TATA CONSULTANCY SERVICES

Building on belief

Building a sustainable core for financial institutions

Abstract

Global CO_2 emissions continue to rise and adversely impact the environment. Despite a sharp drop early in the pandemic, emissions have bounced back with post-pandemic recovery and rebound of carbon-intensive industries like oil and gas, transport, energy, and agriculture. The UN and central banks worldwide mandate financial institutions to pursue climate change reversal actions and are increasingly nudging banks toward sustainable investments or funding of activities that lead to lower carbon emissions. The paradigm shifts of moving from traditional to sustainable ways of doing business have brought multiple challenges for financial institutions. Positioned at the center of change, financial institutions are broadening the sustainability impact of their business by creating hydrogen banks, carbon banks, and more, to help their customers to move to a net-zero carbon economy. This white paper touches upon the role of technology in bringing sustainable practices into the financial sector and how a technology-led framework can drive CO_2 emission reduction. This framework could assist financial institutions significantly in process optimization and transition toward net-zero emissions.

The role of technology in driving sustainability in financial institutions

As industry verticals have now become interdependent, financial institutions are going beyond their core functions to lead the way for a sustainable future with targeted green finance and large sustainable investments or loans. There is an increasing focus on accelerating new ideas to embed sustainable practices through in-house accelerators or partnering with external entities. Besides, financial institutions are adopting new technologies for real-time monitoring and auditing of their processes and services.

Industries such as agriculture, energy, transportation, and real estate present various opportunities for energy transitioning and reducing CO_2 emissions. To foster a culture of sustainability in these industries, financial institutions must play a significant role in helping them achieve carbon neutrality through a technology-led approach (see Table 1).

Industry	Opportunities for financial institutions
Agriculture	Financial institutions providing services independently to agricultural ecosystems must introduce a holistic farming ecosystem to: ▪ Improve methods of land management and farming ▪ Curtail greenhouse gases while preparing for various agricultural and livestock needs ▪ Support sustainable transition for regenerative farming
Energy	Financial institutions must reduce funding of non-renewable products in the energy sector. However, there are wider opportunities available to: ▪ Move toward renewable energy sources and incentivize the efforts ▪ Adopt hydrogen as a potential alternative to carbon and create new business models ▪ Capture carbon and store it in the land (carbon sequestration)
Transportation	Financial institutions must identify avenues to bring efficiency through connected mobility and by leveraging the sharing economy. While a technological driver is needed to ease the transition, financial institutions must divert funds toward activities that: ▪ Drive a shift to greener sources of fuel ▪ Increase the efficiency of current vehicle design, maintenance, and servicing enhance the fuel efficiency of vehicles ▪ Incentivize better driving practices and behaviors (ride-sharing, public transport, bicycles, and more)
Residential buildings	Financial institutions must support the real estate sector to integrate sustainability in its processes. While there are targeted efforts by new councils and supporting ecosystems, the sector needs experimentation to: ▪ Achieve energy-efficient homes and buildings for conservation ▪ Incentivize new climate-friendly behavior with rewards ▪ Calculate carbon footprint to make homes more energy-efficient

Table 1: Emerging opportunities for financial institutions within respective sectors

An integrated framework for building sustainability

Financial institutions need an integrated and flexible framework to infuse sustainability into the core of their organizations. As opposed to distributed efforts, a unified and holistic approach can create maximum impact both at the organization and ecosystem levels. This framework comprises the ecosystem, data, technology, and enterprise fabrics required to trace the impact of the sustainability-related investments (see Figure 1).

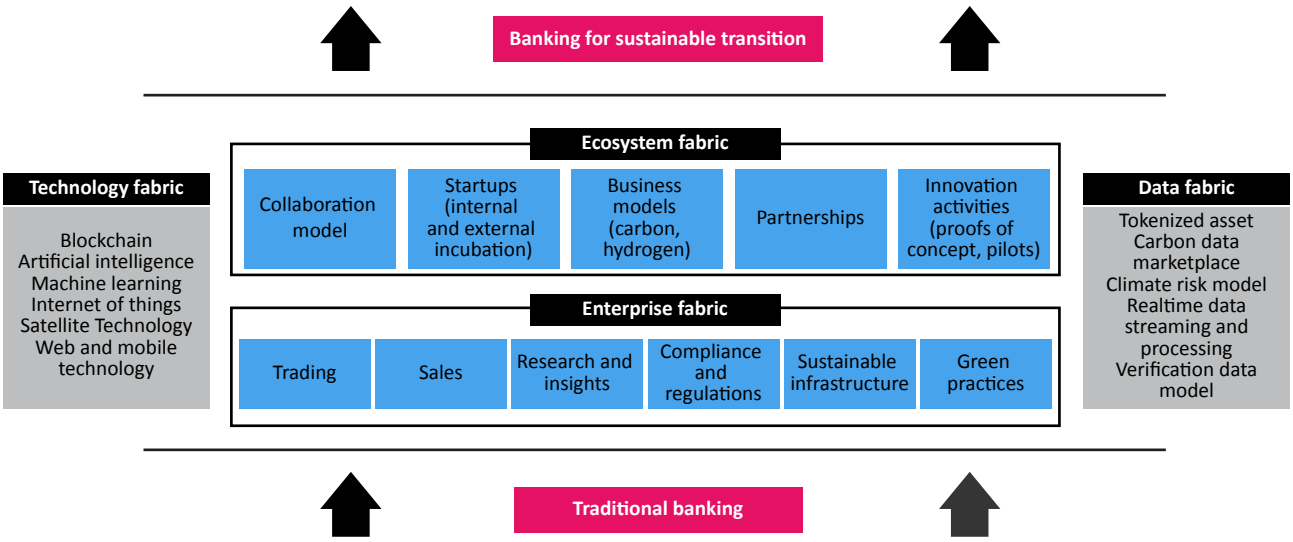

Figure 1: Combining ecosystem, technology, data, and enterprise fabric to build sustainability

Ecosystem fabric

The ecosystem layer accelerates the process of goal achievement and business growth through the power of collaboration with startups, organizations, and clients. Exploring new business ecosystems (carbon, hydrogen, and more) and activities (experimentation, validations, and pilots) helps adopt innovative partnership models for energy transition. Financial institutions could strengthen their network by embracing emerging technologies, partnering with fintech startups, and collaborating with technology partners to build working prototypes to accelerate carbon neutrality for both parties. For example, Deutsche Bank is set to cement its position in sustainable finance by joining the German-Australian Hydrogen Alliance. With this partnership, Deutsche Bank plans to help clients execute sustainability strategies and drive investments into emerging sectors.[1]

Enterprise fabric

This aspect is all about bringing efficiency into the prevailing way of doing business and conducting technological operations both internally and externally while incorporating 'sustainability by design' at every step. Financial institutions need to become autonomous and smart to enable sustainability at the core. Banks are taking baby steps to achieve this goal by adopting new business models. For example, Rabobank recently launched the Rabo Carbon Bank pilot to identify tailored practices that lead to better soil health and carbon sequestration.[2]

Technology fabric

Each of the technologies, including blockchain, artificial intelligence (AI), machine learning (ML), internet of things (IoT), and geographic information systems, have been the medium to achieve efficiency in many sectors. Building a core with a mix of technologies would potentially be the best way to mitigate future risks. Financial institutions should leverage such technologies to reach the target audience, incentivize, monitor, and influence the actions for a quicker green energy transition. For example, Rabobank, in collaboration with HomeQgo, offers customers and non-customers sustainability advice and quotes for home improvement projects in order to help make homes more sustainable.[3]

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[1] Deutsche Bank AG; Deutsche Bank joins the German-Australian Hydrogen Alliance as the inaugural Presenting Partner; October 2021; Accessed November 2021; https://www.db.com/news/detail/20211007-deutsche-bank-joins-the-german-australian-hydrogen-alliance-as-the-inaugural-presenting-partner?language_id=1
[2] Business Wire; Rabo Carbon Bank Launches First U.S. Pilot with Rabo AgriFinance Clients; August 2021; Accessed October 2021; https://www.businesswire.com/news/home/20210830005199/en/Rabo-Carbon-Bank-Launches-First-U.S.-Pilot-with-Rabo-AgriFinance-Clients
[3] Rabobank; Rabobank and HomeQGo launch new HuisScan; September 2020; Accessed October 2021; https://www.rabobank.com/nl/press/search/2020/20200929-rabobank-en-homeqgo-lanceren-nieuwe-huisscan.html

Data fabric

Financial institutions must build a core data foundation to experiment and incorporate new data models. These data models will help in new business model creation, faster decision-making, and transparent reporting. Data fabric essentially focuses on alternative assets and activities like carbon exchange, carbon sequestration, and hydrogen risk profiling. For example, in the agricultural domain, data models pertaining to soil health assessment can provide insights that banks can leverage to make informed decisions while extending credit to the farmer community. This will help financial institutions support their clients' move toward sustainable farming practices while farmers benefit from the insights and finance, resulting in better yield.

Embedding sustainability at the core

As a vital enabler of sustainability across industries, financial institutions must develop an incremental plan and embed sustainability at the core through four steps: assimilate, advocate, accelerate, and adopt. Financial institutions must embrace the 'sustainable by design' paradigm and implement the four steps in a timely manner to facilitate a seamless energy transition.

- As part of the 'assimilation' step, financial institutions must co-create an energy transition approach and transformation roadmap for every sector or organization and onboard the right stakeholders. They can assess the organizational capabilities and gaps using the integrated sustainability framework and work closely with policymakers to enforce regulations and compliance.

- The next phase of the plan includes 'advocating' sustainable practices within the client network by leveraging contextual knowledge. As a strong proponent of sustainability, financial institutions can initiate innovation, advisory, and consultancy services and provide bespoke training, tools, and techniques by bringing in industry practitioners, which will help clients embark on their energy transition journey.

- Further, as part of the 'accelerate' step, financial institutions must adopt an inclusive impact approach and create and join new ecosystems focused on sustainability. They must rapidly assess the market, business, and customers to create new value propositions. Herein, financial institutions need to initiate small-scale pilots to test and validate new business models and technologies in a pre-built sandbox environment. They should establish business-outcome-based partnerships with emerging startups in areas like carbon, hydrogen, climate tech, and clean tech, and co-create new propositions for rapid validation.

- Lastly, financial institutions must 'adopt' an enterprise-wide, scalable platform to manage the supply and demand of carbon and hydrogen credits. To this end, the implementation of systems to continuously monitor and measure the impact of farming activities on carbon sequestration will help increase the quantum of tradeable carbon assets. At an enterprise level, financial institutions must integrate 'sustainable by design' principles in business and IT operations, and create and incentivize sustainable products, services, and practices. This will eventually help organizations assimilate the right knowledge, create sustainability-related awareness within their ecosystem, accelerate the proposition development, and facilitate adoption at scale.

Treading the sustainability path

A robust sustainability strategy must start with an executive commitment at the board level and define a roadmap aligned with corporate strategies to drive enterprise-wide change. Additionally, a sustainability task force should be formed at an organizational level to quickly mobilize on-field efforts. Financial institutions should actively participate in their clients' energy transition journey and leverage technology to experiment, accelerate, and scale sustainability efforts in the right direction.

About the authors

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Shantanu Talukdar is a chief innovation evangelist in TCS' Banking, Financial Services, and Insurance (BFSI) business unit. With expertise in platform business and supporting clients in creating new business models and products by leveraging technologies, Talukdar supports leading financial institutions across Europe in digital transformation and sustainability initiatives. He drives partnerships with leading organizations from idea conceptualization to execution and helps accelerate the pace of innovation by introducing best practices. Talukdar also mentors startups as part of corporate accelerator programs and is a mentor at Startupbootcamp Amsterdam and in TEDx Amsterdam. His key focus areas include platform and beyond-banking business models leveraging technologies like AI, IoT, blockchain. Talukdar holds an MBA degree in telecom and marketing management.

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Vivek Chondagar is an innovation champion with TCS' Banking, Financial Services, and Insurance (BFSI) business unit. He focuses on carbon banking, agriculture, and sustainable mobility. He looks at innovation holistically and has a keen interest in leveraging the human-centered design process to enhance the impact of products and services as well as identifying unconventional use cases to build a sustainable future. In his previous role, he worked in the area of digital social innovation. Vivek holds a bachelor's degree in Engineering from L D College of Engineering, Ahmedabad, a master's degree in Design from National Institute of Design, Ahmedabad, and a master's degree in Psychology from Indira Gandhi National Open University.

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