

Leveraging AI and digital tools for SME sustainable finance



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Small and medium-sized enterprises (SMEs) face challenges tapping into sustainable finance. The principal obstacles are informational: sustainability data are costly to generate, difficult to verify and fragmented across reporting frameworks. Furthermore, the administrative burden of originating and monitoring small-ticket sustainable loans constrains the flow of finance to SMEs. This paper examines how artificial intelligence (AI) and digital tools can help address these bottlenecks across the financing lifecycle. It looks at how these tools can contribute to sustainability data generation and reporting on the SME side, and to origination, credit assessment and portfolio monitoring within financial institutions. Drawing on country examples and recent initiatives, it maps practical applications of AI and digital tools across the front, middle and back offices of financial institutions and identifies the governance conditions under which they can be deployed responsibly. It provides a series of policy recommendations for consideration in order to leverage these tools further to enhance SME access to sustainable finance.

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Executive summary

Small and medium-sized enterprises (SMEs) are central actors in the transition to a more sustainable and resilient economy. They account for around 50% of economic output and business sector environmental impacts. At the same time, they remain underrepresented in sustainable finance. Although sustainable finance markets have expanded significantly in recent years, this growth has not translated into broad-based access for smaller firms. The key challenge is how to deploy sustainable finance at loan sizes appropriate for SMEs in a way that is workable for both providers and users of finance.

Many countries are promoting sustainable financing instruments, and many financial institutions are adapting their practices in response to ESG-related disclosure requirements and investor demand. For SMEs, engaging with sustainable finance is not only about access to capital. It can also help firms lower operating costs through energy-efficiency investments, meet buyer sustainability standards, participate in global value chains and reduce reporting costs through more efficient data management.

However, sustainable SME finance is constrained both by traditional SME finance frictions and new sustainability-related information demands. SMEs are more opaque borrowers than large corporates, often due to shorter credit histories, weaker collateral positions and limited standardisation of firm-level data. In the sustainability context, these longstanding constraints are compounded by additional information demands related to emissions, environmental performance, transactions and climate-related risks. Financial institutions, large buyers and other stakeholders require such information in different formats, while the tools intended to support reporting vary widely in methodology, language coverage, data access arrangements and interoperability. As a result, the cost of providing SME sustainable finance is considered to be high, weakening its scalability.

These frictions are reinforced by uneven digital capabilities among SMEs, many of which lack integrated systems for accounting, data management, sustainability measurement and reporting. Even when firms are willing to invest in more environmentally sustainable business models, they often do not have the internal capacity to generate the sustainability data needed to access that targeted finance. This challenge is especially acute for micro and small firms, which face greater time, skill and resource constraints than larger SMEs. Digital capability therefore affects not only reporting quality, but also the practical ability of firms to become visible to lenders and participate in more structured forms of sustainable finance.

AI and digital tools can reduce these frictions across the financing lifecycle. On the SME side, digital tools can help firms generate sustainability-related information – in formats that are machine-readable, reusable and aligned with lender requirements – automate parts of the reporting process and share data more efficiently with counterparties. On the financial institution side, AI can support front-office onboarding and product matching, middle-office risk analysis and evidence checks, and back-office monitoring and reporting. Used responsibly, these technologies can help move sustainable SME finance away from labour-intensive handling towards more standardised and automated processes. This is particularly important in the SME segment, where even modest reductions in origination, due diligence or monitoring costs can materially improve viability of sustainable financing.

Some digital applications are relatively mature for measurement, onboarding and monitoring, such as digital carbon calculators or e-KYC platforms. On the other hand, more autonomous uses of AI for due diligence and workflow management remain emergent and can serve as tools for faster human-assisted review, rather than as autonomous decision making systems.

The contribution of these tools depends on several conditions and carries a number of risks that need to be managed. Such tools can support SME access to sustainable finance provided the surrounding information environment allows data to be trusted, compared and reused. If sustainability-related information remains fragmented, weakly governed or difficult to validate, automation may reproduce existing inefficiencies. Furthermore, some applications of AI also raise concerns related to bias, explainability, privacy, cybersecurity and the quality of model outputs.

To address these challenges and scale the responsible use of these technologies, this paper identifies four broad policy priorities. First, building an interoperable sustainability data infrastructure is essential to enable SMEs to “report once and reuse” information across multiple counterparties and systems. Second, developing robust verification and trust layers can reinforce the credibility of the sustainability data underpinning financing decisions. Third, policymakers and lenders can incentivise SME adoption by explicitly linking reporting efforts to tangible financing advantages and providing targeted non-financial capacity building. Finally, ensuring accountability and appropriate safeguards, such as human oversight and explainability, is critical so that AI functions as a decision aid that complements human judgement rather than replacing it.

1 Introduction

Sustainable finance¹ represents a large pool of finance in countries around the world; yet its reach to small and medium-sized enterprises (SMEs) remains limited and uneven². The challenge is to ensure that such capital reaches firms through financing arrangements that work for lenders and are available to SMEs. This remains difficult because sustainability-related information in the SME segment is often costly to generate, difficult to verify and challenging to leverage different financial and commercial relationships.

For many smaller firms, the issue is not only whether financing exists, but also whether they can provide the kind of information that allows financial institutions (FIs) to understand the status of the firm's sustainability performance, recognise its transition efforts, assess related benefits and risks and design tailored financing conditions. Furthermore, the cost to FIs of gathering, interpreting and monitoring such information often requires substantial administrative effort relative to transaction size. The core constraint is therefore less the availability of sustainable financing than the challenges and costs associated with the information and delivery systems through which that capital is expected to flow.

Sustainability-related information demands have expanded on both sides of the market, widening the gap between what is being asked of SMEs and what they can reasonably provide. Financial institutions increasingly require such information for portfolio reporting, product design, financed-emissions accounting and risk management. Large corporates are placing similar demands on suppliers throughout value chains. Standard-setting initiatives are moving towards more proportionate frameworks for smaller firms, but the surrounding landscape remains fragmented and implementation uneven – a challenge the OECD has addressed directly through its Guidance Note on fostering convergence in SME sustainability reporting (Koreen, Kuzmanovic and Honegger, 2025^[1]). Many SMEs face growing expectations from several directions at once, often without the internal expertise, digital systems or staff capacity needed to respond efficiently. What emerges is a reporting burden along with a financing constraint: rising information demands increase the fixed costs of originating and managing sustainable SME finance, making access slower, more expensive and less scalable.

These barriers are mutually reinforcing. Information asymmetry leads financial institutions and other counterparties to request more sustainability-related data from SMEs in order to reduce uncertainty. Fragmented reporting ecosystems then multiply those requests across institutions, value-chain partners and jurisdictions, often through different templates and methods. At the same time, limited digital capabilities constrain many SMEs' ability to respond in an automated or reusable way. Time, complexity and cost are consistently identified as major obstacles to sustainability measurement and reporting (SME Climate Hub, 2025^[2]). The cumulative effect is a transaction-cost structure in which small-ticket sustainable finance becomes difficult to originate, assess and monitor at scale. These challenges are not uniform across the SME population: micro-enterprises and the smallest firms tend to face the most limited capabilities and resource constraints, while medium-sized firms may be better positioned to engage with digital reporting tools and access sustainability-linked financing products. Some of the barriers described apply to SME access to finance more broadly; however, they are more pronounced in the context of sustainable finance, given the additional information requirements of this type of finance.

Against this backdrop, digital tools and artificial intelligence (AI) have attracted growing attention as practical means of addressing information and process bottlenecks across the financing lifecycle. At the same time, their contribution depends on the quality of the surrounding data environment. They can

process and structure information more efficiently, but they cannot generate reliable outputs where underlying data do not exist or are of insufficient quality. They can also introduce new risks, including the potential for biased outputs, limited explainability of model decisions and vulnerability to poor-quality or inconsistently governed data. Used within appropriate governance arrangements, these technologies can help move sustainable SME finance away from labour-intensive handling towards more standardised and scalable processes.

This paper examines these issues across the financing lifecycle, beginning with the SME side (demand side) and moving through the financial institution's front, middle and back office³ (supply side). It considers how digital tools and AI can make a significant practical difference to SME access to sustainable finance, and where their use creates new governance and policy demands. The analysis points to four broad policy priorities:

- improving interoperability so that sustainability-related information can move more easily across systems and counterparties;
- strengthening verification and trust mechanisms so that such information can be leveraged to facilitate financing of small businesses;
- creating clearer incentives for SMEs by linking better reporting to visible commercial benefits;
- and ensuring that the use of AI in financing decisions is subject to appropriate safeguards from the outset.

The broader objective is to enable SMEs to report once and reuse information across counterparties, so that financing terms reflect actual sustainability performance and transition efforts. AI also cannot compensate for missing, inconsistent or weakly verified data. Scaling sustainable SME finance will therefore require proportionate reporting, trusted data-sharing arrangements, interoperable digital infrastructures and carefully governed AI applications.

The paper builds on the work of the OECD Platform on Financing SMEs for Sustainability under the OECD Committee on SMEs and Entrepreneurship (CSMEE). It advances previous work on SME sustainable finance, including the 2022 policy paper on Financing SMEs for Sustainability: Drivers, Constraints and Policies, the 2023 survey report on financial institution strategies and approaches, the 2025 Guidance Note on fostering convergence in SME sustainability reporting and the 2025 report on Scaling Up Public Financial and Non-Financial Support for SME Sustainability. It aims to set out the key issues, trends and policy considerations in a concise way, and to contribute to ongoing policy dialogue on how to unlock sustainable finance for SMEs. The paper also draws on linkages with the OECD Digital for SMEs (D4SME) Global Initiative.

2 Why SME sustainable finance remains difficult

Opacity and information asymmetry problems

SMEs are typically more opaque borrowers than larger firms, making them more challenging for lenders to assess and finance. Limited financial disclosure, shorter credit histories, weaker collateral positions and less standardised reporting practices all complicate risk assessment, performance monitoring and accurate credit pricing. This raises the cost of finance for SMEs in lending markets and often translates into tighter credit conditions, stricter collateral requirements and lower availability of external financing (OECD, 2022^[3]).

These challenges are compounded in the context of sustainable finance. Financial institutions are now required to assess not only traditional creditworthiness, but also environmental performance, transition plans, and exposure to climate risks, raising the informational threshold for financing. Given that financed emissions (Scope 3) represent the vast majority of a lender's carbon footprint, financial institutions need consistent, comparable and reliable sustainability data for decision making (PCAF, 2025^[4]). While this applies to their entire financed portfolio, the SME segment remains the weakest link in reporting, precisely when information needs are expanding most rapidly. This structural opacity limits SME participation in sustainable finance, even where demand exists.

Fragmented reporting ecosystems

Sustainability reporting is becoming increasingly relevant for SMEs in financing and value-chain relationships. This is driven not only by regulatory pressure trickling down across jurisdictions, but also by operational demands from financial institutions and supply chain partners (Koreen, Kuzmanovic and Honegger, 2025^[1]). Financial institutions are increasingly seeking sustainability data from their SME clients, with 60% doing so either directly or indirectly (OECD, 2023^[5]). To meet their own reporting needs and bridge the existing data gap, many financial institutions and large enterprises have developed their own methodologies and sustainability questionnaires for SME clients. As a result, SMEs face a multitude of uncoordinated data requirements from different institutions, forcing them to navigate multiple complex reporting frameworks across jurisdictions. This fragmented approach places an additional reporting burden on SMEs and can act as a deterrent to accessing sustainable finance even if such financing comes with better terms (OECD, 2023^[5]; Koreen, Kuzmanovic and Honegger, 2025^[1]). Reflecting this friction, only about a third of SMEs investing in sustainability-related improvements use promotional sustainable finance instruments. This suggests that reporting and administrative hurdles may lead some SMEs to rely on standard finance, even though promotional instruments could offer more favourable terms through public guarantees, subsidies or other support mechanisms (SMEunited and Eurochambres, 2023^[6]).

In response to these challenges, a range of initiatives have sought to streamline reporting and foster convergence in sustainability data requests to SMEs. These include the EU Voluntary Sustainability Reporting Standard for SMEs (VSME) and national-level programmes, as well as international initiatives

such as the OECD Guidance Note on fostering convergence in SME sustainability reporting. Progress has been made in reducing duplication and aligning frameworks more closely with the capacities of smaller firms. Digital tools and AI offer further potential to close the remaining gaps.

On the other hand, while the development of sustainability measurement tools aims to help SMEs, the proliferation of these digital solutions presents a new challenge for SMEs to navigate. A UK review found that there are more than 270 solutions in the market for carbon reporting alone, most of which still require manual data inputs by businesses (Icebreaker One, 2024^[7]). Methodological alignment, pricing structures, language coverage and data-access rules also vary across these tools⁴. Consequently, SMEs still face a fragmented market for reporting tools, even as more digital solutions become available (Koreen, Kuzmanovic and Honegger, 2025^[1]; Icebreaker One, 2024^[7]).

Digital capability gaps in SMEs

Digital readiness remains uneven across the SME landscape. SMEs are often constrained by limited access to digital skills, a lack of time, and insufficient financial resources to invest in hardware and software solutions (OECD, 2025^[8]). Survey evidence highlights that capability constraints are acute in the data and reporting phases. Specifically, SMEs identify a lack of time (42%), technical difficulties (41%), and high reporting costs (41%) as the top barriers to sustainability measurement and reporting (SME Climate Hub, 2025^[2]). These internal resource deficits hinder their ability to measure their environmental footprint, collect the right data and respond to counterparties' growing information requests.

Additionally, these digital and financial literacy gaps prevent SMEs from leveraging advanced financial technologies. While Fintech is increasingly integrated into day-to-day operations, such as online banking, payment processing, e-invoice and tax software, it remains underused for accessing alternative financing channels (OECD, 2025^[9]). Efficiently adopting Fintech and tapping into a broader pool of capital depend on entrepreneurs developing a digital footprint and financial literacy. Since many SMEs lack the digital capabilities to automate data collection or integrate into digital infrastructures, they struggle to build a sufficient digital footprint or provide data in the formats required by lenders, creating a barrier to sustainable financing (OECD, 2025^[8]).

High transaction costs for banks and the challenge of scalability

Sustainable financing for SMEs often involves relatively small loan amounts, but the costs associated with due diligence, data collection, verification, monitoring and reporting are substantial. For financial institutions, the administrative cost of originating and managing a sustainable SME loan is high relative to the expected return, reducing the profitability and appeal of SME lending. Where sustainability information must still be gathered through manual reviews, questionnaires and repeated follow-up, serving the SME segment becomes economically difficult to implement at scale (OECD, 2025^[10]).

This helps explain why the aggregate growth of sustainable finance has not yet translated into broad-based access for SMEs. The constraint is not only that information and monitoring systems remain fragmented and costly for small transactions. It also reflects the fact that some sustainable finance products may be better suited to larger firms, while smaller SMEs may not always have the capacity to undertake sustainability-related projects typically financed through more sophisticated sustainable finance instruments.

In the absence of standardised and interoperable frameworks for SME reporting, these multiple, non-identical data demands continue to pose a challenge both within and across jurisdictions (Koreen, Kuzmanovic and Honegger, 2025^[1]). As a result, both lenders and borrowers face an excessive administrative burden that weakens the viability of sustainable SME lending. Until that gap is bridged

through automated and interoperable data-sharing infrastructures, SME sustainable finance will remain constrained by a structural scalability problem (G20SFWG, 2024^[11]; OECD, 2025^[10]).

Table 1. Key barriers to SME sustainable finance

Key factor	Causes	Impact
Opaqueness & Information Asymmetry	Limited financial disclosure, shorter credit histories, and weaker collateral; Weakest reporting capabilities despite growing demands	Makes it harder for financial institutions to assess risk and price credit; Leads to tighter credit conditions and limits SME participation in sustainable finance
Fragmented reporting ecosystems	Uncoordinated data requests from regulators, financial institutions and supply chains; Fragmented market of carbon-reporting tools with misaligned methodologies	Creates an overwhelming, overlapping reporting burden for SMEs; Acts as a major deterrent to access sustainable finance
Digital capability gaps	Severe constraints in time, budget and technical skills for sustainability reporting; lack of financial and digital literacy to fully leverage advanced Fintech solutions	SMEs struggle to measure their environmental footprint and automate data collection; inability to build the solid digital footprint required by lenders
High transaction costs & scalability	High administrative costs (due diligence, verification) relative to small SME loan sizes; reliance on manual reviews and non-standardised data gathering	Reduces the profitability and appeal of SME lending for financial institutions; creates a structural scalability problem, hindering access to capital

Source: Authors, based on desk research.

3

How AI and digital tools can intervene

AI and digital tools intervene at different points across the financing lifecycle, from the SME's initial data preparation through the financial institution's front, middle and back office. A structured framework is needed to distinguish where digitalisation addresses specific bottlenecks – measurement, origination, risk analysis, monitoring – and where it introduces new governance risks.

To illustrate, technologies like generative AI and machine learning may assist in customer onboarding in the front office, synthesise ESG evidence and model risks in the middle office, and draft compliance reporting or handle post-trade processing in the back office. Therefore, interventions must be analysed against their specific functions within the financing lifecycle:

- **SME side (overcoming measurement and reporting costs):** At this initial stage, the main contribution of digitalisation is to transform sustainability information from a manual compliance burden into a reusable and transferable data asset. Digital calculators and consent-based data-sharing architectures, such as those leveraging smart meter data, lower the technical entry barriers for SMEs to generate verifiable ESG credentials (OECD, 2025^[12]). In addition, user-friendly and unified digital templates can significantly streamline the preparation of disclosures by guiding SMEs through standardised inputs and reducing the complexity of reporting requirements. Governance risks remain relatively limited at this phase, as digital tools are mainly used to pre-fill templates, automate data collection, or route information directly to financial institutions.
- **Front office (reducing origination frictions):** In the front office, the primary bottleneck addressed is transaction friction. Digitalisation significantly reduces the search, screening, and handling costs that would otherwise make small-ticket sustainable finance expensive to originate. For instance, Natural Language Processing (NLP) and Machine Learning (ML) can streamline the onboarding process by automatically extracting and categorising sustainability information from unstructured borrower disclosure documents (NovAI, 2023^[13]). These tools support product matching and preliminary taxonomy screening⁵ without replacing human judgement in definitive risk analysis.
- **Middle office (enhancing risk analytics and verification):** In this stage, AI has the most direct and potentially most consequential role in credit and sustainability analysis, though many of the most powerful applications remain at an early stage. It aims to overcome the traditional opacity of SMEs by leveraging alternative data for credit scoring, better assessing each borrower's sustainability profile instead of applying uniform criteria, and checking whether sustainability claims are credible to combat "greenwashing" (NovAI, 2023^[13]). With regard to model risk, when AI systems assess creditworthiness, price risk, or evaluate ESG credentials, they can give rise to a range of model risks, including the reproduction of historical biases, limited explainability of outputs and sensitivity to data quality. In the sustainability context, the risks are compounded by the characteristics of ESG data itself, which tends to be less standardised and harder to verify than conventional financial data, making AI outputs more susceptible to amplifying unsubstantiated sustainability claims. For example, if an AI credit scoring model is trained on historical data that

reflects entrenched societal inequities in income or employment, it risks automating and amplifying discriminatory outcomes against women-owned enterprises (GPFI, 2025^[14]).

- **Back office (enabling scalable monitoring):** Once a financing facility is extended, the central challenge shifts to scalable monitoring and portfolio-level aggregation⁶. Open finance frameworks⁷ (OECD, 2023^[15]; OECD, 2023^[16]), APIs⁸, and AI help reduce manual effort and direct monitoring resources where they are most needed by automating data extraction and harmonisation from diverse source, continuous tracking, and compliance reporting (Icebreaker One, 2026^[17]). For example, AI-powered tools enable near real-time monitoring of borrower performance against Sustainability Performance Targets (SPTs) and provide early warning forecasts for timely interventions, making the ongoing administrative work of managing and reporting on a sustainability loan portfolio viable at SME loan sizes (NovAI, 2023^[13]).

AI cannot substitute for data quality. Instead, AI and digital tools are complements to sound institutional frameworks. Since the transparency, interpretability, and efficacy of AI models are directly dependent on the quality, consistency and availability of data, the scope for reliable automation remains limited where data are fragmented or non-verifiable. Effective scaling of SME sustainable finance depends on combining these digital interventions with shared data infrastructure, robust verification mechanisms and governance safeguards tailored to each function (BIS, 2024^[18]).

Table 2. Practical uses of digital tools and AI for financial institutions

Uses	Digital tools & solutions	What it enables	Effect on SME access
SME Side (Overcoming measurement & reporting costs)	Consent-based data-sharing APIs; automated carbon calculators; integrated digital platforms; unified digital templates	SMEs report once; structured data shared across banks, buyers etc.; transforms manual compliance into reusable digital assets	Cuts onboarding & reporting burden; improves comparability; build a digital footprint; prevents the exclusion of 'thin-file' SMEs
Front Office (Reducing origination frictions)	Document intake & extraction; AI for customer onboarding, KYC/AML; chatbots and virtual assistants	Automates initial document triage, data entry and product matching; Reduces search and handling time	Shortens time-to-decision; makes small-ticket sustainable finance viable to originate at scale
Middle Office (Enhancing risk analytics & verification)	Evidence retrieval and synthesis; AI-driven peer and industry benchmarking; Alternative data for credit scoring	Assesses the plausibility of sustainability claims; improves risk differentiation; models ESG and climate risks	Shortens time-to-decision; reduces manual review costs; supports proportional underwriting
Back Office (Enabling scalable monitoring)	Near real-time tracking of SPTs; Early warning anomaly flags; Open finance framework	Replace periodic manual reviews with continuous, auditable KPI tracking; automate compliance reporting	Enables outcome-linked products (SLLs) and reduces monitoring costs without over-burdening SMEs

Source: Authors, based on desk research.

SME side: sustainability data generation and pre-financing

At the pre-financing stage, the main challenge is enabling SMEs to produce usable and verifiable sustainability data in the first place. Digital tools can lower this barrier substantially by automating measurement, simplifying calculations and reducing the cost of structuring information that lenders and supply chain partners can use (OECD, 2025^[10]). These interventions generally fall into three key areas (see Box 1):

- **Calculators and carbon accounting tools:** To generate reliable sustainability data without imposing an excessive administrative burden, SMEs and technology providers are deploying solutions that simplify complex methodologies. These include digital carbon calculators and tools that translate everyday business inputs into standardised emission metrics, often leveraging artificial intelligence to assist with data entry and measurement (NovAI, 2023^[13]; EFRAG, 2025^[19]; OECD, 2025^[12]). For example, Denmark's Climate Compass, developed by the Danish Business Authority, provides SMEs with a free digital tool to calculate Scope 1,2 and 3 emissions in line with the European Voluntary Sustainability Reporting Standard for SMEs (VSME) (see Box 1).
- **Automating and streamlining data reporting:** SMEs can receive multiple, divergent sustainability information requests from larger corporate partners and financial institutions in their value chains. In the absence of standardised frameworks for SME sustainability reporting, digital tools and automated platforms can be leveraged to streamline the reporting process by integrating directly with trusted data sources, such as utility smart meters, government databases and internal ERP systems. By automatically pulling verified data, these tools generate standardised sustainability reports that meet varying stakeholder demands without repetitive administrative burdens (OECD, 2025^[12]; European Commission, 2025^[20]).
- **Aggregating data for easier reporting:** The final step in pre-financing data generation is the structuring and secure transmission of sustainability data reports to financial institutions. Digital templates, consent-based data-sharing architectures and centralised portals allow SMEs to convert their data into structured, machine-readable formats and route their verified information securely and efficiently to multiple stakeholders at once, preserving their data rights and control (Icebreaker One, 2026^[17]; OECD, 2025^[12]).

Box 1. Digital tools for SME sustainability data generation

Calculators and autonomous data capture

The Danish government's Climate Compass: Developed by the Danish Business Authority, the Climate Compass is a free national digital platform that embeds complex methodologies into an accessible interface. It calculates Scope 1, 2, and 3 emissions¹ in alignment with the VSME Standard, ESRS E1, and the GHG Protocol, enabling companies to forecast their emissions dynamically over a ten-year period and set emission reduction targets in line with the Science Based Targets Initiative (SBTi) and the Paris Agreement.

Small Business Carbon Calculator: SME Climate Hub (a non-profit organisation) offers a free, globally applicable tool designed to support micro and small businesses in their GHG accounting. It measures Scope 1, Scope2(location-based only), and Scope 3 emissions by applying spend-based and activity-based methodologies based on the GHG protocol. For EU-based SMEs, it presents SMEs' data in a format ready for the VSME standard.

Ireland's Climate Toolkit 4 Business: This digital tool combines an emissions calculator with a dynamic climate action plan developer. SMEs input data on energy use, waste generation, and travel, allowing the tool to automatically calculate Scope 1, 2, and 3 emissions. Based on these calculations, it generates a tailored climate action plan with practical recommendations to enhance energy efficiency, reduce resource consumption, and implement sustainable practices. The plan adapts over time as emissions improve, helping businesses track progress, identify cost-saving opportunities, and increase resource efficiency. The platform also connects SMEs with relevant national funding and support programmes.

Automating and streamlining data reporting

Singapore's Project Greenprint: The Monetary Authority of Singapore (MAS) developed a technology platform through a public-private partnership. It generates free Scope 1 and 2 emissions reports built for SMEs, pulling data from trusted sources via integrations to government databases and ERP. SMEs can decide with whom to share their data and for what purpose, as well as access business and financing opportunities through the marketplace of solution providers.

The United Kingdom's Project Perseus: As a national programme, Project Perseus engages SMEs, banks, application vendors and energy data providers, enabling SMEs to see their emissions from utility smart meters rolling out energy data sources from electricity (Scope 2) and gas (Scope 1) and share it to their banks via reporting solutions to access SME sustainable finance.

Aggregating data for easier reporting

EFRAE VSME Digital Template and XBRL Taxonomy – EU: Developed under the European Financial Reporting Advisory Group (EFRAG), this digital tool provides SMEs with a structured Excel template for sustainability reporting. It includes built-in logic such as checkboxes, drop-down menus, auto-totals, and unit converters to reduce manual workload and simplify data entry. The completed Excel file can be transformed, using a free (open source) online Excel-to-XBRL converter, into a tagged Inline XBRL report (human- and machine-readable), which includes a full XBRL validation. This enables direct sharing of structured data with financiers, supply chain partners, and other relevant stakeholders, streamlining ESG reporting across systems.

Belgium's Kube ESG: A digital ESG reporting platform, developed through a joint-venture of Belgium's four major banks (Belfius, BNP Paribas Fortis, ING Belgium and KBC) under the initiative of Febelfin (Federation of the Belgian Financial Sector), allows SMEs to easily gather and structure their ESG data. Aligned with the VSME Standard, it can create an ESG report and share their data with the stakeholders of their choice.

France's RSE Portal (Portail RSE): Developed by the French Ministry of Economy and Finance and a digital services incubator, Portail RSE provides businesses with a streamlined process to understand and comply with Corporate Social Responsibility (CSR) and ESG obligations. It offers a personalised dashboard where companies can manage obligations and be directed to appropriate reporting platforms, thereby reducing administrative overlap.

Germany's Sustainability Code Platform (DNK): Supported by the Federal Ministry for Economic Affairs and Energy (BMWE), the DNK platform provides SMEs with a free modular sustainability reporting tool aligned with the VSME framework. The platform guides firms step-by-step through the reporting process and complements the tool with webinars, helpdesk support and sector-specific guidance. Preparations are also underway to develop API-based interfaces with financial institutions to enable direct transfer of SME sustainability data to banks and insurers, helping reduce repeated information requests and supporting the "report once, reuse many times" approach.

Source: (OECD, 2025^[10]), (SME Climate Hub, 2026^[21]) (National Enterprise Hub, 2024^[22]) (Gprnt, 2025^[23]), (Icebreaker One, 2026^[17]), (Isabel, 2026^[24]) (Gouvernement français, 2025^[25]) (The Sustainability Code, 2026^[26])

Note: 1) Scope 1 emissions refer to direct emissions from sources owned or controlled by the firm; Scope 2 emissions refer to indirect emissions from purchased energy; and Scope 3 emissions refer to other indirect emissions across the value chain.

Financial institution front office: client interaction and origination

The front office leverages AI and digital tools to reduce onboarding costs and help match SMEs to suitable sustainable finance products. By deploying AI technologies at the initial client interaction and origination

phase, financial institutions can accelerate access to sustainable finance while minimising administrative bottlenecks and resource-intensive manual reviews for both the bank and the enterprise. Based on recent deployments in the financial sector, these front-office interventions are categorised into four areas (see Box 2):

- **Client onboarding via e-KYC and document automation:** Financial institutions are deploying e-KYC (know your customer) systems and AI assisted document processing to automate identity verification and remote onboarding. These tools extract and verify applicant data from ID documents, cross-check against government registries and apply liveness detection – such as matching live selfies with ID photos to verify the applicant’s physical presence – reducing the time and paperwork required to open an account or initiate a loan application (OECD, 2025^[27]). For example, BNP Paribas’ ONE KYC platform leverages AI to create a globally standardised repository of client data, reducing the manual touchpoints and weeks required to complete the KYC process (see Box 2) (BNP Paribas, 2022^[28])
- **Intelligent customer support via AI assistants:** AI-powered chatbots and virtual assistants are transforming client interactions by providing 24/7 support to help SMEs navigate complex processes, including sustainability questionnaires and loan applications. For example, the Industrial Bank of Korea’s AI chatbot handled around 37% of all SME client consultations in 2024, reducing front-office workload while giving smaller firms faster access to information (Kjpargeter, 2025^[29]; IBK, 2025^[30]).
- **Dynamic product matching and workflow automation:** AI and digital platforms go beyond simple prompted responses by integrating various data streams to manage origination workflows autonomously. In the financial sector, advanced recommendation engines continuously evaluate live data from a prospective SME borrower to dynamically tailor lending offers and adjust product recommendations based on the customer’s unique profile. In practice, IBK’s digital lending platform retrieves real-time municipal data to automatically match SMEs with the most advantageous government-backed policy funds and loans (IBK, 2025^[30]).
- **Automated eligibility checks via digital portals:** To ensure that financing aligns with strict environmental standards without causing delays, digital portals allow the front office to run pre-assessments of an SME’s project against relevant taxonomy criteria. For example, online eligibility checkers and pre-approved equipment databases enable financial institutions to quickly and seamlessly assess SME eligibility for sustainability investments, such as energy efficiency upgrades, effectively eliminating the need for resource-intensive manual reviews. Key examples include the EIB Group Green Checker and the EBRD Green Technology Selector, which allow financial intermediaries to verify an SME project’s sustainability alignment ex-ante and automatically generate compliance reports (EIB, 2026^[31]; OECD, 2025^[10]). A comparable deployment has been developed by IBK, which integrates a generative AI-based service into its sustainability loan origination workflow to support branch staff in conducting preliminary K-Taxonomy eligibility assessments during client consultations (see Box 2).

Box 2. Front office digitalisation for SME sustainability finance

Client onboarding via e-KYC and document automation

BNP Paribas’s ONE KYC: To streamline enterprise onboarding, BNP Paribas implemented “ONE KYC,” a global platform that leverages AI and automation to drive efficiency in the KYC process. The system creates a coherent repository of standardised, up-to-date KYC data and documents that can be shared and reused across the bank’s various business units and geographies. By using AI to

automatically improve data quality controls and enhance the verification process, the platform streamlines the customer journey, reducing manual tasks and client touchpoints, which cuts down the weeks typically needed to complete the KYC process.

Intelligent customer support via AI assistants

IBK's support via AI Chatbot: Industrial Bank of Korea (IBK) uses its advanced AI-based automated response system to provide 24/7 intelligent support specifically tailored for SME clients. Leveraging core AI technologies such as Natural Language Understanding (NLU) and Speech-to-text (STT), the virtual assistant handles real-time Q&A and automates routine tasks like loan maturity extensions. By automating these initial client touchpoints, the AI assistant handled around 37% of all consultations in 2024, reducing the front-office workload for routine pre-assessments and accelerating SMEs' access to tailored capital.

Dynamic product matching and workflow automation

IBK's digital lending platform and policy fund recommendation: IBK's integrated digital platform IBK BOX streamlines the SME loan origination process through automated data collection and a policy fund recommendation engine. By utilising public MyData, this platform automatically collects and registers an SME's financial statements and business registration data without manual intervention from bank staff. This digital infrastructure allows SMEs to complete non-face-to-face loan agreements. It also includes an advanced recommendation system that automatically matches SMEs with the most advantageous corporate financing options. The system continuously collects data on policy fund announcements from government and municipal agencies in real-time, utilising sophisticated recommendation logic to dynamically tailor financial product suggestions to each SME's profile, facilitating seamless non-face-to-face loan consultations. Relevant to sustainable finance, the same recommendation logic is applied to match SMEs with IBK's sustainability-linked loan and government backed policy funds, illustrating how general digital infrastructure can be extended to sustainability-linked origination.

Automated eligibility checks via digital portals

EIB Group Green Checker for EIF sustainability guarantee: Under the InvestEU programme, the European Investment Bank (EIB) Group provides a dedicated online tool, the EIB Group Green Checker. This digital framework allows participating financial intermediaries and final beneficiaries to verify an SME project's sustainability alignment ex-ante and estimate its climate impact. By automatically producing PDF- and Excel-based assessment reports to satisfy reporting requirements, it accelerates the origination of green loans without resource-intensive manual reviews.

EBRD Green Technology Selector for GEFF: As part of the European Bank for Reconstruction and Development's (EBRD) Green Economy Financing Facility (GEFF), the Green Technology Selector is an online, country-specific database of pre-approved environmental technologies and vendors that meet performance criteria set by EBRD for GEFF financing. SMEs and other businesses can search the tool by country and technology type to see whether specific equipment and solutions qualify for GEFF support, streamlining eligibility and due diligence checks for participating banks. By simplifying the identification of finance-eligible high-performance technologies, the database helps accelerate access to GEFF financing for energy-, water- and resource-efficiency projects and supports broader uptake of climate-friendly technologies across GEFF's operational regions.

IBK's Gen AI for loan eligibility screening: IBK has deployed a dedicated generative AI service within its green loan origination process to support branch staff in conducting preliminary Korea's K-Taxonomy eligibility assessments during client consultations. When staff submit a query on a borrower's activity and loan purpose, the system identifies the applicable green economic activity category and assesses

whether the relevant activity, exclusion and safeguard criteria are met, citing the underlying K-Taxonomy reference documents as the basis for its response. The output is a first-pass reference, with final eligibility determinations retained by its ESG specialists. The system will be progressively developed into a more automated determination framework as actual assessment cases accumulate.

Source: (OECD, 2025^[10]), (BNP Paribas, 2022^[28]) (IBK, 2025^[30]) (EIB, 2026^[31]) (EBRD, 2026^[32])

Financial institution middle office: credit scoring, ESG risk analytics and compliance

The middle office leverages advanced AI and digital tools to mitigate the limited availability of data on SMEs, performing comprehensive due diligence and risk assessment that complement conventional, manual processes. Machine learning models can process alternative data for thin-file SMEs, advanced Natural Language Processing (NLP)⁹ tools can screen documents for “greenwashing” signals such as identifying factual inconsistencies against verifiable external data, and emerging agentic workflows can accelerate ESG due diligence by autonomously deploying agentic AI (see Box 3) to extract and synthesise complex sustainability metrics from vast, unstructured sources to flag discrepancies for review. By integrating these tools, financial institutions can efficiently evaluate both the creditworthiness and environmental integrity of their SME portfolios. This technological shift lowers transaction costs and mitigates risks, providing a more robust and scalable approach to sustainable finance.

Box 3. An overview of traditional AI, Generative AI and Agentic AI

AI is rapidly evolving into specialised forms tailored to distinct purposes and capabilities. This table provides an overview of traditional AI and emerging subsegments: Generative AI and Agentic AI.

	Artificial Intelligence (AI)	Generative AI	Agentic AI
Definition	Broad field of computer systems that simulate human intelligence	Subset of AI focused on creating new content, such as text, images, and code	AI systems capable of autonomous decision making and actions
Primary function	Performs tasks like analysis, prediction, and automation	Generates creative outputs based on patterns learned from data	Acts autonomously to make decisions and execute tasks without human intervention
Examples/ applications	Chatbots, recommendation systems, fraud detection, and diagnostics	Generates text, software	Autonomous trading, robotics, complex, simulations, and digital assistants
Applications in Finance	For asset management, support the reporting and record management, compliance and asset allocation. For credit intermediation, support on credit scoring and underwriting, analyse large amounts of data for risk management, support AML/CFT and KYC checks, and robo-advisors and chatbots for credit intermediation.	Generates code to facilitate financial institutions' internal software development, financial analyst / wealth management assistant, corporate expense management. Alternative data analytics to support credit scoring and underwriting. Risk modelling and management, ESG data processing and analytics, synthetic data generation. New product development, customer onboarding/authentication, customer segmentation.	Provides real-time risk assessment, live cashflow forecasts, and adaptive onboarding workflows. Provide advanced customer support, including financial planning agents, tailor lending offers, and optimise loan structures according to customers. Streamline complex operations, contributing to enhanced operational efficiency for financial institutions.
Impact	Improves efficiency, reduces costs, and enhances productivity	Revolutionises creativity, automates content creation	Redefines autonomy in industries, driving efficiency and innovation
Scope	Broad, spanning predictive analytics, automation, and decision making	Focused on creativity and content generation	Broader than Gen AI, with the ability to take actions and interact with the environment

Data dependency	Relies on structured or unstructured data for training and operation	Requires vast datasets for training (e.g. text, images)	Uses real-time and historical data, including data it has generated itself, for context-aware decision making
Autonomy	Limited; often requires human input or oversight	Non-autonomous; outputs depend on user prompts	Autonomous, capable of initiating actions without human prompts
Complexity	Varies from simple rule-based systems to advanced learning algorithms	Advanced, requiring deep learning architectures for training	Highly complex, integrating AI decision making with execution
Key technologies	Machine learning, deep learning, neural networks	Transformer models (e.g. GPT, DALL-E), generative networks	Combines AI with sensors, actuators, and dynamic decision making frameworks
Technology limitations	Performance dependent on model training, data and features	Resource-intensive for training and deployment	Complex to evaluate and deploy
Ethical concerns	Bias, transparency, data privacy	Copyright issues, misinformation, bias, ethical content use	Accountability for actions, risk of unintended consequences, ethical decision making

Source: (OECD, 2025^[8])

- **Alternative data credit scoring:** For SMEs with thin credit files, machine learning models can draw on alternative data and information, such as e-commerce cash flows, utility payments, digital transaction histories, to estimate creditworthiness and repayment capacity independently of traditional collateral requirements (OECD, 2025^[8]). This application is relatively mature in several markets and is analytically distinct from ESG due diligence, though the two can be combined where sustainability data are sufficiently structured. Examples include FinTechs in Bangladesh utilising e-commerce behaviours to predict creditworthiness, and Indonesian banks partnering with agri-tech startups to leverage IoT farm data to extend micro-loans to rural SMEs (see Box 4).
- **Autonomous ESG due diligence:** Emerging agentic AI workflows can run specialised sub-tasks in parallel to accelerate ESG screening, retrieving regulatory information, fetching sustainability disclosures, and cross-checking reported claims. These systems remain at the pilot or proof-of-concept stage in most markets and are understood as a route to faster human-assisted review rather than fully autonomous decision making. For example, IFC's MALENA deploys AI to rapidly extract ESG signals from massive volumes of unstructured documents, enabling faster and more accurate due diligence (see Box 4).
- **Risk & "greenwashing" detection:** By analysing vast amounts of data from satellite imagery, social media, and financial reports, AI algorithms can assess companies' sustainability performance and anticipate potential physical transition risks associated with SME assets. In addition, to mitigate greenwashing risks, financial institutions use Natural Language Processing (NLP) tools to scan SMEs' external publications and reports. Through sentiment and content analysis, AI can effectively identify inconsistencies, exaggerated claims, and misleading language that could indicate potential greenwashing (KPMG, 2024^[33]). Practical applications like Switzerland's ChatReport allow stakeholders to verify textual data in corporate reports while keeping AI-generated answers highly traceable (see Box 4).

Box 4. Middle office innovations in SME sustainability financing

Alternative data credit scoring

Alternative credit scoring in FinTech in Bangladesh and the Philippines: In markets lacking robust traditional credit information infrastructure, financial institutions and FinTech companies are deploying AI-facilitated credit scoring models to evaluate "thin-file" SMEs. For instance, FinTech companies in

Bangladesh utilise alternative digital footprints, including e-commerce transaction behaviour and social media activity, to predict creditworthiness. These AI-driven frameworks significantly expand access to micro-loans for financially underserved enterprises that lack historical financial statements. Similarly, the FinTech First Circle in the Philippines uses digital credit assessment systems that leverage alternative data sources, such as accounts receivable, bank transaction data, and payment histories, to generate data-driven credit scores and automate lending decisions for SMEs. This enables SMEs to access loans with higher credit limits and flexible repayment options at competitive rates.

Indonesia's sector-specific alternative data analytics: In Indonesia, banks collaborate with agri-tech and aqua-tech startups to extend micro-loans to rural SMEs like shrimp farmers. By feeding AI models with non-traditional indicators, such as IoT-based water quality data, farm productivity metrics and supply chain records, lenders can conduct comprehensive credit risk assessments for unbanked MSMEs that lack traditional financial footprints.

Autonomous ESG due diligence

IFC MALENA: To address the challenge of analysing dense, unstructured ESG data, MALENA deploys AI analysts to extract insights efficiently across large volumes of data. Available as a free AI/NLP tool, it processes ESG due diligence data to extract ESG signals from unstructured sources. Therefore, it enables asset managers and project finance lenders to rapidly screen sustainability reports, regulators to assess ESG disclosures at scale for better oversight, and ESG news providers to enhance their data offerings.

Risk & “greenwashing” detection

Switzerland's ChatReport: Launched as part of the Natural Language Processing for Sustainable Finance (NLPSF) programme by the University of Zurich and the Oxford Sustainable Finance Group, ChatReport is a practical tool that uses AI to automatically analyse textual data in corporate reports. To reduce hallucinations, it actively involves domain experts in its development loop and makes its AI-generated answers highly traceable. This empowers stakeholders to reliably verify data inconsistencies, exaggerated claims, or misleading language that could indicate potential greenwashing, without compromising data privacy.

Source: (IFC, 2026^[34]), (Swiss Sustainable Finance, 2026^[35]) (J-PAL, 2025^[36]) (Ni et al., 2023^[37]) (KPMG, 2024^[33]) (OECD, 2025^[27])

Financial institution back office: monitoring, reporting and portfolio management

The back office of financial institutions can employ digital tools to decrease the costs associated with monitoring small sustainability loans and aggregating data for regulatory compliance and risk management. By using open finance frameworks, generative artificial intelligence (GenAI), and blockchain technology, banks can automate administrative workflows. This enables continuous, robust oversight of their SME portfolios, while strengthening data integrity and traceability in SME portfolio monitoring, all without imposing additional reporting burdens on SMEs (OECD, 2025^[8]).

- **Continuous KPI tracking via open finance and application programming interfaces (APIs):** Instead of relying on periodic, manual updates from SMEs, back-office systems can leverage open finance frameworks and APIs to automatically route live sustainability data directly to the lender. This infrastructure supports continuous, low-cost tracking of the SME's adherence to the Key Performance Indicators (KPIs) or Sustainability Performance Targets (SPTs) tied to their sustainability loans. This provides early warnings for intervention while alleviating manual reporting burdens on the enterprise. For instance, the UK's Project Perseus illustrates how open banking

APIs can route smart meter electricity data directly to financial institutions for automated emission monitoring (see Box 5) (OECD, 2025^[8]; Icebreaker One, 2026^[17]).

- **Automated portfolio reporting using generative AI:** Generative AI tools are increasingly deployed to streamline back-office tasks such as data entry, reconciliation, and compliance (Eurofi, 2025^[38]). These advanced models can automatically extract relevant financial and environmental data from heterogeneous sources to draft compliance memos, internal risk reports, and complex regulatory disclosures regarding financed emissions (Scope 3) (Vaghefi, 2025^[39]). In practice, Singapore's NovA! Platform uses the Autonomous Documentation Insights Engine (ADIE) to autonomously read, extract, and categorise key sustainability metrics from unstructured SME documents, reducing manual compliance workloads (see Box 5) (NovA!, 2023^[13]).
- **Post-trade processing & traceability via blockchain:** To secure the lifecycle of sustainability-related assets, blockchain technology and smart contracts can be used in post-trade processing and compliance reporting. By leveraging decentralised ledgers, blockchain enables the secure and immutable recording of sustainability data and structural traceability, reducing the risk of double-counting and improving the traceability of environmental impact across supply-chain financing (BIS, 2024^[18]). The Hong Kong Monetary Authority's (HKMA) Project Evergreen leverages distributed ledger technology to issue tokenised green bonds, enhancing cross-system transparency and fund traceability (see Box 5) (HKMA, 2024^[40]).

Box 5. Back office automation for SME sustainability financing

Continuous KPI tracking via open finance and APIs

UK's Project Perseus: Project Perseus (described from the SME's perspective in Box 1) also highlights a critical back-office function. By leveraging open banking principles and APIs, the initiative enables the secure, permission-based routing of assurable smart meter electricity data directly from energy providers to financial institutions. This continuous, automated data flow eliminates manual data entry and provides banks with high-resolution, verifiable data to continuously monitor SME emissions, de-risk sustainable finance portfolios, and offer personalised green finance incentives.

Automated portfolio reporting using generative AI

NovA!'s ADIE module (Autonomous Documentation Insights Engine): To handle the massive influx of divergent unstructured ESG data, particularly from private SME borrowers, the Monetary Authority of Singapore's NovA! Platform employs the Autonomous Documentation Insights Engine (ADIE). Utilising advanced Natural Language Processing (NLP) and machine learning models based on transformer architectures, ADIE autonomously reads, extracts, and categorises key sustainability metrics from SME disclosure documents and sustainability reports. This reduces the manual workload for relationship managers and compliance teams, generating structured insights for portfolio monitoring and expedited onboarding.

Post-trade processing & traceability via blockchain

HKMA's Project Evergreen: The Hong Kong Monetary Authority (HKMA) launched Project Evergreen to explore how distributed ledger technology (DLT) can improve capital market processes, successfully assisting the government in issuing tokenised green bonds. By moving bond issuance and post-trade activities onto a blockchain network managed via smart contracts, the architecture enables cross-system straight-through processing and enhances overall market efficiency and transparency. This improves the traceability of funds allocated to green projects and reduces the risk of double-counting.

Source: (OECD, 2025^[10]), (Icebreaker One, 2026^[17]), (NovA!, 2023^[13]) (HKMA, 2024^[40])

4 Policy considerations

Based on the potential for AI and digital tools to facilitate access to sustainable finance for SMEs, by reducing both demand- and supply-side challenges, this section sets out some considerations for policymakers, regulators and financial institutions to scale the responsible use of these technologies to unlock sustainable finance for small businesses.

Building interoperable SME sustainability data infrastructure

The immediate policy issue is no longer the absence of digital solutions, but the absence of a shared architecture through which those solutions can exchange data. Hundreds of reporting tools and platforms currently exist across countries, but provision is dominated by private actors, and significant portions of the ecosystem still operate as stand-alone solutions that are only partially aligned with emerging SME reporting frameworks (EFRAG, 2025^[19]). OECD findings point in the same direction: complexity and insufficient interoperability across reporting frameworks are becoming a central barrier to SME reporting and, by extension, to SME access to sustainable finance (Koreen, Kuzmanovic and Honegger, 2025^[1]; G20SFWG, 2024^[11]).

Policy could therefore usefully focus on building convergence rather than proliferating additional isolated tools. This calls for an interoperable sustainability data infrastructure, with standardised APIs, reusable data fields, common company identifiers, machine-readable templates (such as with XBRL) and consent-based data-sharing arrangements through centralised distribution hubs and repositories (OECD, 2023^[15]; OECD, 2023^[16]). Such an infrastructure would allow sustainability data to move from enterprise systems and trusted reporting tools into lenders' onboarding, monitoring and portfolio-reporting processes without repeated manual entry. This also aligns with guidance from G20 Global Partnership on Financial Inclusion (GPFI), which emphasises that data-exchange systems should be interoperable, open, modular, user-centric and supported by strong governance and broad private-sector participation (GPFI, 2023^[41]). The point is not to impose a single platform, but to make different platforms interoperable around a manageable core dataset for SMEs (OECD, 2025^[12]).

The emerging VSME framework has the potential to support broader harmonisation of sustainability-related data requests beyond the CSRD reporting perimeter, whereby SMEs provide sustainability data once and can reuse it across financial institutions, value-chain partners and public authorities. Wider market acceptance of interoperable SME reporting standards may therefore require continued public policy support and alignment with financial market regulation.

Machine-readable reporting can reinforce this. For example, the IFRS Sustainability Disclosure Taxonomy (ISSB) and the European Voluntary Sustainability Reporting Standard for SMEs (VSME) provide structured digital frameworks for sustainability disclosures, enabling automated ingestion into supervisory, accounting and financial systems. A recent smart-meter emissions reporting pilot in the UK (Project Perseus) has also demonstrated proof-of-concept iXBRL emissions reporting to eliminate manual reformatting when re-using data across systems. (IFRS Foundation, 2024) (Icebreaker One, 2026^[17]).

Public authorities have several levers available to incentivise compatibility with common data standards:

- **Public funding conditions and procurement requirements (targeting both FIs and SMEs):** Governments can mandate that any FI distributing state-backed sustainability loans, or any SME receiving public grants or procurement contracts, must use digital reporting tools that comply with common open data standards. By attaching these conditions to public funding sources, authorities establish a baseline requirement for compatibility, compelling both lenders and borrowers to move from fragmented, closed systems to interoperable, open systems.
- **Guarantee schemes (targeting FIs):** To overcome FIs' reluctance to adopt common frameworks, preferential terms on state guarantee schemes such as higher coverage ratios or reduced fees can be offered to banks that integrate interoperable sustainability data platforms for their SME portfolios. This provides a direct financial incentive for FIs to participate in data sharing and reduces their customer due diligence costs
- **Regulatory sandboxes (targeting FIs and FinTechs):** Sandboxes provide a controlled, supervised environment where FIs and tech providers can test data-sharing APIs and interoperable reporting tools (GPFI, 2025^[14]). This builds institutional trust, helping FIs resolve technical, privacy and compliance concerns related to data-sharing before full-scale market deployment.

Developing verification and trust layers around SME sustainability data

Interoperability alone will not make SME sustainability data financeable. The more fundamental issue is credibility. The proliferation of digital reporting platforms reflects genuine market activity, but the availability of tools does not guarantee the accuracy or compliance of the outputs they produce (EFRAG, 2025^[42]). The market for digital reporting solutions has developed faster than the institutional architecture needed to verify what those solutions generate.

Policy could support verification layers, alongside scoring layers, which can provide greater confidence in the data being reported. These can include auditable data trails, machine-readable evidence attachments, automated cross-checks against utility, invoice, registry or geospatial data, and tiered assurance models that concentrate the most intensive verification on the most material or risk-sensitive disclosures. This matters in particular for financed-emissions calculations, where data quality varies and directly reported activity data are generally more decision-useful than indirect proxies (NovAI, 2023^[13]).

Credibility improves further when activity data carry transparency around the sources of data and their quality, for example, permissioned, at-source utility data rather than self-declared estimates. This infrastructure ensures higher data quality for financed emissions methodologies, such as the PCAF without requiring financial institutions to process raw meter data directly (Icebreaker One, 2026^[17]).

AI can support this trust architecture, but only if it is deployed as a verification aid rather than as a black-box substitute for human judgement (Vaghefi, 2025^[39]). Algorithmic bias, opacity, privacy risks and cyber vulnerabilities can undermine fair access to finance and perpetuate discrimination (OECD, 2021^[43]). The EU AI Act's classification of credit-scoring systems as high-risk applications reflects this concern, mandating transparency, data governance and human oversight (Eurofi, 2025^[38]). The practical implication for SME sustainable finance is clear: automated anomaly detection, evidence retrieval and consistency checking can extend what human reviewers are able to do, but final credit and eligibility judgements should remain reviewable, contestable and traceable (OECD, 2025^[27]).

Incentivising SME adoption of sustainability reporting through financing advantages, non-financial support and operational simplification

SMEs are unlikely to invest time and resources in better reporting if the return is compliance alone. OECD evidence shows that financial and non-financial support need to be designed together, as smaller firms

face significant knowledge, capability and administrative barriers in meeting sustainability-related requirements (OECD, 2025^[10]). Adoption will remain limited unless better data and better reporting are visibly connected to tangible benefits. Beyond financing access, better reporting also helps build the business case for sustainability investment themselves. When SMEs can demonstrate that energy savings, cost reductions or supply chain advantages can be linked with sustainable practices, the effort of improved reporting becomes easier to justify internally.

Policymakers and lenders should translate reporting effort into concrete advantages:

- **Demand-side incentives for SMEs:** Reporting efforts could be attached to better loan pricing, stronger guarantee coverage, simplified documentation, faster approvals, access to advisory services or eligibility for blended and performance-based instruments. Capacity-building measures including training on AI tools, peer-to-peer learning programmes and hands-on technical assistance can be a necessary complement to financing incentives.
- **Supply-side incentives for financial institutions:** Recognised digital tools and proportionate reporting templates can lower the manual verification costs and administrative burdens. These tools make it attractive for providers to offer benefits on small-ticket loans that are otherwise unattractive due to high transaction costs. The aim should not be to reward reporting in itself, but to reward the production of reliable, reusable information that reduces transaction costs and improves investment decisions (OECD, 2025^[10]).

Incentive design also matters for inclusiveness. Micro-enterprises and first-time reporters are the least able to absorb complex onboarding costs, yet they often have the greatest need for support. For that reason, incentive schemes should be simple, visible and front-loaded, combining small grants, subsidised assessments, trusted calculators and hands-on advisory support with gradual pathways into more sophisticated disclosure and financing products.

However, the effectiveness of financial incentives linked to ESG reporting may vary significantly across SME ecosystems. In fragmented SME sectors with low levels of digitalisation and limited appetite for debt financing, the administrative complexity of linking financing conditions to sustainability reporting may outweigh the practical benefits, particularly for micro-enterprises. In such contexts, operational simplification, access to trusted reporting tools, advisory support, standardisation benefits and low-threshold digital tools can be more effective initial policy levers than complex performance-linked financial incentives.

The calibration of requirements by firm size, sector and financing purpose also deserves attention. Sector-specific characteristics including supply chain structure, asset intensity and existing reporting capacity affect how easily SMEs can meet data requirements, and frameworks that allow for this variation are likely to be more effective than uniform approaches.

Ensuring accountability and appropriate safeguards for the use of AI in SME sustainable finance

AI is already used in finance for fraud detection, document processing, customer service, risk analysis and credit assessment. OECD work suggests its next wave may further lower the costs of serving thin-file SME borrowers. But the same technologies carry a risk of amplifying discrimination, reducing explainability and creating data-security risks that fall disproportionately on smaller firms, which often lack the resources to challenge automated decisions (OECD, 2025^[27]).

In the EU, the AI Act has established a high-risk classification for sensitive financial-service applications, including systems that evaluate creditworthiness. The European Commission has since complemented the legal framework with a voluntary General-Purpose AI Code of Practice and guidelines clarifying the scope

and timing of related obligations. Even where SME lending tools do not fall neatly into one legal category, the policy lesson holds: before an AI system is deployed, financing institutions need to maintain clear technical documentation explaining the model's logic, establishing human oversight to review AI-generated outcomes, create incident response plans for errors and define who within the organisation is legally accountable if the system makes an incorrect decision (Eurofi, 2025^[38]).

The practical objective is to use AI as a decision aid that complements human judgement rather than replaces it (OECD, 2021^[43]; Swiss Sustainable Finance, 2026^[35]). Where AI shapes access to finance, policy could require that financial AI systems remain explainable and traceable. This means building in human oversight, adequate documentation and audit trails with clear accountability structures. Used within these boundaries, AI can provide SMEs with faster access to finance without compounding the existing informational disadvantages (Eurofi, 2025^[38]; OECD, 2021^[43]).

5 Conclusions

The increasing integration of sustainability and digitalisation agendas points to a closer link between SMEs' digital capabilities and sustainability performance. In practice, digitalisation and sustainability are becoming more closely intertwined: advances in digital capability are lowering the cost of meeting sustainability targets and information demands, while sustainability requirements themselves are accelerating SME adoption of digital tools and data infrastructures.

The barriers to SME sustainable finance are largely informational and operational. The costs of generating, verifying and sharing sustainability data make small-ticket sustainability loans difficult to originate, assess and monitor at scale. Digital tools and AI offer practical means of addressing these issues across the financing lifecycle, from helping SMEs generate and share sustainability data to supporting financial institutions in origination, risk analysis and portfolio monitoring. Their contribution, however, depends on the quality of the surrounding data environment and the governance frameworks within which they operate.

Several national and regional initiatives have demonstrated notable progress in supporting SME digitalisation and AI adoption through integrated policy frameworks, public data platforms and targeted financial support programmes, contributing to improved SME productivity and enhanced access to finance.

Policy priorities – including building interoperable data infrastructure, strengthening verification, creating meaningful incentives for SMEs and ensuring accountable use of AI – taken together, can create the conditions under which AI and digital tools can fulfil their potential to leverage sustainable finance for SMEs.

More broadly, current macroeconomic uncertainty and competitiveness pressures may constrain SME investment capacity and reduce short-term demand for sustainability-related financing. This reinforces the importance of ensuring that sustainability reporting and digitalisation efforts remain simple and clearly connected to business value for SMEs.

Many applications of AI for finance, and indeed for sustainable finance, are at an early stage, and the full implications remain to be seen. The OECD Platform on Financing SMEs for Sustainability will continue to monitor developments in this area, to foster knowledge exchange and policy dialogue on how to leverage AI to unlock sustainable finance for SMEs, enabling them to invest in more sustainable practices, operate in sustainable supply chains and strengthen their competitiveness.

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Notes

¹ Sustainable finance is understood as finance that incorporates environmental, social and governance (ESG) factors in financing and investment decisions, and encompasses green finance as a subset (OECD, 2022^[3]). In this paper, it covers financing instruments and support arrangements in which sustainability-related considerations are reflected in eligibility criteria, use of proceeds, performance targets, reporting requirements or financing conditions. Such instruments include sustainability-linked loans, financing and guarantees for sustainability-related investments, concessional or subsidised finance and other public or private instruments.

² The outstanding amount of sustainable bonds reached USD 2.4 trillion in the corporate sector and its issuance in 2020-2024 four times larger than in 2015-2019 (OECD, 2025^[45]). While nearly 60% of SMEs across the EU countries had invested in their sustainability transition, sustainable finance accounted for only about 16% of total external financing raised for such investments (SMEunited and Eurochambres, 2023^[6])

³ The front office refers to client-facing services; the middle office denotes intermediary risk management services; and the back office covers execution, monitoring, and accounting services as well as general administrative support (OECD, 2006^[44])

⁴ For instance, carbon reporting tools often differ in their underlying calculation methodologies (e.g., varying emission factors or scope boundaries), pricing models (ranging from free basic versions to costly subscriptions), availability in local languages, and data ownership rules (which tools allow SMEs to export, share or retain ownership of the data they enter)

⁵ An ex-ante assessment process where financial institutions check whether a project or business appears to meet specific eligibility criteria set out in a sustainable finance taxonomy.

⁶ The consolidation of individual borrower data into a portfolio-wide view for reporting and risk management, which occurs after financing decisions have been made.

⁷ Systems that enable the secure, customer-permissioned sharing of financial data by banks with other financial institutions or third parties to build and offer tailored applications and services.

⁸ Application Programming Interface (API) refers to the software and; dedicated digital systems and protocols that allow different software programs to communicate and exchange data securely with each other.

⁹ Natural Language Processing (NLP) of AI enables computers to comprehend, interpret and manipulate human language.

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