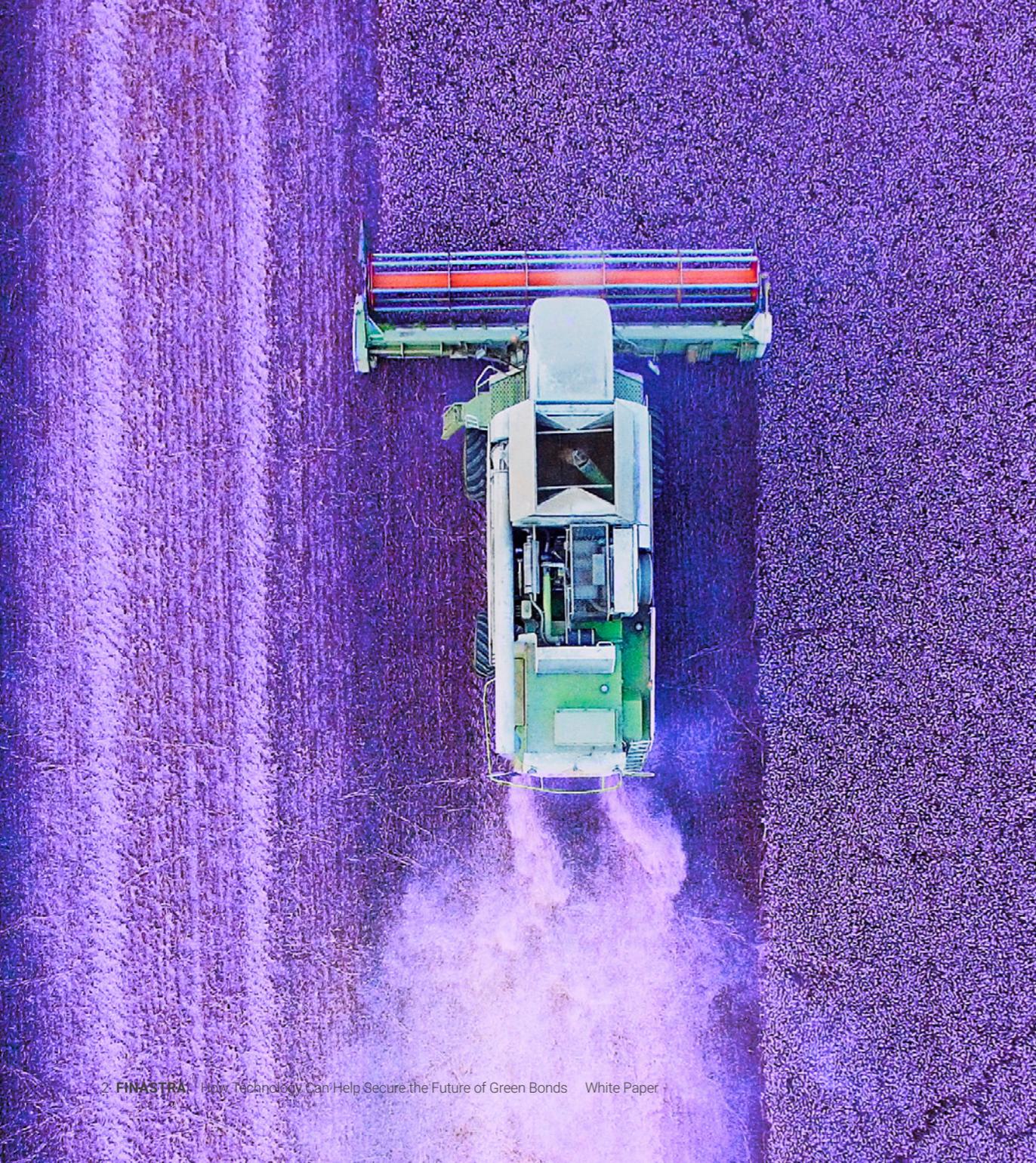


FINASTRA

How Technology Can Help Secure the Future of Green Bonds





Introduction

The devastating floods witnessed in Europe this year were 'supercharged by climate change', according to weather scientists. The extremity and regularity of such events are likely to sharpen the focus of world leaders on their commitment to carbon neutrality.

Steady growth in the issuance of GSSS (green, social, sustainability, sustainability-linked) bonds is evidence that investment in green and social initiatives is gaining momentum. However, greenwashing remains a constant threat to the integrity of GSSS bonds. A secure future for the sector is contingent on projects fulfilling their promises and reporting accurately and honestly to all stakeholders. Transparency has always been paramount, but the 30% increase in high-risk cases of greenwashing in 2024 makes it an absolute priority today.

In this article we ask, can technology provide a practical solution to the greenwashing problem and perhaps facilitate additional benefits in the GSSS bond markets?

Where in the bond lifecycle do frailties exist?

Here are some of the inherent weaknesses in the traditional bond lifecycle, exposed by the unique dynamics of activity in the primary and secondary GSSS bond markets.



Fig 1. Red stages denote frailties in the lifecycle of the traditional bond

1. Use of Proceeds Documentation

Issuers can make performance claims that are difficult to substantiate, given the struggle to process real-time data relating to, for example, carbon emissions, water usage, or environmental impact of a given project

2. Marketing Disclosures

Validation of an issuer's claims about predicted bond performance can involve heavy manual cross-checking of historic and current documentation from a range of sources

3. Impact Reporting

Self-reported data may contain bias or exaggerated claims, or if unsecured, may be subject to unauthorised tampering

Infrequent, i.e. annual or bi-annual reporting can limit an issuer's ability to compute cashflows. It can also hinder and investor's risk management processes

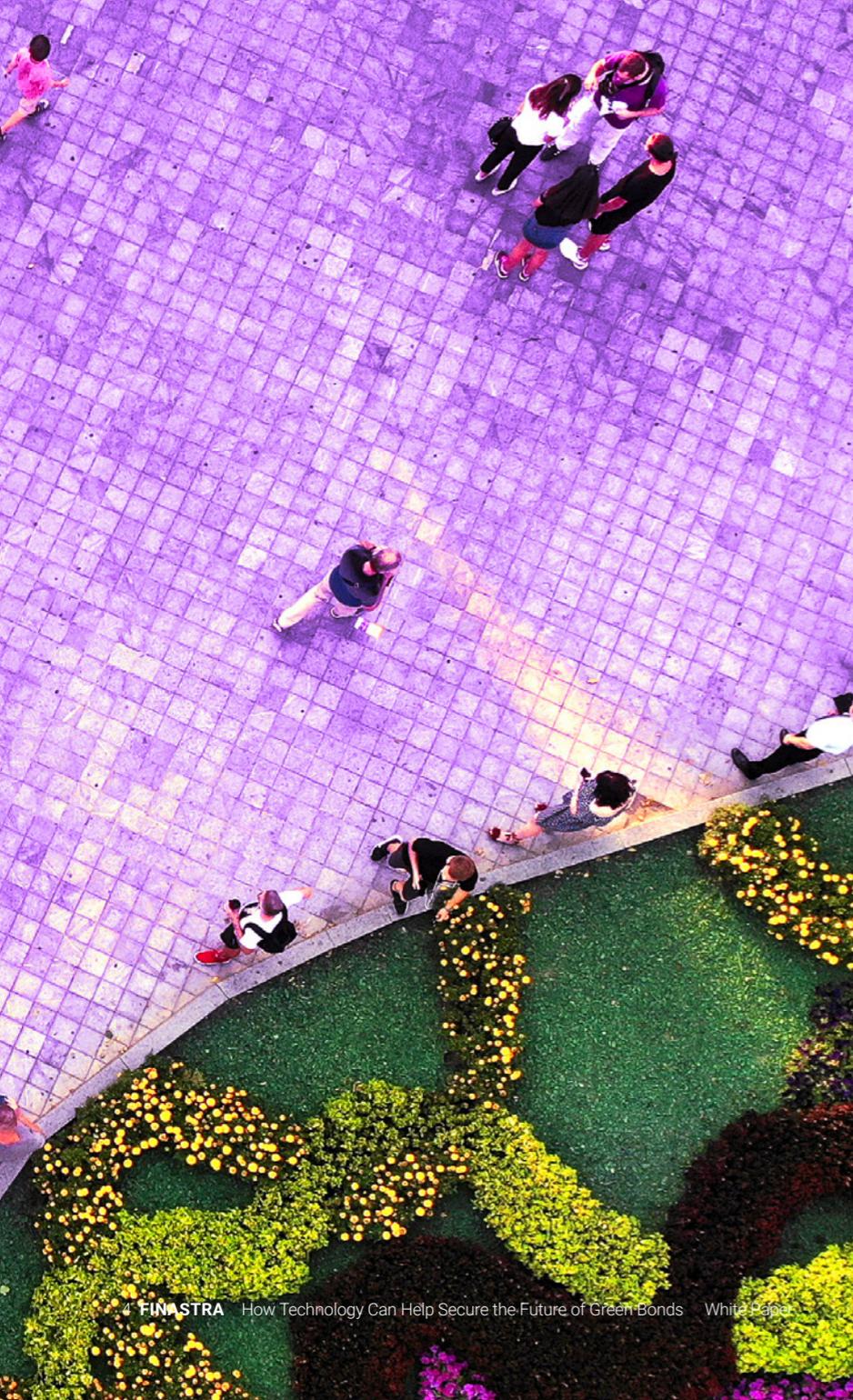
4. Compliance Monitoring

Different definitions and metrics can lead to discrepancies in how GSSS bond performance is measured, interpreted, and reported back to regulators and stakeholders

5. Maturity & Redemption

A lack of granular, real-time data can hinder an issuer's efforts to substantiate bond performance





Can the latest technology plug the gaps?

Answers to many of these shortcomings reside in new technical capabilities that have already made their mark on industry; big data, artificial intelligence (AI), and blockchain.

Big Data Management

Three things are driving up the volume of data in circulation:

- sophisticated data capture from new data points
- connectivity between the ever-expanding Internet of Things (IoT)
- impatience for data in real-time

It has fallen to the fintechs to create solutions capable of processing the staggering volumes of data now in circulation. Big data processing can increase the number of viable data sources which contribute to the metrics essential for a transparent marketplace. Appetites for up-to-the-minute bond performance data can now be satisfied thanks to real-time data flows, giving investors a 20:20 perspective of risk versus reward.

Finastra's big data expert Violaine Bourcier, Principal Product Manager, supported the view that new data management techniques will benefit the sector, saying "streamlining data collection, validation, and reporting processes will enhance transparency, minimize errors, and improve the credibility of GSSS bonds."

Artificial Intelligence

The natural language processing (NLP) strand of AI gives investors and regulators the ability to evaluate issuer claims against historical issuer accounts, or against peer-group performance, or against case histories of comparable bond issues. To find and evaluate such high volumes of data manually would be prohibitive, but NLP can undertake this task in the background, and deliver a trustworthy, metrics-based verdict, instantly.

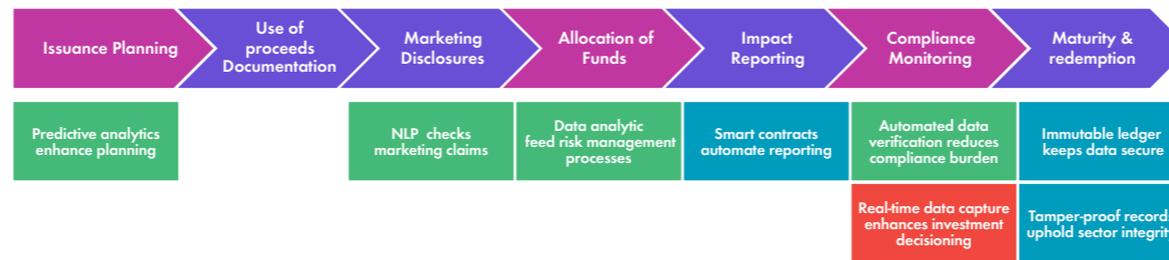
Investors can turn to predictive data analysis from AI-powered software tools. By analysing data from similar projects, these tools can provide insights into potential risks and expected impact, highlighting any areas that warrant closer scrutiny.

Regulators can leverage analytical tools to assess actual bond performance against original claims, overseeing coupon payment processes and redemption. They can also check whether regional and global guidelines have been observed throughout the bond lifecycle.

The importance of Third-party Verifiers

Third-party verifiers play a crucial role in maintaining ESG bond credibility by independently confirming compliance with ESG standards and providing validation of issuer claims. Fintech platforms can streamline this interface by providing transparent, immutable audit trails, while AI can assist in efficient data analysis and verification.

Fig 2. Positive impacts of technology on the GSSS bond lifecycle



Blockchain

Blockchain may prove to be a highly effective technology in mitigating the greenwashing threat and building efficiencies through:

- an immutable ledger which maintains the integrity of GSSS bond data
- a permanent record of all transactions allowing investors to trace data to its original source
- smart contracts capable of triggering automatic updates, reports or fund releases once pre-defined ESG criteria have been met
- democratized access to data, enabling all stakeholders to have equal access to ESG performance metrics
- tamper-proof recording of resource usage, wastage, and other data from sensors, showing beyond doubt that the bonds have met their performance criteria
- the tokenization of GSSS bonds, supporting fractional ownership, making it easier for smaller investors to participate in the market.

As ground-breaking as these new technologies may be, AI and blockchain are merely advanced extensions of what traditional software can do. AI adds learning and decision-making capabilities to software, allowing it to analyze data, recognize patterns, and improve over time.

Blockchain adds a decentralized ledger to software, ensuring that transactions or data are tamper-proof and transparent. Together, they complement traditional software by making it smarter and more secure.

Conclusion

To navigate the rapidly expanding GSSS bond market effectively, institutions will require powerful, reliable software solutions capable of going well beyond what is required in traditional bond trading processes.

Systems must be capable of processing high volumes of diverse data in real time to deliver the analytical insights that will give institutions a competitive edge. Platforms will need to support the end-to-end GSSS bond trading life cycle.

Their value will drive efficiencies in trade booking, and will drive automation in reporting, and will drive even closer oversight of risk at every stage in the trading process. This is the minimum requirement if the supporting technology is to keep pace with the growing complexity of GSSS bonds.



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Arnaud Nekam is a seasoned professional in the financial software industry with over 15 years of experience. He currently serves as the Principal Product Manager for Treasury & Capital Markets at Finastra, a role he has held since joining the company in 2011. Prior to his tenure at Finastra, Arnaud worked as a quantitative analyst and front office specialist at Société Générale.

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About Finastra

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