

Building the Future: AI's Foundational Role in ESG Data Production and Assessment

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Having a solid understanding of ESG information through data mining is critical for data analytics and consulting, just like a strong foundation is essential for building a house. Without it, both can crumble under the weight of uncertainty, while a robust base ensures strength and growth. The remarkable advances of generative Artificial Intelligence (AI) have provided powerful tools to grow and strengthen ESG data production and assessment. Innovations that integrate alternative data sources enhance and complement core financial reports by providing additional ESG insights. By reducing the subjectivity and cognitive bias that can accompany human-led analysis, AI can help investors and asset managers make better investment decisions. Moreover, ESG ratings and analytics providers can create more objective ratings by taking an outside-in perspective of companies' sustainability performance with the help of AI.¹

Today, AI is utilized in various ways for ESG research. AI-powered technologies such as Natural Language Processing (NLP), Computer Vision, Machine Learning (ML), and Deep Learning are utilized by data aggregators and ESG analytics providers to gather and scrutinize data from numerous sources. NLP plays a crucial role in synthesizing vast amounts of unstructured data from the internet and online media. It utilizes automatic summarization, relationship extraction, and sentiment analysis to accurately determine the public's sentiment toward a company. This approach effectively gauges the external perception of a company, offering valuable insights into its reputation.

Sustainable investment is also benefiting from the application of ML thanks to cognitive computing processes, as AI can assign quantitative values to large volumes of qualitative ESG data. As a result, unstructured datasets are becoming more structured and easier to analyze. Utilizing AI algorithms can also help fill in missing data points, such as greenhouse gas emissions and energy consumption, to more accurately assess a company's ESG performance based on its disclosed information. Real-time monitoring through satellite remote sensing images can enhance the credibility of self-disclosure and reveal any potential risks of "greenwashing." Additionally, asset managers in Europe are utilizing AI to effectively address challenges posed by the SFDR and EU taxonomy, by developing AI models that apply the taxonomy criteria to investment strategies. This enables them to offer green investment options more confidently to investors.²

Since 2010, Evalueserve has effectively implemented its Mind+Machine approach to solve clients' challenges by capitalizing on the powerful combination of analytics and AI. As an integral player in the ESG data value chain, Evalueserve has created its own AI-powered tools to speed up the production of fundamental ESG data collection and assessment. The benefits of this combination of AI and ESG are numerous and significant. With our extensive knowledge in the realms of ESG data and AI, we possess a profound understanding of the substantial market benefits arising from their convergence.



The Advantages of Intelligent Analytics. AI has been incorporated into ESG performance evaluation to enhance analyst efficiency and quality. Two of the more prominent examples of these advantages include smart data collection and smart analysis and alternative scoring.

Smart Data collection. When evaluating companies in emerging markets, where disclosure is not mandatory for many industries, analysts may face limitations in obtaining data from well-formatted reports. However, AI can offer a solution through smart data aggregation. By utilizing NLP techniques, Optical Character Recognition (OCR), and Auto Speech Recognition (ASR), analysts can readily extract and integrate ESG data from various unstructured sources, such as PDF reports, webpages, news articles, pictures, and video messages.

These technologies increase the efficiency of sustainability performance and controversies assessment. For instance, when it comes to Chinese companies, self-disclosure for A-share companies is unstructured under the "Governance" category, as they publish different announcements annually regarding the board and the board of supervisors alongside annual reports. Meanwhile, information under the "Social" and/or "Environmental" categories is often much more limited. AI can help analysts save time and effort, thereby reducing costs for clients, by collecting unstructured data and providing alternative sources that supplement self-disclosure to create a comprehensive assessment method that is more meaningful to the market.

Smart Analysis & Alternative Score. Utilizing deep learning in its ESG assessment methodology, an AI model can generate an impartial ESG score, effectively tackling the problem of subjectivity when evaluating qualitative ESG metrics, which often comprise the bulk of an ESG evaluation. Increasingly, ESG rating providers are generating ESG scores by collecting unstructured data from internet sources, not just company disclosures, largely replacing human research analysis with algorithms and systematically applying standardized frameworks such as SASB.³

An advantage of AI models is increased transparency, offering insights into the applied methodology. A comparison study of AI-driven and analyst-driven scores shows that AI provides ratings with a more democratic aggregation process and contributes to real-time compression of controversies.⁴ AI-driven research is collecting data from the internet, then proceeding with analytics and providing ratings per the set algorithms. Meanwhile, analyst-driven research uses AI to accelerate data collection but still conducts manual analytics (see Figure 1). Further, AI can provide a more objective evaluation of companies' ESG performance, unlike other providers that use a subjective feedback cycle. However, collecting data widely from the internet poses information security risks and heavily relies on a robust framework from authorities. So, too, its feasibility is limited to developed markets and may lack credibility in cases of emerging markets where the disclosure guidance is still progressing. This highlights a key point that despite AI's advances, human expertise remains a necessary element for completing a well-versed evaluation.

Figure 1. Human-driven research versus AI-driven research

Analyst-driven ESG research**AI-driven ESG research**

Source: [Alternative ESG Ratings: How Technological Innovation Is Reshaping Sustainable Investment](#)

Evaluesserve's AIRA: A one-stop platform with AI Enablement

Evaluesserve is at the forefront of this move to fuse AI and ESG to improve the production and assessment of ESG data. With the launch of *AI for Research and Analytics* ("AIRA"), Evaluesserve created a platform for accessing AI-enabled models, algorithms, and use cases for NLP Computer Vision, ML, and Deep Learning. The platform offers popular AI tools for ESG analytics and provides bilingual support for English, Chinese (Simplified), and Chinese (Traditional). Some of the key benefits of AIRA include:

- **AI Enablement for Evaluesserve Digital Products** – As the backend AI engine for Evaluesserve digital products, our API Gateway allows for seamless integration of AIRA models into other platforms, ensuring adaptability and flexibility to meet clients' needs.
- **Operation Empowerment** – The AIRA platform allows users to access pre-built NLP functions or create customized models based on their project needs. Additionally, it suggests the best NLP models using machine learning for quick model development.
- **AI Knowledge Hub** - Ensure reusability and scalability of AI through a centralized repository of use cases, best practices, algorithms, and models.

Click here to discover more about [AIRA](#).

Expert training ensuring the accuracy of AI-ESG Prediction.

For more than two decades, Evaluesserve has been providing invaluable assistance to financial institutions and corporations in producing ESG data on a large scale. During that time, we have continuously leveraged our proprietary technology, such as AIRA, to streamline the data production process significantly. Just as AIRA results from collaboration between highly skilled AI engineers and data experts, Evaluesserve's ESG prediction model harnesses industry-leading automation with experienced ESG subject matter experts to create a comprehensive ESG evaluation methodology.

Our model has been taught to recognize and distinguish approximately 50,000 ESG KPIs for companies across various sectors. Additionally, Evalueserve's ESG research team supports the model's training by utilizing a rigorous ESG framework that helps the model identify the appropriate relevance of certain ESG KPIs with industry-specific ESG risks and opportunities. The team also recognizes the impact of ESG indices in different regions, distinguishes differences between ESG commitments, practices, and performance disclosed by the company, auto-extracts qualitative information that matches granular indicators, and generates an ESG score for each prediction based on rules preset by our ESG experts.

The model currently covers more than 100 qualitative indicators, reducing manual assessment efforts by around 20%. It also identifies the specific focuses of ESG strategies for each company by counting disclosed indicators. Additionally, its AI prediction score enables analysts to identify ESG leaders and laggards more efficiently and scale up assessments.

The user interface (UI) of our ESG prediction tool is speedy and user-friendly. It takes approximately 15 minutes for an analyst to perform an ESG assessment for one company with multiple documents. The UI allows the analyst to choose the language (Simplified Chinese, Traditional Chinese, or English) of the used report, country, and industry of the targeted company and for filtering on selected ESG indicators. The results are presented as a table, which can be downloaded as an Excel file.

Improved integration of qualitative ESG data.

Evalueserve's AI-powered technology is also making a significant impact in the analysis of qualitative ESG data. This innovative approach leads to better outcomes and helps businesses make informed decisions. Inevitably, companies must report qualitative information to present their sustainability strategy and these soft data points are critical for evaluating ESG performance. Nonetheless, it can be difficult to consistently judge these types of KPIs when conducting large-scale evaluations across different industries. Even when using a unified methodology, the interpretation of the same sentence or passage could vary depending on the analyst. Generative AI offers a solution to reduce such bias and helps analysts build objective analytics for qualitative data. Unlike an alternative score using data from the internet, the source of information is controlled by analysts when using AIRA, lowering information security risks.

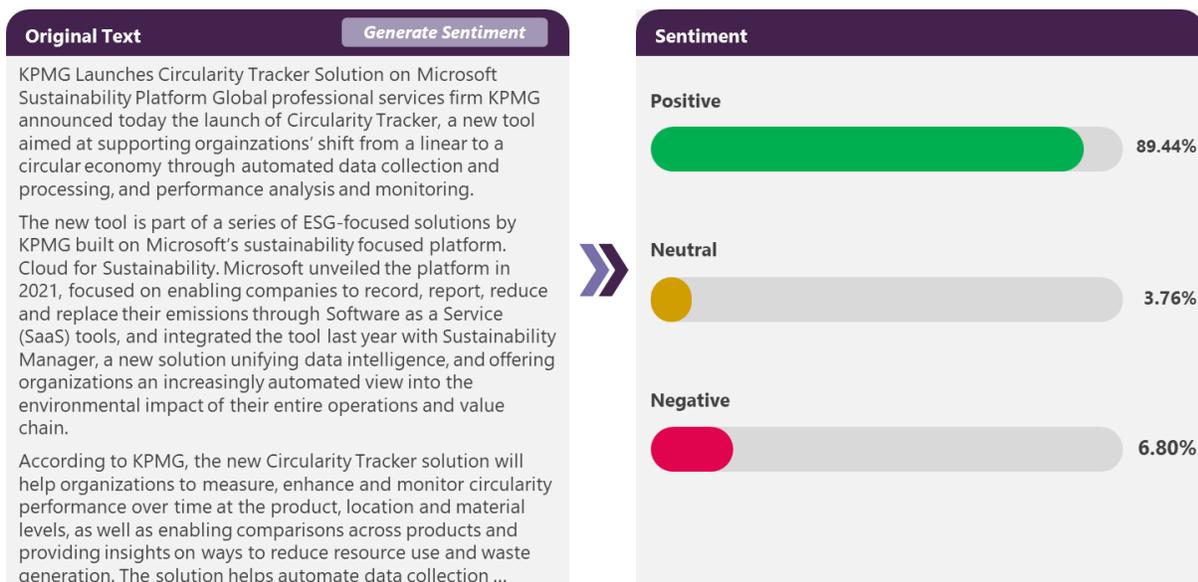
AI-empowered Controversies Assessment and Sentiment Analysis

Additionally, Evalueserve has discovered that incorporating NLP into sentiment analysis can greatly enhance efficiency and accuracy in evaluating ESG controversies. Evalueserve's model is trained to recognize over 10,000 manual annotations, consisting of a mix of positive, negative, and neutral tags. The model's robust development has achieved an average accuracy rate of >90%. With the help of intelligent data mining, ESG content specialists can shift their focus to data analytics, identifying risks and opportunities at an early stage and deriving insights from

controversies assessments. This helps investors and companies avoid share price volatility and maintain a better branding strategy.

The UI of the sentiment analysis of AIRA is flexible to satisfy the needs of analyzing single articles or bulk pieces (See Figure 2). It has powerful multilingual abilities, covering English, Chinese, German, French, Dutch, Italian, and Spanish. To learn more about Evalueserve's approach to assessing ESG controversies, see our recent report: [Making Waves in ESG Controversies Assessments: Evalueserve's C.A.S.E. approach.](#)

Figure 2. Sentiment Analysis – Sample output



In summary, well-trained A.I. models can help analysts perform ESG assessments with higher efficiency and better quality by reducing human error and limiting the impact of subjective judgment against qualitative data. The improved results of ESG assessments provide the necessary cornerstone to build more resilient ESG strategies for both companies and investors. Evalueserve is at the forefront of developing A.I. technologies to improve analytics of qualitative data, providing different tools and open A.I. chatboxes to support smart solutions. However, generative AI will be developed under the increasing noise of ethical concerns, with controversies over data privacy and information security. Consumers will demand transparency in AI applications to protect their own legitimate business interests. Evalueserve is following these trends and regulations closely to ensure accountability while harnessing this transformative technology.

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