

INNOVATE
FINANCE

REACHING NET ZERO:

The role of FinTech as essential
catalyst and transformative agent

Supported by: Capgemini  invent

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Foreword



Climate change is undoubtedly one of the biggest challenges of our time, but it is also an incredible opportunity for innovation, collaboration, and positive change. As we look to address this pressing issue, the financial sector has a critical role to play in driving the transition to a Net Zero economy. And at the forefront of this effort is the innovative and dynamic FinTech ecosystem.

Tackling climate change depends upon rewiring finance to direct capital to activities aligned to Net Zero. That means combining finance with data – data that measures real world outcomes – which will enhance how we measure emissions and shape the future of sustainable investment strategies. The future of finance will be green finance. And the future of green finance will be FinTech.

This report by Innovate Finance and Capgemini Invent showcases how FinTechs are leading the way and developing best practices in green finance that are transforming the financial services sector for the better. From using artificial intelligence to estimate carbon emissions to developing technology-based solutions to incorporating climate-transition risk to balance sheets, FinTech innovations are breaking down barriers on the road to Net Zero.

FinTechs have shown their ability to support the economy during times of crisis, as they did during the COVID-19 pandemic where challenger banks and alternative lenders provided a lifeline for sectors most severely affected and have since continued to grow, providing 55% of small business finance in the UK. Given the urgency of the climate crisis, we must act now to raise awareness and adoption of FinTech's data-driven green finance solutions.

I look forward to continuing to work with the inspiring members of our Net Zero Working Group, especially by elevating their voice at Bankers for Net Zero and Project Perseus, a national initiative bringing banks, FinTechs and accounting firms together to develop a data tool that uses smart meter energy data to automate greenhouse gas emissions reporting for UK SMEs. This tool will unlock the ability for lenders to channel finance towards the 5.5 million SMEs in the UK to help them invest in carbon reduction projects.

Building on the inspiring work enclosed in this report, now is the opportunity for the UK to build upon our position as a leading FinTech centre to become the leading centre of green finance."

- Janine Hirt
CEO of Innovate Finance

Foreword



“ Accelerating the transitioning to a low-carbon economy and shifting to a mindset that puts sustainability at the forefront of everyone’s agenda, from FinTechs and scale ups to established global banks, is integral to how financial services establishes its role in driving purposeful and impactful change with the urgency and pace needed.

Through our work as co-chair of the Innovate Finance NetZero Working Group and in the development of this report following the U.K. Green Finance Strategy Call for Evidence in 2022, it’s clear for the sector to find new opportunities and nurture and scale transformational green finance and climate innovation we need to take inspiration from FinTechs. They are uniquely positioned from new innovative green finance propositions and climate solutions that both support consumers and businesses to act, to having the influence to enable the wider finance sector to implement change, faster.

The purpose of this report is to highlight opportunities and tangible case studies, in context of the continually evolving and complex green finance and sustainability landscape, whilst showcasing the FinTechs and founders who are pushing boundaries and proving what is possible as they tackle the challenges and opportunities that are fundamental to accelerating the transition to net zero, and beyond.

Regardless your interest in Green Finance and Sustainability, I hope you can take inspiration from the brilliant minds and insights that have contributed to shaping this report to help ensure that voices from new and established participants in the sector can be heard with equal voice, measure and value.”

- Stephen Dury

Vice President - Head of Innovation,
FinTech and Strategy for Capgemini Invent

Part 1: The UK is ahead but needs to keep the momentum

1.1 Key characteristics of a successful environment

Over the last ten years, the UK has become a leading global FinTech hub. It now has the opportunity to be the leading global centre for green finance by turning its world-leading FinTech ecosystem into a world-leading green FinTech ecosystem.

The key characteristics of this ecosystem are:

- digital and data-led;
- based on trust, transparency and assurance, enabled by technology;
- innovation - a test bed for new services;
- joined up across financial services;
- supporting transition in every household and every small business;
- powered by open data across the whole economy.

This is a huge international opportunity for the UK economy considering the scale of FinTech investment which stood at \$92.2bn globally in 2022. During the same period, UK FinTech received \$12.5bn worth of investment of which \$8.9 billion was invested just in the first six months of 2022. This puts the UK far ahead of its closest competitors, India and Singapore, whose levels of investment in FinTech stood at \$5.5bn and \$4bn respectively. Just as the UK consistently attracts more investment in FinTech than any country in the world after the USA which received \$39.2bn, there is a strong platform for green FinTech to further strengthen the UK's global attractiveness and investment. This is clear as the 10% growth in European FinTech investment in the first half of 2022 was driven by positive UK FinTech growth across all stages of venture. Hence, Green FinTech also has huge export potential as firms increasingly focus on the sustainability and Net Zero agendas.

The products and services offered by UK FinTechs are already enabling companies, financial institutions and consumers around the world to track and reduce their emissions and to invest in Net Zero transition.



1.2 Green Finance is digital and data-led

A leading global centre for finance will be powered by technology, with FinTech innovators at its heart.

As Net Zero will be achieved through finance, deploying capital to activities and investment that enable or achieve Net Zero, it will also be achieved by technology.

Net Zero goals will be achieved as capital moves away from climate risk and toward the greater asset value of Net Zero solutions, as consumers take action, and as financial regulation in key markets drives change through global portfolios and supply chains.

The enabler of all of this will be FinTech and innovation. Above all, to achieve impact at scale, it will require transformational technologies, thinking and innovation in areas such as:

- data to improve completeness, consistency and transparency;
- artificial intelligence to unlock solutions;
- digital interfaces for easy adoption;
- blockchain providing accounting and assurance;
- satellite imaging for real time assessment of supply chains and investments.

|| *It's time we think of ESG, not as environmental, social and governance but as existential, seismic and global."*

- Chris Holmes,

The Lord Holmes of Richmond MBE

Institutions are reassessing how they implement ESG. In many cases currently, disclosure reporting is still prepared via manual spreadsheets. A leading global centre for green finance will be data driven and automated - the faster we transition to this within the UK, the stronger our position in green finance. That means moving towards periodic or real-time reporting, which will drive the adoption of data solutions.

The first phase of Net Zero finance has focused on measuring and reporting emissions. The next phase is about Net Zero action and reconfiguring financial markets: to divert capital to funding transition and those activities and organisations that are actioning Net Zero aligned transition plans. That means readily available data on the progress towards Net Zero for any financial transaction, whether a global investment portfolio or a purchase at a corner shop.

A global centre for green finance will be one where robust data, capturing emissions and Net Zero transition, is integrated into every aspect of capital markets, financial transactions, and regulatory reporting.

Data analysis underpinned by FinTech can identify the climate impact of each contract or financial instrument, and the cumulative impact on portfolios and balance sheets.

1.3 Technology-enabled trust and assurance

A global centre for green finance will depend upon trust and confidence of the market, consumer, and investors. This will increasingly require robust assurance of reporting accuracy and protections against 'greenwashing'.

FinTech will provide assurance solutions that underpin green finance. Greenwashing is currently possible because data is not understood or fully verified. The UK is already seeing the development of FinTech services (including those tested in the FCA Sustainability digital sandbox) that use technology such as blockchain to build transparent and secure records of investment impact and supply chains, together with satellite imagery to verify sustainability claims and impact through supply chains and around the world.

1.4 Innovative: a test bed for new services

In order to develop and provide new financial services that support global Net Zero targets, the UK must be at the forefront of innovation. That includes creating a regulatory and policy environment that enables and accelerates innovation.

The UK has led in requirements for financial disclosures, which has stimulated innovation. This should continue to bake climate action into investment portfolios. It also means developing the UK's wider innovation and data rules to enable innovation. Some of these, including open data, are detailed below.

Regulators should make it mandatory to provide disclosures in a machine-readable format, which would enable more efficient data analysis, and support and incentivise automation of climate-related regulatory reporting. This goes beyond financial services and financial regulation and needs to link policies on data, climate and finance.

In the future, a leading green finance centre will also be one that enables a circular economy. This requires rewiring supply chains and financial modelling, with new types of investment needed between businesses. Technology will help. As the circular economy develops, FinTech has a critical role to play.



1.5 Joined up: UK green finance as more than the sum of its parts

The UK has enormous strengths in green finance across financial services, including asset management, capital markets, banking, payments systems, insurance, commercial risk, professional services and FinTech. As a global leader, the UK needs to be more than the sum of its parts. Green finance is still developed in silos to some extent. The more the UK finance ecosystem can collaborate and integrate approaches, the more value will be created, and the faster progress towards developing solutions will be.

“Banks can trigger a multiplier effect in assisting firms to reduce emissions, as they sit on a huge amount of data that is key to identifying emissions savings. This data has not been used effectively to date, and should be pooled to assist with carbon accounting.”

- Matt Bullivant,
Director of ESG Strategy, OakNorth

For example, there is significant climate analysis and risk assessment capability in commercial risk brokers which could be applied to help develop solutions in banking and asset management. Technology solutions could help scale these. The UK's green finance strategy must take a collaborative approach. Technology could be one of the ways in which the UK quickly develops learning across financial sectors.

Together with the Green Finance Institute and British Business Bank, this should include linking firms in the ecosystem to enable those who want to do more to learn from others and develop green finance solutions and products.

1.6 Supporting transition in every household and SME

The initial phase of green finance has been focused on large institutions and corporations. Achieving Net Zero will depend upon transition pathways for every small business and every household. This requires micro solutions; affordable options to ensure a just transition.

FinTech is uniquely suited to provide consumers and SMEs with accessible, affordable analysis to identify Net Zero impact and priorities and targeted access to finance for transition. UK FinTechs are already providing: plug-in tools for retailers and payment services that link emissions with spend, easy to use analytical tools that enable small firms to measure emissions through their supply chain and identify a Net Zero action plan, and funding options that link green finance to SMEs for transition investment.

Beyond the analysis and insights provided by FinTechs, there is still more work to be done by government and industry to address the knowledge gap in terms of where SMEs and individuals can locate low-carbon solutions provided by suppliers, installers, and manufacturers in their local area.

FinTechs can play a pivotal role in supporting SMEs and consumers to make these connections. In parallel, FinTechs can build understanding and reduce friction or barriers to action through convenient and traceable digital journeys, with finance and payments embedded.

Part 2: Creating the right regulatory culture

The UK is in a prime position to continue leading the world in creating a competitive, safe, efficient, and sustainable market environment that nurtures innovation to tackle the most challenging sustainability issues facing financial services, and the consumers and businesses that it supports. That said, taking successful steps to translate opportunities into impactful action will require further steps to be taken by Government and regulators to ensure that the UK has a world-class regulatory framework, underpinned by technology, that enables and accelerates green finance. In principle, this regulatory framework needs to consider how to:

- encompass not only financial regulation, but also wider digital regulation, including open data;
- extend disclosure requirements from measurement of emissions to action on emissions reduction and Net Zero transition with ever improving traceability;
- be responsive and adaptable to the continual and rapidly evolving data, innovation, competition and consumer and business needs;
- extend disclosure requirements from the asset portfolios of large financial institutions to all capital markets and financial services (including consumer credit, SME lending and payments); and
- accelerate the transition away from manual reporting and manual supervision through the adoption of RegTech and SupTech solutions, enabling reporting to become model driven and machine executable (via the development of machine-readable regulatory rulebooks).

In order to achieve the transition to the above regulatory framework, Innovate Finance recommends that the following actions be considered on the merit of their potential impact to bring great pace and efficiency to the transition to Net Zero:



Fit for purpose: updating existing rules



Fit for the future: enabling innovation



Innovative, agile regulators



1. Fit for purpose: updating existing rules

Align regulation of all financial services to Net Zero targets, e.g., extending disclosure rules to climate action and from large institutions to all financial services. Regulation of new technologies, such as cryptoassets, should also be aligned to Net Zero targets.

Reform out of date legislation and programmes: review regulation to remove barriers to Net Zero solutions. In addition, Government financial interventions (e.g., SME lending guarantees) should be aligned to Net Zero, in turn stimulating innovation in debt and VC markets.

Reform capital requirements, risk ratios and insurance risk principles to reflect climate and transition risks, and to ensure that approaches to financial risk do not obstruct industrial innovation (e.g., Net Zero transition will require the application of untested technology e.g., hydrogen power where a track record of risk measurement will simply not be available).



2. Fit for the future: enabling innovation

Access to data: introduce Consumer Data right across the economy to create economy-wide open data – unlocking new FinTech solutions to Net Zero. Support this with legislation for Digital ID.

Enable RegTech solutions. Enable machine readable ESG data. Apply a RegTech test to green finance regulation: a requirement for all new regulations to consider how best to enable SupTech/ RegTech solutions.

Create a vibrant and trusted UK market in synthetic data, which is critical to development of new products and services in areas such as enhancing consumer and business understanding and engagement or the development of new platforms, or funding solutions that incentivise action.



3. Innovative, agile regulators

Reform regulators' capability, capacity and culture to underpin the new secondary competitiveness objective and 'have regards' with respect to Net Zero. This should include statutory benchmarking reports, capability reviews and industry interchange.

A joined-up approach across regulators and government: UK financial regulators should actively participate in a joined-up strategy to advance the opportunities of Net Zero in UK financial services.

Support innovation, including start-ups and scale ups: maintain 'always on' sustainability sandbox and ensure access to firms of all sizes. Encourage collaboration across the sector to experiment and amplify impact of innovations.

Based on experience and member insight, Innovate Finance considers that there are several opportunities for the UK's regulatory system to support the development of Supervisory Technology, enhanced data analysis and further innovation with a particular focus on supporting an accelerated transition to Net Zero. This includes:

- Adopting more technology-led ways in which to monitor compliance with the new FCA sustainability disclosure and investment labels requirements. FCA Tech Sprints on model driven, machine readable and executable regulatory reporting have proven that the regulator and regulated firms can build a workable model where real-time updates can be shared by firms. Technology-driven supervision could offer a real-time, or near real-time, way in which to determine the efficacy of the new regime. Innovate Finance notes the Digital Sandbox explored the use of digital ledger technology in the context of assurance for market participants' ESG data - we would also encourage the regulator to explore the extent to which embedded supervision (a framework that allows compliance with regulatory requirements to be automatically monitored by reading the ledger, reducing the need for firms to actively collect, verify and deliver data) can be deployed. The FCA should assess lessons learned from the ESG digital sandbox in developing the proposals.
- Consider sharing - subject to market participants' consent - anonymised, aggregated data sets, and make it mandatory to provide disclosures in a machine-readable format. Making this mandatory would allow ease of monitoring and supervision of the new regime, more efficient data analysis, and also creates new opportunities for regulatory technology solutions to be developed by the private sector.

Additionally, if market participants' data sets were made available (in a similar vein to the synthetic data sets provided to participants in the regulator's Digital Sandbox), then this could unlock further innovative solutions. There are already fantastic use cases that leverage available data; one of our members, for example, has been working with partners to model and categorise transactional data (e.g., carbon numbers associated with ISIN numbers), which has revealed valuable insights about the broader value chain.

- Support and incentivise firms' automation of climate-related regulatory reporting. We invite the FCA to support and incentivise firms to switch from manual reporting (via spreadsheet) towards more innovation-led solutions for climate-related reporting, whether developed in-house or by third party providers. The underlying aim should be to drive the production of high-quality data sets, which is central to assurance and the development of new, innovative products, while ensuring reporting is not overly burdensome to firms. Innovate Finance members consider that data from all market participants - be they small, medium, or large firms - is essential to drive impactful change. To that end, the FCA's approach to incentivising the move to innovation-led reporting needs to provide sufficient lead time to small and mid-size firms, enabling them to prepare and invest in reporting-related solutions.



- Consider data beyond banking and finance as a source for experimentation and innovation. The UK has world-leading academic institutions including some of the world's leading specialists on climate impacts and trends alongside some of the most powerful and advanced systems dedicated to weather and climate via the Met Office. Exploring how to best harness the combined data capability and creativity of across academia, FinTech, public sector and established institutions (in financial services and beyond) will be pivotal to driving systems change and the scale of cross sector collaboration needed to rapidly accelerate the transition.

The UK is a leading global centre for FinTech, which puts it in a strong position to influence and support action both domestically and globally to accelerate the transition to Net Zero.

The diversity of innovation and talent, combined with increased competition, has created a concentrated ecosystem of FinTechs in the UK. These companies have demonstrated their capability to work independently and collaboratively, with peers and incumbent brands, to transform all aspects of the financial system from digital user experience to risk management and decision making. This ecosystem has the power to be a differentiator for the UK. The examples of FinTech companies highlighted in this response represent a fraction of the innovation taking place in the UK market. The government should consider strategies to support, showcase and scale climate related FinTech solutions already in market, while proactively engaging the FinTech community more broadly for inspiration and targeted innovation.

As referenced more widely, the [2021 FCA Green FinTech Challenge](#) recognises the opportunity that FinTech represents.

2.1 Climate RegTech: Compliance for Financial Services Regulation

Focusing on transition to Net Zero will now put businesses and services in a favourable position going ahead. Increasingly, the US, UK and the EU are introducing regulation on climate risk disclosure and reporting for financial services. This applies particularly to asset managers and banks. We expect the number of regulatory obligations to increase after COP 28.

In the UK, the Bank of England has issued supervisory expectations for sustainable reporting on climate-related risks and has set up a Climate Financial Risk Forum with the FCA, to build capacity and share practices for risk reporting. Preparations include robust toolkits to deal with climate-led financial risks. As part of this, the stress testing framework is used to assess the impact of climate risks on the UK financial system. The Bank of England's Climate Biennial Exploratory Scenario (CBES) considered resilience to both physical and transition risks in response to stress tests, with media coverage attracted to the potential worst-case scenario climate related losses for the UK's largest banks and insurers in excess of £340bn by 2050.

FinTech is already playing a significant role in financial compliance. Tools for robust climate and transition risk disclosure and portfolio assessment ensure firms comply with regulatory requirements. FinTech enables reporting on disclosure and the ability to look at risk and provides assurance to make sure that the assessments are reliable. This signals compliance to regulatory bodies, other financial institutions, investors and clients. FinTech can provide financial regulators with the tools and software necessary to monitor and test compliance, as well as provide modelling and data to support supervisory and policy insight, and decision-making.

In an area of rapidly evolving regulation, RegTech can help financial institutions keep up to speed with new requirements. For example, CUBE, a UK-headquartered RegTech company, provides a regulatory intelligence platform using AI, including machine learning and natural language processing, to support financial institutions in navigating regulatory change and processes, enabling them to respond to ESG regulations as they continually evolve.

2.2 B2C: Enabling consumers to take action

Consumers have a significant role to play in the path to Net Zero through their personal finances, their shopping and consumption, and measuring and mitigating their environmental impact. The services provided directly to customers that support them on this journey are growing in both popularity and sophistication.

Financial transactions are fundamental in understanding how consumption affects climate change. It is incredibly powerful for consumers to see how their spending is linked to the environment. FinTech can equip consumers with insights into the environmental impact of their spending, thus supporting behavioural changes. In this use case, bank accounts can integrate action to mitigate carbon footprints, for example:

- [Oxbury Bank](#) has launched the Oxbury Forest Saver, which is the UK's first personal savings account to use interest earned on savings as incentive to plant trees,
- Personal wealth management can be guided towards assured investment in sustainable or green solutions - enabling people to invest their money in assets that help achieve Net Zero,
- Personal finance management tools can support individuals in making their own contribution to Net Zero. Further, links to non-financial services also have a role here in adjacent sectors such as smart metres from utility providers that can show the impact of daily behaviour on a customer's energy consumption.

In consumer retail markets, FinTechs are well advanced in providing information on emissions at point of sale and investment options for green savings and wealth management. These include retail and spending data solutions like [CoGo](#) and green intelligence platforms like [Earthchain](#). Importantly, both Earthchain and CoGo demonstrate the need for a strong focus on user experience and educating consumers and small business, bringing context to complex data and insight, alongside providing convenient options.

2.3 Embedding Net Zero into Capital Markets

The first stage of green finance has centred around transparency and reporting, with the next phase focussing on directing capital. Financial markets will need to be reconfigured in ways that fully account for climate and transition risk, accelerate the achievement of climate targets, and build climate resilience, including:

- Finance and de-risk the development and adoption of new technology and services that support Net Zero Transition (e.g., hydrogen applications),
- Finance low and no-carbon projects and services (e.g., offshore renewables and circular economy products and services),
- Fully price-in physical climate change risk and transition risk,
- Finance Net Zero transition, including adaptation of people's homes (e.g., replacing fossil fuel heating), and Net Zero transition in small businesses,

- Align the provision of finance (including lending, investment and insurance) to individual customers' progress against science-based Net Zero targets. For example, linking interest rates or availability of loans to a business' commitment to, and progress against, a science-based Net Zero transition plan.

FinTechs are also playing a role in driving innovation to transform and support Net Zero capital markets. For example, FinTechs are introducing new business models such as e-trading of natural capital backed digital assets, remote verification insurance and financing, gamified sustainable behaviours and sustainability AI advisors. This is one area where the UK is at an early stage, and thus limited capital market examples at scale that are fully aligned to Net Zero. However, this represents an area of opportunity for the UK given its leading position as a global financial hub.



2.4 Energy intensiveness of breakthrough innovation and transformation

One of the issues facing the tech industry in reaching Net Zero is the energy intensiveness of blockchain, AI, the cloud and big computing. Data centres and data transmission networks accounted for [around 300 Mt CO₂-eq in 2020](#) (including embodied emissions), equivalent to 0.9% of energy-related GHG emissions (or 0.6% of total GHG emissions). Global data centre electricity use in 2021 was 220-320 TWh², or around 0.9-1.3% of global final electricity demand. This excludes energy used for cryptocurrency mining, which was 100-140 TWh in 2021². The rapid growth in workloads handled by large data centres has resulted in rising energy use in this segment over the past several years (increasing by 10-30% per annum)³. In the long term, solutions cannot just be reliant on renewable energy and carbon offsets. Alongside decarbonisation of energy, and new sources of renewables and of energy storage, a reduced energy usage will be needed.

We need to start with clear measurement and disclosure of the GHG emissions of FinTech and of tech. One option would be to apply the same rules faced by asset managers, large corporates and banks in the UK: there should be requirements for climate risk disclosure and (in future) plans to align with Net Zero targets. In terms of crypto assets, the UK Government has rightly indicated that its regulation of crypto assets will be aligned with Net Zero targets. Rather than specifying the precise route to achieve this (e.g., proof of stake rather than proof of work), climate risk and impact disclosure and reporting on action should be mandated (as with other financial services).

²The Cambridge Bitcoin Energy Consumption Index (CBECI) only measures Bitcoin, so figures for other crypto assets are currently unavailable. CBECI estimates indicate that Bitcoin energy use and green house gas emissions have reduced in the last year - estimating GHG emissions of 48.35 MtCO₂e (as of 21/09/2022), which is about 14.1% lower than the estimated GHG emissions in 2021 (56.29 MtCO₂e). As CBECI is dedicated to Bitcoin, the Cambridge Digital Assets Programme is developing a new platform to expand the scope of their research on electricity consumption to a variety of other blockchain networks. See: <https://www.jbs.cam.ac.uk/insight/2022/a-deep-dive-into-bitcoin%27s-environmental-impact/>

³<https://www.iea.org/reports/data-centres-and-data-transmission-networks>

2.5 Emissions within FinTech industry

This is deemed to be an area where the UK has a mix of strengths and weaknesses, albeit the weaknesses are reflected in other regions.

To help other businesses transition to Net Zero, FinTech companies need to lead by example and reduce their own emissions. This should cover the three categories of direct and indirect emissions a business is responsible for: scope 1 (direct emissions produced, e.g., by your vehicles or boiler), scope 2 (indirect emissions, e.g., energy consumed), and scope 3 (value chain).

FinTech companies, such as challenger banks Starling and Revolut, payments firm Wise, and RegTech firm Onfido, have joined Tech Zero, a group of innovative UK tech companies working to accelerate the progress towards Net Zero. Companies who join Tech Zero commit to measuring their scope 1-3 emissions and set an ambitious Net Zero target by the end of 2021. In order to support UK FinTech with measuring scope emissions and developing plans, Innovate Finance is working with [Capgemini Invent](#) to pilot a scope 3 emissions workshop. This is focused on improving understanding and engagement of these issues among members of Innovate Finance, and by extension, the UK FinTech community at large.

It is vital for businesses to think about what scope 3 means – looking at emissions across supply chains, from suppliers through to the end use by customers. Crucially, scope 3 emissions include investment. Companies must be prepared to measure and assess emissions across any financial services portfolio (debt, equity or other financial services including insurance) and to factor this into investment and credit decisions.

Emissions targets and plans across these categories should be 'science based' and align with global targets, with more information on science based targets available [here](#). This means that milestones and progress for each activity should be based on what is needed to achieve a global Net Zero economy by 2050 at the latest - taking account of the specific pathway and pace of change possible in each activity or sector and in a way that is sustainable across the economic system (e.g., reserving offsetting solutions for those activities that have the most difficult Net Zero trajectories).

“ We need to ensure net zero remains high on the agenda. That can only happen with optimised & coordinated strategy that is inherited & committed to by successive governments. It can't simply be derailed or pushed down the agenda due to immediate pressures triggered by near-term obstacles.”

- Rod Lockhart,
CEO, LendInvest

2.6 Measuring progress and scaling impact

For the UK government to measure its progress towards becoming a leading centre for green finance, it will require an approach that reflects the urgency to create new and innovative products and services to finance the transition. In parallel, the UK government will need to address the impact of new financial solutions alongside the transition of existing financing to achieve more sustainable outcomes and drive systems change in the markets and sectors that it supports.

In order to achieve accurate measurement, the UK government should consider new approaches being pioneered by FinTechs, both independently and in collaboration with established brands, alongside leveraging recognised sources of market insight with long standing historical data with the power to assess the impact of its strategies. This approach could improve understanding of shifts in behaviours, attitudes, and sentiment alongside the impact of investment into priority areas identified in the UK government's strategy.



For example, an existing source of insight for SME lending is the long established SME Finance Monitor, led by BVA BDRC, that was developed during the financial crisis to provide critical and regular insight into SME attitudes and access to finance. This has grown to become an industry-leading source for SME finance trends with extensive detail on topics such as sources of finance, financing needs, attitudes to finance and types of finance. With long standing time series data since the financial crisis, and through the Covid-19 pandemic, this could be a powerful platform for the sector to improve understanding, collaborate to improve action and measure impact.

Importantly, the SME Finance Monitor is already an extensive survey on SMEs that covers many topics, meaning care will need to be taken when revisiting the purpose and priorities with the existing stakeholders in the context of UK governments long term ambitions for green finance. Leveraging such a tool to enrich the quality of data and insight could be an important catalyst for targeted innovation into high potential growth and high carbon impact sectors of the UK economy, while also helping to ensure support is provided for new scale up SMEs that are critical to enabling the new economy and wider systems change such as circularity.

Additional sources of information or benchmarks with potential to support UK government with the development of accurate or directional measurement could include:

- Adoption of green finance products and services by consumers, business, and corporates.
- The development of a tracker to measure the flow of investment and funding to new and existing climate related FinTechs providing solutions that accelerate Net Zero transition. This could also extend to UK based climate led FinTechs operating in markets outside of the UK as a measure of the UK's influence on the global stage as a leader in green finance and Net Zero transition,
- Tech enabled contribution to overall UK benchmarks as a leading centre for green finance,
- Clarity on the UK taxonomy, particularly on green investment classifications and labelling, with a specific focus on the impact on both existing and future investment in Net Zero projects and businesses. It remains important for UK government and regulators to consider continued alignment with the EU taxonomy, for simplicity and efficiency of managing against both regimes,
- Insight into funding for new and emerging SMEs that are scaling up practices and business models that are critical to the circular economy.

Part 3: FinTech is the heartbeat for technology-led Green Finance

As has been proven in other areas of the market, collaboration across the sector can accelerate the scale and impact of innovation. With respect to the UK government's Green Finance Strategy, UK FinTech firms can provide goods and services to other businesses as a means of supporting their transition to Net Zero.

Opportunities include:

- Use of AI in CO₂ analytics and measurement helping to address quality and consistency and use of data,
- AI to assess and provide assurance on science-based emission targets within supply chains or investment portfolios,
- Distributed Ledger Technology and blockchain for supply chain assurance and verification,
- Plug-ins to other financial services, such as payment platforms or procurement systems. This is a rapidly growing area, including FinTechs such as: Joro (algorithms that calculate consumer emissions) and Plaid (an open banking platform provider) offers spending analytics to give insights into how purchases are contributing towards carbon emissions,
- Embedded FinTech solutions that connect objects and financial services. For example, building on smart meters to integrate finance, energy and

emissions information and management.

FinTechs have the capability to provide the tools, infrastructure and technology solutions for financial institutions to take action on climate change. This will provide transparency on emissions across portfolios, assessing and mitigating risk in individual transactions, supporting investment decisions and portfolio management, and enabling the customers of financial institutions to adapt.

A case study of how digital bank Oxbury works with the UK agriculture and food sector is set in this report. This is an example of how technology-based financial services can work with a specific sector to achieve climate and environmental objectives.

This approach could be extended to other sectors, perhaps with encouragement from the government and regulators. As noted elsewhere in this response, the government and regulatory action to enable open data across the economy (or 'smart data' initiatives) will enable the connection of financial data with 'real economy' data to enable more accurate, cheaper, and faster measurement and reporting and can unlock tech-based solutions that support Net Zero transition pathway plans.

“ The standard response to climate issues is that there is insufficient data to act, and that we need more data – this is not true. People can often get overwhelmed by the variety and types of different datasets available and so need support to understand what data they need, what the data says, and how to use it.”

- Doogie Black,
European Lead, XDI

For this to scale, the innovation from new entrants like Oxbury need to be replicated in other high carbon sectors such as buildings and real estate (Net Zero property), fashion/textiles, manufacturing and others. The government could support this by linking green FinTech to government sector-based strategies: ensuring sector strategies for Net Zero (including transition plans) include engagement of Financial Services to align with financing the transition and transitioning existing finance.



3.1 Case study: Oxbury

Oxbury Bank is the only FinTech dedicated entirely to British agriculture and the food supply chain and has had a commitment to Net Zero from inception. Oxbury provides specialised lending and payment solutions exclusively to farmers, agri-food businesses, and the rural economy. The agricultural industry has an important journey to reach Net Zero - the National Farmers Union has set a target for 2040. Oxbury leverages its proprietary core banking, data management and banking-as-a-service infrastructure to facilitate this transition by providing capital to the industry through climate initiative lending. This includes lending focussing on specific farming needs such as carbon sequestration projects and animal welfare improvements as well as renewable energy projects and infrastructure and productivity improvements. Oxbury is working on building a payments ecosystem to support the farming community as the solution to Net Zero transition for other sectors via nature-based solutions to address the wider economy's scope three emissions and biodiversity net gain.

“ There is really urgency around taking inspiration from FinTech as a catalyst for transforming the way the sector works. This needs to be done in two ways: bringing new products and services to the market that enable FinTech to show the way, but also to see FinTech work much more proactively and be considered as a solution in the core of banking”

- Stephen Dury

Activities include:**Knowledge-sharing:**

Oxbury is a premium partner to Farmers Weekly's Agriculture Transition project designed to upskill the industry on changing policy and management practices.

**Product design:**

Oxbury Forest Saver, the UK's first savings product that enables customers to use deposit funds to plant trees in lieu of earning interest on their savings. These trees are only planted in the United Kingdom in accordance with the internationally recognised leading standard of the Woodland Carbon Code, not only thereby sequestering carbon, but enhancing biodiversity and delivering natural capital assets of cleaner air and water as well as assisting rural communities through supporting employment opportunities. The product was piloted in 2021.

**Product categorisation:**

all lending products are to be categorised as to their emissions profile, first on a qualitative basis and eventually on a quantitative basis. 70% of loans made in 2021 were allocated for climate positive aligned purposes including development of renewable energy.

**Pilot projects:**

Working with industry partners in the food supply chain and a select group of farmers in both the diary and arable sectors, these projects fund and demonstrate how farmers can enhance their production methods to lower emissions and access nascent carbon markets.

**Renewable energy:**

involvement in a marketplace for the financing of rural renewable energy projects.

Whilst there are a growing number of new and established FinTechs in the market with a focus on mobilising private investment into transition activities and projects, there remain several barriers to this operating at scale. Most critically, mobilisation of private investment at scale will require confidence and trust in the quality of the data, insight and monitoring of the net carbon reduction impact of specific projects and activities seeking investment. This confidence has been impacted by the growing wave of funds and projects being removed from 'sustainability' lists due to the continually evolving data and regulatory landscape for labelling, governance, and supervision. To this end, it is imperative to understand the timeline for the UK taxonomy with context to commonality and differences with approaches taken across other global markets.

These projects will also need to find new distribution models, in addition to traditional channels, to improve speed and agility to scale. New distribution models with technology at the centre such as those pioneered by peer-to-peer FinTech lenders (e.g., Funding Circle during the financial crisis and Covid-19 pandemic) could be powerful in accelerating the transition. To this end, there are a growing number of new FinTechs focused on enabling new distribution models that bring greater confidence and trust to the quality of an investment by providing complete transparency at an individual project level of the carbon impact assessment and ongoing monitoring.

The latest FCA Green FinTech Challenge 2021 includes a strong focus on learning from FinTech in areas that present fundamental challenges to accelerating the transition to Net Zero. Most notably, addressing the current data inconsistency, inconsistent measurement standards and tracking and improving accessibility to Green Finance. Learnings should be taken from FCA Green FinTech Challenge participants such as

GreenGrowth, Civeq and CarbonLaces, among other FinTechs in the market, as a source of inspiration to shape the future target model for the UK.

The UK can put into place the foundations required to become a leading global hub in structuring and innovating on transition finance. This can be achieved through increasing availability and accessibility to data and insight on the users, risks, and growth opportunities alongside providing clarity on approaches to measuring, labelling, governing, and supervising the design, delivery and scaling of new transition finance products and services in the market. Please see Section 2.6 for several examples of this.

FinTechs can create superior platforms and approaches for accessing, using and enhancing the quality of data available for activities such as materiality risk assessment, improved risk modelling, decisioning and monitoring and the development of targeted financing solutions into high carbon intensive sectors (e.g., agriculture, construction, foods, fashion).

As outlined, there are a number of roles that the UK government can play to support the development of transition finance markets in the UK and internationally.

Importantly, as has been seen from the growth and impact of FinTech across all areas of financial services, it remains critical for the UK government to champion innovation, collaboration and collective action across the sector to accelerate R&D, learning and to scale new strategies and new entrant brands that bring competition and innovation.

It is imperative to look beyond the established markets, brands and solutions for ways to rethink an accelerated transition. It is important to use learnings from the financial crisis and Covid-19 pandemic, where evidence shows the scalability and impact FinTech can have

on scaling finance. For example, non-bank, FinTech based 'alternative lenders' delivered around 22% of Coronavirus Business Interruption Loans Scheme (CBILS) loans, more than double their pre-crisis market share - demonstrating their ability to deliver funding where it is needed.⁴

One area of focus is to better define the roadmaps for critical high carbon sectors as part of UK governments' industry strategies (agriculture, construction, energy) to enable targeted transition finance and innovation, that is anchored in longer term strategies to bring greater confidence and investment. A number of players in the market are leveraging 'science based' targets at a sector-by-sector level to set out clearer pathways with associated targets and monitoring. However, as referenced elsewhere, this is not currently happening under a standardised or recognised methodology meaning the measurement and data is inconsistent.

A number of Innovate Finance members, and participants in the Innovate Finance Net Zero Working Group such as Eigen Technologies and OakNorth, are already collaborating across the sector, in the UK and globally, to address these challenges.

⁴<https://www.innovatefinance.com/news/alternative-lenders-delivered-for-small-businesses-during-covid/>

3.2 Case study: Eigen Technologies

Eigen Technologies is an AI platform using Natural Language Processing (NLP) technology to process documents to extract data across finance, insurance, law, manufacturing and professional services. In order to steer the financial system towards Net Zero, there needs to be full data transparency so that individuals and companies can understand the impact of climate change on their investments. Eigen's NLP technology supports this by providing rigorous assessments of ESG reports and commitments. Their assessment of the qualitative data underpinning the financial system enables better ESG compliance and makes it easier to identify 'greenwashing'. Such ESG reporting will support the shift in investment away from carbon intensive activities and towards low/zero-carbon and those businesses implementing science-based targets for transition to Net Zero.

3.3 Case study: OakNorth

The physical and transition risks posed by climate change greatly threaten the viability and credit worthiness of all businesses. As such, there is a need to revalue how balance sheets, income statements and operating models of businesses are assessed by lenders. OakNorth's Climate Change Risk Framework, part of the ON Credit Intelligence suite, is a cloud software which provides insights to help US banks and financial institutions get ahead of both the risks and opportunities posed by climate change and the growing regulation in this area. The software provides portfolio and credit analysis to assess financial risk of climate change, and is driven by granular, sector-specific data. As a credit risk management tool, it looks at the impact of different scenarios of climate change, such as varying degrees of temperature

rises (1.5, 2.4 and 2.8 degrees Celsius), across various sub sectors of the US economy and across various timeframes (5,10,20 and 30 years).

This is an emerging area for the market that will be shaped by the development and implementation of the Taskforce for Nature-Related Financial Disclosure framework, building on Taskforce for Climate-Related Financial Disclosure. As outlined in previous responses, learnings from the climate related open innovation FinTech challenges, led by industry and regulators, can be a valuable source of insight. The UK government may also consider the development of a Nesta-style challenge prize designed with specific focus on encouraging collaboration to assess the current market position and development roadmap.

From a public investment perspective, the UK Government should revisit the principles and policies associated with access for SMEs to guarantee schemes, grants and public sector procurement processes with a specific focus on ensuring successful businesses have sufficient Net Zero action plans and commitments in place before awarding or approving funding. Applying a new lens to the decision-making process could leverage the Social Value Act 2012, in spirit and principle, to appropriately and proportionately consider economic value alongside social and environmental wellbeing.

FinTech can also help public authorities to become Net Zero. C02 Analysis' work with the NHS is a good example.

3.4 Case study: CO2 Analysis - Supporting the NHS to become the world's first Net Zero national health service

CO2 Analysis has used AI to analyse the coding of a large chunk of government and public sector purchasing, enabling the classification of goods and services, and calculating the carbon footprint of what is being bought by public sector organisations. This enables them to quantify an organisation's carbon footprint from the bottom up, starting with the individual goods and services, aggregating up to the individual supplier carbon footprints and finally a clear view of the overall organisational carbon footprint.

CO2 Analysis trialled this with the NHS, analysing data for around 60 NHS trusts before releasing it as a commercial product. Following launch, it was used by the National Audit Office for its analysis of consumables purchases across all of NHS England, followed by the NHS Sustainability Development Unit for its Hot Spots analysis for all Trusts.

CO2 Analysis' GreenInsight database now contains the largest global repository of carbon footprinted products and it continues to grow. Whatever an organisation is purchasing is most likely already on their system and easily identifiable to their AI - and if not, then it will be analysed and categorised to the granular level, then added to the overall information base.

FinTech finance providers will lead the way in supporting SMEs to align with climate and environmental objectives.

In terms of SME finance, since the 2008 financial crash, FinTech lenders have grown into the main providers of finance for SMEs. By 2014 the market share was roughly even as between the large banks and other SME lenders (mainly digital providers including online challenger banks and lending platforms) By 2022, the banks with the highest share of financing to SMEs were challenger and specialist banks at a record-high of 55%.⁵

The transformation of the SME lending environment has been achieved through innovation that has changed SME behaviours, created new sources of finance, improved processes, enhanced credit decisioning and enabled new business models to scale.

A number of industry and regulatory led actions have played a key role in shaping this new environment, including the Business Finance Taskforce initiatives established post financial crisis (through the BBA) and the launch of Open Banking which helped create the foundations for the category defining innovation that has reshaped the market to be more competitive and responsive.

FinTechs are also providing SMEs with the tools to measure emissions and develop Net Zero plans cheaply, easily and quickly.

⁵British Business Bank, Small Business Finance Market 2022/23, 2023

3.5 Case study: CO2 Analysis - tech-enabled SME carbon mapping and reduction tools

CO2 Analysis uses AI to help SMEs measure their emissions and become Net Zero, in a way that is affordable, saves money and increases their bottom line. AI analysis of an SME's procurement and spend generates an emissions map. Generally, the biggest spend correlates with emissions – so cutting emissions cuts costs. CO2 Analysis has mapped emissions and Net Zero commitments by many supply chain companies. This supplier data pack then enables SMEs to incorporate Net Zero into their procurement.

The UK government should focus SME financial support deployed by the British Business Bank and tax incentives for SME investment (e.g., EIS and VCTs) to align with Net Zero goals, including linking taxpayer funded lending guarantees and VC investment to commitments and action on Net Zero and providing additional incentives (e.g., lower rates or greater investment) for transition investment.

As noted above, there are many easy-to-use Net Zero solutions for SMEs provided by FinTech. The government could play a role in raising awareness of these and showing SMEs how affordable market solutions already exist.



Case studies:



Funding Options

Funding Options is an SME lending platform that has launched a Green Finance Initiative to drive sustainability into the SME lending market by connecting businesses to the funding they need to reach Net Zero. Approximately 25% of emissions in the UK are from SMEs so it is crucial that they are able to reach this goal. This transition requires capital, and this can be harder to acquire for SMEs than for larger companies. Funding Options' Green Finance Marketplace aims to make these changes easier for SMEs by closing the funding gap. The initiative matches businesses which participate in renewable or sustainable activities, sell sustainable products or services or are working on green projects with lenders. Lenders are also required to show a green commitment: e.g., by providing a product specifically tailored to the purchase or leasing of green assets; a proposition developed to support green businesses; varied pricing rates for businesses with renewable or low/zero carbon activities, products or services; and/or a sustainability, ESG or green policy. The initiative provides access to green funding enabling SMEs to reach their Net Zero goals.

“ We need to help consumers and small businesses understand the impact of their purchases and give them the information to help them choose more sustainable options. By joining up with like-minded partners, we can drive innovation and change at scale ”

- Mandy Lamb,

Managing Director UK & Ireland, Visa



CoGo

CoGo is an open banking platform that enables consumers to see the carbon impact of their purchases. The app connects to its customers' bank accounts and calculates personalised carbon footprint in real time based on spending habits and transactions. The carbon footprint calculator analyses banking data and matches each transaction to its industry. It then multiplies each transaction by the 'emissions factor' for each industry depending on how carbon intensive that industry is. The emissions factors are lower if renewable energy providers or second-hand retail vendors are used, and if you do not eat meat, for example. Seeing your carbon footprint, enables consumers to identify which activities are more carbon-intensive and helps them make more environmentally conscious choices. The app can also recommend which businesses to support and suggests personalised sustainability commitments to make positive impacts. CoGo has formed a partnership with NatWest who have integrated CoGo into the core NatWest banking app. This is being facilitated by open banking platform Tink who are providing the money management software that grants NatWest customers access to their climate insights from CoGo.



Earthchain

Earthchain provides a Carbon Intelligence Platform for users to manage their impact strategy, in addition to integrating climate action experiences into their products and services – empowering them to become a catalyst for change. Their platform includes an impact dashboard, providing real-time impact insights so that users can make data-driven informed decisions for their climate strategy, whilst providing visibility on their impact as well as the collective impacts of their customers. Their unique APIs facilitates climate action to be embedded into the users own products to give customers access to climate-friendly user experiences and the Intelligent Carbon ledger alongside the Digital Certificates provides reassurances that actions are making a real difference. This provides a global marketplace of certified climate projects for users to choose those that align with their climate strategy and goals.

Overall, a Net Zero-aligned financial centre is one where:

- All market participants and industry bodies are acting as quickly as possible to achieve science-based Net Zero targets across their scope 1-3 emissions,
- Every asset in their portfolios and balance sheets is aligned to the relevant Net Zero transition pathway,
- Investment in Net Zero solutions is incentivised and enabled,
- Support is given to others to deliver Net Zero.

In other words, it is a centre where in every entity, capital deployed, customer service and product, and activity is aligned to Net Zero. This should be achieved in ways that enable a fair and equitable transition, across global regions, communities, income groups and households, and small firms. This will be technology enabled.

Every one of the following sectors will:

- Have technology enabled Net Zero emissions and action reporting (whether across a bank portfolio or as an individual SME),
- Link all financial products to Net Zero and technology enabled, e.g., pricing and provision of insurance and debt finance linked to Net Zero progress in the individual business,
- Receive most of its financing through technology platforms who are able to target and assess specific customer pathways and progress, with technology-based assurance and verification.

The development of a Net Zero financial centre will take place in tandem with a radical transformation of financial services and systems already underway - including provisions of finance via integrated application platforms ('super apps'), deployment of advanced artificial intelligence and application of distributed ledger technology (e.g., blockchain) across capital markets infrastructure (including smart contracts and DLT records in private and public capital markets) and transformation of payments systems by stablecoin and (programmable) Central Bank Digital Currencies.

At the moment, this technological transformation and Net Zero transformation tends to be viewed separately. The two need to be considered as a whole. The technology - including blockchain - needs to have its own rapid Net Zero pathway and thinking about Green Finance needs to factor in what finance will look like in the future - not just the existing financial systems and infrastructure. This also means that as regulation of new financial services products is developed (like cryptoassets), Net Zero should be incorporated into the regulatory regime.

FinTech is already providing and developing many Net Zero solutions in consumer, business markets and financial systems. Where there are no solutions at present, Government can and should work with FinTechs to develop new solutions, which may then be scalable beyond the UK.

Part 4: Data: the key unlocking Green Finance at scale

There are five key drivers that will better support the development of high integrity voluntary markets for carbon and other ecosystem service markets:

- Monitor and manage greenwashing to ensure integrity in markets;
- Agree standards to be applied that are comparable across companies, and monitor reporting;
- Assurance standards should be enhanced;
- Assurance providers should be assessed regularly regarding the quality of assurance; and
- Technology should be deployed to robustly assess underlying assets used to secure bond offerings for compliance to standards.

Voluntary carbon markets and ecosystems services have an integral part to play in supporting the transition to Net Zero by directing private finance towards climate-related risk mitigation and nature-based solutions. Supply-side transparency and assurance are critical to build consumer trust and to create a virtuous circle on the demand-side.



4.1 Case Study: Gold Standard

Gold Standard is a climate action NGO currently running a technical study on the tokenisation and trading of voluntary carbon credits using distributed ledger technologies. Earlier in 2022, Gold Standard had to issue guidance to defend against tokenised carbon credits being used as instruments for pure speculation, rather than vehicles to finance emissions reduction projects through immediate retirement of credits. This could be an area where regulation might help to focus tokenised carbon credits on achieving tangible climate action rather than promote trading and speculation. Project developers are looking for disruptive, scaled up and efficient sales channels for their carbon credits, as registries such as Gold Standard seek to incentivise retirement of credits. Both stakeholders see the benefit in DLT for this purpose - transparency, immutability, close-coupling with funding flow, and increased volume.

In a world-leading green finance economy, supply-side transparency will be underpinned by data and distributed ledger technology. As such, the government and regulators should work collaboratively to accelerate the delivery timetable to move from open banking towards open data, which could drive exponential innovation. Additionally, regulators should continue to support – through sandboxes and scaleboxes – DLT-based assurance solutions.

Our members' experience points to a disconnect on the demand side between intention and action. While consumers wish to make more sustainable choices and lower their carbon emissions⁶, there is a lack of information about their own impact and a lack of convenient, actionable advice on how to make more sustainable choices.

This will require data across the whole economy, connecting to financial systems. Open data – or smart data – will be critical. This will require access, analysis and exchange of data across sectors and across borders.

FinTechs are providing Net Zero solutions that use payments data to measure and analyse carbon footprint. This could be expanded and combined with retail data (so a consumer can assess the footprint of each item in their shopping basket), energy usage or Google location data, allied with behavioural data from social media. Similarly, assets managers could be provided with analysis that combines finance data with transport, built environment, water and agricultural data.

To achieve this, a world leading approach to open data across the UK will be required, together with regulation of AI approaches that provide confidence and trust, and provisions in trade deals and UK data governance that enables cross border applications and meets international standards of data protection.

⁶See, for example, a recent survey conducted by Mambu: <https://mambu.com/insights/press/over-two-thirds-of-global-consumers-want-their-bank-or-financial-institution-to-become-more>

In the UK, this will require a legal right to open data and digital ID, building on the existing GDPR right to data to mandate and incentivise businesses to share data (on commercial terms). This could include a requirement on data owners to publish metadata, so innovators can see what data others hold, and a regulator to oversee fair access when commercial terms cannot be mutually agreed between a service provider and a data owner. Digital ID for consumers and development of digital company identifiers will enable further innovation in tracking individual and company emissions and Net Zero transition.

The government and regulators should recognise the critical role of technology in green finance and progress actions that further enable the development of world leading data solutions.

Further, recognising that consumer behaviour can be changed through education, targeted nudges and incentives at the point of interaction with financial services and other firms, the FinTech ecosystem has created solutions which overcome the barriers that cause the disconnect between intention and action. For example, Innovate Finance member, Earthchain has partnered with Lloyd's Banking Group (LBG):

Earthchain is a climate FinTech based in Leeds, with a platform capable of estimating CO2 emissions using retail transaction data. Earthchain was selected to join LBG's Launch 2022 programme for FinTech innovation. Together with LBG, Earthchain is developing a proof of concept to measure the efficacy of Carbon Intelligence delivered by a bank's digital channels to educate consumers and motivate them to take action to lower their personal carbon footprints.

Earthchain's solution also includes a rigorous approach to carbon offsetting – using a blockchain-based Carbon Ledger to tokenise and track Gold Standard certified carbon offsets and deliver them by the gram instead of by the tonne without compromising the integrity of the carbon market. This mechanism could potentially be harnessed to fund UK emissions reduction projects (e.g., social housing retrofit) with sufficient support from local and national government, and through the participation of retailers and banks to provide access channels at the point of purchase or in-app. FinTech has the power to lower the barriers to taking effective climate action, and to drive demand for lower impact products and services.

In a similar vein, Cogo supports major UK banks⁷, including Natwest and Santander, to integrate carbon tracking in their respective banking apps. And Tred⁸, a FinTech start up from Leeds, has centred its banking app around sustainability and has garnered significant traction.

⁷<https://www.cogo.co/>

⁸<https://tred.earth/>

In addition to the approaches set out under 'Measuring progress and scaling impact', we would also suggest tracking performance metrics based on the following areas:

- The proportion of total capital in UK markets and institutions deployed to Net Zero investment and Net Zero aligned entities,
- Percentage of total market across all financial instruments, and by category, reporting on emissions. Reported figures should include measurement of the extent to which the portfolio activities are supported by every UK based financial sector. This should apply to all sectors, including asset management, banking, primary and secondary markets, mortgage lending, SME finance, corporate bonds, retail and commercial insurance and cryptoassets.

Progress will be achieved when entire portfolios are aligned to Net Zero and new funding is only being invested in firms that are actioning a Net Zero science-based plan in parallel with transitioning existing finance over time and in balance with dependent sustainability impacts.

Achieving Net Zero means linking finance to data (tracking emissions and progress on Net Zero transition). The UK has led the development of climate data and modelling and risk data. Increasingly, access to real-time data across client's scope 1-3 emissions will be critical to providing services and products that support national and international Net Zero initiatives.

The UK can facilitate this with action to open up data across the economy. For global markets, this will need to be encouraged through trade agreements and with a UK data protection regime that ensures continued cross border transfer and storage of data.

A robust investment data ecosystem requires:

- A synthetic data market to enable development of new products. The FCA's call for input on this topic is important and should lead to action to stimulate a commercial market in providing synthetic data sets.
- Access to data: outside of a few sectors, data remains a proprietary asset with no requirements to share access with others. Opening access to all public data is a crucial first step including HMRC data (subject to consent of the entity whose data is held by the public body) and extending this to commercially held data – with a requirement to publish meta data ensuring transparency of what data is held by whom) and a requirement to provide reasonable access, on fair commercial terms, for any service provider requesting data (with consent of the data subject). This requires a comprehensive smart data programme and rights framework.
- An internationally recognised system of data protection and removal of data localisation requirements through trade agreements. Any reform of GDPR must maintain the UK's position as a jurisdiction recognised as protecting data, enabling cross border data transfers and management. In recent UK trade agreements such as the Singapore digital trade agreement, the UK has negotiated agreements on data localisation to prevent barriers to trade. Extending these to other trade agreements would be beneficial.

Supply chain impact is critical and a fundamental part of assessing scope 3 emissions. This is the most difficult aspect for measurement and any actions to increase the availability of relevant datasets would be most valuable.

Comparability is problematic as every entity uses its own methodology to assess Scope 3 emissions at this stage. Progress would be welcome on standardisation and developing the ability to compare between institutions.

To a certain extent this can and will be achieved by disclosure requirements on banks, large corporates and asset managers – and the disclosure requirements will work through the portfolio and supply chains to SMEs. The UK should ensure disclosure requirements of financial institutions extend to reporting on SME lending portfolios

The UK Government could help by supporting education, access to measurement, awareness of market solutions available already (especially low-cost FinTech solutions), and finance for transition. In particular, the UK Government could consider aligning all its SME finance interventions (e.g., via the British Business Bank) to Net Zero and providing additional mechanisms to support Net Zero transition investment in SMEs.

4.2 Case study: CO2 Analysis

Throughout this report, we recognise the need for considerable focus on reporting, and the importance of data quality and consistency. It is also critical to acknowledge the body of work that the EFRAG and EU commission are doing on financial and sustainability reporting and standardisation, with specific emphasis on climate reporting standards. The outcome of this vital work, including the first draft EU Sustainability Reporting Standards (ESRS)⁹ published in November 2022 can will provide key insights for the UK government in regard to potential alignment.

It is important to acknowledge that the CSRD will be a key component in the strategy to mandate climate reporting for thousands of companies, large and small,

with incorporated offices in Europe. With considerable work underway in the UK, Europe, and globally on data quality, usage, consistency, and accessibility, it will be important for UK government to consider the following key areas:

- Promoting global data standards,
- Leveraging EFRAG and EU commissions work on reporting,
- Supporting inter-operability and cross border transfer of data,
- Adopting a 'learn by doing' approach to FinTech,
- Embrace open access to data across the economy,
- Recognise that green finance is only possible at scale with Fintech.

⁹<https://www.efrag.org/lab6?AspxAutoDetectCookieSupport=1>



Conclusion

Developing this report in conjunction with the Innovate Finance Net Zero Working Group and industry leaders across the market has reinforced the notion of FinTech being an essential transformation agent and catalyst in the transition to Net Zero.

The case studies in this report highlight only a small fraction of the FinTechs that are bringing an innovative and disruptive mindset to current problems and opportunities facing the sector, as the need to drive faster and more impactful responses to climate change intensifies. By looking at the impact FinTech has had on the transformation of the SME lending landscape over the last decade it demonstrates how it is possible to change behaviour and market dynamics with lasting and meaningful impact.

We have showcased how Fintechs are at the heart of innovation. From brands such as Eigen Technologies and CO2 Analysis who have developed new tools and data-driven solutions delivering trusted and efficient reporting and investment decisions, through to CoGo who are helping to build consumer and small business understanding and action, at scale, through collaborations with leading banks such as NatWest in the U.K.

From embedding ESG risk in credit decisioning and asset book transition strategies at Oaknorth to dedicated sector and supply chain value propositions for British agriculture developed with Oxbury Bank, it is clear we must take inspiration and insight from the founders and teams that are pushing the boundaries in our response to the climate crisis.

Following discussions with the British Business Bank, Bankers for Net Zero and inspiring leadership team behind Icebreaker 1, we will align the efforts of the Net Zero Working group and our wider Innovate Finance membership, to fully support Gavin Stark, Icebreaker 1 and project Perseus. Project Perseus provides integral support for the UK to achieve its transition to a low-carbon economy, and to meet its net-zero emissions target by 2050. The success of the project will have far reaching benefits, from providing assurable data for banks to reduce risk in lending to SMEs, to enabling energy companies to support their customers decarbonise, and significantly

reduce the burden on SMEs in their sustainability reporting. More broadly, the project can help create new jobs and help stimulate economic growth in the UK's green economy – further strengthening the UK's position as a leader in the green finance and sustainable finance sectors. As we begin H2 2023, the project moves to the development phase as we approach the ambitious target of launching a demonstrator at COP28 in Dubai later this year. Bringing together joint Innovate Finance and Bankers for Net Zero members, including Tide, Allica Bank, OakNorth and Cogo, project Perseus shows the potential of collective collaboration in the face of generational challenges.

“ I look forward to continuing to work with our Net Zero Working group, especially elevating their voice via the Perseus programme, a Green Finance Strategy project designed to unlock net zero finance, being delivered by Bankers for Net Zero and Icebreaker One”

- Gavin Stark,
CEO, Icebreaker 1

We look forward to collaborating with the British Business Bank, Bankers for Net Zero and the Icebreaker 1 community as we work together on an unified purpose to support and scale the next generation of Climate and FinTech innovation.

Thank you for reading this report – we have accomplished much but the challenge remains unabated. The time for further collaboration and collective action is now.

About Innovate Finance

Innovate Finance is the independent industry body that represents and advances the global FinTech community in the UK. Innovate Finance's mission is to accelerate the UK's leading role in the financial services sector by directly supporting the next generation of technology-led innovators.

The UK FinTech sector encompasses businesses from seed-stage start-ups to global financial institutions, illustrating the change that is occurring across the financial services industry. Since its inception in the era following the Global Financial Crisis of 2008, FinTech has been synonymous with delivering transparency, innovation, and inclusivity to financial services. As well as creating new businesses and new jobs, it has fundamentally changed the way in which consumers and businesses access finance. FinTech is now applying that approach to the climate challenge.

In 2021, Innovate Finance published a white paper on the role of FinTech in achieving Net Zero. Innovate Finance is a signatory of Tech Zero, with a commitment to achieve Net Zero emissions in its operations as quickly as possible. Innovate Finance is committed to working together with governments, regulators, legislators and other policymakers and key stakeholders and in its external communications to promote action and market innovation to tackle climate change, achieve Net Zero and develop climate resilience. Innovate Finance champions FinTech solutions to climate change and encourages and supports the FinTech ecosystem to further develop Net Zero solutions.

Throughout this response Innovate Finance has included case studies of ways in which FinTechs are already providing Net Zero and green finance solutions, to bring to life how technology is a fundamental part of green finance.

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INNOVATE/FINANCE

Innovate Finance is the independent industry body for UK FinTech.

Our mission is to accelerate the UK's leading role in the financial services sector by directly supporting the next generation of technology-led innovators to create a more inclusive, more democratic and more effective financial services sector that works better for everyone.

Innovate Finance's membership and partnership community ranges from seed stage startups to scale up and high growth FinTechs; from multinational financial institutions to big tech firms; and from investors to global FinTech hubs. Innovate Finance supports our members and the wider financial innovation ecosystem by promoting policy and regulation that allows innovation to thrive, encouraging talent, diversity and skills into the sector, facilitating the scaling journey, fostering business opportunity, partnerships and domestic and international growth, and driving capital into UK FinTech.

By bringing together and connecting the most forward-thinking participants in financial services, Innovate Finance is helping create a financial services sector that is more transparent, more sustainable and more inclusive.

For more information, please visit

www.innovatefinance.com

Capgemini invent

About Capgemini Invent

As the digital innovation, design and transformation brand of the Capgemini Group, Capgemini Invent enables CxOs to envision and shape the future of their businesses. Located in more than 36 offices and 37 creative studios around the world, it comprises a 10,000+ strong team of strategists, data scientists, product and experience designers, brand experts and technologists who develop new digital services, products, experiences and business models for sustainable growth.

Capgemini Invent is an integral part of Capgemini, a global leader in partnering with companies to transform and manage their business by harnessing the power of technology. The Group is guided everyday by its purpose of unleashing human energy through technology for an inclusive and sustainable future. It is a responsible and diverse organization of over 360,000 team members in more than 50 countries. With its strong 55-year heritage and deep industry expertise, Capgemini is trusted by its clients to address the entire breadth of their business needs, from strategy and design to operations, fuelled by the fast evolving and innovative world of cloud, data, AI, connectivity, software, digital engineering and platforms. The Group reported in 2022 global revenues of €22 billion.

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