A Green and Sustainable Digital Finance Landscape

Market Analysis for the Netherlands

Guideline Note



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Foreword

We see the digitization of finance as a large-scale systemic re-design project. It is about redesigning financial and capital market instruments, transforming relations with customers and designing new regulation and policy. It offers a historic opportunity to plug green and sustainability metrics into this re-design process to better align the fintech powered financial system of tomorrow – leveraging on the Paris agreement and the Sustainable Development Goals. Holland Fintech and the Sustainable Digital Finance Alliance are partnering to enable exactly that together with the financial eco-system in the Netherlands. This landscaping of the state of sustainable digital finance in the Netherlands is a first step on this journey.

It is also part of an effort and conversation that reaches far beyond the Netherlands. It is the first prototype in the development of a country benchmarking tool to measure the national readiness for doing sustainable digital finance, which will inform the UN Secretary General's Task Force for Digital Financing of the SDGs. The Task Force is a select group of leaders and top experts from around the world. Members include government ministers, tech entrepreneurs, bank and investment CEOs, central bank governors, civil society representatives, multilaterals, and thought leaders.

The Task Force presented its initial findings during the General Assembly in September of this year. It will conclude its work no later than during the first half of 2020 by issuing recommendations that will stress practical, actionable strategies. The recently launched first progress report stresses a need for measuring the progress of sustainable digital finance. To enable that a standardized country benchmarking tool is needed. This report captures the results of the first country level test of the prototype tool to capture the country readiness for doing sustainable digital finance.

All eco-systems are different. One reason why the Dutch eco-system was a natural first prototype country is a substantial fintech start-up scene, Central Bank chairing the Network for Greening the Financial system (NGFS) as a sign of commitment by regulators to transitioning the economy and a banking sector with a global reach and frontrunner sustainable digital finance use cases.

However, measurement only gets you so far. Real change calls for concrete work and tools to enable fintech solutions providers to strategically either incorporate green and sustainability into their business model design or discover use cases for fintech software that will unlock green and sustainable finance. It also requires regulation that supports this transition and a demand domestically or internationally that enables scaling.

Steps of change that are all within reach and which we are committed to take.

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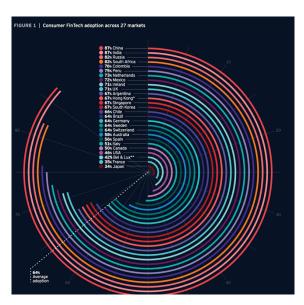
Background - The Dutch, Digitally Unique

The Netherlands, especially Amsterdam, has managed to position itself as an important fintech launchpad. With 340 fintech company members of Holland Fintech the supply side of digital finance solutions is in the high end of the spectrum compared to many other countries. It is fintech solutions emerging in a climate change exposed country but also a country where incumbents have been defining the market for decades and with an increasing degree of globalisation of their businesses. The three major banks ING, Rabobank and ABN have all been early in adopting fintech solutions, also for sustainable digital finance. Their use of Big Data and AI for sustainability performance lending models are now being copied by banks in other regions such as DBS in Singapore.

The Netherlands has been at the forefront of the asset management industry. It has a very mature securities market and expertise in international asset management, supported by the fact that some of the largest pension schemes in the world are Dutch. A pension system which is currently subject to a reform process which should among other make it easier for self-employed - as a category on the rise in the Netherlands - to get access to a pension scheme. A new pension era is therefore on the horizon in the country which could call for new pension-tech approaches to enable pension funds to cater to individual policy holders in an efficient manner while enabling them to understand the sustainable impacts of their pension savings.

Regulators and policy makers have supported the positioning of Holland as a start-up friendly nation in the digital space. It offers favourable operating conditions, a high trust environment and low levels of bureaucracy. It has placed the Netherlands as number four on the Global Innovation Index 2019. In addition, Dutch regulators have been friendly towards transformative technologies such as Distributed Ledger Technology. However, on IoT adoption a Vodafone report issued last year found businesses in the Netherlands not or only to a limited extent aware of the benefits of IoT deployment. Policy measures to promote green and sustainable finance are in place and the Netherlands aims to be a fully circular economy by 2050.¹

At the level of consumers, the Netherlands has a 73 percent fintech adoption rate, which is higher than the UK and the highest among the European nations measured by the Global Fintech Adoption Index. In addition to being a tech savvy population it is also climate aware and ready to act on it. This became clear when a court in the Hague upheld a historic legal order on the Dutch government to accelerate carbon emissions cuts, because it ruled that the severity and scope of the climate crisis demanded greenhouse gas reductions of at least 25 percent by 2020, which is higher than the 17 percent planned by the administration. The Dutch consumer is among the wealthiest in Europe. The Dutch GDP per person employed is 52,959 US dollars (OECD, 2016), compared to the EU average of 40,920 US dollars.²



Methodology

This market level stock-take was conducted through a series of surveys and research initiatives, combining market level data provided by players in the market, insights from regulators and market research, building on the available supply and demand side data.

https://www.government.nl/topics/eircular-economy
Global Fintech Adoption Index 2019. Ernest and Young: https://assets.ey.com/content/dam/ey-sites/ey-com/en_gl/topics/banking-and-capital-markets/ey-global-fintech-adoption-index.pdf

Key Insights

The landscaping point to five key insights, which captures the characteristics of the current state of green and sustainable digital finance in the Netherlands.

- 1) There is a low degree of policy integration: The Netherlands promotes green finance through policy interventions (i.e. the Sustainable Finance Platform) and has a mature regulatory landscape to promote green finance and the financing to solutions with a sustainability component. However, the digital component at both a policy and regulatory level are both still in a nascent stage, due to lack of regulation surrounding the underlying technologies (i.e. Distributed ledger technology). This hampers high potential impact solutions in unlocking financing of green digital solutions through for instance fractional ownership models.
- 2) Incumbents are the national sustainable digital champions: Unlike in a number of other countries where green and sustainable fintech emerge outside of financial service institutions in the Netherlands it is financial service institutions, and primarily incumbent banks, that have designed the most notable green and sustainable digital finance solutions. The majority of the solutions leverage the capabilities of fintech to provide better metrics to internalize the price of externalities such as in the ING sustainability performance-based lending solutions and in the case of APG as an asset owner to lower the search costs of sustainable assets and projects.
- 3) Fintechs innovate to a limited extent on green and sustainability challenges: Few fintechs in the Netherlands are designed specifically to tackle a sustainability challenge, although many self-report that their work is generally geared towards sustainable business practices. Those with an impact focus are mainly crowdfunding platforms. The survey data shows that the fintechs perceive their business to have less impact on the four green goals than larger incumbent financial institutions.
- 4) Circular economy solutions are the most mature: Circular economy solutions are a strong market segment in the Netherlands and is predicted to grow financing these solutions is especially interesting since the solutions intersect finance and other goods/services, whilst maintaining a sustainability angle. The three largest incumbent banks (ABN AMRO, ING and Rabobank) have joined forces and issued joint guidelines on the definition of what constitutes circular activity and how these initiatives are best financed. ³
- 5) Crowdfunding platforms with a sustainable mission are growing the fastest: The Netherlands is one of the top crowdfunding nations in the EU and but the fastest growing segment according to the Dutch government is the one with a focus on sustainable solutions. The Netherlands does not currently have a comprehensive crowdfunding regulation but has opted for a rule-based approach, where service providers are tasked with regulatory and licensing requirements based on the services they provide to clients.

Opportunity Avenues for exploration

Avenue # 1: Make Every Dutch Citizen a Green Asset Owner: The frontrunner position of Holland in crowdfunding, the fact that citizens have a preference for investing in SDG businesses and projects on these platforms and a very climate aware population ready to take the government to court on green levels of ambition point to an opportunity to offer green asset ownership to all via digitization. The Netherlands is a green bond issuing nation and the government positive towards the potential of DLT. A clear regulatory status of crypto assets can pave the way for the next wave of crowdfunding in the Netherlands such as tokenized green bonds offered directly to the population. Or the regulation of 'Do It Yourself' green bond platforms, so that neighbourhoods get access to for instance financing of their local energy transition.

Avenue # 2: Automate Asset Management for Sustainability: The Netherlands has historically been at the forefront of asset management. However, a current trend is the externalisation by asset owners to foreign asset managers. The fact that T-Mobile, a Dutch telecommunications company, has promised to provide nationwide 5G coverage by the end of 2020 opens an avenue for the Netherlands to explore integration of FinTech and IoT in asset management. Vodafone's IoT report last year did point to that Holland is falling behind other European countries in IoT deployment, however, the public sector more specifically the city of Rotterdam has made a "digital twin" of the city. Hence, the asset management

industry can act as a catalyst for greater IoT adoption e.g. by starting to test the potentials for using digital twins for automated asset tracking. Asset Owners and Managers in the Netherlands can explore this integration of fintech and IoT for automated asset management as an avenue to maintain also a digitally enabled frontrunner position in the global asset management market.

Avenue # 3: Re-program Agriculture for Sustainability with Digital Finance: Holland as a land scarce nation with a large agricultural production sector, making it a pressing issue to transition into low footprint production.

Avenue # 4: Low to no footprint Digital Finance: The area in and around Amsterdam is home to about a third of all <u>data centres</u> in Europe. The government has made a temporary halt to the establishment of data centres, because of the strain it puts on the electricity grid and the pressure on property. The government will make demands in the area of making residual heat available free of charge for the heating of homes and the use of green electricity. This points to a greater greening of data centres in the Netherlands in the near future. The Netherlands has an opportunity to explore being the model country for how to deliver no footprint fintech.

State of Regulatory and Policy Landscape Shaping Green and Sustainable Digital Finance in the Netherlands

Green Digital Finance is defined as: "An intended application of digital finance or fintech towards the achievement of financing for Global Sustainability goals such as the Paris Agreement and/or the SDGs".

The Dutch Context

National Emission Reduction Commitments

The Netherlands has entered into several commitments to reduce its environmental footprint. On a national level, the Netherlands has committed to reducing its greenhouse gas emissions by 49% by 2030 vis-à-vis emissions rates in 1990.⁴ Further to the initial commitment, the Netherlands has also committed to lobbying for EU wide reduction targets to a further 55% by 2030 where possible. The Dutch government has opted for a decentralized approach and will implement action plans and agreements with relevant parties and stakeholders such as local authorities, business, nature and environmental organizations amongst others. These milestone reductions are also part of a larger plan that sees greenhouse gas emission reduced by 95% in the year 2050. Pursuant to the commitment set forth in the European Climate Agreement – the Netherlands is expected to achieve the goal of reducing emissions by 35% compared to levels recorded in 2005 by the year 2030.

Financial Sector Commitment

In July of 2019, the Dutch Financial Sector, led by several industry associations came together and endorsed the climate goals as defined in the Dutch context of the Paris Agreement. In the presence of the Dutch Minister of Finance, 50 companies signed the agreement, entailing "mandatory reporting on the climate impact of their loans and investments from 2020 onwards."[4]Further to that, the signatories committed to having carbon emission reduction plans in place by 2022. In this way, the financial sector will be able to contribute to both national and international level goals in relation to the realization of the Paris Agreement.

The financial sector has as its key aim to align its' activities with the reduction of greenhouse gas emissions by 49% visà-vis the levels recorded in 1990 as set out in the Dutch Government framework. Next to both efficiency and sustainability exercises, the Dutch financial sector committed to a broad stakeholder approach that will include public sector bodies such as Invest-NL to unlock financing for green projects. The commitment also highlights reporting and reassessment obligations incumbent upon the signatories and the commitment will be led and monitored by four umbrella organizations in the financial sector (The Dutch Banking Association, The Dutch Association of Insurers, The

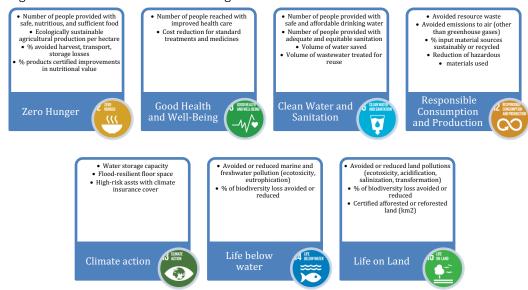
Federation of Dutch Pension Funds, and the Dutch Fund and Asset Management Association) The entire list of signatories can be found <u>here</u>.

Green Finance Strategy

On the 21st of May 2019, the Dutch State Treasury Agency (DTSA) opened the bidding of its new green bond offering. Within 90 minutes, the DTSA had received order requests totalling 21 billion Euro. The DTSA finally issued bonds worth 5.98 Billion Euro – resources that would be used towards challenges posed by the achievement of the SDGs.⁵ Further to that, together with London, Amsterdam has been ranked at the top of the Green Finance Index.⁶ This was not a digital green bond issuance.

SDG specific focus of the National SDG Action Plan

In partnership with several industry representatives, the Dutch Central Bank has defined how to measure SDG impact. The following metrics are available for validating results within the national context:⁷



HLPF Country Review

The Netherlands submitted itself to a voluntary review at the HLPF in 2017, however there was no reference made to green finance in the report, nor to the role for fintech. The full report is available here.

Policy and Regulatory Framework - National Level

Crowdfunding Regulatory Framework

The Netherlands is one of the top crowdfunding countries in the EU. However, currently the Netherlands does not have a comprehensive regulatory framework around crowdfunding, although the AFM (Authority for Financial Markets) does control licensing for selected crowdfunding platforms on the basis of services rendered. Currently there is no specific mention around crowdfunding platforms, although the government does highlight that platforms with a sustainable mandate are the fast growing in the segment.⁸

| Question | Parameters |
|--|---|
| Which permit or exemption does a crowdfunding platform need? | If a party is only active in the field of donation, sponsorship and / or reward-based crowdfunding, then you do not need a license or exemption from the AFM to perform |

Anderson & Matthews (2019, June 25). Conservation Finance Takes Off as the Netherlands Issues One of the Largest Green Bonds Ever. Retrieved from https://www.wri.org/blog/2019/06/conservation-finance-takes-netherlands-issues-one-largest-green-bonds-ever

^{*} Geiger, C. (2019, April 5). European Centres Lead The Green Finance Index, Spotlight On Fossil Fuels. Retrieved from https://www.finance-watch.org/press-release/european-centres-lead-the-green-finance-index-spotlight-on-fossil-fuels

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https://business.gov.nl/financing-your-business/funding-and-loans/funding-by-private-investors-or-banks/how-to-set-up-a-crowdfunding-campaign/

| | your activities. With loan and equity-based crowdfunding, you may have to obtain an with an exemption or permit. | | | |
|---|---|---|---|--|
| Equity based: investments in the form of tradable shares and / or bonds | If it is possible through the platform to invest in companies through the purchase of tradable shares or a tradable bond, then there is the purchase of securities (financial instruments). The AFM is of the opinion that the activities carried out by a platform must in any case be regarded as receiving and passing on orders from lenders with regard to those financial instruments (order remiss). In addition, there may be a placement of financial instruments. | | | |
| A license as an investment firm is needed to provide these investment services. | If it is also possible to provide loans to companies via the platform, other than in the form of bonds, the company must also be in possession of an exemption from mediation in repayable funds in addition to a license as an investment company. | | | |
| Loan based: loans to consumers and / or entrepreneurs | If it is possible for the platform's consumers to obtain a consumer or mortgage loan through the platform, then the platform needs a license to offer credit. | If it is possible for companies to obtain a loan through the platform, then the platform needs an exemption to mediate in attracting redeemable funds. | If your platform provides loans to both companies and consumers, you need a license to offer credit and an exemption mediate in attracting redeemable funds. | |
| Related services: brokerage in payment accounts or electronic money and the provision of payment services | If it is possible for private investors to invest via your platform (loan-based) and you work with a payment service provider or electronic money institution through which the payment flows go, you may need a license as a financial service provider for brokerage in payment accounts or electronically money. | This is when a consumer purchases a checking account or electronic money through your mediation. You mediate if you pass on more than NAWTE data of the consumer to the payment service provider or electronic money institution. | You do not need to apply for a license as a broker in payment accounts or electronic money, if your platform needs a license as an investment firm. Holders of a license as an investment firm are in fact excluded from this. | |

Blockchain and DLT Regulatory law or Framework

There is not yet regulation on crypto assets and DLT, however this has been proposed and is currently with the legislature. ¹⁰

Tokenization

The Dutch government has a positive attitude towards blockchain. The public sector has taken on an experimental role. Public sector experiments include: the City of Utrecht using DLT for data sharing within the waste sector, the City of Zaanstad established a procedure for DIY marriages and divorce on the blockchain and the province of Noord-Brabant developed a use case that showed it would be possible to reduce the time to get through the administrative and financial process for subsidies from 13 weeks to 13 minutes.

However, there is no DLT specific regulation in place. Cryptocurrencies are not treated as legal tender and are generally not regulated. Depending on its structure a token may qualify as a security in the Netherlands, in which case it is regulated under Dutch financial law. The government has said it does not prohibit cryptocurrencies but it does not regulate them. Lack of regulatory clarity of crypto assets can potentially slow down the deployment of DLT for fintech innovations to channel savings into e.g. tokenized green bonds, green building investments etc.

DLT based solutions can still be classified as crowdfunding, equity investing, debt investing, securitization, derivatives trading or shared ownership of assets through a co-operative. This is partly due to the limitations of the legal framework within each solution needs to operate, especially when it concerns a regulated activity. Currently the most pressing limitation for DLT solutions is the limitation banks put on companies working with DLT solutions because of anti-money laundry and terrorist finance tightening, especially when CDD of token or cryptocurrency buyers is insufficient.

Even though the Netherlands has not adopted regulations to clarify the status of crypto assets it has a DLT community and the state has taken a number of initiatives to support the technology in the country. The Ministry of Economic Affairs and Climate Policy presented in 2018 a national blockchain research agenda and created a designated unit 'TopTeam ICT', tasked with researching the further development of blockchain across technology, legal issues, economic impact and ethics. The research agenda contains three questions: Trust, sustainability and governance.

Degree of Policy Integration

National SDG Action Plan and Digital Finance

The Netherlands is one of the main supporters of the Green Climate Fund (GFC). This fund is rapidly becoming the basic financing for the implementation of the Paris agreement worldwide. Moreover, it also mentioned how innovative ways of raising finances are key to reaching the SDGs. This is because, it is ever more important to invest in climate action in developing countries. However, it is fundamental to find a way to reduce the risks of these investments for investor protection (Ministry of foreign affairs,2018). Although no formal mention of digital finance was made, the policy recognizes the needs for new financial technologies and solutions to arise and de-risk investments in emerging economies facilitating access to finance to reach the SDGs.

National Resource Mobilization

The Dutch government has issued green bonds, with a view to mobilizing resources towards solutions needed to implement the SDGs.

National fintech strategy, policy or regulation around Green or sustainable finance

In the report published in 2018 by the Dutch Ministry of Foreign affairs, sustainable finance is reported as crucial for reaching SDGs. The Netherlands, based on its Foreign Trade and development policy, is funding projects to obtain financial inclusion in developing countries. It mentions the opportunities arising from new digital technologies such as mobile banking that is rapidly expanding in emerging markets. In addition, the report mentions the need for investing in new financial products such as new pension schemes, or insurances. ¹¹ Despite this, there is no national fintech strategy, but fintech is highlighted as a critical catalyst for chance across different market segments.

Climate change political and regulatory framework which integrates digital finance

The Guidelines for Investing in Responsible Digital Financial Services were launched in Amsterdam. These guidelines are the result of an alliance of over 50 fintech investor and digital finance innovators. They include 10 touchpoints that should be used when evaluating investment opportunities in the fintech scene. This alliance is also aiming at transforming the current regulatory environment in order to accommodate the newest innovations in the financial industry.¹²

¹¹ Investing in Global Prospects (May 2018), Dutch Ministry of Foreign Affairs

¹² Global fintech investors team up to promote responsible digital finance. (2018, June 20). Retrieved from https://www.duurzaam-beleggen.nl/2018/06/20/global-fintech-investors-team-up-to-promote-responsible-digital-finance/

Policy incentives for fintech to deliver on green and sustainability challenges

There are no direct policy incentives in the Netherlands that incentivize Fintech companies to focus on sustainability. However, there are certain policies in place that are designed to aid and foster the development of the fintech landscape. The innovation box regime is one example. Following this tax regime, profits deriving from intangibles (e.g. Software) will be taxed at a 5% rate¹³ Although, the incentives provided by the government are not directly related to green and sustainability challenges, they offer entrepreneurs opportunities to further invest into new financial technologies. Specifically addressing this issue if the R&D tax credit. This is policy incentive stating that if certain conditions are met, the employer can obtain wage tax reductions if they relate to R&D activities in the Netherlands. Therefore, these incentives will potentially foster innovation and thus, through these new technologies, promote global financial inclusion as well as making further steps towards the attainment of the Sustainable Development Goals.

Green Data Centres

The Amsterdam region houses about 70% of the data centers in the Netherlands. The area in and around the city is home to about a third of all <u>data centers</u> in Europe. The government has made a temporary halt to the establishment of data centers, because of the strain it puts on the electricity grid and the pressure on property. The government will make demands in the area of making residual heat available free of charge for the heating of homes and the use of green electricity. This points to a greater greening of data centers in the Netherlands in the near future.

Innovation in powering of Fintech

A team of Dutch researchers are developing the technology to use excess body heat while sleeping for cryptocurrency mining. As an innovative approach currently being developed in the Netherlands.

State of the Industry – Green Finance Landscape in the Netherlands

The size of SDG icon box reflects the number of surveyed fintech and financial service institutions using fintech deliver on the particular SDG. The survey is based on selfidentification of impact of the solution. In the next iteration of this landscaping this data will to be tested need against additional data sets. Fewest of the respondents perceive themselves as delivering on SDGs 6, 14, 13 and The respondents delivering on SDG 13 is a diverse group from open banking fintech platforms, over fintech consultants to banks with digital SDG 13 solutions.



Champion Examples Highlights for Sustainable Digital Finance

APG - In less than twelve months' time APG used smart algorithms to scan 10,000 companies for their sustainability contributions. They could thereby categorize 10,000 listed companies around the world in an SDI classification system. The starting point for this exercise was the United Nation's seventeen sustainable development goals as a starting point for this evaluation. The result was that they identified 1320 new Teslas. Or companies with a sustainability impact profile.

ING - ING Real Estate Finance (EU) digitizes commercial real estate assets and analyses energy efficiency modifications, which enables lower costs of capital for sustainability loans. Sustainalytics (UK) provide predictive analytics for smart climate investing and cheaper incorporation of environmental, social and economic considerations into investment decision- making.

Ecochain - has developed a software tool to map a company's entire life cycle, including its environmental footprint. The software also allows the creation of carbon savings certificate digitally. The Dutch banking group, <u>ABN AMRO</u> has entered into a partnership with Ecochain, a technology company, in a bid to launch impact-based banking and assist entrepreneurs in speeding up their sustainability shift through Ecochain's capability of combining sustainability data and financial data.

Rabo Frontier Ventures

A 150m euro fund to invest globally in growth stage companies in the fintech and ag-tech space.

COIN22 offer farmers an Agri-wallet accounts to increase their production and income. It is a blockchain powered solution with the ability to program funds for earmarked purposes such as farm inputs and income generating farming activities.

Rabobank is using AI and Big Data to help farmers measure and monitor a number of sustainable agricultural indicators and making the cost of capital depend on performance in the indicators. Hence, Rabobank is leveraging the data capabilities of Fintech to contribute to a systemic shift in the food system.

Fintech for Circular Economy

Circular economy initiatives in the Netherlands are popular and a growing field. The government aims to make the economy fully circular by 2050. There are already numerous examples of circular iniatives, such as the OnePlanetCrowd alternative finance platform. Incumbent banks are also active in the field of circular economy solutions. A Dutch banking institution that is very active in the field of sustainable finance is the Triodos Bank. Triodos heavily invests in sustainable projects, but are also increasingly aiming to stimulate investors' interest in green bonds. Notable about Triodos' investment strategy is the fact that, before investing, they ensure that the company being investing in is focusing on solving societal or environmental challenges. This stimulates the development of green finance and, in general, the attainment of the SDGs set by the United Nations. This can be stated given their efforts into the designing of innovative solutions to finance sustainable businesses.

Additionally, it is important to mention the Dutch National Fund for Green Investments. They operate by developing innovative financing constructions. In addition, the fund's mission is to apply their expertise in green finance to bridge the connection between economics and ecology. A primary goal is aiding the development of a 'greener' nation (i.e. The Netherlands) by providing services including but not limited to the field of finance. For instance, one of their flagship projects are the invested in sustainable energy for the processing of natural residual materials. Their contributions to the environment are clearly tangible. Contributions made by the Dutch National Fund for Green Investments have seen

the national CO2 emissions reduced by 136,121 tonnes, which is comparable to the emissions of 17,000 households in one year. Also in financial terms, there are promising results. This is based on the recorded profit of € 1.5 million in 2015 demonstrating how 'green' investments can be a viable investment opportunity (National Groen Fonds, 2019).

Furthermore, there are several Dutch parties that were involved in the development of the Guidelines for Investing in Digital Financial Services. These include:

- · FMO
- · Goodwell investment
- · Dutch Ministry of Foreign Affairs
- · Symbiotics Netherlands

- · Triodos Investment Management
- Triple Jump
- · Vimine Holding.

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