

## HARNESSING FINANCIAL TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT: KEY MESSAGES

- *Finance is a system in constant flux – and financial technology (fintech) is now emerging as a powerful driver of disruption with profound implications for sustainable development.*
- *The use of technology in finance is of course not new – but a step change is now expected with the novel application of a number of technologies in combination, notably involving blockchain, the ‘internet of things’ and artificial intelligence.*
- *UN Environment commissioned an initial landscape review of the potential for fintech to advance sustainable development.*
- *Technological innovation is already offering sustainability solutions across the five core functions of the financial system: moving value; storing value; exchanging value; funding value creation; and managing value at risk.*
- *Fintech offers the prospect of accelerating the integration of the financial and real economy, enhancing opportunities for shaping greater decentralization in the transition to sustainable development.*
- *There is a range of both transitional and more structural unintended consequences, however, with potential downside risks for sustainable development.*
- *Policy interventions can be active on both the fintech supply-side and on the manner in which financial system development is aligned to sustainable development. Some key steps in the fintech for sustainable development innovation journey could include:*
  - *Ensure that fintech is an integral part of financial system development plans and roadmaps focused on financing sustainable development, particularly at the national level, and especially for developing countries.*
  - *Establish a platform of leading fintech companies, working with others to influence the right enabling businesses, policies and standards to effectively connect fintech and sustainable development.*
  - *Incentivize fintech aligned with sustainable development, for example by:*
    - *Supporting venture capital and social impact funds to fund start-ups with specific sustainable development ambitions.*
    - *Creating a challenge fund, similar in nature to the Longitude and X-Prizes, which would seek to create a global community of purpose that can pilot and create replicable solutions over time.*

## 2. HARNESSING FINANCIAL TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT

### 2.1. ALIGNING TOMORROW'S FINANCIAL SYSTEM – NOT TODAY'S

**The financial system is in a constant state of flux.** The financial system is woven into almost every human habitat, from the rural village trader to the global investment banker. Its global architecture, diversity of institutions and billions of daily transactions impact those both with and without access to modern financial services. The financial system's share of global income has grown rapidly in recent decades, nearly doubling between 1988 and 2005 to peak at 3.3% of global GDP – before trillions in losses originating in the global financial crisis.<sup>190</sup>

The financial system is unusually dynamic and adaptive. Due to their intangible nature, financial products are more numerous, more diverse and more rapidly created or destroyed than those in the real economy, even in most service sectors. Leveraging global communications infrastructure has allowed the financial system to compress space and time, creating the possibility for nearly immediate capital flows across jurisdictions – but also leading to many problematic issues such as tax avoidance, illicit financial flows, or regulatory arbitrage.<sup>191,192</sup>

**Disruptions to incumbent business models represent an ongoing, endemic risk to all.** The sector is mature with massive market actors, but many factors are driving the sector towards major disruption and transformation.

Policy and regulatory changes, for example, in the wake of the financial crisis, have diminished the profits of traditional banking after several decades of extraordinary financial success.<sup>193</sup> Unprecedented low interest rates resulting in large part from policy-directed quantitative easing have placed some pension funds and insurance companies at existential risk.

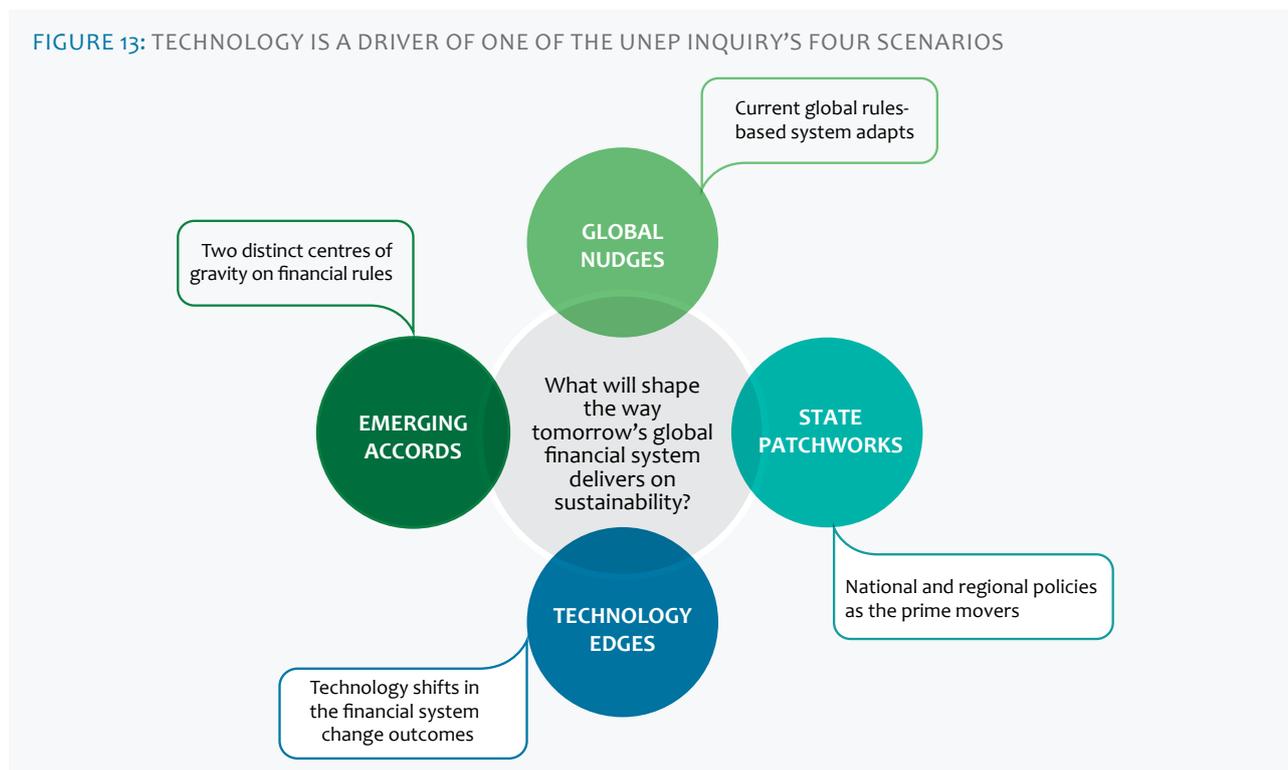
**In this dynamic and disruptive context, efforts to align the financial system with sustainable development will require a forward-looking approach.** Making predictions about the future path of the financial system is a risky business, given its many likely twists and turns. Failing to take into account possible changes runs the risk of misperceiving opportunities that are in reality on the wane, or missing potential because it is not yet manifest in the mainstream of the financial system. Many of today's sources of momentum have emanated from yesterday's marginal activities, and from hitherto marginal actors.

*“We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next 10. Don't let yourself be lulled into inaction.”<sup>194</sup>*

**Bill Gates**, Co-Chairman of the Bill and Melinda Gates Foundation

**Systemically important innovations can also be made in the governance of the financial system itself.** How best to align the financial system with sustainable development depends in significant part on how the governance of the system evolves. In the first edition of the Inquiry's

FIGURE 13: TECHNOLOGY IS A DRIVER OF ONE OF THE UNEP INQUIRY'S FOUR SCENARIOS



Source: UNEP Inquiry (2016). *Designing for Disruption: The UNEP Inquiry Scenarios*.

report, “*The Financial System We Need*”, a number of future governance scenarios were developed with OECD support. These mapped the possible contexts under which finance and sustainability needed to be brought together.<sup>195</sup> One of the scenarios, ‘Technology Edges’ (Figure 13), highlighted the potential for technology-based disruptions to impact the financial system in two related ways – in reshaping market actors and financial services, and in shifting the dynamics between the market and its governance.

**Although it is hard to say when, financial technology or ‘fintech’, in combination with other innovations, will likely change the face of finance and its alignment with sustainable development.** The use of fintech is not new, but the novel application of a number of technologies in combination is likely to reconfigure both financial sector business models, as well as the financial policies, regulations and market norms that have shaped modern financial practice. The impact of fintech on sustainable development to date has been an underdeveloped area of research and dialogue, largely framed by firmly held preconceptions.

- Some base their positive expectations on extrapolations of today’s growing armada of valued, small-scale, early stage innovations.
- Others base their pessimism on concerns about the negative impacts of accelerated commoditization of markets driven by fintech-powered efficiencies.<sup>196</sup>

In short, there has been little serious analysis to date of the core and most important question as to ‘*the possible scaled effects of fintech on sustainable development*’.

This section lays out the key aspects of the fintech landscape, some key interconnections with sustainable development, the major unintended consequences that need to be addressed, and possible next steps. At this initial early stage, the UNEP Inquiry’s initial landscape review of this topic focused on three hypotheses:<sup>197</sup>

- **Game-changer:** that fintech could significantly change the ways in which the financial system could embrace sustainable development.
- **Contingent:** that the technology itself does not imply a fixed answer to the core question, but it will unleash a new generation of impactful, patterned norms.
- **Shaping:** that the nexus between fintech and sustainable development can be shaped by market innovation, collaboration and public-interest measures.

## 2.2. FINTECH LANDSCAPES

**Fintech offers the prospect of a more efficient, accessible and less vulnerable financial system, but brings with it known risks and many unknowns.** Fintech covers everything from mobile payment platforms to high-frequency trading, and from crowdfunding and virtual currencies

to blockchain.<sup>198</sup> At its core, fintech reduces market friction by cutting out incumbent intermediaries and often replacing them with lower cost variants, from robo-investors to high-frequency traders, and so ultimately by increasing the speed and lowering the costs of transactions. In combination, fintech innovations are likely to threaten the viability of many of today's financial sector business models. Furthermore, they may undermine the effectiveness of some of the financial policies, regulations and market norms that have shaped modern finance, offering in their stead technology-driven rules embedded through a new generation of code, financial systems and institutions.

**Fintech is part of a broader, technology-driven revolution in progress.** The world is undergoing a transformation at high speed, driven by the fusion of advanced digital, material and biological innovations.<sup>199</sup> The accelerating confluence of emerging technology breakthroughs covers wide-ranging fields such as artificial intelligence (AI), robotics, the internet of things (IoT), autonomous vehicles, 3D printing, nanotechnology, synthetic biology, DNA editing, biomimicry, advanced materials science, energy storage and distributed computing,<sup>200</sup> to name but a few. This changing technological ecology is likely to rewire every aspect of our global economy and the design and functioning of many core societal functions, from the role and functioning of labour markets to the state.

**Fintech is already disrupting the financial sector.** Some technological disruption fundamentally erodes value across a whole industry. According to Citi,<sup>201</sup> there has been a 44% loss of share from physical-to-digital business models over a 10-year period of digitalization in music sales, video rentals, travel booking, newspapers, taxis and hotels. Fintech has so far challenged financial incumbents in mobile and internet payments, unsecured P2P lending, and invoice finance, among others. Goldman Sachs has estimated that US\$11 billion of annual profit are already at risk from digitalization.<sup>202</sup> Fintech start-ups raised a total of US\$19 billion in 2015,<sup>203</sup> concentrated mainly in payments, capital markets, bank credit and personal financial management.

**Fintech's scope is potentially very broad.** Many of the individual technologies involved are not new, but their combination is driving the overall disruptive potential. This spans at least five core financial sector activities: moving value; storing value; exchanging value; funding and investing in value creation; insuring value and managing risk. Current examples include:

- **Payments** are the most immediate 'low-hanging fruit', particularly in developing countries. M-PESA, the iconic P2P mobile money service that was launched in Kenya almost a decade ago, currently has about 25 million customers in 11 countries.<sup>204</sup> ANT Financial Services currently has 450 million users in China, and a further 170 million in India through a joint venture.
- Borrowers and lenders have been 'matched' through online **P2P platforms** for around a decade already, but the total amount lent remains small, less than 1% of total loans according to the CITI GPS.<sup>205</sup>
- Fintech has entered the **investment industry** to date through the growth of 'robo-advisors', which according to CITI GPS are already managing US\$2.6 trillion of the total US\$30.4 trillion of the Exchange Traded Fund (ETF) and mutual fund market.

### 2.3. LINKING FINTECH AND SUSTAINABLE DEVELOPMENT

**Fintech's possible impacts – on both the mobilization of capital for critical priorities and the mainstreaming of social and environmental factors throughout the financial system – must be better understood.** Fintech is not the outcome of a single or set of institutions with a single set of values or interests. Understanding and shaping it therefore requires one to appreciate its diverse aspects and development pathways. Understanding fintech's possible impacts on sustainable finance requires four analytic steps: (a) restating the sustainable development financing challenge in the fintech context; (b) considering bottom-up examples to understand specific practice and potential; and (c) examining whether there are more general features of the fintech-sustainable finance dynamic. Ultimately, these steps help in addressing the fourth step – the active question of whether there are ways to more consciously impact this dynamic.

#### (a) Restating the sustainable development financing challenge in the fintech context

The core financing challenge in the context of fintech can be restated as two-fold:

- 1 **Mobilizing Finance:** capital needs to be mobilized for **financial inclusion** of underserved groups (e.g.

low income citizens and small and medium-sized enterprises), raising **capital for sustainable and resilient infrastructure** (e.g. energy) and **financing critical areas of innovation** (e.g. off-grid energy solutions, smallholder agriculture, sustainable land use, sustainable fisheries).

*Barriers to mobilizing finance* include poor access to relevant and timely data, weak project pipelines, underdeveloped financial markets in developing countries leading to unfavourable interest rate premiums, unfavourable comparative risk-return ratios stemming from political, exchange-rate and other risks, and the high costs of servicing small amounts of financing and the associated difficulties of scaling finance.

- 2 **Mainstreaming Sustainability:** sustainability factors are increasingly relevant and material for financial institutions' decision-making. This starts with ensuring **market integrity** (e.g. reducing corruption, enabling new common-pool resource markets, efficient markets) and extends to integrating environmental and social factors into risk management (e.g. climate-related risk ratings of biological assets, risk transfer in smallholder agriculture and shared assets). Sustainability also needs to be incorporated into the disclosure responsibilities and reporting (e.g. requiring secure registries of property rights and moveable assets) of market actors to guide their decision-making.

*Barriers to mainstreaming sustainability* include, for private finance, overall market weaknesses and distortions, including misaligned incentives and illicit financial flows, and inadequate information and capabilities.

### **(b) Considering bottom-up examples to understand specific practice and potential**

**A growing number of interesting and potentially scalable cases of fintech-powered financial services are specifically targeted at overcoming one or more of these barriers.** Our research has focused on two types of exemplary cases, a number of examples and several notional cases of uses of fintech that could be applied in the pursuit of sustainable financing (see Figure 14). Some examples include:

- 1 **Payments:** M-KOPA provides affordable solar power to low-income households on a pay-per-use instalment plan. In partnership with mobile money systems such as M-PESA in Kenya and IoT sensors

in each solar array, M-KOPA monitors real-time performance and payment status. M-KOPA aims for 1 million homes in Kenya by 2018.<sup>206</sup>

- 2 **Investing:** Abundance Investment in the UK is a peer-to-peer platform, enabling individuals to make direct investments in renewable energy projects from £5 upwards. So far, it has mobilized over £20 million.<sup>207</sup>
- 3 **Insuring Risk:** By 2015, over 800,000 farmers in Kenya, Tanzania and Rwanda were insured by ACRE and similar vehicles against a variety of weather risks. Scaling this technology through a combination of the 'internet of things', blockchain and artificial intelligence could help provide risk coverage to an estimated 1.5 billion smallholder farmers in the developing world against increasing weather volatility.<sup>208</sup>

### **Fintech can open up new ways to make citizens' lifestyles more sustainable.**

Scaled benefits to deploying fintech can be seen from ambitious actions taken by public and private institutions. UN Women, for example, has led in the UN family in deploying fintech to ensure both equal and greater access for women in developing countries (see Box 14). Ant Financial Services (ANT), a related company of Alibaba, is China's largest fintech company, providing financial products and services, such as payments, loans, insurance and wealth management, to 450 million small businesses and individuals.<sup>209</sup> Financial inclusion is the most immediate contribution an operation like ANT can make to sustainable development, but this is just the beginning of a journey of engaging citizens directly in sustainable development. As one of the most popular mobile apps in China, ANT has been utilizing its platform to enhance the public's literacy about, and active involvement in, environmental protection and green lifestyle, for example:

- Working with over 90 asset management companies to sell their green and sustainable investment products, such as public fund products that are linked with green stock indices (stock indices with a significant share of green enterprises).<sup>210</sup>
- Working with the China Beijing Environmental Exchange in developing carbon accounting for individuals based on transaction data.<sup>211</sup>

### **(c) Examining whether there are more general features of the fintech-sustainable finance dynamic**

Fintech has core features, or DNA, as does financing for sustainable development (Figure 15). Fintech

FIGURE 14: FINTECH FOR SUSTAINABLE DEVELOPMENT INNOVATION PORTFOLIO

PORTFOLIO OF FT4SD CASE STUDIES		GEOGRAPHY	FT4SD CASE STUDY CHARACTERISTICS		SCALING POTENTIAL	
		GEO SCOPE	SD GOALS	SUSTAINABLE FINANCE DRIVER	ADOPTION STAGE	SCALING POTENTIAL
1.1	SME collateral management registry	Global	Jobs and growth	Financial inclusion	Conceptual	++
1.2	Welfare conditional transfer	Developing	Poverty	Financial inclusion	Conceptual	+++
1.3	Remittances/accounts for unbanked	Developing	Poverty	Financial inclusion	Pragmatic followers	+++
1.4	Economic identities for refugees	Developing	Peace	Financial inclusion	Early adopters	+++
1.5	International aid smart contracts	Developing	Poverty	Financial inclusion	Early adopters	++
1.6	Smallholder identity and land registry	Developing	Hunger	Financial inclusion	Early adopters	+++
1.7	Participative democracy 2.0	Global	Jobs and growth	Financial inclusion	Conceptual	++
1.8	Enabling microfinance 2.0	Developing	Poverty	Financial inclusion	Conceptual	++
2.1	Pay as you go resource utilities	Developing	Energy	Capital for infrastructure	Pragmatic followers	+++
2.2	Flexible energy supply and demand	Developed	Energy	Capital for infrastructure	Early adopters	+++
2.3	Renewable energy P2P	Developed	Energy	Capital for infrastructure	Early adopters	++
3.1	Smallholder extension services	Developing	Hunger	Financing innovation	Conceptual	++
3.2	Community distributed generation	Developed	Energy	Financing innovation	Early adopters	+++
3.3	SME asset trade finance	Developed	Jobs and growth	Financing innovation	Conceptual	++
3.4	SME smart assets	Developed	Jobs and growth	Financing innovation	Conceptual	+
4.1	Financial markets early warning system	Global	Partnership	Market integrity	Early adopters	++
4.2	Sustainable fintech regulatory sandbox	Developed	Partnership	Market integrity	Early adopters	+
4.3	Biodiversity conservation exchange	Developing	Land-based	Market integrity	Early adopters	++
5.1	Shared asset insurance	Developed	Consumption	Risk and resilience	Early adopters	++
5.2	Smallholder index insurance 2.0	Developing	Food	Risk and resilience	Conceptual	+++
5.3	Basin water rights management	Global	Water	Risk and resilience	Conceptual	+++
5.4	Agricultural credit risk management	Developing	Land-based	Risk and resilience	Conceptual	++
6.1	Water asset registry and ratings	Global	Water	Performance and disclosure	Conceptual	+++
6.2	Fish supply chain traceability	Global	Ocean-based	Performance and disclosure	Early adopters	++
6.3	Climate monitoring reporting verification	Global	Climate	Performance and disclosure	Conceptual	+++

Source: UNEP Inquiry and Castilla-Rubio, J. C. (2016). *Fintech and Sustainable Development: Assessing the Implications* (forthcoming).

reduces the costs and increases the speed of financial transactions, and in so doing strips away or replaces many intermediaries, thereby also creating a greater decentralization of financial actors. This leaves savers, the owners of capital and the intended beneficiaries of pensions and insurance policies with more opportunities to make direct financing decisions. In addition, it offers the potential for a radical increase in transparency and possibly of accountability. Blockchain, in addition, offers the potential for dramatic increases in financial inclusion, deepening domestic financial markets, and reducing transaction costs. Furthermore, it offers ways to reduce credit risk by increasing secure information about consumer and investment track records, allowing many individuals and small businesses to access lower cost capital and lending.

**Fintech, in combination with other technological innovations, can support the management of real economy environmental effects.** Over time, the ‘IoT’ will enable data to flow from just about any physical asset manufactured, sold or used in the real economy (as a consequence of ever cheaper sensor technology and ubiquitous connectivity). This creates potential for the deployment and use of those physical products to become increasingly accountable and leverageable.<sup>212</sup> Regulators, furthermore, can require increased transparency with regard to measurable sustainable development effects, if only because the cost-related impact on manufacture and distribution are so low. Linking this with fintech, which enables physical flows to be monetarized in real time, will incentivize and enable innovation and greater upstream accountability.

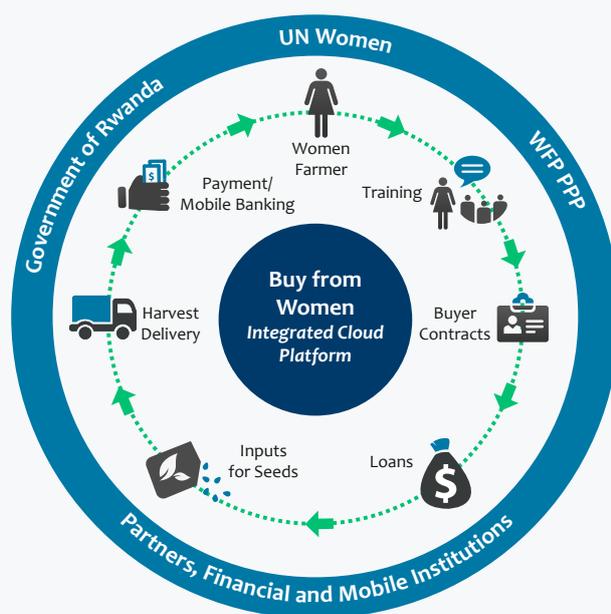
**BOX 14: FINTECH FOR GENDER EQUALITY, WOMEN’S EMPOWERMENT AND SUSTAINABLE DEVELOPMENT<sup>213</sup>**

Access to long-term affordable financing is one of the key challenges for scaling up gender equality and women’s economic empowerment. Worldwide, women-owned formal SMEs have US\$260 to US\$320 billion in unmet financing needs.<sup>214</sup> Addressing the gender gap in access to finance has the potential to add as much as US\$12 trillion in annual 2025 GDP, and boost the resilience of communities and societies to political, socio-economic and climate shocks. For example, access to finance to procure seeds and fertilizers, farm equipment, and storage facilities can increase women farmers’ productivity by 20 to 30% in sub-Saharan Africa and accelerate the adoption of climate-smart agriculture.

In order to increase women’s access to finance, UN Women leverages innovative technologies, business models and practices to break isolations and generate economies of scale. Notably, UN Women develops digital enterprise platforms that enable women in the developing world to manage all aspects of their business – forecasts, contracts, loans, sales and repayments – with full transparency from their mobile phones.

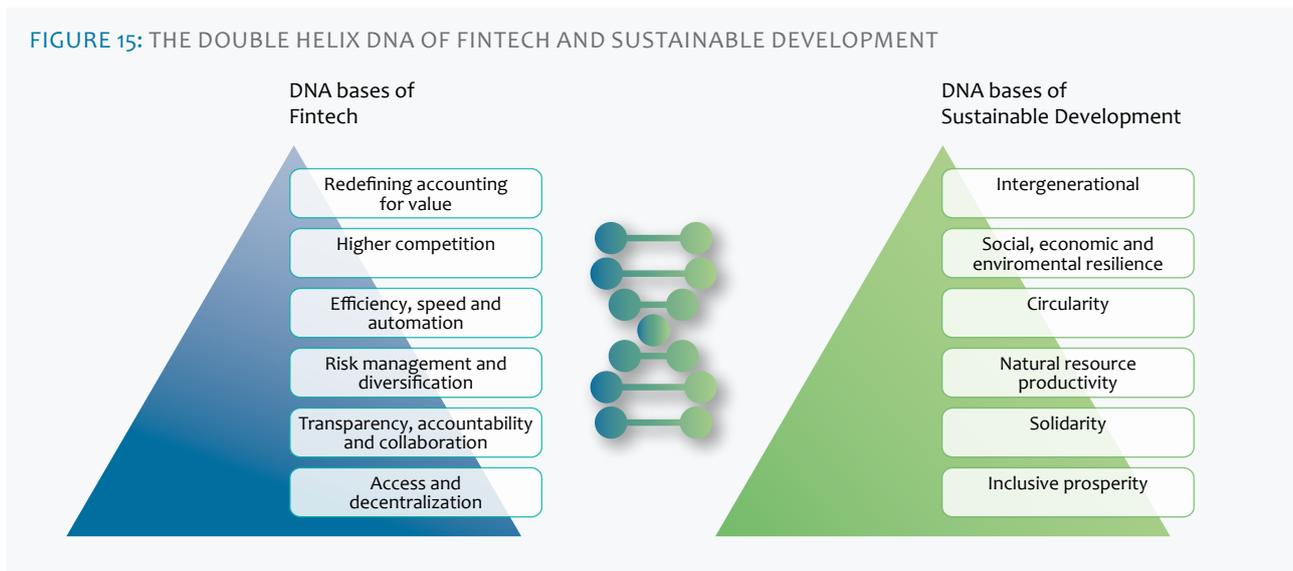
Business data is systematically captured on the platform, available real-time, worldwide. This allows women to build and own a track record, and provides investors with the information they need to lower risk and increase women’s access to much-needed finance. This has the potential to cut due diligence and intermediation costs and unlock global social impact investment and crowdfunding for women SMEs in developing countries. A ‘portable and immutable’ blockchain economic identity linked to the platform can facilitate financial transfers.

The figure below visualizes the digital enterprise platform for climate smart agriculture being prototyped in Rwanda. This climate-smart agriculture (CSA) platform is expected to be extended to a dozen countries in 2017.



Source: UN Women (2015). *Financing: Why it Matters for Women and Girls*.

FIGURE 15: THE DOUBLE HELIX DNA OF FINTECH AND SUSTAINABLE DEVELOPMENT



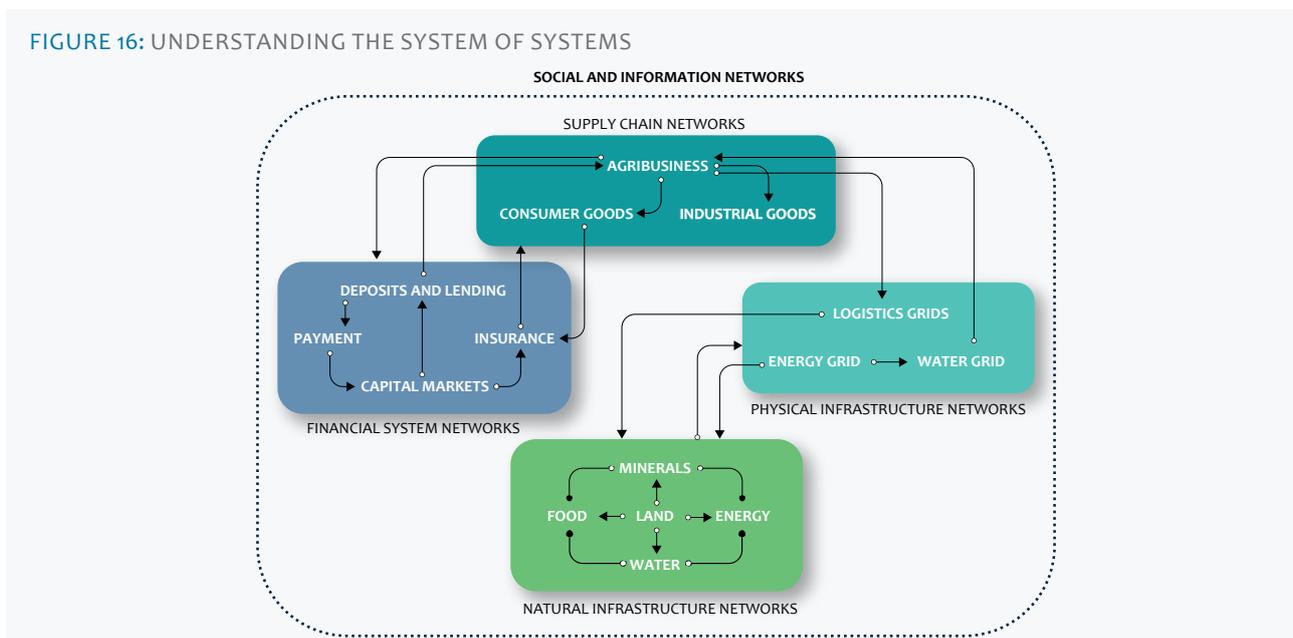
Source: UNEP Inquiry and Castilla-Rubio, J. C. (2016). *Fintech and Sustainable Development: Assessing the Implications* (forthcoming).

These characteristics clearly address some, although not all, of the barriers to financing for sustainable development, such as lower costs and connecting savers and investors directly with project owners, such as SMEs. Increased transparency and accountability should also strengthen the ability of the wider public and the government to oversee the behaviour of financing individuals and institutions, and notably through blockchain to know the history of use of money involved in specific financial transactions.

Taken alone, such features of fintech would almost certainly increase financial inclusion, and could thereby support other aspects of sustainable development, such as natural resource productivity and depletion rates. To

name a few, addressing the gap in access to finance is a pre-condition for climate-smart agriculture, decentralized renewable energy, sustainable settlement, disaster risk management, employment creation, or peace and stability. Such potential should be recognized and acted on, while also acknowledging the limitations and challenges. For example, it may be that fintech embedded in such business models as Uber increases asset utilization rates, in this case cars operating as taxis.<sup>215</sup> However, in such cases there may well be an ambiguous overall environmental impact. For example, Airbnb may on the one hand increase the utilization rates of people's homes, thereby reducing the need to build new hotels, but at the same time increase the level of long-distance tourism because of reduced costs and increased income effects.<sup>216</sup>

FIGURE 16: UNDERSTANDING THE SYSTEM OF SYSTEMS



Source: Space Time Ventures (2016)

**Fintech will certainly have broader unintended consequences with possible sustainable development implications.** Unintended consequences, indeed, may be greater than the planned, or even the foreseen consequences. Only a few fintech entrepreneurs, for example, set out with the vision that a profitable start-up could have major social or environmental benefits. Similarly, there is little doubt that fintech will have significant, negative employment implications across the financial system, transforming or rendering obsolete many existing businesses and underlying market functions.<sup>217</sup> Less understood, however, is how it will affect the role of central banks, particularly with the emergence of cryptocurrencies alongside money hitherto controlled by state-monopolies.<sup>218</sup> Indeed, some of the deeper unknowns concern how blockchain, in combination with other technology drivers in the real economy, notably artificial intelligence and the IoT, will shape new markets that blur the boundaries between financial services and adjacent, real economy sectors such as retail and telecom, infrastructure delivery, and health and education.

**Such consequences need to be better understood and, where possible, managed.**

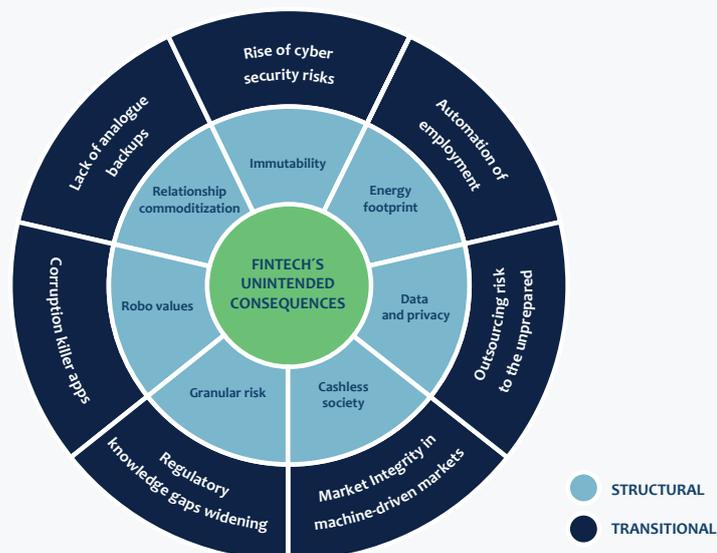
- Positive potential spillovers, for example, might be best handled through incentives and providing greater regulatory space for innovation.
- Negative potential spillovers, on the other hand, might require enhanced supervision, or collaborative efforts among actors to strengthen collective responsibility.

## 2.4. EMERGING PUBLIC MEASURES FOR ALIGNING FINTECH WITH SUSTAINABLE DEVELOPMENT

**Fintech will change the relationship between the financial system, the real economy and the governing role of the state and public institutions.** Fintech will accelerate the integration of the financial system and the real economy, enhancing opportunities for greater decentralization in the transition to sustainable development. Fintech will also enhance the role of technologists and market actors in shaping the financial system in practice, highlighting the need for such actors to commit to approaches that enhance sustainable development financing.

**Uncertainty and complexity make it hard to know what to do.** This fintech-focused research has highlighted the importance of understanding the ‘system of systems’ relationships between the financial system, natural resources, physical infrastructure, all interlinked by social systems. Earlier work has been based on the simplifying assumption that the financial system can be understood as a distinct, albeit related part of the wider system, particularly its separation from the real economy. Fintech framed more narrowly already presents many uncertainties and unknowns. Figuring out whether and how to intervene becomes more difficult when set against potential unintended consequences. Beyond this, fintech threatens to become overwhelm-

FIGURE 17: FINTECH'S UNINTENDED CONSEQUENCES



Source: UNEP Inquiry and Castilla-Rubio, J. C. (2016). *Fintech and Sustainable Development: Assessing the Implications* (forthcoming).

ing, especially when taken as part of a broader technological ecology that undermines the concepts and practices that consider the financial and capital markets as a distinct, policy-responsive system.

**There is a need to define the policy space that lies between a purely laissez faire approach, and one that seeks to impose linear controls over the emergent new economy.** Complicating this challenge is our dual focus on the nexus between fintech and sustainable development, with both topics providing ample scope for policy debate, experimentation and errors. Pursuing a ‘wait and see’ approach – wherein policy intervention should await a more matured set of markets – has some merit. Yet some of the most knowledgeable, ardent supporters of fintech argue that critical decisions in practice are being made in the short-term, say the next 3-5 years, that will largely embed the modalities of fintech, notably those involving code and associated standards.

**Fintech’s impact will depend on a number of policy and regulatory innovations that enable scaling and minimize its negative unintended consequences.** Some of these interventions are not specific to particular sustainable development considerations, but are good practice in enabling fintech innovations. There is a need, for example, to get the right balance between rules set by law and those evolved through technical code. Bitcoin, for example, has developed its rules without government intervention. But going forward, there will be a need to shape and better manage regulatory interventions in the continued development of blockchain, such as to ensure prudential oversight of possible financial stability effects. Similarly, but not specific to sustainable development, are the advantages of policies that encourage open data and ensure interoperability.

**Policies need to be as much about creating an enabling environment as constraining rules and norms.** Many people support a ‘hands off’ approach, particularly where there are distinct public interest outcomes, such

as financial inclusion. Safaricom’s M-PESA is a well-known success story and deservedly so. It was able to grow quickly because Kenya’s banking and telecom regulators initially decided to take a hands-off approach. According to the World Bank ‘*Digital Dividends*’ report, Safaricom maintained a dominant position for seven years through exclusivity agreements locking agents into the system. In 2014, when maturity was reached, Kenya’s Competition Authority changed the rules and opened the system.<sup>219</sup>

**Policy interventions can be active on both the fintech supply-side and on the manner in which financial system development is aligned to sustainable development.** Some key steps in the ‘fintech for sustainable development’ innovation journey could include:

- Ensuring that fintech is an integral part of financial system development plans and roadmaps focused on financing sustainable development, particularly at the national level, and especially for developing countries.
- Establishing a platform of leading fintech companies, working with others to influence the right enabling businesses, policies and standards to effectively connect fintech and sustainable development. Such a platform should connect with the many emerging incubators and also ‘sandboxes’ being established in an effort to find the right balance between top-down interventions and bottom-up innovations.
- Incentivizing fintech aligned with sustainable development, for example by:
  - Supporting venture capital and social impact funds to fund start-ups with specific sustainable development ambitions.
  - Creating a challenge fund, similar in nature to the Longitude and X-Prizes, which would seek to create a global community of purpose that can pilot and create replicable solutions over time.