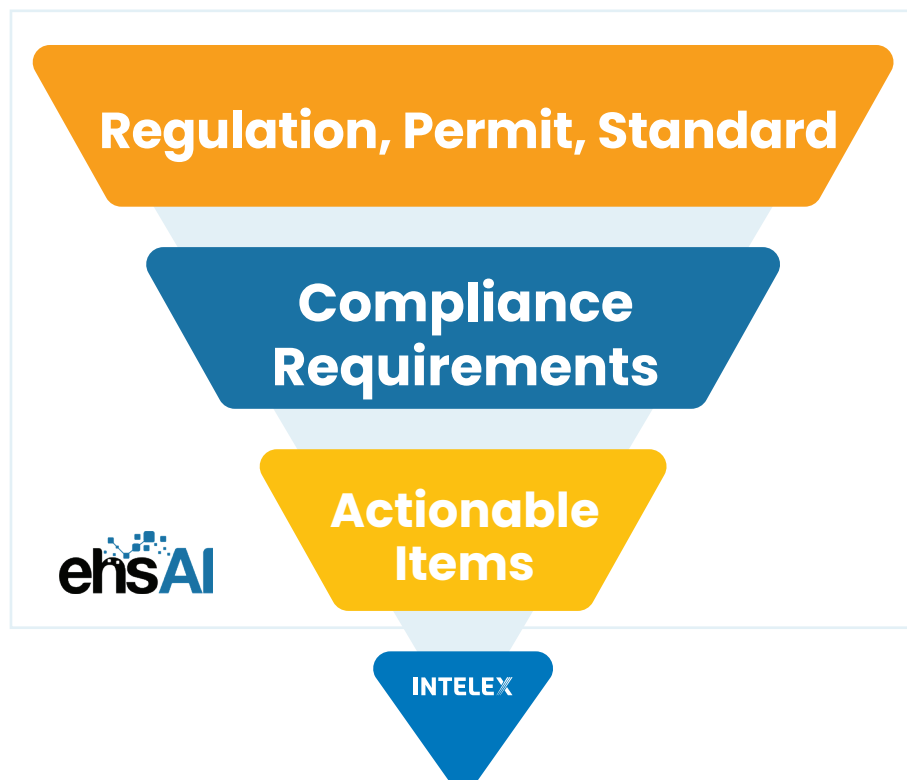
- streamlining manual preparations to support internal or external compliance audits so time spent on-site is minimized and laser-focused
- creating site-specific compliance registers based on applicable industry and government regulations at the country, state or municipal level, and
- generating a comprehensive list of tasks associated to each compliance requirement for tracking in third-party software systems.

ehsAI's sweet spots are the oil and gas, chemicals, technology, manufacturing, retail, metals and mining and power utilities verticals. The ehsAI platform is multi-lingual and can be used for Spanish, Portuguese, Dutch, German and French.

How Does ehsAI Work?

The ehsAI AI engine automates the interpretation and extraction of your EHS requirements or action items in regulations, permits, etc., increasing productivity and accuracy exponentially. A deep and evolving integration with the Intellex platform makes it easy to import ehsAI's structured outputs into any EHS compliance workflow. ehsAI does this in the following ways:

1. Scanning compliance documents from any regulatory authority and, within minutes, determining the required actionable items.
2. Leveraging patented machine-learning algorithms to generate a complete, indexed list of action items mapped to each regulatory citation and/or permit condition affecting your company.
3. Uploading ehsAI data and tasks into Intellex's industry-leading EHS software platform or exporting the data in commonly supported cross-platform formats.
4. Updating the list of required action items when regulations are updated, thereby completely streamlining the current manual process.



What Is EHS Compliance?

Companies that operate in different industries and in different countries and regions around the world all have one thing in common: they must follow the rules, regulations, standards, permits and directives that guide their day-to-day EHS operations and govern how they run their business. These rules and regulations could be industry-specific or mandated by federal, state or local government.

The US Environmental Protection Agency (EPA), which is on the front lines for environmental regulation in the US, dates only from 1970, when President Richard Nixon consolidated the environmental responsibilities of the federal government into one agency with the mandate to reduce pollution and protect the environment. Today, the EPA conducts research on environmental pollutants and works to set and enforce standards for air and water quality in the United States. There are also several other agencies with responsibilities that relate the environment, including the Bureau of Safety and Environmental Enforcement (BSEE), the U.S. Fish and Wildlife Services and the Federal Energy Regulatory Commission.

Like the EPA, the Occupational Health and Safety Act (OSHA) dates from the Nixon administration in 1971. Through powers established by the Occupational Safety and Health Act (OSH Act) of 1970, OSHA conducts inspections and enforces standards to ensure workplaces meet the requirements for protecting the physical and mental health of their workforce.

Compliance

Adherence to the laws, policies and regulations that apply to a business and its processes. These “operating rules” can be set by government agencies at the federal, state or local level; or they can be set by independent organizations as industry standards that apply transnationally. Violations of the different rules have different repercussions, ranging from formal warnings and censures to expensive fines, litigation or delisting.





The European Union (EU) is a world leader in environmental regulation, with over 200 environmental regulations dedicated to climate change, air quality, waste management and industrial pollution control. To meet the goals of the UN Framework Convention on Climate Change and the Sustainable Development Goals (UN SDGs), the European Commission has issued—or is soon to issue—several new ESG (environmental, social and corporate governance) regulations, including the Non-Financial Reporting Directive for reporting on climate-related business risk, the Sustainability-Related Disclosures Regulation for disclosing ESG risks and the Taxonomy Regulation for creating a classification system for environmentally sustainable economic activities.

The EU has a common system of occupational safety and health (OSH) management principles that are applicable to all member states. The European Framework Directive (1989/391/EEC) establishes the general principles for OSH, which is further supported by nineteen Directives based on Article 16(1) of the Framework Directive. These Directives cover a broad array of OSH principles, including personal protective equipment (PPE), exposure to carcinogens and health and safety for underground workers.



Between January and October 2020, ESG funds attracted €151bn, an increase of more than 78 percent from the same period in 2019.¹

<https://www.ft.com/content/87615a21-0105-4210-8e7f-cd184370656c>

What Is the Cost of Compliance?

The cost of EHS compliance is the total of any expenses required to comply with all applicable EHS regulations. This includes equipment expenses, salaries, consulting fees and technology systems. While the public demand for stronger EHS compliance continues to surge, organizational budgets continue to tighten, which can require a delicate balancing act for EHS managers.

Here are just a few of the costs associated with EHS compliance.

Determining Your Regulatory Obligations

Organizations must dedicate considerable resources to understanding which regulations apply to them. This can be a particularly complicated task for organizations that operate in multiple geographies around the world, each of which might have unique EHS regulatory requirements, and change frequently.

Auditing

Management systems for EHS, especially those that are certified against standards like ISO 14001:2015 and ISO 45001:2018, must be audited on a regular basis to ensure compliance. The cost of both internal and external audits, as well as the certification process that organizations must undergo at regular intervals, can present significant costs.

Continuous Improvement

EHS management systems never reach perfection. The Plan-Do-Check-Act cycle, made famous by W. Edwards Deming and upon which current management system standards are based, requires the constant monitoring and improvement of the management system over time to ensure that errors and imperfection are caught and corrected to prevent future occurrences.

Since 2000, the EPA has collected over \$62 billion in fines relating to noncompliance with environmental regulations in the US.

What Is the Cost of Noncompliance?

The cost of failing to comply with EHS regulations can be high, including brand damage, financial liability and even criminal charges. For example, since 2000, the EPA has collected over \$62 billion in fines relating to noncompliance with environmental regulations in the US.

Some of the most well-known and expensive EHS noncompliance cases include the following:

 Volkswagen	In 2016, VW agreed to pay over \$19 billion to settle allegations of cheating on emissions tests and deceiving customers. In addition, the company agreed to spend over \$10 billion to compensate customers and another \$4.7 billion to promote green vehicle technology, some of which has taken shape as the Electrify America charging network.
 FIAT CHRYSLER AUTOMOBILES Fiat Chrysler	In 2019, Fiat Chrysler agreed to pay more than \$500 million for violating the Clean Air Act and other environmental regulations in California. Fiat Chrysler was accused of cheating vehicle emissions tests and failing to disclose unlawful devices designed to defeat emissions tests.
 A FirstEnergy Company Ohio Edison Company	In 2005, the Ohio Edison Company settled a case for violating the Clean Air Act through excess emissions of sulfur dioxide and nitrogen oxides from coal-fired power plants. Ohio Edison Company agreed to implement pollution controls that were expected to cost more than \$1.1 billion.
 British Petroleum	In 2009, BP was fined \$87 million for the company's failure to correct potential workplace hazards. Systemic safety violations at one of BP's Texas oil refineries resulted in a massive explosion that killed 15 workers and injured another 170. On Nov. 15, 2012, U.S. EPA reached a \$4 billion criminal plea agreement with BP Exploration & Production for the Deepwater Horizon explosion and oil spill in the Gulf of Mexico. In April 2010, the Deepwater Horizon drilling rig exploded and sank, resulting in the deaths of 11 workers and causing the largest spill of oil in the history of marine oil drilling operations. Four million barrels of oil flowed from the damaged Macondo well over an 87-day period, before it was finally capped on July 15, 2010.
 Imperial Sugar Co.	In 2008, OSHA proposed almost \$8.8 million in fines for Imperial Sugar Co. for 108 willful violations that resulted in an explosion caused by combustible dust. Thirteen employees were killed and 40 others were injured.



Important Global Regulations and Standards

We know what compliance means in a generic sense, and the different forms it takes according to industry and scope, but what are some well-known examples of the world’s most important and relevant standards and regulations?

Clean Air Act	The Clean Air Act was passed in 1963. It is a United States federal law that addresses air pollution and allows the federal government to set standards for pollution emission.
Clean Water Act	The Clean Water Act was passed in 1972. It is a United States federal law for reducing water pollution, preventing environmental damage and protecting the health of people who rely on access to clean water.
Toxic Substances Control Act (TSCA)	TSCA was passed in 1976 for regulating chemicals. It is administered by the EPA and requires reporting, testing and record-keeping by organizations that deal with chemicals. The EPA can apply civil and criminal penalties to organizations in violation of TSCA.
EU Taxonomy Regulation	The EU Taxonomy Regulation was passed in 2020. It provides a unified classification system for organizations to report and disclose activities that support sustainable development.
Occupational Safety and Health Act	The Occupational Safety and Health Act of 1970 ensures safe working conditions in the United States. It is administered by the Occupational Safety and Health Administration.
ISO 45001	ISO 45001 for occupational health and safety management systems provides a framework for organizations to protect the physical and mental health of their workforce. It replaces OHSAS 18001.
ISO 14001	ISO 14001 for environmental management systems provides a framework for organizations to monitor and measure their environmental responsibilities.
Sustainability Accounting Standards Board (SASB)	SASB provides standards and guidance on the way companies disclose sustainability information to investors. It identifies environmental, social and governance (ESG) issues that are relevant to financial performance in several industries.



What Are the Benefits of ehsAI?

ehsAI streamlines the manual process of extracting complete, detailed compliance requirements from regulations and permits. By making compliance easier, it reduces costs and the risk of financial penalties for noncompliance.



All Types of Regulatory Content

ehsAI can process compliance content in addition to regulations such as permits, operating procedures, policies, consent decrees, etc.



Cost & Speed

ehsAI processes content in minutes and dramatically lowers the cost of identifying compliance requirements by up to 80 percent.



Accuracy

ehsAI's accuracy is better than human interpretation and standardizes compliance requirements across an entire enterprise.



Granularity

ehsAI's output identifies individual requirements and obligations, even when more than one is present within a single citation or permit condition.



Ready for Integration

ehsAI produces a completely parsed and indexed output that is highly usable for immediate download or integration into any compliance platform.



Completeness

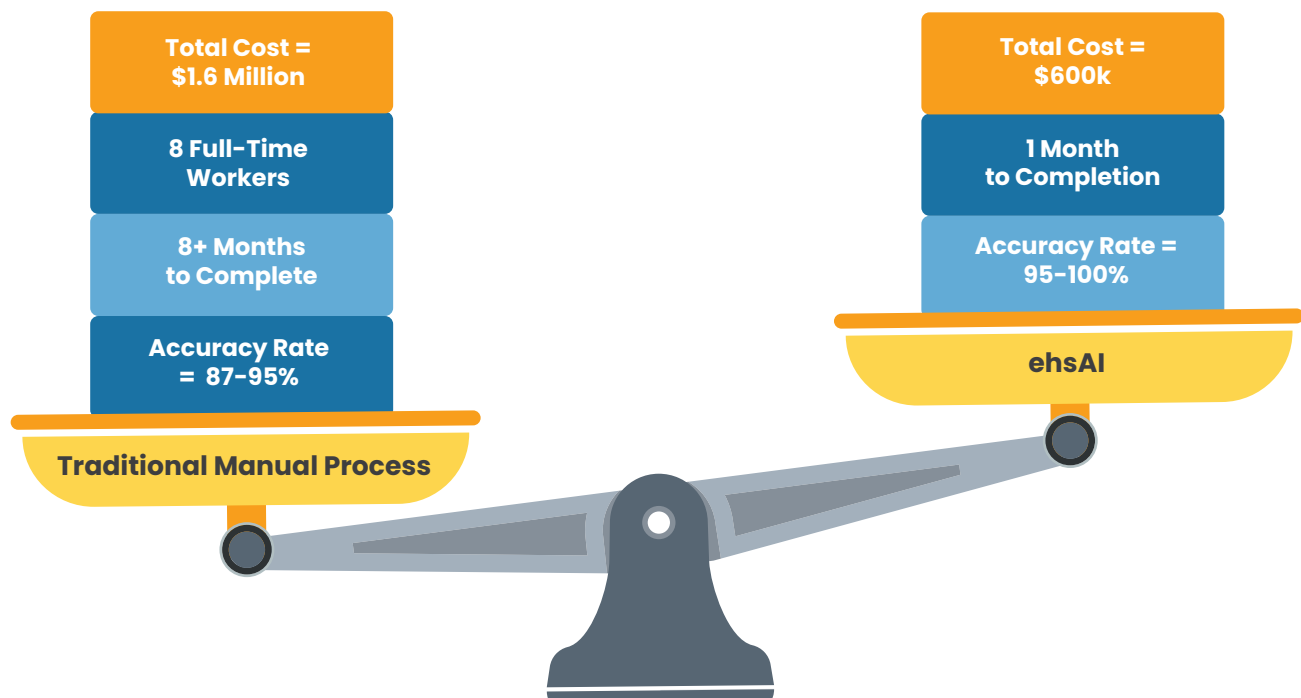
ehsAI treats each document as a whole entity to help eliminate duplicates and identify all requirements, every single one.

Customer Case Study: Saving Time and Money

A U.S.-based energy company with a long history of manually parsing industry rules and regulations was looking for a more automated approach. They wanted help understanding and deconstructing over 2,000 permits for a high-priority pipeline project. In the past, a comparable project had taken an eight-person team over eight months of time to complete.

They launched a pilot project with ehsAI to deconstruct the 2,000 permits and then manage them to demonstrate compliance. The pilot project demonstrated unequivocal success, deconstructing the permits in one-eighth the time, for 37 percent of the cost. It also freed up eight full-time employees to work on more valuable projects.

Time & Cost Savings Processing 2,000 Permits



**ehsAI completed a large permit deconstruction project
in 1/8th the time and at 37 percent of the cost.**



Disclaimer

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Who is ehsAI?

Better Data

Better Knowledge

Better Compliance



ehsAI is a next wave compliance technology company that uses artificial intelligence and deep learning to help organizations greatly reduce the costs and risks of permitting and compliance. A woman-led business, ehsAI is committed to integrity, diversity, and innovation in developing disruptive solutions that transform environmental, health and safety and compliance management for business. ehsAI serves the technology, manufacturing, energy, chemical, construction, utility, and retail industries. For more information about ehsAI, please visit www.ehsAI.com.

1. <https://www.ft.com/content/87615a23-0105-4210-8e7f-ccf84370656e>