GIST IMPACT

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Deeper Than Disclosure: The New ESG Frontier with AI

Spotlight Insights Report

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About GIST Impact

GIST Impact is a market-leading provider of impact data and analytics – specialising in measuring, quantifying, and valuing corporate impacts, risks, and opportunities in relation to nature and society.

Powered by a global team of experts, GIST Impact delivers precise, location-specific impact data covering over 17,500+ companies, and is the chosen partner for some of the world's largest corporations and investors representing over $8 trillion in assets under management.

Our methodologies are available on request and are steeped in the latest available, peer-reviewed science – aligned with our focus on data accessibility, traceability, and transparency.

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FStech awards 2025 WINNER

Environmental Finance Sustainable Investment Awards 2024 Winner ESG Data Provider of the year, EMEA

1. Introduction

The Environmental, Social, Governance (ESG) reporting landscape is evolving rapidly, with regulations and frameworks like Corporate Sustainability Reporting Directive (CSRD) and Taskforce for Nature-related Financial Disclosures (TNFD) setting new standards for comprehensive and ambitious sustainability disclosure requirements from companies. But, as companies race to keep up with a shifting regulatory landscape, the most recent example being the Omnibus Simplification Package, many are turning to AI to drive efficiencies by streamlining compliance and managing growing complexity.

Even as adoption of AI tools accelerates, concerns regarding their trust and reliability abound.

Concerns with AI result from tools that present seemingly intelligible results that do not hold up to deeper scrutiny – a major worry for mangers overseeing public sustainability disclosures, let alone using results for company strategy and investment decisions. This limitation doesn't come from AI's capabilities – but from less sophisticated tools that don't go beyond the basics.

Simply put, the utility of AI comes down to the data the model is trained on.

Firstly, AI tools should not rely on surface-level data only (i.e. company disclosures). Rather, AI must carefully integrate diverse and often fragmented data sources.

Secondly, the backbone of effective AI analysis lies in the availability of high quality, diverse, and validated datasets.

Thirdly, A human in-the-loop approach is a safeguard and strategic imperative to ensure AI driven insights are credible, actionable, and aligned with stakeholder expectations.

In this report, we show how GIST Impact's AI moves beyond disclosure efficiency to become a powerful tool for uncovering a company's true impacts, risks, and opportunities. Using a detailed, real-world example, we illustrate the depth of what's currently possible when AI is built on high-quality data.

2. Surface-level vs. Insights-driven AI

2.1 Limitations of Surface-level AI

Inherent Gaps in Disclosed Data

Disclosures reflect what companies choose to share - often limited or inconsistent across industries.

Inconsistent Data

ESG data varies widely in quality and format, making comparisons and benchmarking unreliable.

Limited Depth

Surface-level analysis fails to uncover hidden gaps, inconsistencies or opportunities for improvement.

Greenwashing Risks

Over-reliance on self-reported data can allow greenwashing to go undetected, as AI may not flag exaggerated or misleading claims without external validation.

Missed Red Flags

Many ESG reports underplay or completely omit emerging or controversial issues (e.g. child labour in supply chains, water-stress in key regions). This means that material risks or impacts can go undetected.

2.2 Opportunities of Insights-driven AI

Beyond Compliance

AI's real value lies in uncovering new insights, not regurgitating what's already known. AI empowers organisations to move past static, retrospective disclosures by continuously scanning for emerging risks, underreported impacts, and new value-creation opportunities that traditional reporting might miss. For example, AI can surface inconsistencies and identify gaps in reporting, regulatory or reputational risk hotspots, and reveal links between environmental performance and financial outcomes.

Integrating and Analysing Complex Data at Scale

To create a complete and dynamic view, it is important for AI to carefully integrate this diverse and often fragmented data sources including company reported data, regulatory guidance, scientific literature, geospatial intelligence, and news articles. For example, if designed correctly, AI can assess localised materiality by analysing water impacts in stressed regions, taking into account the shifts in local population well-being, as well as the financial risks tied to reputation or regulatory scrutiny. It can also summarise physical risks like asset stranding due to increased water scarcity.

Synthesising Large Volumes of Established and Emerging Science

A key driver behind these insights is AI's ability to synthesise the growing body of scientific evidence and established methodologies. This includes assessing quantified impacts from air pollutants on local populations, evaluating the physical risks of coastal flooding to assets, identifying nature-related risks near biodiversity-sensitive areas, or analysing workplace health and safety impacts on employees.

Transparency and Explainability

AI algorithms designed with transparency and explainability at their core ensure stakeholders fully understand the rationale behind generated insights. By tracing and disclosing exact data sources and support for evidence, the generated insights build confidence, accountability, and trust – critical components for ESG decision-making and stakeholder engagement.

3. The Next Frontier for Impact Intelligence

At GIST Impact, we believe that AI's true promise in sustainability goes beyond speed and automation. It represents a fundamental shift in how we perceive, measure, and value impact. The future of intelligent sustainability decision making and reporting will not be defined solely by AI algorithmic sophistication, but by the depth, diversity, and scientific rigor of the data that powers these algorithms. By leveraging AI in this way, organisations can move from compliance-driven reporting to deeper, insights-driven sustainability management that drives meaningful impact.

But what forms the cornerstone of such a north star?

3.1 Building a Strong Data Foundation for AI-Driven Sustainability Insights

The backbone of effective AI analysis lies in the availability of high-quality, diverse, and validated datasets. AI models must be trained on a rich mix of environmental, social, and governance indicators drawn from company disclosures, sector benchmarks, public datasets, scientific research, internal risk assessments, geospatial intelligence of assets etc. Yet, data access alone is insufficient.

Achieving reliability demands rigorous data validation, cleansing, and harmonisation processes to eliminate inconsistencies, correct biases, and maintain integrity across data sources. A comprehensive, multi-layered integration of these diverse datasets enables a holistic, dynamic, and evidence-based understanding of sustainability-related impacts, risks, and opportunities.

3.2 The Power of a Robust Data Architecture

The credibility and transformative capabilities of AI are determined by the strength of the data architecture that underpins it. A well-structured, resilient data ecosystem not only ensures that AI-generated outputs are accurate and defensible but also facilitates full traceability, transparency, and auditability, imperatives in an increasingly regulated and scrutinised sustainability landscape. Without a strong data backbone, even the most advanced AI models risk delivering fragmented, shallow, or misleading insights. In contrast, a high-integrity data architecture enables AI to serve as a true catalyst for strategic, insights-driven sustainability action.

For example, the hierarchy of the below data sources will need to be defined:

- **Company Disclosures:** Annual reports, sustainability data
- **Sector and Peer Data:** Industry norms and thresholds
- **Scientific Research:** Articles and journals on environmental and social topics
- **Internal Materials:** Risk reports, board presentations, employee surveys
- **Sentiment and News:** Social media, press coverage, and public perception
- **Disclosure Standards:** CSRD, GRI, etc. for mapping outputs
- **Data Down to Individual Company Assets**

3.3 Applying Scientific Frameworks to Deepen the Understanding of Sustainability Matters

With a validated, comprehensive data foundation in place, the next frontier lies in applying established scientific frameworks, methodologies, and emerging research to interpret the nature and materiality of sustainability issues. By systematically aligning internal and external datasets with global frameworks - such as TNFD methodologies for nature and biodiversity, leading public health studies for social impacts etc. GIST Impact moves beyond descriptive reporting to generate scientifically grounded, forward-looking assessments. This fusion of data and science ensures that insights are not only sound but also aligned with evolving regulatory standards and stakeholder expectations, positioning organisations to anticipate risks, uncover opportunities, and credibly demonstrate leadership in sustainability performance.

4. Elevating AI Credibility

While AI dramatically accelerates data processing and insight generation, its true value in sustainability intelligence is unlocked when paired with human expertise. A human-in-the-loop approach is not just a safeguard, it is a strategic imperative that ensures AI-driven insights are credible, actionable, and aligned with stakeholder expectations.

4.1 Quality Assurance and Bias Mitigation

AI can surface hidden patterns but may also perpetuate errors, biases, or blind spots inherent in underlying data. Rigorous human validation is essential to verify outputs, correct inaccuracies, and surface contextual nuances, particularly critical in ESG and impact analytics where reputational and regulatory risks often hinge on subtle materiality judgments.

4.2 Continuous Model Improvement

AI models are not static; they must evolve alongside new data, regulatory frameworks, and stakeholder expectations. Human feedback across the model lifecycle, from data labelling and training to exception handling and real-world refinement ensures that AI adapts, learns, and remains fit for purpose over time.

4.3 Contextualisation and Interpretation

While AI excels at pattern recognition and data synthesis, it lacks the ethical judgment and contextual understanding necessary for complex sustainability decision-making. Human expertise across sustainability, reporting, and audit functions ensures that AI-generated insights are interpreted correctly, aligned with evolving stakeholder values, and applied responsibly.

5. GIST Impact's Approach

5.1 Airbus

GIST Impact's double materiality solution delivers transparent, scientific and data-driven scores at both company and sector levels, along with AI-generated longlists of Impacts, Risks, and Opportunities (IROs) – all backed by traceable insights and one-click access to source data, disclosures, and methodology. Off-the-shelf CSRD-aligned DMA scores are available for over 17,500+ listed companies across major global indices.

To bring to life the capabilities of a contextualised AI engine, we'll take the example of Airbus's 2023 Annual Report, a publicly available document. This Report has been crawled, quality-checked, and ingested into GIST Impact's data architecture. From there, our AI engine assesses Airbus's IROs across relevant ESRS topics.

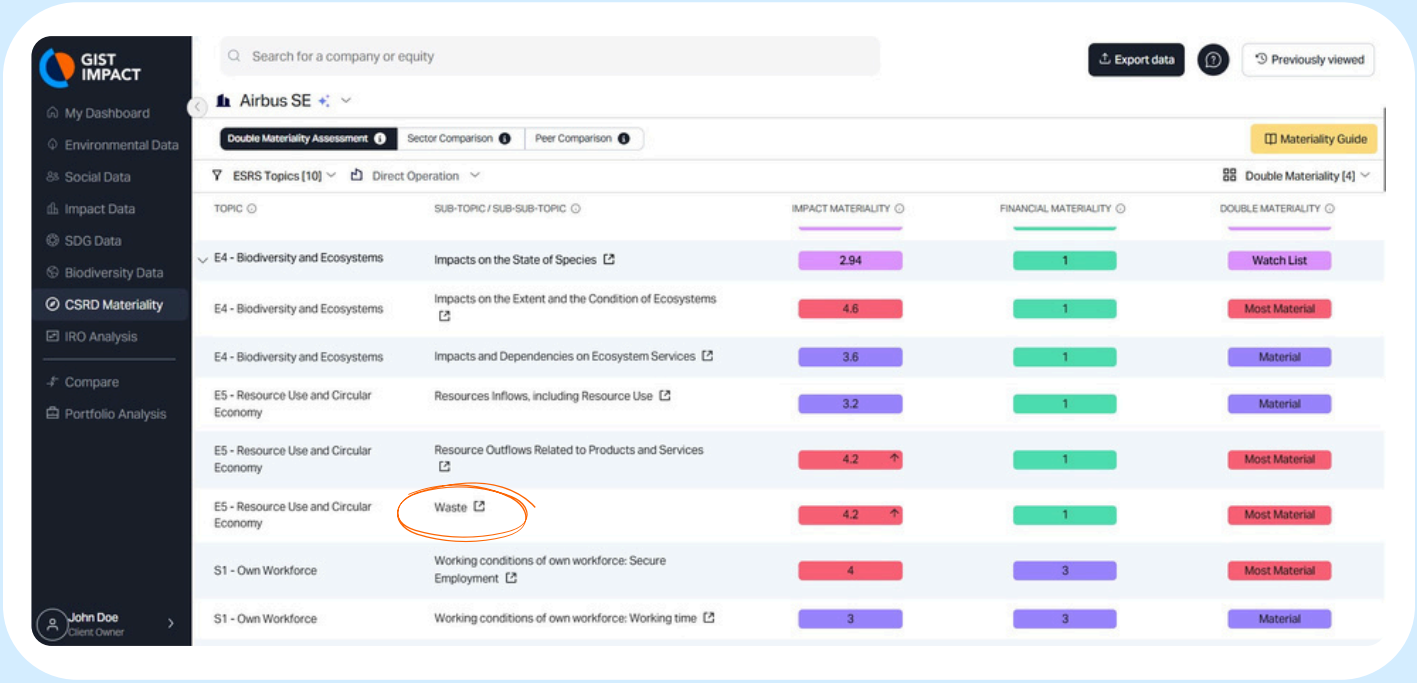
This approach reflects current market practice, where IRO and double materiality analyses build on prior disclosures and materiality efforts, offering continuity and credibility in sustainability reporting.

But here's the key: Before the AI ever reads a report, it's trained with deep contextual knowledge of how to assess sustainability matters under the ESRS framework.

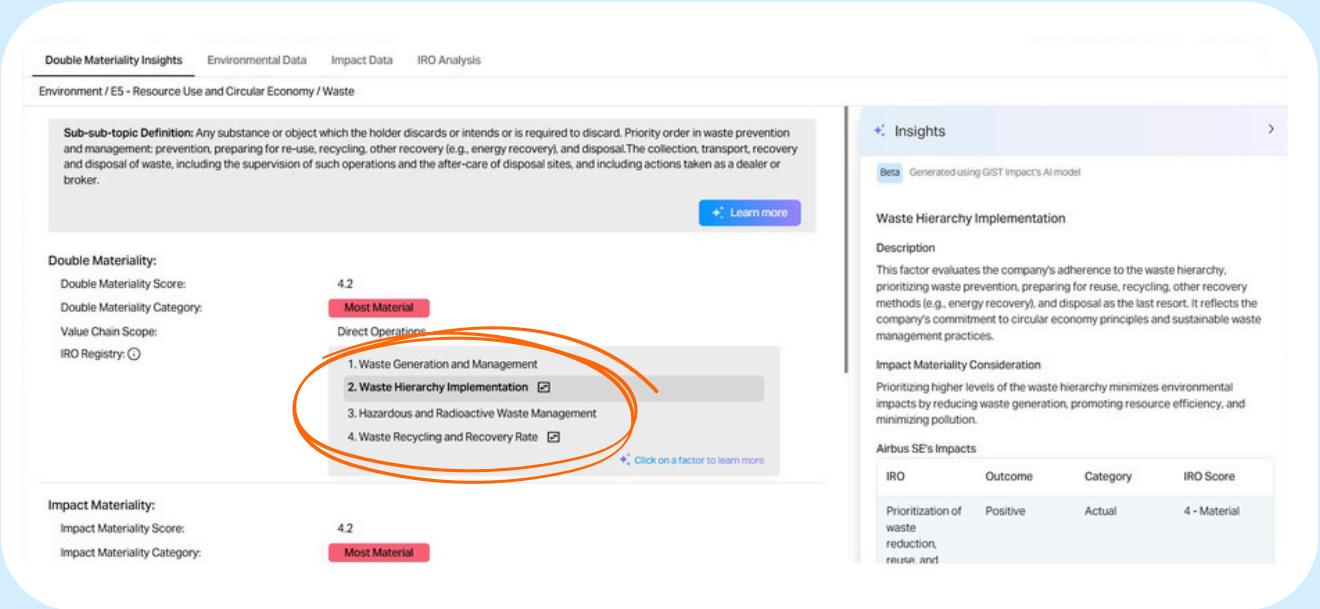
That's exactly what powers our insights-driven engine, combining regulatory guidance with data disclosures. In the case of Airbus, we'll show how a contextualised AI can produce traceable, standards-aligned IRO outputs – bringing speed, scale, and consistency to an otherwise manual and subjective process.

5.1.1 Double Materiality: More Than a Tick-Box, a Strategic Lens

In Airbus's case, GIST Impact's double materiality assessment engine identified ESRS E5 (Waste) as a material topic – at first glance it looks the engine has just flagged materiality just by crawling annual figures on hazardous waste and landfill disposal methods.

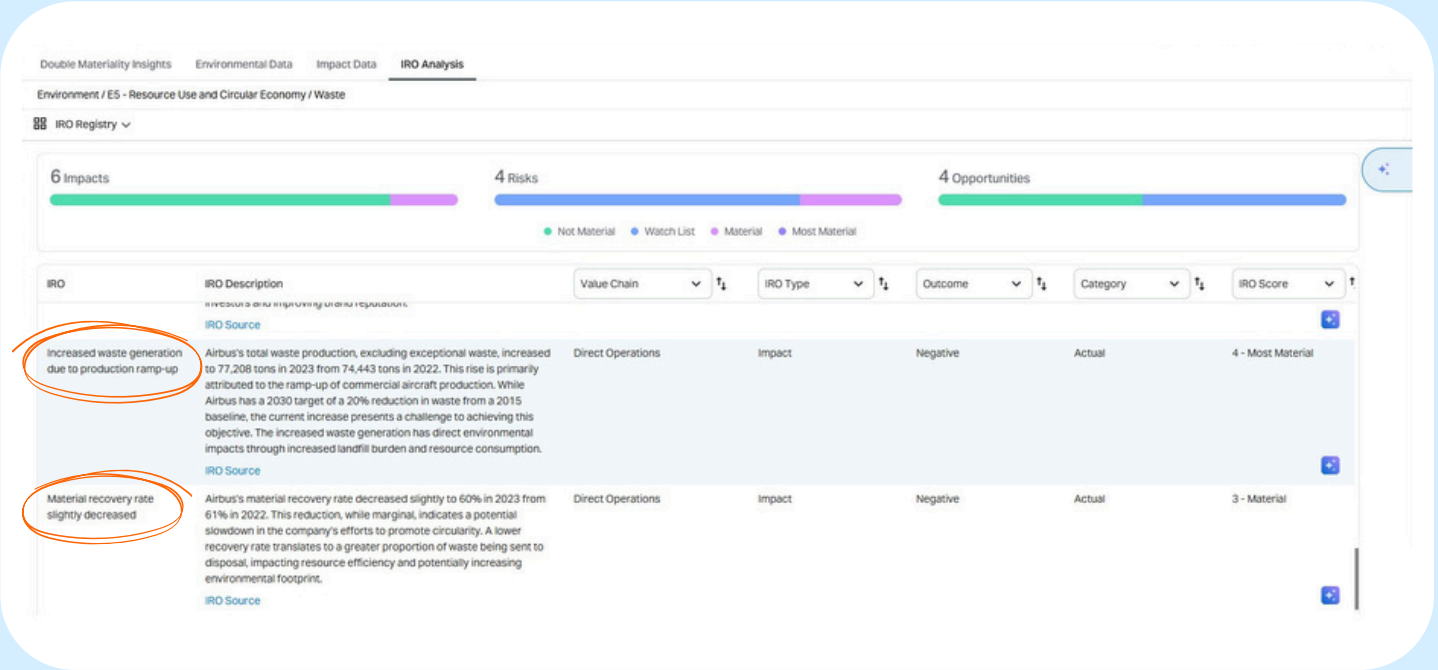


But by clicking-through, our engine then delivers a comprehensive lens shaped by EFRAG's own guidance – factoring in waste generation and management practices, adherence to the waste hierarchy, hazardous waste handling, and recycling and recovery rates.

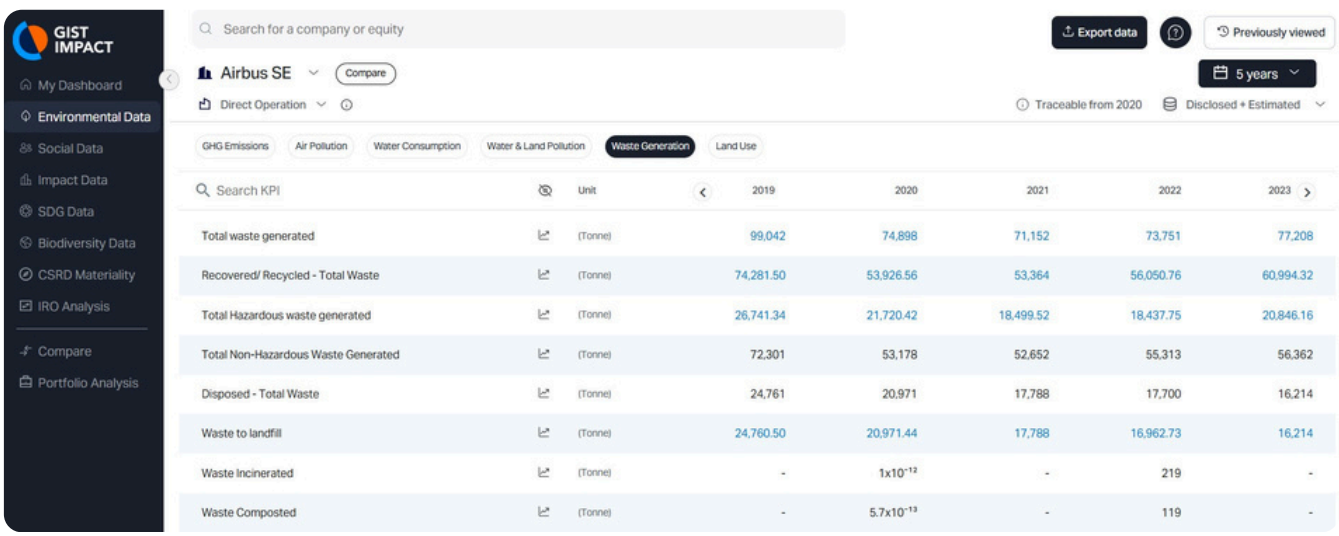


5.1.2 Surfacing Forward-looking Risks and Opportunities

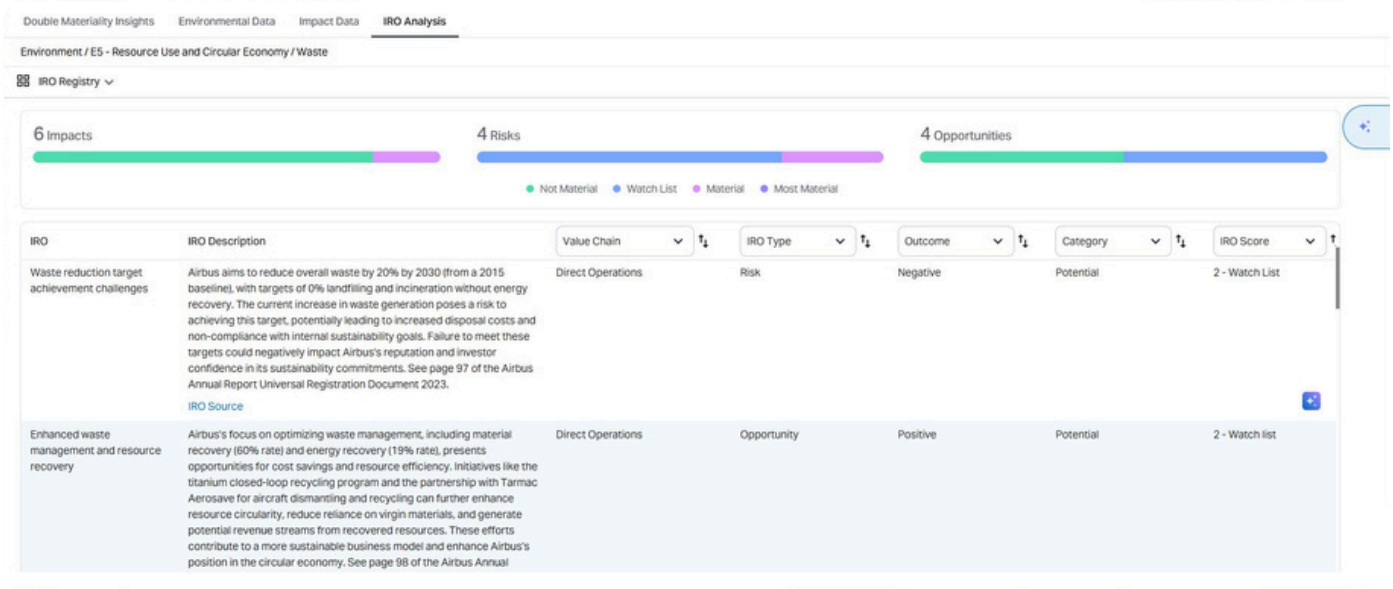
For instance, the AI flagged a notable increase in waste generation due to a ramp-up in commercial aircraft production, along with a slight decline in Airbus's material recovery rate from 61% in 2022 to 60% in 2023.



This insight is derived from the engine's ability to analyse the structure of Airbus's waste generation data, which GIST Impact has crawled and integrated into its data architecture.



Going deeper, the AI also surfaced key risks and opportunities: the potential risk of missing waste-reduction targets due to rising volumes, and the opportunity to strengthen recovery and waste management systems. Each IRO insight is supported with clear explanations, direct text references from the report, and clickable access to the original disclosures.



5.1.3 From Reporting Burden to Strategic Insight

By equipping AI with regulatory context upfront and pairing it with structured, real-world data disclosures, we shift from time consuming static compliance review to quick and efficient dynamic, forward-looking analysis. Human users - whether sustainability leads, auditors, or disclosure teams remain central to the loop, empowered to review, validate, and prioritise AI-generated outputs at scale.

This is what it looks like when contextualised AI transforms sustainability reporting, from a manual, retrospective exercise to a strategic capability.

6. Conclusion

While many companies will eventually adopt the types of AI tools discussed in this report, those with the most robust and strategically prioritised data architecture will extract the greatest value.

The future of ESG reporting lies not in automating the status quo, but in using AI to go deeper – to extract meaning, reveal hidden material impact, and support more strategic decision-making. Moving beyond surface-level tools requires a shift toward insights-driven models built on high-quality, well-structured data, with human expertise embedded throughout.

By embracing AI as a partner in reasoning rather than a replacement for it, businesses can unlock a new standard of rigour, insights, and impact.

The next ESG frontier is here – and its capabilities are much deeper than just disclosure.

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