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THE EMERGENCE OF GREEN BANKING

An Ethical and Sustainable approach toward Global Finance.

An Infosys Consulting Perspective
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INTRODUCTION

Climate catastrophes are on the rise and causing more devastation than ever before. Widespread flooding, frequent bush fires, and droughts are causing large-scale damages to life and livelihood. Climate change is a mammoth problem that needs collective actions.

Most climate models indicate that to limit the global temperature increase to 1.5 degrees as per Paris Agreement, the world needs to radically reduce the new emissions put into the air and remove carbon already in the atmosphere.

Consumer awareness and expectations on climate have seen a worthwhile shift with the increased realization that social responsibility towards the environment requires a comprehensive approach from all stakeholders.

The general sense is that governments, businesses, enterprises, and individuals must collectively address the growing climate change concerns.

THE SHIFT IN CONSUMER EXPECTATIONS

Consumers, especially the younger generation, have shown keen interest in climate change conversations and driving a shift in green expectations.

Reduce plastic usage:

Every year, we dump 12.7 million tonnes of plastic into the world's oceans. It takes ~450 years to ~800 years for plastic to decompose in a landfill. Marine plastic affects sea life even more tragically as fishes, tortoises and other aquatic life die or get entangled in the plastic debris. Single-use plastic such as plastic water bottles have filled both land and water bodies in an untenable manner resulting in an enduring danger to planet earth.

Reduce greenhouse gas emission:

Greenhouse gas emission includes CO2, methane, and other harmful gas emissions. Fifty billion tons of greenhouse gasses get released each year. The production and distribution of food accounts for around a third of the world's total greenhouse gas emissions. In addition, human activities since the beginning of the industrial revolution have increased the atmospheric concentration of carbon dioxide by almost 50%.

Reduce the dependency on fossil fuel:

Industries across the globe are heavily dependent on fossil fuels, including coal, petroleum, oil, and natural gas, for their operations. Industries dependent on fossil fuel may need a faster transition to more reliable and renewable energy sources.

Stronger government regulations & enforcement:

By 2030, zero-carbon solutions could be needed in sectors representing over 70% of global emissions to meet the Paris agreement commitments. The landmark Paris agreement, passed in Dec 2015 and adopted by 196 parties, has limited global warming to well below 2 degrees Celsius compared to pre-industrial levels. Many climate models agree to limit global temperature increases to 1.5°C above pre-industrial levels, and global emissions must be reduced to net-zero by 2050.

More investment to harness technology:

According to PwC, carbon removal start-ups received less than 1% of VC green technology funding from 2013 to 2019. In addition, green technology itself only received 6% of total VC funding in 2019. Reaching goals required by the Paris Agreement would need funding of USD ~$30 trillion globally.

More inclusive awareness and drive for actions:

A survey from Boston Consulting Group found that 95% of consumers believed their efforts could help tackle climate change. Understanding climate change through individual actions has increased, but inclusive community actions are mostly elusive.

INDUSTRY RESPONSE

The industry's Environmental, Social, and Governance (ESG) initiatives range from providing awareness, actions, investment, and innovations on climate change. Some example industrial ESG initiatives are:

Global bank's green consortiums and alliances:

- Partnership for carbon accounting financials (PCAF) enables financial institutions to assess and disclose greenhouse gas emissions of loans and investments.
- Climate vault purchases carbon permits from cap-and-trade compliance markets and vaulting them so that emitters can't use them.
- UN principles for responsible banking framework to align with sustainable development goals and Paris climate agreement - 240 banks are signatories.
- Net-zero banking alliance, endorsed by United Nations, have at least 53 banks as part of the consortium.
- Climate Impact (CIX), global exchange and marketplace for carbon credits, will use satellite monitoring, machine learning, and blockchain technology to enhance carbon credits' transparency, integrity, and quality led by DBS, Singapore Exchange, Standard Chartered, and Temasek.
- Mastercard-led green digital finance alliance will share best practices in encouraging people to take positive green actions in their daily lives.

Global investment in sustainability:

- JPMorgan Chase announced in April '21 a target to finance and facilitate more than $2.5 trillion over ten years, including $1 trillion for green activities to advance long-term solutions that address climate change and contribute to sustainable development.
- HSBC commits net-zero operation by 2030 and promises $750b to $1 trillion in sustainable finance and investments.
- Goldman Sachs and Citi have committed multi trillions towards sustainable finance to be spent across multiple decades.

Big tech participating in ESG initiatives:

- Ant Group plans to become carbon neutral by 2030 and pledged to help bring down emissions through technological innovations. It launched Ant Forest, a green initiative on the Alipay mobile app which combines mobile transactions and gamification to encourage a low-carbon lifestyle.
- The climate pledge is a commitment founded by Amazon and Global Optimism to reach net-zero carbon emissions by 2040.
- Race to Zero is an UN-backed global campaign that aims to build momentum toward a decarbonized economy.

GOVERNMENT AGENCIES RESPONSE

Global agencies are involved in building capacity, capabilities, resources, technology, research, and policies on climate change. Some example ESG initiatives are:

Government investment push on sustainability:

- The Monetary Authority of Singapore (MAS) commits in 2019 to invest $2b to establish Singapore as a global hub for sustainability and green finance. In addition, MAS announced Project Greenprint, a technology platform promoting a green financial ecosystem through green fintech.
- The clean energy and sustainability accelerator act was reintroduced to US Congress. The legislation would allow for creating a national green bank, which would use $100b in private and public funds to invest in clean energy projects.
- European Green Deal: In Jul '21, the European Commission adopted a series of legislative proposals to set out how it intends to achieve climate neutrality in the EU by 2050, including the intermediate target of at least 55% net reduction in greenhouse gas emissions 2030.

United Nations biodiversity initiative

- The UN-backed biodiversity module has been launched to help financial institutions explore the extent to which their portfolios indirectly drive species extinction risk and impact ecological integrity.

A DEEP DIVE INTO FINTECH ESG

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Climate change is also the 'biggest investment opportunity since the internet' (~$30 trillion market opportunity). As a result, fintechs are pitching distinct offerings responding the customer demands. These ESG initiatives are focused on innovations, differentiated value propositions, and enabling sustainability. A few specific fintech offerings are:

Digital Neobanks:

- Planting-a-tree: Bunq, a Dutch bank, plants a tree on card spending and has planted 2.8 million trees on behalf of its customers through its partnership with the Eden Reforestation Project. Tred also offers planting-a-tree on card spending.
- Recycled plastic cards: Starling Bank and GoHenry provide recycled debit/credit cards.
- Cleaning oceans: Currensea cleans up oceans for every £1 spent on its debit travel card.
- Sustainable purchases: Spain's Mitto provides a CO_2 tracker on purchases and compares them with other friends' purchases.
- Wooden cards: Treecard offers a wooden debit card that helps plant trees with every purchase.
- Sustainable living: The banking app from Novus encourages sustainable living.

Responsible lending and ESG Investment Platforms

- ESG Investment: Plum, Endowus and Inyova provide ESG investment portfolios for retail investors.
- ESG pension funds: PensionBee, Moneybox and Profile Pensions offer fossil-fuel-free pension funds.
- Compare investment: Sugi’s money hub-powered portfolio checker allows retail investors to compare investments with industry benchmarks.
- Responsible financing: Climate First Bank offers environmentally friendly financing. Bluecell has also teamed up with STACS for blockchain-powered green loans.
- Carbon-credit: Pachama is building a marketplace for carbon credits – afforestation.

Technology Enablers

- Carbon footprint: Doconomy and Enfuce offer carbon calculators that can be integrated with apps to give customers a snapshot of the emissions generated by their purchases.
- Credit decisions: Aquaoso helps to make better lending decisions surrounding water.
- ESG index Insurance: CelsiusPro specializes in industrializing index insurance solutions.
- ESG APIs: Earthbanc has partnered with Swedbank for sustainable finance APIs.
- Carbon offset rating: Sylvera built a platform that independently rates carbon offset projects.

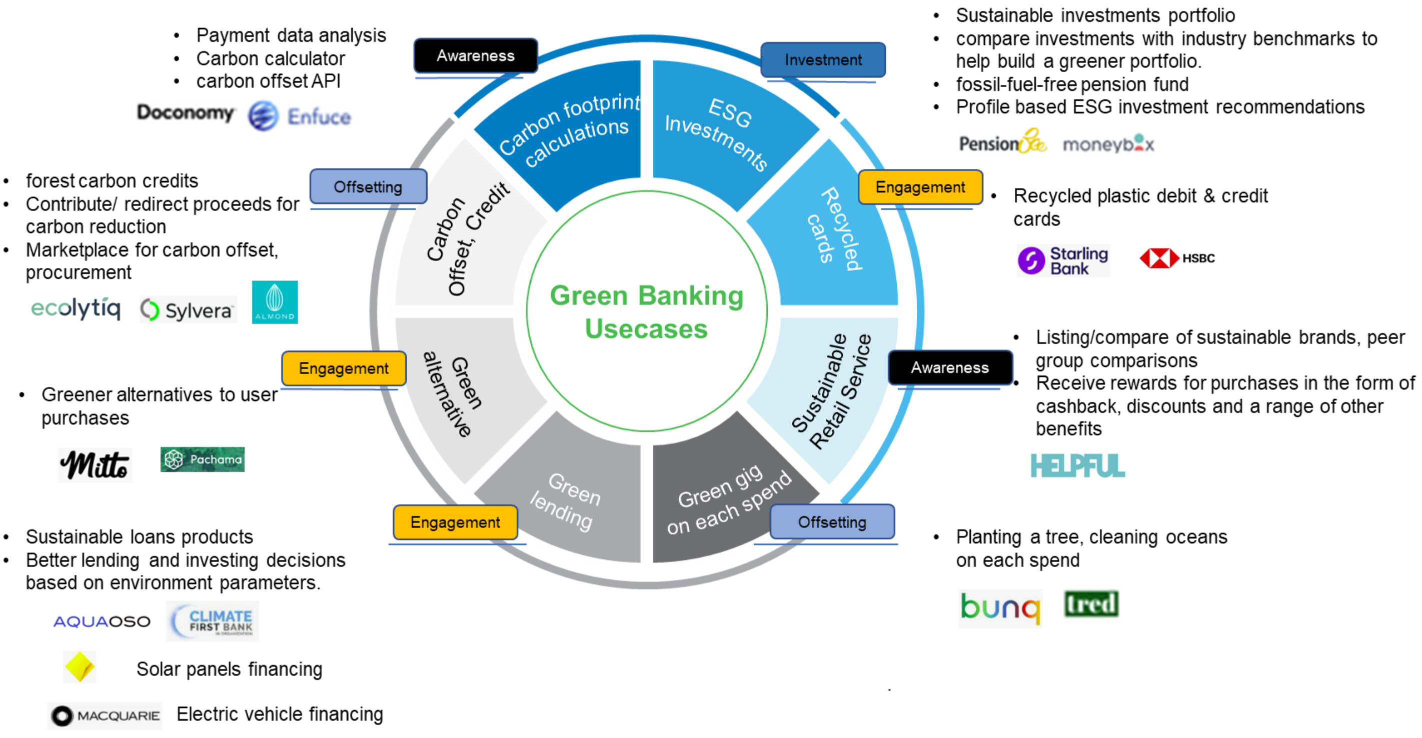
Established Fintechs

- Climate donations: Stripe Climate allows clients to direct a fraction of their revenue to help scale carbon removal technologies.
- Forestation: Ant Group launched the Ant Forest initiative. As of March '20, ~550m people had joined Ant Forest.
- Carbon calculations: Mastercard has teamed up with Doconomy to develop a carbon calculator for banks.
- Recycled plastic cards: Bank of Queensland partnered with Placard to roll out recycled debit/credit cards in Australia.
- Marqeta will issue recycled plastic cards partnering with RePurpose Global.
- C02 tracker: Klarna joined the Climate Pledge and released the CO2 tracker.
- Funding: Triodos bank funds entrepreneurs on sustainable innovations.

GREEN BANKING TREND

Due to their branchless and paperless business models, most digital banks are considered relatively greener than their traditional counterparts. Globally, banks are recognizing green banking trends and institutionalizing decarbonization teams to capitalize on climate positions.

Some of the green banking use cases are:



- **ESG investment:** ESG investments exclude companies that generate 30% or more of their revenues from coal-related activities, weapon manufacturers, tobacco companies, and companies that do not comply with the United Nations global compact.

- **Virtual card recycled plastic cards:** Credit/debit cards from recycled plastic. Virtual card issuance and getting rid of plastic cards.

- **Sustainable retail service:** Reducing carbon usage in the entire supply chain.

- **Green spends:** Plating a tree, cleaning oceans, and other gigs based on customer spend.

- **Green lending:** Lending for energy-efficient initiatives such as solar panels, electric vehicles, renewable energy projects, green efficient home building and others.

- **Green alternative spend:**

  Providing alternatives and comparisons for purchases for sustainable living.

- **Carbon credit:**

  Providing carbon credit for controlled emission of carbon.

- **Carbon offset:**

  Calculating carbon impact and offsetting the effects by supplement actions such as equivalent afforestation.

- **Carbon footprint calculations:**

  Carbon calculations powered by the independently verified indexes (such as Åland Index) can be enhanced by banks with relatable and easy-to-understand equivalents, such as the number of trees required to absorb the same amount of CO2 and tips about living more sustainably.

Sustainability-as-a-Service (SaaS) business model for financial institutions

The SaaS business model provides a way for greater financial sector involvement in sustainability. Through the model, sustainability can be addressed with easy, automatic, engaging value propositions - opening new revenue streams for financial institutions.

• **Strengthening resilience to environmental risks:** Building robust risk management for sustainable lending, procurement, ESG scorecards, and ethical ESG banking**.**

• **Developing solutions for a sustainable economy:** Solutions that inspire sustainable living, sustainable purchases, and providing choices.

• **Harnessing emerging technology:** Technologies that drive and are driven by low carbon usage, cleaning up current emissions, and monitoring net-zero targets.

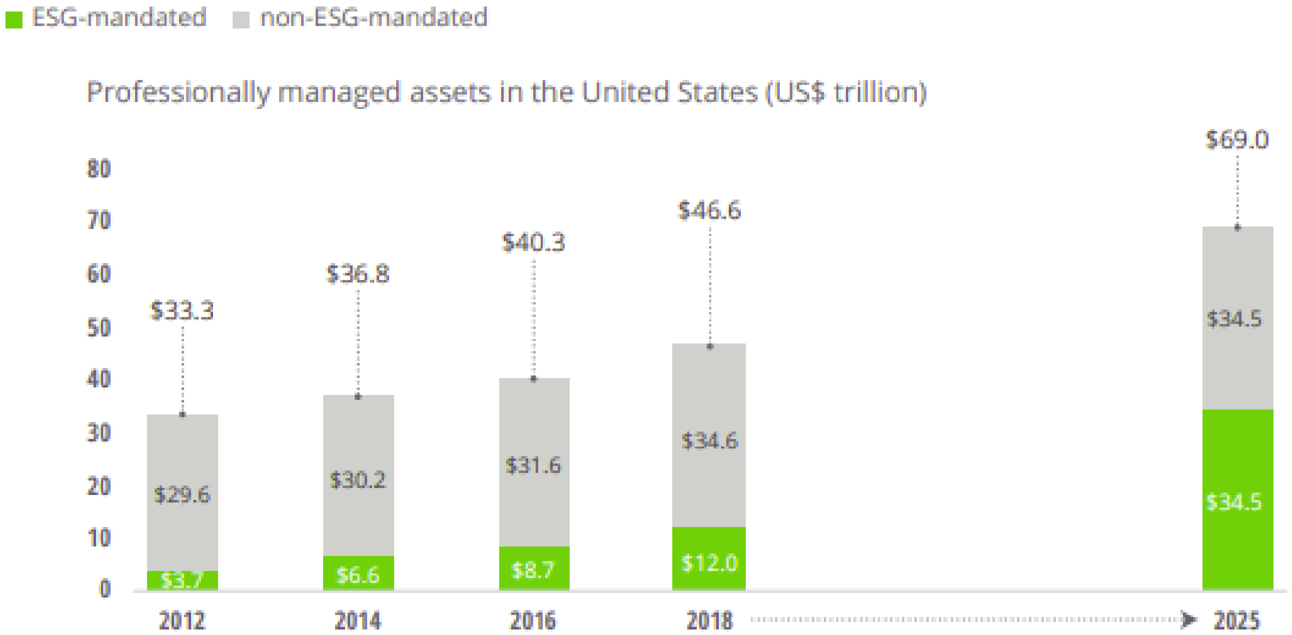
• **Building knowledge and capabilities in sustainable finance:** Digital transformation of banking and investment processes, and diversified data collection for responsible lending decisions and building awareness.

Fintech Ecolytiq provides a sustainability-as-a-service solution enabling financial institutions to offer their customers carbon footprinting, offsetting, and ESG investments. Their customers include Visa and Novus.

Sustainability-as-a-Service (SaaS) new revenue stream for banks

The SaaS model offers new revenue streams opportunities for banks from investment to embedded finance.

- **ESG investment:** ESG assets should continue to grow at a 16% compound annual growth rate (CAGR), totalling almost US$35 trillion by 2025. Globally, the percentage of both retail and institutional investors that apply environmental, social, and governance (ESG) principles to at least a quarter of their portfolios jumped from 48 percent in 2017 to 75 percent in 2019.



Source: Deloitte: Advancing environmental, social, and governance investing

Some of the fintech providing ESG data are Equileap (gender equality), Ecogain (biodiversity), RepRisk (reputational risk), Munich Re (climate risk), Inmate (carbon emissions), Upright Project (net impact), Clean Tech (renewable technology), TruValue Labs (monitoring ESG data based on SASB framework), and Arabesque (filtering companies based on personal values).

Globally, ESG data is rapidly transforming into a mini industry of its own, with some 200 data providers and a plethora of Fintechs already operating in the market.

According to a survey by Kearney, 1 in 4 UK customers are likely to switch banks due to banks not being active on ESG.

- **Recycled plastic cards:** Recycled card issuance as a service can facilitate a new economy from the in-store point of sale physical card issuance, white-labeled card issuance product for SMEs, and embedded card issuance opportunities. HSBC's recycled debit/credit cards are estimated to save 161 tonnes of CO_2 and 73 tonnes of plastic per year.

A more significant opportunity stands for virtual card issuance for customers with digital wallets. Marqeta has issued more than ~270 million cards globally since its inception in 2010. Marqeta has also partnered with Afterpay for both physical/virtual card issuance in Australia.

- **Carbon footprint calculators:** Banks have renewed an opportunity for ecosystem banking to integrate with e-commerce players offering carbon calculators by analyzing/categorizing payment transaction data.

For example, Mastercard, Standard Chartered, and a few other fintechs use doconomy solutions to provide digital tools to track carbon emissions and freshwater consumption on goods bought utilizing the bank's credit and debit cards. The carbon calculation is based on Åland Index. Åland Index solution is a joint venture between Ålandsbanken & fintech Doconomy.

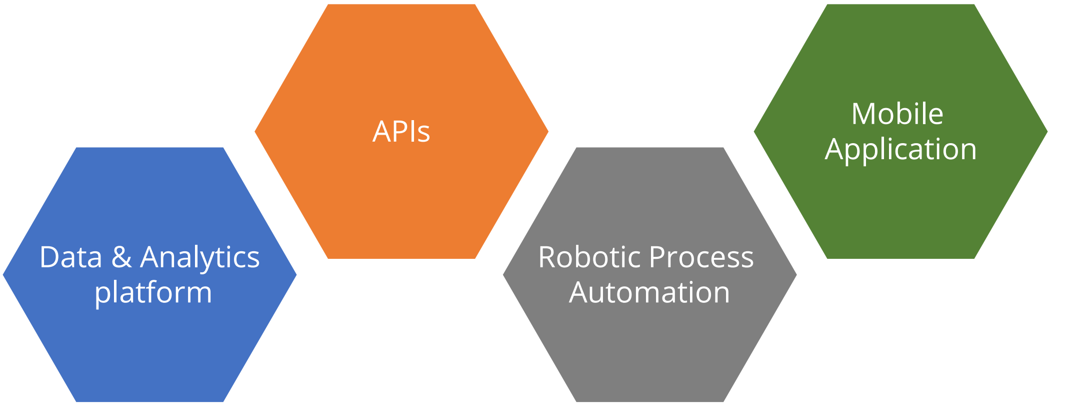
- **Green lending:** 70-90% of legacy bank revenue is through lending and mortgages. Banks can build a green lending information management platform that provides a repository for green lending statistics and analytics, green lending regulations, and green lending policy implementation reviews across the country, built using data, AI, and cloud technologies.

Such repositories can help banks make better lending decisions and lending for energy-efficient initiatives such as solar panels, electric vehicles, renewable energy projects, green-efficient home building, etc.

- **Marketplace for carbon credit:** Offering carbon credits and monitoring carbon offsets for businesses using AI, data and analytics provide new revenue stream prospects for banks. As companies and governments strive towards net-zero emission goals, carbon credits and carbon offset offerings mature into a profitable business for banks.

Technology in Financial Service's Sustainability-as-a-Service

Enabling sustainability-as-a-service with emerging technologies facilitates exceptional consumer experience. The capability building blocks require the following:



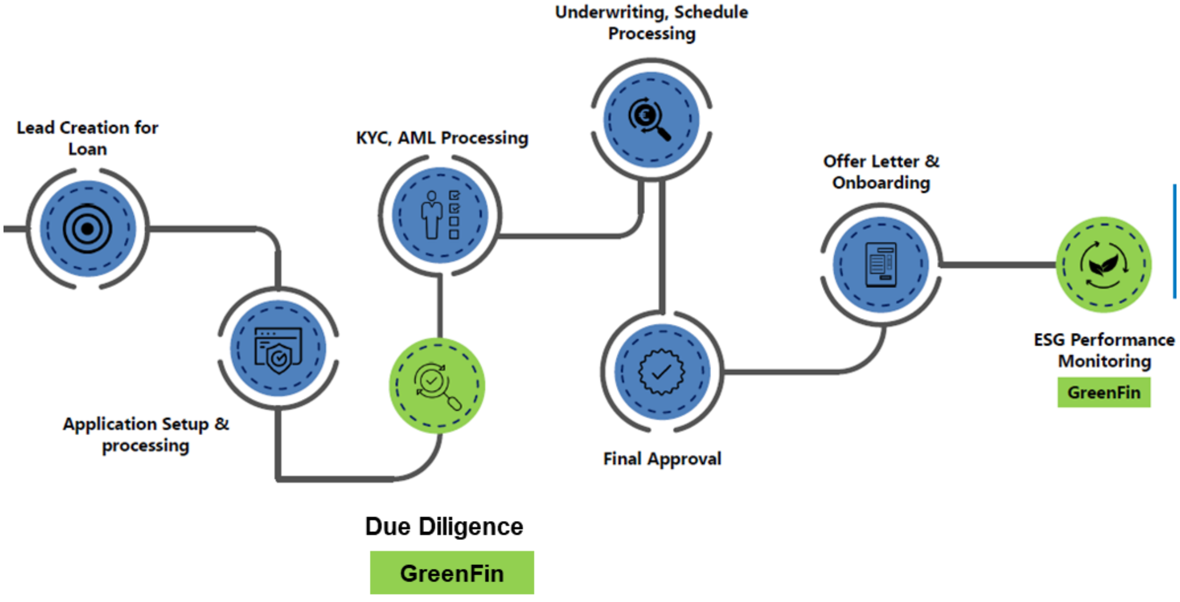
ESG Capability	Technology
Digital finance	Cloud, big data, AI, mobile, blockchain and IOT
ESG investment	Data and analytics platform, AI
Carbon tracker	APIs, AI/ML
Carbon credit & offsetting	Data and analytics (big data) platform, AI image processing
Regulatory compliance	Data and analytics (big data) platform
Process automation	RPA, bots
Sustainable lifestyle	The mobile app, gamification

Infosys GreenFin Solution

Our SaaS cloud-based GreenFin solution offers automated and accurate due diligence management for lending, enhanced green finance and ESG portfolio tracking, superior stakeholder experience, and efficiency in overall green finance compliance.

The GreenFin solution provides:

- **Preconfigured template for due diligence**: Due diligence form and template with questions across ESG components.
- **Due diligence app**: A one-stop solution for front-line due-diligence officers.
- **End to end process for due diligence**: Business process flows for managing the creation, capturing, and publishing of due diligence response.
- **Stakeholder management with notifications**: Automated notifications for various stakeholders involved in the due diligence process.
- **ESG performance monitoring**: End to end process and placeholders to capture and rate ESGs of existing customers.
- **Dashboards & insights**: Intuitive dashboards and reports to visualize due diligence and ESG performance data.



Infosys GreenFin Solution Workflow

CONCLUSION

The immediate need for green planet initiatives spurs renewable and sustainability propositions. However, to remain relevant and competitive, banks must engage customers with highly personalized and timely content on sustainability to build loyalty.

Customized content with tailored communication such as carbon footprint calculations delivered at the right time through the customer's preferred channel can help banks maximize each customer's value and reinforce the organization's market leadership.

ESG investment portfolio and green lending propositions can facilitate banks to build a green-first bank fuelled by a rich mixture of internal and external data. In addition, the core technologies and data capabilities to create a green banking stack can support banks for future sustainability opportunities.

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MEET THE EXPERTS

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