CROWDFUNDING FOR INFRASTRUCTURE PROJECT FINANCING: LESSON LEARNED FOR ASIAN COUNTRIES

Nika Pranata[1], Nur Firdaus[2], Erla Mychelisda[2], Achsanah Hidayatina[2]

Abstract

Infrastructure plays a pivotal role in the economy and development. However, financing of infrastructure projects still becomes a major hurdle as it is often considered unbankable, high risk, and require a long payback period. The use of crowdfunding as an alternative source for infrastructure project financing is flourishing and getting popular, especially in western countries such as European and American countries. In contrast, the utilization of crowdfunding for such purpose in Asian countries is very limited. Therefore, this study reviews four crowdfunding platforms in Europe and America that have been successful in raising capital for infrastructure projects which are Oneplanetcrowd, Convergence Finance, Citizenergy, and Infrashares. In addition, the study also discusses crowdfunding policies and regulations of the Dutch, the EU, and the US. Learning from best practices of those platforms, policies, and regulations, the study proposes four crowdfunding business models to be implemented to Asian countries including (i) Blended Finance, (ii) Cross-border Citizen Funding, (iii) Commercial Infrastructure Financing, and (iv) Within Country Crowdfunding. Furthermore, the study also formulates roadmap of crowdfunding development in Asia for infrastructure project financing consisting of six stages from supporting domestic crowdfunding to promoting cross-border crowdfunding platform for infrastructure project investment.

Keywords: FinTech, Crowdfunding, Infrastructure Project Financing

JEL Classification: G23, G24, G28

The views expressed in this paper are the views of the authors and do not necessarily reflect the views or policies of neither OJK nor LIPI.

[1] Research Fellow at Indonesia Financial Services Authority (OJK) and Researcher at Economic Research Center – Indonesian Institute of Sciences (LIPI), email: nika.pranata@ojk.go.id, nika.pranata@lipi.go.id

[2] Researcher at Economic Research Center – Indonesian Institute of Sciences (LIPI)

1. Introduction

Inevitably infrastructure has a vital role in a nation's economic development. Numerous studies, both theoretically and empirically, have strongly supported the notion. From various countries' experiences, Kessides (1993) comprehensively found that infrastructure has a positive impact on cost reduction, production, investment, employment, international competitiveness, domestic market development, economic diversification, the structure of production and consumption, personal welfare, wealth, productivity, and the environment. In Asia, by taking cases of the Philippines, China, and Pakistan, Cockburn, Dissou, Duclos, and Tiberti (2013) conclude that spending on public infrastructure plays a critical role in promoting economic growth and poverty alleviation.

Although it provides many benefits for economic development, infrastructure project requires a considerable amount of capital investment. McKinsey Global Institute (2013) estimated that the amount of accumulated capital required up to 2030 for infrastructure projects reaches USD 57 trillion. One of the key challenges in infrastructure development is a gap in financing. The G20 proxied that there is around USD 1-1.5 trillion of infrastructure financing gap around the world. It is also mentioned that this gap will only be feasible to be closed mainly by private, not by the government budget. Some of the factors affecting the investment gap are 'unbankable' projects, hardship in managing macroeconomic and political risk, and mismatch between offered investment instrument and the requirements of investors (Tyson, 2018). This challenge even heavier for low income and lower-middle-income countries. Investors tend to put their money in countries with strong fundamentals and politic stability.

Concerning this financing gap issue, infrastructure project needs an alternative source of funding, diversified investors, and innovative financing process and intermediary. One of the alternative sources that has vast potential is through Financial Technology (FinTech). The rapid development of technology has also revolutionized financial services. FinTech is a financial service that combines modern financial services with innovative technology (Dorfleitner, Hornuf, Schmitt, & Weber, 2017). Generally, FinTech attracts consumer through its Internet-based products or services which usually using web or applications that are more efficient, transparent, and automated. Those features are aspects that make FinTech differ from conventional financial services.

One of the FinTech services that has grown remarkably is capital raising and financing. Peer to peer lending FinTech has been widely used around the world, even in low income and lower-middle-income countries. It has served various consumers ranging from personal consumers to large corporations. Another financing FinTech service with notable impact is capital raising and public financing through crowdfunding. Crowdfunding is a method of funding that raises a relatively small amount of fund from a large number of individuals or legal entities to fund projects, businesses, individuals, social charities, and other purposes (Jenik, Timothy, & Nava, 2017). There are three characteristics of crowdfunding which are: (i) raising a small number of funds, (ii) raised from many funders to many individuals/businesses/projects, and (iii) utilizing digital technology. In terms of features, crowdfunding can be categorized into several forms, viz. donation-based crowdfunding, reward-based crowdfunding, equity crowdfunding, debt crowdfunding, and hybrid crowdfunding.

Crowdfunding has become an effective method to raise capital and finance projects and other purposes. Currently, it has been widely used to fund creative projects and social purposes. For instance, up to June 2020, Kickstarter as the most popular crowdfunding platform to fund innovative projects has successfully funded 182,795 projects and raised more than USD 5 billion from nearly 18 million funders (Kickstarter, 2020). The type of projects varies, including arts, comics and illustration, design and tech, film, food and craft, games, music, and publishing. Through this platform, raising fund becomes more feasible for the project owners considering that it is harder to obtain capital from financial institutions such as bank because creative projects generally are high risk and low cashflow.

For the funders, there are various reasons to pledge their money for specific projects such as supporting projects that the owners are the people that they have long admired, inspired by the ideas, and because they are initial funders, they usually attain privileges such as getting the products early with discounted price and many other benefits. Another well-known use of crowdfunding platform is to raise capital for a charitable donation. One of the global major platforms is GoFundMe. In 2019, the platform raised more than USD 9 billion, with the number of donations around 120 million times (GoFundMe, 2019). In addition, mentioned that, on average, the daily amount of donation raised reaching USD 4 million per day (Smith, 2018).

Both of Kickstarter and GoFundMe are borderless. Because of digital technology and supported regulation, the fund comes from many countries and can be distributed to all over the world. However, although peer to peer lending and crowdfunding has successfully raised capital for creative projects and social purposes, in terms of infrastructure project, the use of those methods is very limited. There are indeed several platforms to finance infrastructure project through FinTech, particularly projects related to renewable energy. Most of those platforms operate in western countries mainly in Europe and America continent, while in Asia, it is not developing yet.

Therefore, this study aims to provide policy recommendations on how to optimally utilize FinTech as an alternative project financing method, for Asian countries. The policy recommendations are mainly based on an in-depth review of the successful case of crowdfunding platforms engaged in infrastructure project financing. The selected platforms are OnePlanetCrowd (Netherland), Convergence Finance (Canada), Citizenergy (Europe), and InfraShares (USA). They are chosen by considering their business model, number of projects funded, and the amount of capital raised. In addition, this study will also discuss the policies and regulations of each respective country or region, particularly the Dutch, EU, and the US, in supporting the FinTech use for infrastructure project financing. Based on these, we formulate crowdfunding models and make an adjustment for Asian countries' context. Following this introduction, the paper comprises of another three sections, which are review of each selected platform, review of crowdfunding regulations, as well as conclusion and policy recommendations.

2. Review of Crowdfunding Business Models for Infrastructure Project Financing

2.1. Oneplanetcrowd

a. Overview

Oneplanetcrowd, founded in 2012, is a Dutch crowdfunding platform and a 100% subsidiary of One Planet Crowd B.V., focusing on projects related to social sectors and/or sustainable development goals (SDGs). The company is one of the first pioneers in the Netherlands, and it has become one of the largest European crowdfunding platforms for societal-impact focus and sustainability. Oneplanetcrowd offers an investment that provides attractive financial returns and positive impact on people and the environment. In response, connecting innovative entrepreneurs to future-oriented investors is the primary mission of the company to accelerating the transition to a sustainable economy.

In achieving the company's long-term goal, Oneplanetcrowd has been synergising with the financial group StartGreen Capital that has experience in investing in sustainable companies and energy projects since 2006. Other financial institutions collaborating with Oneplanetcrowd are ASN Bank, Rabobank, and DGI Europe. To support its operation, Oneplanetcrowd has a collaborative partnership with Econnetic, The

Next Women, Oost NL, Energy & Environment Investment, Inc., StartLife, BerendsenVisser, and 7Doors. Besides, Oneplanetcrowd has been certified as a B Corp, that is a company that meets the requirements of social and environmental achievements, transparency, and liability. As a result of this, in 2018, Oneplanetcrowd was awarded as the market leader venture capital by CrowdfundingCijfers.nl.

b. Business Model

With respect to its operation, Oneplanetcrowd adopts the concept of sustainability represented in the theory of change emphasising on integrated activities done by companies, sectors, and investors that can generate particular outcomes and social impact on the short and longer-term. This is underlying Oneplanetcrowd's business to achieving the transition to a sustainable economy by putting forward for circularity and inclusiveness aligning with the SDGs. Oneplanetcrowd offers a financing scheme with various financial instruments to companies that can be mixed depending on their characteristics and provide supports related to business, network, knowledge, publicity, ambassadors, and strategic consulting. The focus of Oneplanetcrowd is to develop the 'impact investing' sector by encouraging companies to be sustainable and innovative and promoting their vital role in the economy and increasing transparency of the financial industry by offering 'Direct Matching'. Besides, Oneplanetcrowd facilitates the crowd with investment opportunities that offers a double dividend—financial and social or the environment; and help the crowd with professional supports in terms of management, information, and transparent communication. Oneplanetcrowd expects to provide investments to a wide range of audiences with transparent and reliable information so more efficient and more accessible investment as well as sustainable returns, and successful exits can be achieved.

In terms of business, besides donations, Oneplanetcrowd adopts lending-based crowdfunding in which investors are offered two types of investment with different return and risk. The first type is a loan which is generally subordinated and provided to a company that has already existed and made a turnover requiring additional capital for financing particular projects, such as a sustainable energy project with relatively predictable cash flows. For this type of investment, the interest rate offered is ranging from 4% to 10% with the duration of one year and ten years. To be more flexible, repayment can be made in three ways, such as linear, bullet, and annuity. Like common practice, borrowing companies are required to provide collateral in the form of the company's assets or a guarantee provided by the director(s). In the case of the proceeds are not sufficient to repay the loan partially or entirely, the collateral will be foreclosed to pay the remaining amount. For the risk profile, the loans are not covered by a deposit guarantee scheme; thus, the interest rate is generally higher compared to savings accounts with banks. The borrowing companies can reschedule their repayment due to poor financial results, or even a company could go bankrupt during the term of a loan.

However, investors can opt two types of loans to fit with their risk appetites, namely SME loans and loans for energy and real estate projects. SME loans are designed to companies that already generate cash flow and have sufficient capacity to repay the loan with interest. Meanwhile, loans for energy and real estate projects are provided to a separate entity, that is a special purpose vehicle (SPV). The SPV is also needed for cross-border funding depending on the country conducting a joint force[3]. Since the underlying asset is the project itself, the financiers can only claim the generated cash flows and the assets of the project, but they are also exposed to the risk of the project. For the collateral, this type of loan offers fixed-value collateral, such as real estate or solar panels. Both SME loans and loans for energy and real estate projects

[3] In the case of a joint force with Lumo in 2017, a French crowdfunding platform to finance Torreiles Project in France, the involvement Oneplanetcrowd as the Dutch crowfunding required a special arrangement via SPV (CrowdFundRES, 2017).

are unique in terms of interest and loan term. The interest on a loan for energy and real estate projects is relatively lower than the interest on an SME loan because of the high level of 'pre-structuring" that gives project finance to have a lower risk profile. In the context of the loan term, the duration of a loan for energy and real estate projects is mostly longer ranging from five to ten years while the term of an SME loan is less than five years.

The second type is a convertible loan which allows the investors to become a shareholder of a company. A convertible loan can also be categorised as the equity-based crowdfunding model. This type is often provided to relatively new companies that are expected to grow fast potentially. Since these companies have limited transactions leading to less predictable future cash flows, the expected return could be considerably higher than ordinary loans. Since the company is young, the offered collateral is limited because the products are still in the development phase. In terms of the conversion mechanism, investors are allowed to decline the conversion offer so their convertible loan will become a regular unsecured loan and the company is obliged to repay the investors within the specific remaining term of the loan. Meanwhile, those who accept the offer, the investors will receive the accrued interest up and until the moment of conversion, but their convertible loan is not repaid. The convertible loan will be converted into depository receipts of shares administered by a Foundation Administration Office (in Dutch: Stichting Administratiekantoor, StAK)[4] and the investors will receive a discount on the share price. To determine the share price, the company value will be assessed by either the new (professional) investors or a registered valuator connected to the Netherlands Institute of Registered Valuators (NIRV). A depository receipt holder is principally entitled to the dividend right and other relevant economic rights, such as pre-emptive right, anti-dilution protection, drag-along right, and tag-along right.

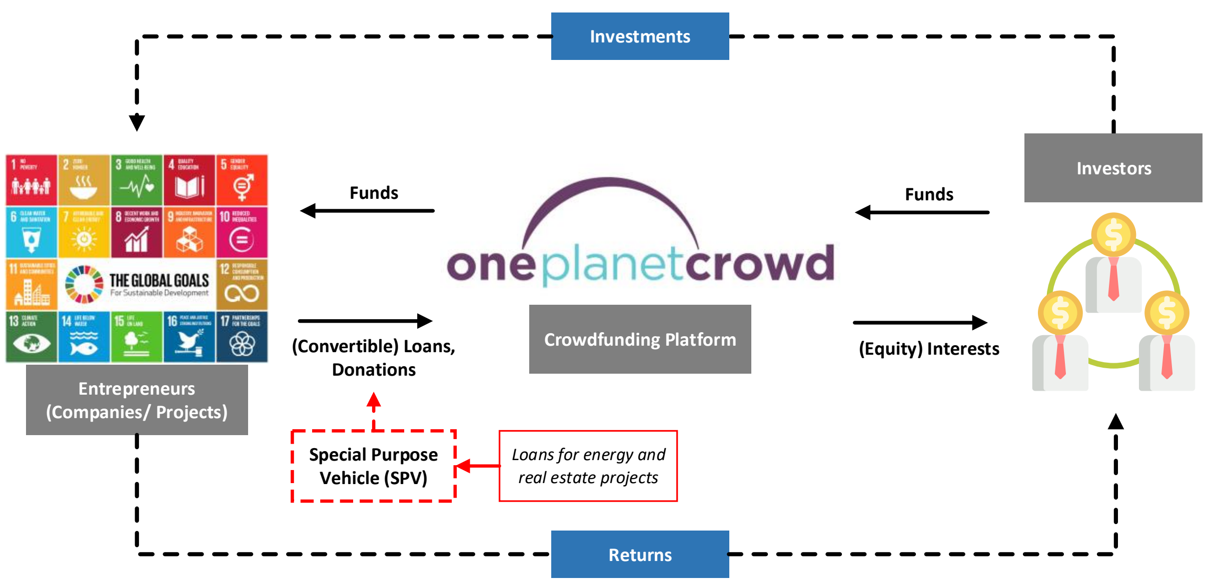

Figure 1. Oneplanetcrowd Model
Source: Adapted from Oneplanetcrowd (2020d)

[4] The StAK is the direct shareholder of the company and issues (non-voting) depository receipts of shares to the investors. The rights of investors will be assured and protected by the board of the StAK. Investors need to get the permission from the board of StAK in case they want to sell the depository receipt of shares, but this can be done over the counter (OTC) (Oneplanetcrowd, 2020a; 2020c).

Furthermore, there are some requirements to become investors. Firstly, an investor is required to create an account on Oneplanetcrowd and complete the account information. However, to minimise fraud and abuse[5], a private investor must have a bank account with a bank in the Single Euro Payment Area (SEPA), be at least 18 years old and be a resident in the SEPA area or the Caribbean Netherlands, and/or have the nationality of a country in the SEPA area or the Caribbean Netherlands while a business investor must be a Dutch legal entity in the form of a sole trader, foundation, BV, or VOF, and established in the Netherlands. This must be supported by the investor's identity verification. In this phase, an investor can choose the desired amount to be invested based on the preferences, but a test related information on products and services must be taken beforehand. If the decision has been made, the investor is required to transfer the agreed amount directly, but the investment will be cancelled after 15 minutes if there is an unsuccessful payment. For a convertible loan, the agreement will be available after the investment has been made containing all financing conditions and the rights to the investors. Besides, the maximum amount in (convertible) loans that can be outstanding with Oneplanetcrowd for a private investor is €80,000, but this limit does not apply for a business customer.

Secondly, concerning payment, investors are recommended to use iDEAL and Bancontact. Investors must make their payment within five working days after the placement during the campaign, but if no payment, the investment become expired. For investments from EUR500 and above, an investor may use a bank transfer, but only direct bank transfers with an IBAN account from a SEPA country are allowed. Transaction methods such as money transfer, Transferwise, PayPal, Revolut or credit card are not accepted. Oneplanetcrowd has now been partnering with Buckaroo as the third-party escrow account for payments. Thirdly, investors will bear the transaction costs if the project is successful, other than that, they are free of regular transaction costs. Investors are required to pay a periodic investor fee or servicing fee (0.8% including VAT per year on the outstanding loan or 0.2% per quarter). This fee can be discounted by Oneplanetcrowd if investors participate in loyalty programmes. The servicing fee is no longer charged after the conversion of a convertible loan into depository receipts of shares. Besides, investors only pay bank costs related to transferring activities. Lastly, an investor needs to consider the scenario in the case of death because the rights can be inherited.

On the other hand, entrepreneurs who are interested in obtaining loans from Oneplanetcrowd must be assessed. An initial exploratory conversation will be conducted to screen the company, whether the criteria comply. Start Green Capital will do a risk assessment for a project based on several subjects, such as market risk, structure risk, operational risk, and management risk following to the information provided in the financial and business plan. Moreover, a customer due diligence is considered by Oneplanetcrowd to identify and verify the key persons and structure of the company based on documents, such as KvK (Chamber of Commerce) number, Articles of Association of the company, UBO declaration, valid identity document, and statement of conduct (VOG). Other documents, such as BKR (credit registration office) declaration, IB (income tax) declaration, and guarantee statement of partner are also required. Furthermore, entrepreneurs need to submit an investment sheet which is resulting from the assessment to an Investment Committee. The committee will then determine whether a campaign can be organised and ensure that investors' funds are used solely for the growth of the company. Oneplanetcrowd will support the campaign and require the company to invite their partners, including customers, employees,

[5] Due to a high-risk rating or specific tax legislation, investors with a nationality or country of residence from Afghanistan, Bahamas, Bosnia and Herzegovina, Bostwana, Cambodia, Ethiopia, Ghana, Guyana, Iran, Iraq, Lao People's Democratic Republic, Libya, Nigeria, North Korea, Pakistan, Panama, Samoa, Saudi Arabia, Serbia, Sri Lanka, Syrian Arab Republic, Trinidad and Tobago, Tunisia, Uganda, USA, Vanuatu, and Yemen are not allowed (Oneplanetcrowd, 2020e).

suppliers, family members, and other stakeholders to invest. If about 20% of the target amount has been reached, the project is shared with Oneplanetcrowd's investors and promoted via newsletters and social media. As the end procedure, Oneplanetcrowd checks whether the company meets the agreed conditions, and all investments have been paid.

c. Performance and Impact

As a business entity, Oneplanetcrowd has shown excellent performance in terms of the amount invested and the number of financed projects. Oneplanetcrowd started its business with pre-sales campaigns of circa EUR 25,000 in 2012, while the amount increased to EUR 7.5 million in 2019 (European Commission, 2020). In 2016, Oneplanetcrowd succeeded to raise $2.2 million in just one weekend from more than 1,000 individual investors in which all funders of a car-sharing initiative (Snappcar) were invited to invest in a tool sharing platform (Peerby) (Cohen, 2018; Toxopeus & Maas, 2018). According to Cumming and Johan (2020), Oneplanetcrowd became the second-largest crowdfunding platform in the Netherlands with 3,700 Twitter followers, EUR 11 million invested in 120 companies, and 18,000 prospective investors. Besides, Oneplanetcrowd has become one of the largest green crowdfunding platforms in Europe, with EUR 30 million invested (Dorfleitner & Braun, 2019).

Table 1. Oneplanetcrowd Performance per March 31, 2020

No.	Finance type	Description (in EUR)	
1.	Loan	Total balance loans	32,099,614
		No. of loans	104
		Total sum mediated	27,164,396
		Total interest	4,935,218
		Total repaid	9,512,661
		Total outstanding	21,910,092
		Total written off (> 90 days)	676,861
		In the restructuring process	175,347
		No late payment (up to 45 days)	21,533,505
		45 to 75 days late payment	201,241
		75 to 90 days late payment	0
2.	Convertible loan	Total balance convertible loans	30,587,147
		No. of convertible loans	32
		Total sum mediated	24,911,079
		Total interest	5,676,068
		Total repaid	688,559
		Total conversion completed	7,716,195
		Total outstanding	19,586,880
		Total written off (> 90 days)	32,778
		In the restructuring process	5,069,210
		No late payment (up to 45 days)	14,517,670
		45 to 75 days late payment	0
		75 to 90 days late payment	0

Source: Oneplanetcrowd (2020b)

According to its website, Oneplanetcrowd has financed 324 projects consisting of 32 convertible loans, 115 loans, and 177 donations per March 31, 2020, and the total balance loans including interest were EUR 32 million with 104 loans while the overall balance convertible loans including interest was EUR 30 million with 32 convertible loans (see Table 1). In relation to infrastructure projects, Oneplanetcrowd mostly financed projects related to sustainable energy, the transition from using fossil fuels to renewables, dan sustainable construction (see Table 2).

Table 2. Selected infrastructure projects financed by Oneplanetcrowd

Finance type	Project			
	Name	**Successfully funded (in EUR)**	**No. of investors**	**No. SDGs**
Convertible loan	Citi Hub Utrecht	0.7 million	448	8, 9, 11, 13
	Solease – solar energy	1.0 million	291	7, 13
	Solesta Zonneboiler	0.2 million	45	7, 13
	Qugo	0.1 million	88	7, 13
	PowerPlane® van Ampyx Power	0.3 million	272	7, 13
Loan	Agradu B.V.	0.6 million	270	7
	Donkey Republic	0.7 million	515	3, 11, 17
	BeGreen Arenapark B.V.	0.5 million	299	7, 9
	Windcentrale II	0.9 million	833	7, 13
	de Windcentrale	0.7 million	421	7, 13
	Enie.nl	0.1 million	92	7, 13
	Blue Current	0.2 million	141	11, 13
	Enie.nl	0.2 million	162	7, 13
	ECONNETIC	0.3 million	187	7, 13
	Peters Biogas	1.2 million	542	7, 9, 12
	Kuster	0.5 million	202	7, 13
	Van Eijck	0.1 million	37	9, 12
	Energy Floors	0.2 million	169	9, 11, 13
	Agro Giethoorn	0.6 million	334	7, 9
	Zonnepark Apeldoorn	0.2 million	181	11, 13
	Amarenco Crowd	0.1 million	106	7, 13

Source: Oneplanetcrowd (2020f)

2.2. Convergence Finance

a. Overview

Convergence is the global network platform for blended finance. It is based in Canada and was founded in 2015 initiated by Addis Ababa Action. It was launched and designed by a core group of partners including Canada's Department of Foreign Affairs, Trade and Development (DFATD), the World Economic Forum, Dalberg Global Development Advisors, and the Global Development Incubator. It is part of the Redesigning Development Finance Initiative led by the World Economic Forum and the Organization for Economic Co-operation and Development (OECD). As for the catalytic funding, DFATD has committed to pledge USD 18.5 million for the platform (Convergence, 2015).

The platform aims to reduce the funding gap of UN Sustainable Development Goals (SDGs), which is approximately USD 2.5 trillion annually. Most of its fund beneficiaries are developing countries. The concept built by the platform is through networking and collaborations of several actors from the public, private, philanthropic funds, and sponsors. Some notable institutions that have become its member including Melinda Gates Foundation, the Government of Ethiopia, MasterCard, Standard Chartered, Rockefeller Foundation, and other stakeholders. Convergence helps to connect private investors, public, and philanthropic investors By using blended finance that aims to disrupt traditional development finance, they target to attract private sector funds to developing countries for development purposes which majorly in the form of infrastructure projects. By doing so, it magnifies the impact of investments economically, socially, and environmentally.

b. Business Model

In achieving its goals, Convergence has four main features in its operation consisting of: (i) Global Network, (ii) Data and Intelligence, (iii) Deal Flow, and (iv) Market Acceleration. All of these features are to support SDGs financing, which a large portion of them are infrastructure financing. *First*, the global network is the key feature for convergence members to connect to each other and collaborate. Currently, it has more than 200 members around the world consisting of public, private, and philanthropic organizations including USAID, IDB Invest, Credit Suisse, Government of Netherlands, and other institutions. The difference between convergence and most crowdfunding platform is its funder. Convergence targeted institutions or organisations concerning SDGs as the investor rather than an individual. *Second,* data and intelligence, which is to support members in decision making regarding SDGs financing through evidence-based content including: (i) Data on transactions and investors, (ii) Case studies, intelligence briefs, and market reports, and (iii) Workshops, training, and webinars. *Third,* deal flow, which is an online match-making platform with blended finance as the method for capital raising. *Fourth,* market acceleration which provides grants for innovative blended finance vehicles targeting private capital through a design funding program (Convergence, 2019).

Furthermore, blended finance that is used by Convergence as the method for capital raising is a structuring approach that facilitates organizations or institutions with different purposes and goals to invest collaboratively while achieving their objectives whether it is financial return, social impact, or the combination of both. There are three key characteristics of blended finance including: (i) aims to achieve SDGs, (ii) is targeted to yield a positive financial return (iii) concessional capital from public and/or philanthropic used as catalytic to lower investment risk and improve the financial return in order to attract investment funds from private institutions. In short, blended finance is mixed of seed capital, which generally is concessional, from philanthropic and public organizations that will be amplified with private funds which usually expect a market-rate return. Furthermore, convergence diversifies blended finance into four structures, as presented in Table 3 and Figure 2.

Table 3. Types of Blended Finance Structure

No	Structure	Description
1	Concessional capital	Public or philanthropic investors provide funds on below-market terms within the capital structure to lower the overall cost of capital or to provide an additional layer of protection to private investors. In this scheme, concessional fund acts as seed capital to attract private investment.
2	Risk insurance	Public or philanthropic investors provide credit enhancement through guarantees or insurance on below-market terms. This scheme aims to lower the risk for private capital.
3	Technical assistance funds	The transaction is associated with a grant-funded technical assistance facility that can be utilized pre- or post-investment to strengthen commercial viability and

		developmental impact. Grant funding from public or philanthropic used for investment capacity building to improve project quality.
4	Design-stage grants	Transaction design or preparation is grant-funded (including project preparation or design-stage grants). The concessional fund is used for designing projects to attract private funds from institutions.

Source: Convergence (2020)

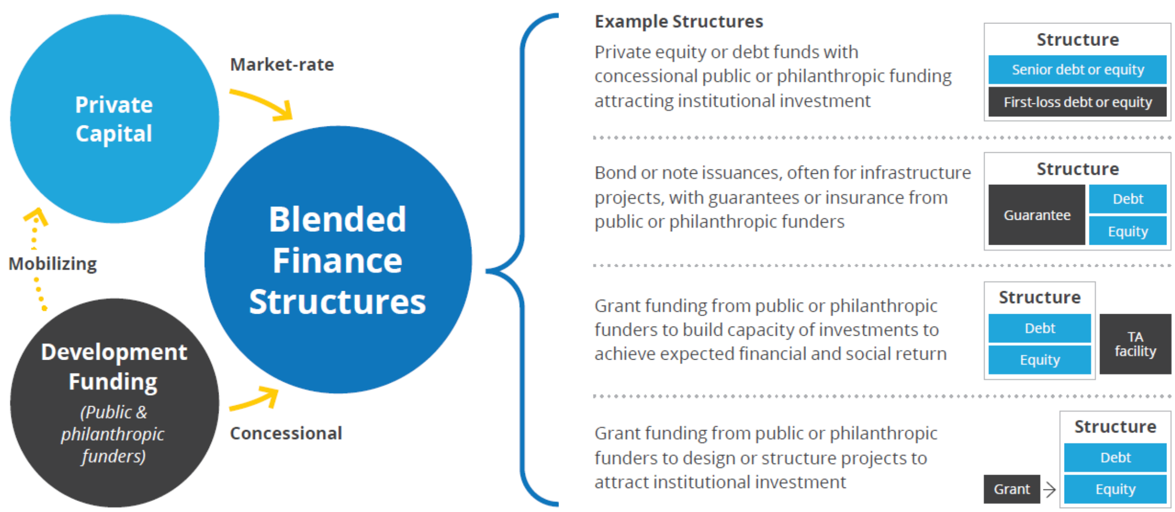

Figure 2. Blended Finance Structure

Source: Convergence (2019)

Moreover, Convergence classifies project feasibility level into three types which are bankable, near-bankable, and unbankable. Convergence blended finance only mobilizes investment to projects in the category of bankable and near-bankable. It does not consider to fund unbankable project since one of the blended finance characteristics is to expect positive financial return (Convergence,2020). Further elaboration on the three project feasibility categories is as follows:

a. Bankable: the project is commercially feasible, but it is unfinanced because of lack of funding. Converge finance acts as an intermediary to increase the supply of capital by raising funds from institutional funders and channel them to SDGs project; hence more projects can be funded and implemented.
b. Near-bankable: The project needs extra risk mitigation to become bankable. Without a certain level of risk mitigation, the project is not feasible to be funded. Therefore, some of the funds from blended finance will be used to mitigate and lower the risk so that the project can be feasibly off the ground.
c. Unbankable: Probability of failure resulting in financial loss is high, blended finance is not suitable to fund this type of project.

c. Performance and Impact

Up to June 2020, Convergence is supported by 1218 unique investors that have involved in one or more blended finance projects. The number is composed of 59% of private institutions, 22% of public, and 19% of philanthropic. By looking into the investor composition, we can see that the blended finance structure is successful in attracting private investment, considering the majority of the investors coming from private. This means that concessional capital from public and philanthropic can effectively be catalytic capital to mitigate investment risk and improve financial yield. Furthermore, the top five most active private investors, in order, are Ceniarth LLC, Calvert Impact Capital, Standard Chartered Bank, Deutsche Bank Group, Société Générale (Convergence, 2020a).

In terms of public investors, Convergence divides into two categories, including public investors with a development mandate and those with a commercial-development mandate. For the first category, the top five most active are United States Agency for International Development (USAID), Federal Ministry of Economic Co-operation and Development (BMZ) Germany, United Kingdom Department for International Development (DFID), IDB Lab, and Swedish International Development Cooperation Agency. For the latter, the top five most active investors include International Finance Corporation (IFC), Netherlands Development Finance Company (FMO), European Investment Bank (EIB), Overseas Private Investment Corporation (OPIC), and promotion et participation pour la coopération économique. Whereas for philanthropic investors, the top five most active include Bill & Melinda Gates Foundation, Omidyar Network, Shell Foundation, Oikocredit, and DOEN Foundation.

In terms of capital mobilization, in 2018, blended finance has channelled around USD 135 billion, with approximately 3,7000 financial commitments to the transactions. The trend for blended finance activities is continually increasing each year, as presented in Figure 3. Regarding deal size, the amount of transaction varies from at minimum USD 110,000 to a maximum of USD 8 billion. The median amount is at USD 64 million. Furthermore, in term of vehicle types, the majority of them are in the form of debt funds, equity funds, and funds of funds. For blending archetypes, the proportion of concessional capital, technical capital, and guarantee or risk insurance is 44%, 24% and, 22% respectively, whereas the remaining are in the form of a design-stage grant and result-based financing. Moreover, concessional capital has been used in several different forms, including first-loss debt or equity, investment-stage grants, and debt or equity to bear risk below market-rate to attract private funds.

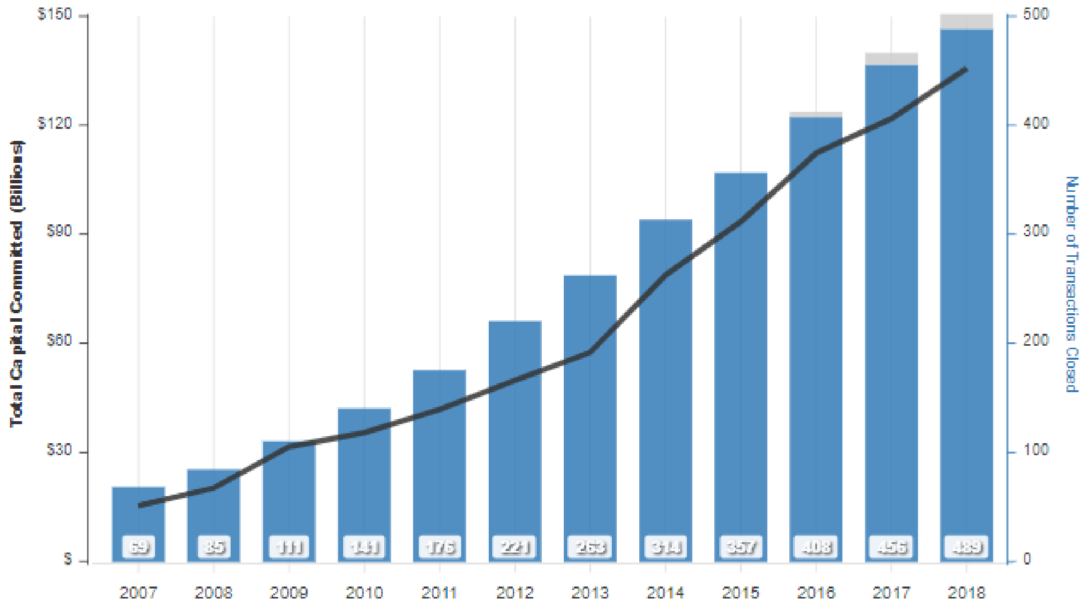

Figure 3. Growth of annual blended finance activities 2007 – 2018

Source: Convergence (2020a)

In terms of beneficiaries regions, most of the funds are transmitted to Sub-Saharan Africa (43%), while the remaining is channelled to South Asia (17%), Latin America and the Caribbean (17%), Global (15%), East Asia and Pacific, (14%), Middle East and Not Africa (13%), and Europe and Central Asia (4%). As for the sectors, most of the funds are to finance infrastructure project (both energy and non-energy) and financial services. In addition, out of 17 SDGs, blended finance transactions mostly impact Goals No. 17 (Partnership for the Goals, 99%), No.8 (Decent Work and Economic Growth, 76%), No.9. (Industry, Innovation, and Infrastructure, 73%), No.1 (No Poverty, 61%), No.10 (Reduce Inequalities, 40%), and No. 7 (Affordable and Clean Energy, 32%).

Lastly, is the performance and impact of the design funding. Design funding is an offer of catalytic capital from public and philanthropic as a grant for development practitioners or facilitators to concept a stage design funding to attract private funds. There have been 18 solutions supported with USD 6.2 million of financings awarded and, USD 600M of capital mobilized. Most of the vehicles are in the form of fund (33%) and bond or note (22%). Regarding the grantee institutions, the majority is financial advisory firm (39%), asset manager (22%), international NGO or non-profit (17%), social enterprise (11%), and multilateral development bank (11%). As for the SDGs, other than goal No. 17 (Partnership for the Goals), majority of the projects are to achieve goals No. 8 (Decent Work and Economic Growth), No. 7 (Affordable and Clean Energy, 32%). No. 2 (Zero Hunger), and No. 3 (Good Health and Well Being). The summary of the performance and impact of design funding is presented in Figure 4.

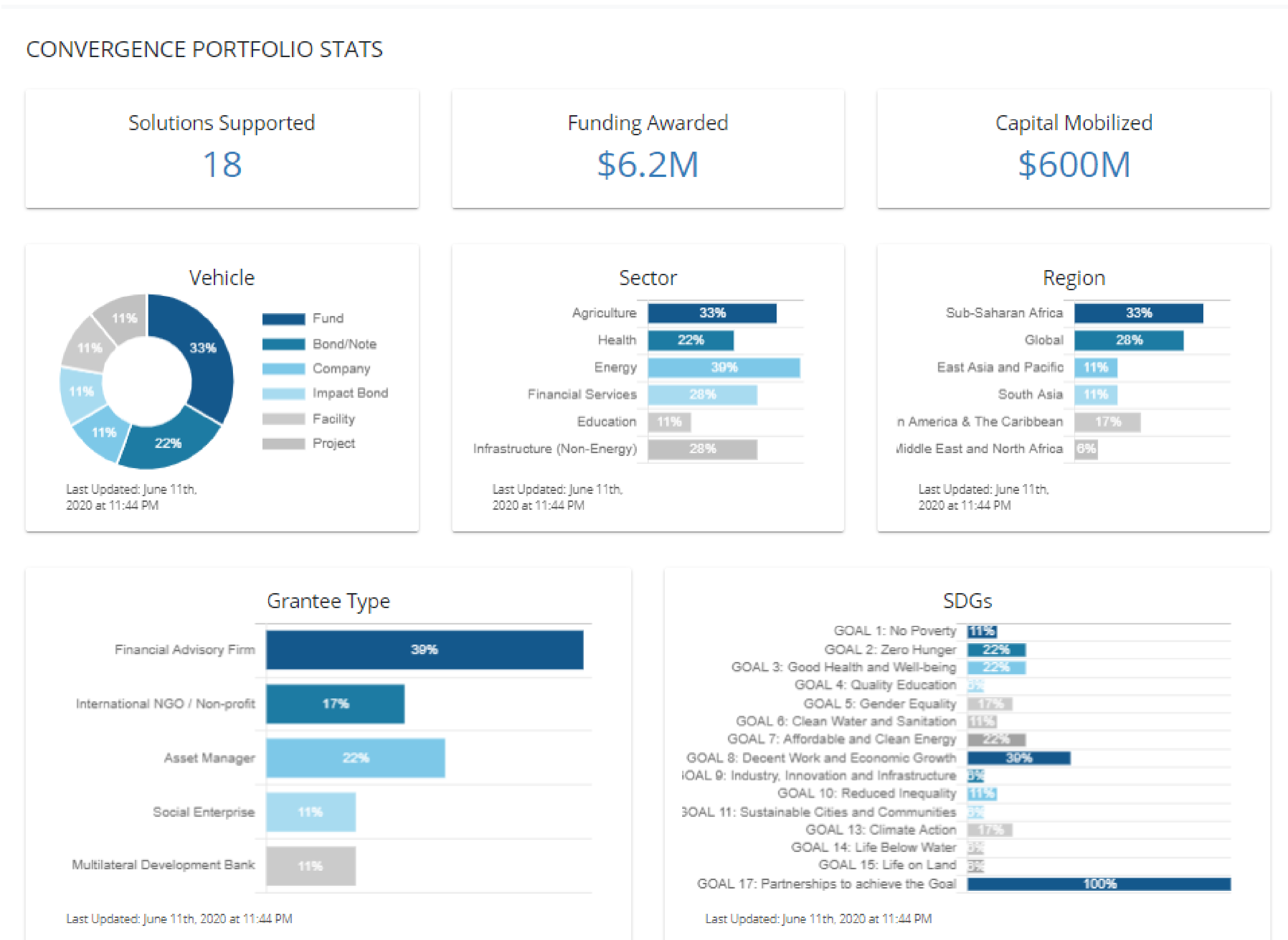

Figure 4. Performance and Impact of Convergence Design Funding

Source: Convergence (2020a)

2.3. Citizenergy

a. Overview

Citizenergy is the first European crowdfunding platform for European citizen investment in renewable energy source (RES) projects that co-founded by the Intelligent Energy Europe Programme of the European Union. Starting in 2012, three Portuguese had the idea to create their country's first crowdfunding platform to fund sustainable energy projects. Having a barrier of no legal framework in Portugal at that time, the entrepreneurs started to look at other ways by cooperating with crowdfunding platforms from across Europe (Citizenergy, 2020d). Then in 2014 Citizenergy was founded, and officially launched in November 2015 and May 2016 for the second website version.

This European crowdfunding was created by the idea of having cross border investment in supporting sustainable energy crowdfunding platform and energy cooperatives. This is because the energy revolution should also be taken on the international level without being confined by national borders. Citizenergy fortifies the country's platforms in financing community energy project by enlarging their outreach throughout Europe while also promoting transparency. It accesses EU funding and encourages public as well as individuals' investor to get involved in the energy transition.

Citizenergy cooperates with platforms that working to promote sustainable energy projects and have been authorized by the financial authorities, where the platforms need to have at least one successfully funded project. Besides, the platform needs to have an updated and informative website, as well as preparing project offerings in English to investors within six months (Citizenergy, 2020a). Until now, there are 33 companies in 20 countries having a coalition with Citizenergy, such as Lumo (France), abundance investment (UK), Coopernico (Portugal), Green Crowding (Germany), Som Energia (Spain), De Windvogel (Netherland), ECrowd (Spain), Trine (Sweden), Zelena Energetska Zadruga (Croatia), Bettervest GmbH (Germany), Energie Partagee (France), Electra Energy Cooperative (Greece), Enerfip (France), Croenergy (Croatia), We Do Good (France), Oneplanetcrowd (Netherlands), Shareenergy (UK), Ecco Nova (Belgium), Go Parity (Portugal), Enostra Coop (Italy), Invesdor (Finland), Pajo Power (Belgium), Joukon Voima (Finland), Crowd4Climate (Austria), etc. (Citizenergy, 2020b).

b. Business Model

Citizenergy offers a unique opportunity for European citizens to invest in RES projects all over Europe. It creates an EU network where RES promoters (platforms and developers), citizens and authorities can collaborate in RES projects. Citizenergy also supports local renewable energy projects and their promoters as well as providing information on sustainable energy opportunities. The supports include issues about the business, network, information, publicity, and strategic consulting. It matches citizens with the projects, identify barriers to citizen investment and provide recommendations (European Commission - Intelligent Energy Europe, 2020). Communication tools, handbook, and helpdesk are provided to support citizen and project partners in engaging with RES projects (Chen, Ngniatedema, & Li, 2018). One of the uniqueness of Citizenergy is that the platform offers a funding scheme with various financial instruments to firms and individuals (citizen). Citizens may choose the business model suited for them depending on their risk appetite, preferences, and motivation of funding. Table 4 elaborates nine business model in the platform for citizen interested in RES project as well as the description, term, risk level, and return types of the model.

Table 4. Types of Business Model and Description

No	Name	Description	Term	Risk Level	Return Type
1	BM 1 – Cooperative: Equity	A cooperative which is jointly owned and controlled by its members, can finance the project with a combination of debt and equity from their members as well as from outsiders (bank loans, grants, etc	Long-Term	Medium, depending on cooperative's credit quality, revenue model of the projects (feed-in-tariff, etc.), type of energy, the priority of the stocks (preferred versus normal), etc	Dividends (or interests in the case of deposits and also personal satisfaction to promote RES projects
2	BM 2 – Corporate Firms or Companies: Equity	Investors provide funds to the project, in exchange for shares, thereby becoming a partial owner of the project.	Long-term	High, depending on: type of stock, the financial position of the company and its credit quality, revenue patterns of	Dividends and growth of capital invested, and also a satisfaction to promote RES projects

				the RES projects, type of energy, etc	
3	BM 3 – Cooperative: Equity/ Customer	Cooperatives sell green energy to their members in which the members (customers) financing with the price they paid for the energy. Cooperatives do not have to pay interest or dividends for using retained profits.	medium or long-term	Low, (the deposit/ stock is refundable), depending on: the green electricity price, the amount of money paid to be a cooperative member and the duration of the supply contract.	Green energy (no monetary return) and personal satisfaction
4	BM 4 – Mezzanine Financing	A hybrid funding that combines features of debt and equity. The primary forms of mezzanine financings are subordinated debt (bonds or loans) and, less frequently, preferred stocks.	medium-term	Medium-high, depending on: type of stock or bond, the financial position of the company and its credit quality, revenue patterns of the RES projects, maturity in case of bonds, etc	- Coupons (interests) from debt securities and the option to convert to stocks - Dividend from preferred stock and option to convert into ordinary stocks
5	BM 5 – Debt: Bonds	Bonds are fixed-income securities that incorporate a part of a collective credit constituted by a corporation.	short, medium and longterm	Medium, depending on Bond Issuer and RES project, collateral, priority, and options.	Coupons (interest) over a period of time or at the end of the project; and satisfaction
6	BM 6 – Debt: Loans	Investors lend their money to the project and get paid in return over a period of time. The interest rates and the period of loan vary from project to project.	short, medium and longterm	Low-medium, depending on RES project (quality of management, corporation's ability to pay, changes in the regulatory environment, revenue patterns), collateral, and priority.	Interests and personal satisfaction
7	BM 7 – Donation	Investment of money to a project by individuals for social or charity reason without expecting a material reward.	Short or medium, long-term	Negligible	Personal satisfaction and could be a non-material reward (gratitude email or acknowledgement, etc.)
8	BM 8 – Reward	A variation of BM donation, where donors/ funders receive a material reward as an acknowledgement of their support but in a	Short-term	Negligible	Satisfaction and a material reward (mostly exclusive items)

		lower amount than the money they donate.			
9	BM 9 – Crowdfunding Through Crowdsourcing	A person or institution participate by voluntary to complete a task (not with money)	Short-term (depending on the task)	Negligible	Satisfaction and possibly material or non-material reward (acknowledgement; prizes such as electricity price or discount etc.)

Source: Citizenergy (2017c)

c. Performance and Impact

Citizenergy has shown excellent performance in terms of amount invested, the number of financed projects as well as the number of participating investors. At first, there were six pilot RES projects established in Germany, Spain, France, Netherlands, Portugal, and the United Kingdom. The projects then developed until there were 41 community energy projects registered in the platform, from 15 countries and 16 RES promoters, as of March 2017 (Table 5). Overall, total crowd investment target in the platform is EUR 27.350.832, which accounts for 14,6% of the total investment of projects. EUR 14.797.071 has been successfully crowdfunded, or 54,1% of total crowd investment target. The recorded number of investors is 9.487, and average investment per participating citizen was EUR 1.891. Meanwhile, using the most updated data, currently, there have been 73 RES projects with total EUR 41,936,545 funded by Citizenergy that cooperated with 33 platforms across EU (Citizenergy, 2020c).

Table 5. Citizenergy Performance per March 2017

Performance Indicator	Amount
Number of RES projects registered	41
RES promoters	16
Energy cooperatives	5
National crowdfunding platforms	11
Countries where project were initiated	11
Project location countries	15
Number of projects in Europe	11
Number of projects in Africa	4
Total investment	EUR 184.113.487,00
Total crowd investment target	EUR 27.350.832,00
Successfully crowdfunded	EUR 14.797.071,00
Total power capacity	111.200 kW
Total expected energy generation	243.263.296 kWh/yr
Number of investors *Data for 32 projects	9.487
Average investment per citizen	EUR 1.891
Average period for project to be funded *Data for 33 projects	135 Days

Source: Citizenergy (2017b)

Moreover, although there are seven types of citizen' participation to invest in energy projects, only five types are recorded (Figure 5). A loan is the most common participation type, used in 70% of projects registered in the platform. Meanwhile, bond, reward, cooperative and equity compositions are almost similar with around 2 – 4 projects from 41 projects registered under the platform. In addition, Figure 6 describes the average number of citizens investing in the projects by the country where the project is located. Most investors are from the UK with 672 citizens while the least investors are from Portugal with 38 citizens.

Figure 5. Number of projects by participation type

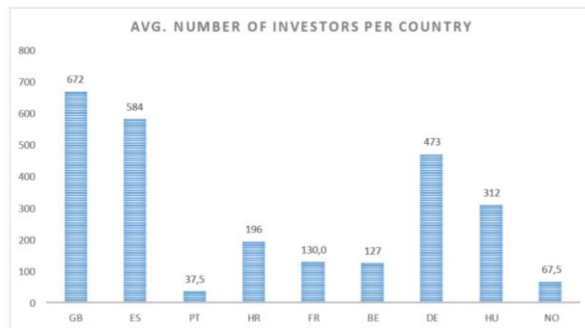

Figure 6. Avg number of investors by country

Source: Citizenergy (2017b)

Also, Citizens who decide to join in one of the RES projects will need to provide certain information to be registered as platform users and to qualify for engagement and/or investment. Personal information includes name, email, date of birth, address, country, ID or passport number, VAT number, and bank account number.

Furthermore, from its RES project, Citizenergy also helps to achieve EU targets. Table 6 elaborates Citizenergy's direct contribution to EU 2020 goals regarding green electricity and emission reduction, citizen investment and long-term investment culture, as well as job creation from a greener economy. From the Table 6, it can be seen that Citizenergy brings a significant contribution to the environment, economy, and social impact. One of the strategies that Citizenergy has implemented to achieve the goals is by creating an EU collaborative network where all the stakeholders, i.e. RES promoters, investors, and authorities can jointly develop and engage in the projects.

Table 6. Strategic Objectives and Long-term Impacts of Citizenergy' Action Until 2020

No.	Strategic Objectives	Expected Impact by 2020	Citizenergy's Direct Contribution
1	Contributing to achieving EU 20-20-20 target	282 MW of installed capacity from the projects funded by citizens through the platform	77.851 MW of installed capacity projects (27.6%)
		Generate 522 GWh green electricity	106,327 MWh green electricity (20.4 %)
		Reduce emission for 161,820 tCO_2/year	32,961 emission reduction (20.4%)
		The project will give a significant impact on increasing RES project promotion	Number of CF platforms in Europe increase from 19 in 2014 to 37 in 2016 (an increase of 194%)
2	Preparing the creation of an EU framework for CF investment	288 new energy projects are registered in the platform	14 new projects registered (14.2%)
		Similar initiatives in other aspects are created, from crowdfunding in general to environmental safeguard or social projects.	
3	Developing a long-term investment culture	EUR 351 million amount of investment from project registered in the platform	EUR 35 million invested in the project (10%)
		Citizens will be more aware of the sustainability and real added value of long-term investments	4,039 citizens directly informed about Citizenergy in over 40 events with more than 25,000 visitors (offline); 12,880 new visitors online
4	Creating jobs through the implementation of a greener economy	1,147 green jobs are created directly during the project's implementation period	313 jobs created
		399 long-term green jobs are created as the need of O&M of the projects	108 long term jobs created

Source: Citizenergy (2017a)

2.4. InfraShares

a. Overview

InfraShares, founded in 2017 by Brian Ross, is an investment crowdfunding platform in the US that allows individual investors to participate in the financing of infrastructure project through Public-Private Partnerships (P3s). The company is focusing on all types of infrastructure projects, including smart cities technologies, infrastructure assets and renewable energy. This platform provides investment opportunities for individual investors an entirely new asset class while providing infrastructure owners with low-cost capital that promotes community engagement, social equity and economic prosperity (Ross, 2020a). Furthermore, this mechanism can also give incentives to citizenship to take ownership of crowdfunded infrastructure among communities.

InfraShares is the first platform that raises private equity and debt investment in public infrastructure projects and provides cost efficiency, economic impact, and community engagement (Ross, 2020b). It allows communities to co-invest in their infrastructure by investing online. For companies, it gives simplify and speed up the fundraising process and access of network of investor focused on smart cities technologies, infrastructure assets, and renewable energy projects. To support its operation, InfraShares has a collaborative partnership with companies of multiple structures such as C-corporations and limited liability companies (LLCs) or companies incorporated in the U.S.A. However, InfraShares only work with companies organized in the U.S.A. and Canada.

b. Business Model

InfraShares is implementing an innovative concept in which small investors, especially local communities, can make direct equity investments in privately financed infrastructure projects. Besides, this offers increased community engagement and decreased cost of capital for issuers and provides investment opportunities for individuals that want to support specific infrastructure projects. Thus, crowdfunding can be a primary source of non-bank financing and create opportunities for additional transparency and enhanced public engagement in policy.

In terms of business, InfraShares adopts lending-based crowdfunding in which investors were offered three types of investment with different return and risk. The first type is a common stock which is the simplest form of equity. This type of shares is ordinary company shares most commonly held by founders and employees. Holders of common stock exercise control by electing a board of directors and voting on corporate policy (Farajian & Ross, 2016). Common stockholders are on the bottom of the priority ladder for ownership structure. The second type is a preferred stock which is a class of ownership in a corporation that has a higher claim on the assets and earnings than common stock. Preferred stock generally has a dividend that must be paid out before dividends to common stockholders, for example, preferred return, and shares usually are not accompanied by voting rights (Farajian & Ross, 2016). The third type is a convertible preferred stock which includes an option for the holder to convert the preferred shares into a fixed number of common shares, usually any time after a predetermined date (Farajian & Ross, 2016). Preferred stock is the most likely security to be offered. However, the preferred stock will naturally offer lower equity returns than common stock (Farajian & Ross, 2016).

InfraShares as a funding portal must register with the Securities and Exchange Commission (SEC) and become a member of a national securities association (FINRA) (U.S. Securities and Exchange Commission, 2016). Besides, InfraShares code on SEC is 7-107, and this is the only FINRA approved Title III Regulation Crowdfunding (Reg CF) Funding Portal focused on infrastructure. Once the P3s project awarded, the private developer works with an SEC-registered online platform to develop and run an investment crowdfunding campaign. Moreover, InfraShares partners determine the size, type, and terms of the crowd financing campaign. Then the campaign is launched on the InfraShares website where potential investors can see project details, investment terms and comparable projects.

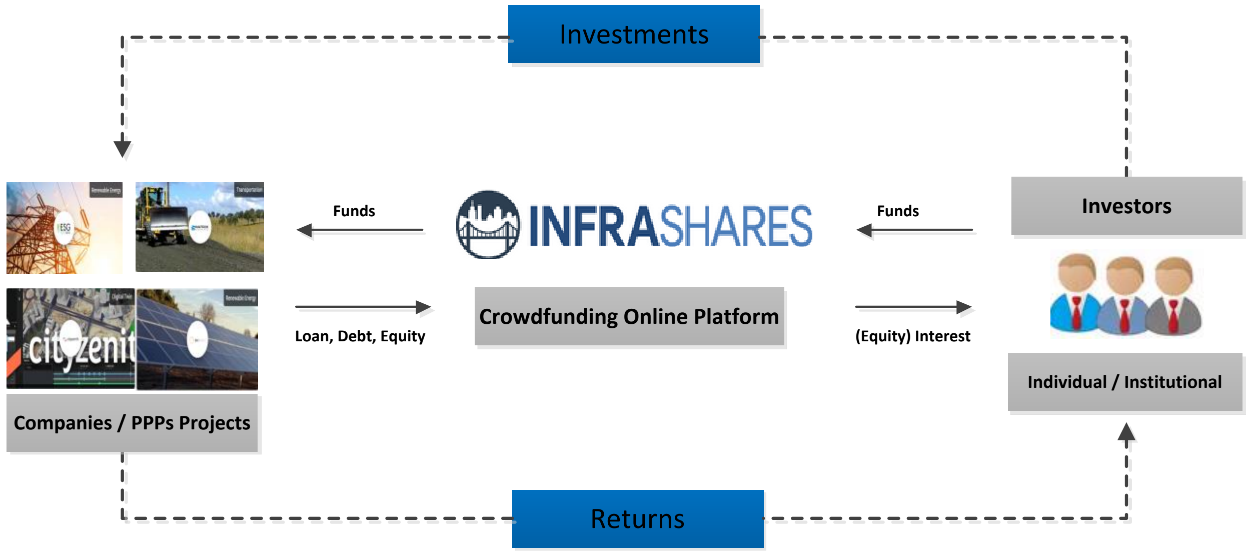

Figure 7. Infrashares Business Model

Everyone can sign up on InfraShares as an investor. Furthermore, there are two types of investors. First, an "accredited investor" is defined by the SEC as individuals who consistently earn more than $200,000 per year, coupled with a consistent combined income of more than $300,000 per year, and individuals whose net worth (excluding primary residence) is at least $1 million (U.S. Securities and Exchange Commission, 2016). An accredited investor may be an entity, for example, bank, partnership, corporation, non-profit, trust when the entity satisfies specific criteria (Farajian & Ross, 2016). Second, a "non-accredited investor" is any individual or entity that does not meet the definition of an accredited investor (U.S. Securities and Exchange Commission, 2016). Both accredited and non-accredited investors can make investments on InfraShares depending on the offering type.

The developer will define the amount and type of securities, provide offering memos and determine the duration of the campaign. For 506(c) offerings, the amount that can raise is unlimited, but investors must be accredited; for Regulation A+ offerings, the current limit is $50 million from unaccredited investors, but audited financials are required; and for Title III CF offerings, capital raises of up to $1 million from unaccredited investors are allowed with reduced reporting requirements (U.S. Securities and Exchange Commission, 2016). On the other hand, investors visiting the site can browse by project type, geography, security type, internal rate of return to find an offering that fits their investment objectives. The investor can post questions to the developer or the investment community in general in order to aid with performing due diligence. The site will also offer comparison and analysis tools to help investors determine which projects are right for them.

c. Impact and Performance

Within the last few years, InfraShares has started to showcase civic projects to provide public goods to communities. The investment raised through crowdfunding has been successful at fundraising for community centre renovations, renewable energy and public transportation. The local infrastructure projects within the community, thereby increasing the economic impact of the infrastructure development in the region.

Table 7 shows that Regulation D Rule 506 (c) are suited for large regional projects that may serve multiple states, such as, power generation, renewable energy, toll road, oil and gas. These projects typically require larger capital raises and will have a risk on return profile and more suitable for accredited investors (Farajian & Ross, 2016).

Table 7. Infrashares existing projects

No	Project	Sector	Cost (in USD)	Minimum Investment (in USD)	Project Status	Outcome
1.	SDSF Solar Fund IV	Renewable Energy	5 million 506(c) Offering	25,000	Still offering	Solar Fund offers a triple play of benefits: it lowers taxes, offsets dirty fossil fuels, and helps mission-based organizations acquire clean, cost-effective solar.
2.	ESG Clean Energy	Renewable Energy	5 million 506(c) Offering	25,000	Still offering	Attractive and predictable income returns included electricity sales, transmission, capacity and alternative energy credits
3.	Cityzenith	Digital Twin	33 thousand 506(c) Offering		In Progress/ Under Construction since 2020	Advanced Digital Twin Solution for Infrastructure
4.	The Gateway Opportunity Fund	Real Estate Development	33 million 506(c) Offering	100,000	In Progress/ Under Construction since 2020	Using a crowdfunding platform as a part of their fundraising enables individual community members to actively participate in the economic and physical redevelopment of their city.
5.	Matrix Materials	Transportation	40 thousand 506(c) Offering		In Progress/ Under Construction since 2020	Working Capital Loan for Fairfax County Pilot Project

Source : InfraShares (2020)

3. Review of Crowdfunding Policies and Regulations

3.1. The Dutch Crowdfunding Regulation

The rapid growth of the crowdfunding industry in the Netherlands needs a prompt response from the government to design the regulation that can promote not only the FinTech business in general but also specifically the crowdfunding. In terms of crowdfunding platform establishment, the most common corporate structure in the Netherlands is a private limited company (BV) which is a capital company with legal personality. This structure is an accepted legal form for all types of FinTech companies (Hakvoort & Machiels, 2018); thus, it does not require a minimum share capital, but an initial deposit with a low value does. However, for the BV, the minimum paid share capital is EUR 0.01 in cash or in-kind, which is considered as the nominal deposit. Concerning ownership structure, both domestic investors and foreign investors are treated the same way in the Netherlands following the common EU practices; crowdfunding companies, however, are not allowed to accept their shareholders holding 20% or more of share capital or voting rights in which this rule applies to any of their managers or employees or any person linked to those shareholders, managers, and employees by control as stipulated in the Article 4(1)(35)(b) of Directive 2014/65/EU on markets in financial instruments. For crowdfunding services, the Dutch Government allows a crowdfunding platform to offer various products such as equities, debts, and donations or rewards.

For those who are interested in investing in crowdfunding, several requirements must be met depending on what type of investor. Under the Proposal for a Regulation of the European Parliament and of the Council on Crowdfunding Services Providers (ECSP) for Business, cross-border crowdfunding activities across the EU countries are allowed; thus both Europe-based investors and entrepreneurs can access to services provided by any crowdfunding platforms operating within the EU members. Nevertheless, one of the crowdfunding platforms, Oneplanetcrowd, for instance, allows private investors with resident status and/or having the nationality of a country in the SEPA area or the Caribbean Netherlands to invest in Dutch crowdfunding platforms. To meet the eligibility requirements, prospective investors must provide their passport or other government-issued ID. As private investors, business investors from the EU nations are welcome to invest in Dutch crowdfunding platforms, but they must be legal entities and provide their recent signed statues, a recent Chamber of Commerce extract (maximum three months old), and an ultimate beneficial owner (UBO) statement. In terms of the amount invested, private investors are allowed to invest up to EUR 40,000 per platform for equity-based crowdfunding and EUR 80,000 per platform for loan-based crowdfunding (Wales, 2018). Meanwhile, for business investors, they do not have any limit. Crowdfunding service providers are required to run an entry knowledge test for their prospective non-sophisticated investors, ensuring whether they can bear a 10% loss of their net worth. Also, retail investors are required to take the initial crowdfunding test if they invest more than EUR 500 in equity or loans and the additional investment test for every additional EUR 5,000 invested.

For prospective entrepreneurs, Council of the European Union (2020) state that the threshold of below EUR 5 million as stipulated in Article 38b for the publication of a prospectus made by a particular project owner applies to crowdfund offers in the EU member states. However, this threshold might lead to the risk of regulatory arbitrage and have a disruptive on access to finance and the development of capital markets in the certain Member States. In response, some Member States set a specific legal framework regulating the threshold. For instance, the prospectus threshold has been set to EUR 2.5 million per year per instrument type in the Netherlands (Cumming & Johan, 2020). The threshold set in the EU framework might be temporary for the shortest possible period to minimise the negative impact on the internal market.

Furthermore, governance aspects, such as contract conditions, post-investment issue related to cooling off and writing off, and regulations related to data protection and privacy as well as market integrity and financial crime issues, are essential for the crowdfunding industry. This is because as one type of FinTech companies, crowdfunding providers are considered to be professional intermediaries and have a special duty of care to ensure that both lenders and borrowers are well-informed. With regard to governance aspects, the relevant Dutch regulations include (i) the financial regulatory laws and regulations, such as the Dutch Financial Supervision Act including the Second Payment Services Directive (PSD2), the Markets in Financial Instruments Directive (MiFID), the Alternative Investment Fund Managers Directive (AIFM), and the Prospectus Regulation; (ii) anti-money laundering and counter-terrorist financing laws; (iii) data protection; (iv) e-commerce; and (v) consumer protection (e.g. the Dutch Civil Code) (Hakvoort & Machiels, 2018). Besides, as an EU member, the Dutch financial regulatory framework is principally rooted mostly in European legislation which makes it standard to all EU members.

In terms of contract conditions, they are formulated by the platforms (The Netherlands Authority for the Financial Markets [AFM], 2014). Therefore, each platform may have different requirements. In general, contract conditions include the rights and obligations of both investors and entrepreneurs. Investors are required to disclose their detail information when they create an account and take an initial knowledge test before they are allowed to start investing in prospective projects and transfer the funds. Investors will receive the payment after the end procedure has been passed by the entrepreneurs. Meanwhile, entrepreneurs must provide their business or project plan—including cash flow information and collateral as well as participate in the assessment process. After the funds transferred, entrepreneurs must make payments following the predetermined schedule. Entrepreneurs can restructure their loan due to poor performance. Both investors and entrepreneurs must pay occurring costs related to transactions. However, the platforms must be professional, transparent, and have a certain level of protection both for lenders and borrowers. Besides, the Nederland Crowdfunding, a Dutch crowdfunding association established in 2014, focuses on the development of crowdfunding in the Netherlands, including ethical codes that become the guideline for Dutch crowdfunding platforms.

In the case of default, like common practices, crowdfunding platforms determine the maximum period of loan that can be categorised as the bad loan is more than 90 days. This loan will be written off by the crowdfunding platform. The pronounced bankruptcy is also categorised the bad loan and will be written off. As a result of the bad loan, investors will not receive the returns, but since the entrepreneurs provide collateral, investors may not lose their entire investment. Following the Article 14a of the EU framework and the Dutch regulation, crowdfunding platforms must disclose information about default status on their website as the source of information for prospective investors. In terms of data protection and privacy, the Dutch Government has regulated companies engaged in collecting and processing of personal data under the General Data Protection Regulation (GDPR), which applies to all EU Member States. The GDPR also applies to an EU FinTech company if it carries out all processing of personal data outside the EU. Crowdfunding platforms must be transparent about the purposes of the collected and used data. In conjunction with the GDPR, the Second Payment Services Directive (PSD2) include rules related to the processing of personal data within the framework of payment services.

The Dutch Central Bank (DCB) and the Dutch Data Protection Authority (DDPA) have launched a cooperation protocol to oversee the personal data processing obligations stipulated in PSD2 and GDPR. Besides, the Netherlands has implemented the EU Network and Information Security (NIS) Directive by the Dutch Cybersecurity Act (The International Comparative Legal Guides [ICLG], 2020). Meanwhile, consumer protection refers to the Dutch Civil Code. Moreover, data protection is regulated under the Proposal for a Regulation of the European Parliament, and of the Council on Crowdfunding Services

Providers (ECSP) for Business stipulated in Article 27f following Regulation (EU) 2016/679 and undertaken by the European Securities and Markets Authority (ESMA) under Regulation (EU) 2018/1725 (Council of the European Union, 2020). For market integrity issue, crowdfunding companies must comply with the European Revised Fourth Anti-Money Laundering Directive (commonly known as the Fifth Anti-Money Laundering Directive or AMLD5) as stipulated in the EU crowdfunding proposal on the Article 38(2g). The AMLD5 is expected to prevent money laundering and terrorist financing, and the large-scale obfuscation of funds. The issue of market integrity is also regulated under the Dutch Criminal Code (DCC) and the Money Laundering and Terrorist Financing (Prevention) Act (Wwft).

To promote the development of crowdfunding industry in the Netherlands, the government provide incentives for FinTech companies (The International Comparative Legal Guides [ICLG], 2020). First, profits generated from certain qualifying self-developed intangibles (e.g. software) are taxed at an effective rate of 7% (9% in 2021). This incentive is known as an innovation box. Second, crowdfunding platforms can get an R&D tax credit that is a reduction of wage tax and national insurance contributions because of R&D activities (R&D wage costs and other R&D expenses and investments/ WBSO). This incentive encourages entrepreneurs to invest in research. Third, there is a 30% ruling which is a substantial income tax up to 30% given to qualifying ex-pats for a maximum period of five years; thus only the remaining 70% being subject to income tax. Last, the government will reduce the maximum statutory corporate income tax rate from 25% in 2020 to 21.7% in 2021 to attract investment in the Netherlands.

Moreover, there are several attractive features of the current Dutch tax regime for prospective investors who are planning to invest in the Netherlands and might be relevant to the crowdfunding industry (The Netherlands Foreign Investment Agency [NFIA], 2020), such as: (i) double taxation exemption, (ii) consolidation tax for companies within a corporate group, (iii) loss carry-back for one year and carry-forward losses for six years, (iv) Advance Tax Rulings (ATR), (v) OECD Transfer pricing practice and an Advance Pricing Agreement (APA), (vi) Tax relief schemes for environmentally friendly investments (MIA/Vamil), (vii) Tax relief program for investments in sustainable energy (EIA), (viii) Wide tax treaty network to avoid double taxation and reduce withholding taxes on dividends, interests and royalties (for interest and royalties often to 0%), (ix) No statutory withholding tax on outgoing interest and royalty payments, (x) VAT deferment upon importation, (xi) the easiness of access to the tax inspector from the Dutch Tax Authorities, and (xii) practical and pro-active approach from the Dutch Customs Authorities.

Besides tax incentives, to promote the development of FinTech, the Dutch Government protects innovations and inventions in the forms of copyrights (software), database rights, and design rights. Also, know-how and technical information, such as trade secrets are protected. Along with this, in 2016, the AFM and DCB jointly launched two initiatives to facilitate FinTech and gain knowledge of FinTech developments through The Innovation Hub and The Regulatory Sandbox (MaatwerkvoorInnovate) (Hakvoort & Machiels, 2018; The International Comparative Legal Guides [ICLG], 2020). The InnovationHub, established in 2016 by DNB and the AFM, is an information portal to support companies seeking to implement innovative business models or products but have limited knowledge related relevant rules. Meanwhile, the regulatory sandbox aims to facilitate innovation and encourage companies to produce innovative financial products without unnecessary regulatory impediment. In practice, companies can request supports from the relevant regulator to assess whether their innovative ideas comply with the regulations.

In the end, regulating the crowdfunding industry needs bodies that are responsible for enforcing the applicable laws and regulations. The Netherlands has a twin peaks model between the two main financial regulators, such as AFM and DCB. The Dutch Authority for the Financial Markets (AFM) is responsible for ensuring that financial market processes are orderly and transparent and treat clients in appropriate ways while the Dutch Central Bank (DCB) acts to ensure financial stability, limit systemic risk, and supervise prudential practices done by financial institutions. To support the business practices, the other two regulators include the Netherlands Authority for Consumers and Markets (ACM) to oversee business practices on the basis of consumer protection and the Netherlands Data Protection Authority to oversee unlawful transactions related to money laundering and terrorism. In addition, since the crowdfunding industry complies with the EU regulations, several EU bodies that may relate to crowdfunding activities, such as the European System of Financial Supervision (ESFS), the European Securities and Markets Authority (ESMA), the European Banking Authority (EBA), European Insurance and Occupational Pensions Authority (EIOPA) are responsible for promoting a sound and robust financial system.

3.2. EU Policies and Regulations

On 19 December 2019, the European Council, European Commission and European Parliament have agreed on the proposed EU framework for crowdfunding. The Proposal on European Crowdfunding Service Providers (ECSP) for Business and amending Regulation (EU) No 2017/1129, set up a favorable uniform at European level to regulate cross border investment in crowdfunding. It allows any platform holding an ECSP status to operate in all EU countries with no additional status to be required, which helps platforms to scale up and foster integration between platforms. This ECSP regulation is mandatory for all loan and equity-based platforms in EU, meanwhile, reward or donation-based crowdfunding is not included in this directive.

The motivation underlying cross-border crowdfunding transcations is to simplify the bureaucracy. Currently, each European country has a different regulatory requirement. Thus, if crowdfunding provider intends to scale up its operation to other EU countries, it will need legal advice in those countries. This means that if the platform plans to be an EU crowdfunding platform, it needs to be licenced in all 28-member states, which is a substantial administrative and financial burden. This also applies to an investor wishing to participate in a cross-border project listed on a foreign platform, where he/she should pay attention to different regulatory between his/her home country. For illustration, cross border platforms are required to have Markets in Financial Instruments Directive (MiFID) licence and prospectus obligations to operate in other member states. This regulatory barriers regarding inbound (foreign crowdfunding platform addressing local investors or company/project initiator) and outbound cases (local platform addressing foreign (EU) investors or presenting EU company/project initiator) are time-consuming and expensive for platforms. Consequently, most of the crowdfunding platforms restrict the initialization of the projects only to citizens of the country in which the platform is registered, as well as the investors who often discouraged to investing cross border.

By having a common EU framework, the complication that the crowdfunding platform has been facing in case of inbound and outbound regulation can be solved. Under EU framework, crowdfunding service provider authorized under Article 10 of the proposal, will have EU passport privilege (mutual recognition of crowdfunding platforms licenses) and may conduct an operation in other member states without additional local license and prospectus requirement (EuropeanBank, 2018). This EU licensing can be used across the EU without the need for authorization in each EU country (Council of the European Union, 2018). There are some requirements for platforms to have ESCP status. The prospective ECSP need to request authorization from the national competent authority (NCA) of the member state in which it is established. If the request has been approved by the authority, the platform will get a single license which allows them to provide services outside its member state. The NCAs would also be implementing supervision with the help from the European Securities and Markets Authority (ESMA) to coordinate and facilitate cooperation among the member of the state. The European Securities and Market Authority

(ESMA) has the power to access and investigate crowdfunding service provider as well as withdrawing or giving sanctions if it does not meet the criteria.

If pulled back, the initiation to support cross border investment within Europe had started since 2015 when the European Parliament issue recommendation to CMU to create an appropriate regulatory environment to promote the growth of non-bank financing models, including crowdfunding and peer-to-peer lending (Klöhn, 2018). Then in May 2016, the European Commission published a Commission Staff Working Document, which reports that crowdfunding is still relatively small in the EU but is snowballing. Crowdfunding has the potential to develop; thus, the Commission affirms not to give intervention during the time to provide a chance for crowdfunding to innovate, but still under monitored to see the performance of the sector (Klöhn, 2018). Moreover in 2017, the European Commission and European Parliament revised the prospectus regulation in favor of Crowdfunding, also submitted a proposal of ECSP for business on 8 March 2018 which is published two years after that (European Crowdfunding Network, 2019). Besides to encourage cross border investment, the adoption of a single set of EU regulatory framework that applicable for crowdfunding is expected to reduce the costs of conducting business, make the process of licensing become more straightforward and more transparent in which can boost the confidence of crowdfunding platforms and investors. Investors' confidence would be the key to develop crowdfunding business and the most important to create a real internal market for crowdfunding in the EU (Council of the European Union, 2018).

Under EU regulation, platforms are required to provide clear and complete information to the investors. *First,* information regarding the platform itself, such as the criteria used in the selection process of the projects, project owners and investors on the applicable fees, as well as checking the identity of project owners. *Second*, information about the projects, including terms and conditions of the offer as well as estimation of any costs or fees charged to the investor. It also needs to provide clear information on how to return the funds in case of a legitimate exercise of withdrawal or revocation, as well as in the event of non-completion of the offer. This includes providing crucial investment information sheet, bulletin board, and access to records for each project or at platform level. *Third*, investor protection requirements, such as the risk of loss of the capital invested, the risk of illiquidity, and taxation fee of the investment (Citizenergy, 2015). The platforms are also required to have entry knowledge test and simulation of the ability to bear the loss by request information about the potential investor's basic knowledge of risk the types of investments offered on the crowdfunding platform.

Moreover, there is no minimum capital requirement for crowdfunding service providers to establish its business under the EU framework. Therefore, the platform should refer to the country's regulation, since some EU countries impose a minimum level of capital to avoid the risks arising from platform failure. However, there is a liquidity requirement under EU regulation. The platform must have at all time prudential safety guard at least the highest between EUR 25,000 and one-quarter of the fixed overhead cost of last year performance, which should be reviewed annually. The cost should include fees of providing loans for three months if they facilitate loans service (Council of the European Union, 2018). Besides, the framework also requires the platform to cap investor's ownership or voting rights, no more than 20% (Council of the European Union, 2018).

EU framework opens access for all European Citizen to participate in the project and be the investors in the crowdfunding platforms. Investors will be categorized into two groups, which are sophisticated and non-sophisticated. Sophisticated investors are those who have proper knowledge, experience, and financial capacity of investment, and vice versa. A sophisticated investor is not restricted to invest, means there is no maximum amount for them to invest in a project. Meanwhile, for non-sophisticated investors, there is a limit applied to maintain investor protection. Before allowing non-sophisticated investors to participate, crowdfunding platform should assess whether the project offered is appropriate, and which project is suitable for them. The assessment includes a requirement to provide information about investor's experience, financial condition, investment preference/ objectives, basic knowledge of risk in general investment, and the kind of investments available on the platform, as well as the risk in relation to it. Besides, prospective non-sophisticated investors are also required to stimulate their ability to bear the loss, calculated as 10% of their net worth. Crowdfunding provider should assess investor's financial information such as assets, cash deposits, financial investment, regular and total income, as well as whether it is a permanent or temporary basis income (Council of the European Union, 2018).

Furthermore, regarding data protection and privacy, crowdfunding platforms usually require both investors and project owners to provide personal data such as name, bank detail, and address. Since they collects and stores user's personal information; therefore the platforms must obey the legislation on data protection and privacy. Any processing of personal data by the competent authorities should be undertaken following Regulation (EU) 2016/679. Meanwhile, if platforms need to exchange or transmit personal data by ESMA, it should be conducted following Regulation (EU) 2018/1725 (Council of the European Union, 2018). Platforms need to state to users, which data they will use and for what purpose. They need to be transparent and provide platform's policies in regards to the handling of personal data, as well as displaying the link of the privacy policy (Interreg Central Europe, 2016).

In terms of market integrity and financial crime, crowdfunding platforms are potentially subject to financial crime, not only fraud but also severe offences such as money laundering and terrorism. Under the EU regulation, besides carrying national risk assessment by EU countries, the European Commission also needs to assess the necessity and proportionality of crowdfunding providers to prevent such criminal activities. Crowdfunding providers need to comply with the national provisions implementing Directive 2015/849 for money laundering and terrorist financing (Council of the European Union, 2018). According to the directive, the platform operators need to do some obligations to avoid money laundering: (1) identify and verify the identification documents of investors (e.g. photo and related documents); (2) Monitor transactions and use of services (3) Deliver project due diligence data and documentation. The platforms are required to get information on the nature and scope of the project/customer's business, stores the identification, and due diligence data. In case the platforms breach the Directive above, the authority should withdraw the authorization of the platform (Council of the European Union, 2018).

Moreover, the proposed EU regulation on ECSP for business have not elaborated incentives issue for crowdfunding. Since there is no uniform tax incentive, currently, the tax incentive varies widely according to the country and the model of incentives. UK, France, Italy, Spain, and Belgium are so far the only countries in Europe that implement tax incentives for crowdfunding. Table 4 describes the 18 tax incentives offered in those countries. From the table, it can be seen that the tax incentives in those five countries are implied for Equity, Lending, and Donation-based crowdfunding, and the most common schemes are through a tax deduction, tax exemption, tax credit, tax deferral, and loss relief.

Table 4. Tax Incentive Schemes for Crowdfunding in EU Countries

Country	Incentive Scheme	Benefits
UK	**Equity Crowdfunding**	
	• Enterprise Investment Scheme (EIS)	• Tax deduction up to 30% from the amount invested if the shares are held at least three years; • Inheritance tax exemption if investors invest for at least two years, and capital gain exemption if the investors hold the shares for a minimum of three years; • Deferment of the capital gain tax for up to 50% for revenue produced from asset disposal, if these gains are reinvested in an EIS eligible company; • Tax relief from investment losses (loss relief)
	• Seed Enterprise Investment Scheme (SEIS)	• 50% income tax relief on investment up to £100,000 per tax year • Capital gain tax relief up to 50%, with a maximum of £50,000, for capital gains that are reinvested through EIS eligible companies in the same financial year • Up to 80% income tax relief in case the company fail • Capital gain tax exemption for gains realised from the disposal of the stocks if the shares are held at least three years.
	Lending Crowdfunding • Innovative Finance ISA Scheme (IFISA)	• Interest and capital gains tax-free if invested in approved P2P crowdfunding platforms and through FCA-regulated, up to £20,000 for 2017/18 financial year • In case of unpaid loans, lenders can offset it against the interest received on other P2P loans before the income is taxed
	Donation Crowdfunding • Gift Aid Scheme (IFISA)	• Tax return: claim back charities for 25% of the total amount donated
France	**Lending Crowdfunding** • Losses allocation system	• The capital losses on non-repaid loans can be offset against the interest arising from other loans granted during the same fin year or in the subsequent five years
	Donation Crowdfunding	• Deduction from the income tax of 66% of the donated amount, for natural persons; • Deduction from the corporate tax of 60% of the donated amount, for legal persons
Italy	**Equity Crowdfunding** • Tax incentives for investing in SMEs and innovative start-ups	• A natural person can claim a deduction on the income tax of 30% from the amount invested • A legal person can claim a credit on the corporate tax for 30% of the amount invested
	Lending Crowdfunding • PIR	• Tax exemption on the loan revenue produced through P2P lending platforms
Spain	**Equity Crowdfunding** • Deduction for investments in newly-formed companies • Regional income tax relief	• Tax deduction from the income tax of 20% of the investment amount in Spanish companies that are less than three years old; • Supplemental tax breaks by autonomous communities
	Donation Crowdfunding	• A natural person can claim a tax deduction from the income tax of 75% of the donated amount; • A legal person can claim a tax deduction from the corporate tax rate of 35% of the donated amount.

Belgium	**Equity Crowdfunding** • Tax shelter for investments in startups	• The income tax reduction of 30% of the total invested in SMEs; • The income tax reduction of 45% of the total invested in microenterprises.
	Lending Crowdfunding • Tax treatment of crowdfunding loans	• Tax exemption on interests arising from loans invested in start-ups through regulated crowdfunding platforms.
	Donation Crowdfunding	• Belgians can recover between 40% to 50% of their donation annually, on a limit of maximum 10% of their total net income.

Source: Cicchiello, Battaglia, & Monferrà (2019)

Under the Enterprise Incentive Scheme (EIS) and Seed Enterprise Investment Scheme (SEIS), the UK implemented tax credit, tax deferral, and tax exemption for equity crowdfunding. Meanwhile, for P2P Lending Crowdfunding, the incentive given is tax reliefs through the Innovative Finance ISA Scheme (IFISA). As for donation-based crowdfunding, Gift Aid Scheme is provided to claim the amount invested. For France, there are six tax incentives available for equity-based crowdfunding through the scheme of Madeline tax reduction, solidarity wealth tax reduction (ISF), stock saving plan (PEA/PEA-PME). France government also provide losses allocation system of tax relief for lending crowdfunding. As for donation-based crowdfunding, tax benefit applied for investors, both individuals or companies, as long as the project providers are known as a public utility.

At first, in 2014, tax incentives in Italy are available for SMEs and startup only. However, since 1 January 2018, based on the Budget Law, the benefit is extended to equity crowdfunding and P2P lending. This also happens in Spain where the Spanish government regulates a tax deduction for investors in the newly-formed Spanish companies, and currently, the regulation is extended to crowdfunding investors. Also, a charity in donation-based crowdfunding, allowing investors the right to obtain a tax benefit. For Belgium, investors of equity crowdfunding can benefit tax shelter for startup since the Belgian Crowdfunding Law enters into force in 2017. The benefit also applied for lending-based and donation-based crowdfunding through tax exemption and tax return.

Lastly, there are few institutional authorities in charge of regulating and supervising in the EU. *First*, the European System of Financial Supervision (ESFS) is a central network to coordinate between three agencies, which are the European Systemic Risk Board, European Supervisory Authorities (ESAs), and national supervisors. The main job is to ensure that financial supervision across Europe is running consistent and in an appropriate way. *Second,* The European Securities and Markets Authority (ESMA) is an EU agency which ensures the improvement of investor protection and promotes stability or financial market. Under the proposed EU framework, ESMA plays an essential role in monitored crowdfunding providers and mediating the investors and platforms in case of a conflict. *Third,* The European Banking Authority (EBA) is an EU Authority that supervised the European Banking sector and maintains the effectiveness of the prudential regulation. The primary objectives are to maintain financial stability and keeping the banking sector perform efficiently and integrity. *Fourth,* European Insurance and Occupational Pensions Authority (EIOPA) has the purpose of ensuring markets and financial products are transparent, protecting insurance holders, pension scheme members and beneficiaries to maintain the stability of the financial system.

3.3. The US Policies and Regulation

The Jumpstart Our Business Startups Act (the “JOBS Act”), enacted on April 5, 2012, established a regulatory structure for startups and small businesses to raise capital through securities offerings through crowdfunding. The JOBS Act crowdfunding provisions intended to help startups and small businesses raise capital in a less costly manner by making relatively low dollar offerings of securities to a “crowd” of interested investors. On October 30, 2015, the Commission adopted the final rules for Regulation Crowdfunding to implement Title III of the JOBS Act (“Title III”) (U.S. Securities and Exchange Commission, 2016). Thus, the Securities and Exchange Commission (SEC), allowing a majority of the U.S population to invest in unlisted infrastructure assets for the very first time.

The regulation of crowdfunding broadly regulates into three different groups: (i) the intermediaries who operate the online platform; (ii) the investor who bought the securities and (iii) the issuers who sell securities to raise capital. In terms of crowdfunding platform entry requirements, crowdfunding transactions must be conducted through a traditional broker or an online funding platform registered with the SEC and FINRA (U.S. Securities and Exchange Commission, 2016). Besides, for crowdfunding services, the U.S Government allows a crowdfunding platform to raise money through a combination of equity and debt, or debt only, and donations (Farajian & Ross, 2016; U.S. Securities and Exchange Commission, 2016). Under the United States SEC rules, an intermediary that is a funding portal is required to ensure that investors send money or other consideration directly to a third party that has agreed in writing to hold the funds for the benefit of, and to promptly transmit or return the funds to, the persons entitled (IOSCO, 2015).

In terms of Investors, the Crowdfunding laws do not distinguish U.S. investors from non-U.S. investors. In the U.S., there are three securities exemptions where an investor can publicly solicit investments online: Regulation D 506(c), Regulation A+, and Regulation CF. There are different rules with each exception, and each platform has different rules around accepting international investors. To invest in an offering under Title II (SEC Rule 506(c)), a non-U.S. investor must be “accredited”. If a non-U.S. investor invests in an offering under Title III or “Regulation CF”, an investor is subject to the same investment limitations as U.S. investors. If a non-U.S. investor who is also non-accredited invests in an offering under Tier 2 of Title IV or “Regulation +”), an investor is subject to the same limitations as non-accredited U.S. investors, e., 10% of the greater of income or net worth. Thus, it depends on whether or not foreign investors can invest in US-based equity raises.

Regarding the investment limits, the amount raised must not exceed USD 1 million in 12 months (U.S. Securities and Exchange Commission, 2016). Besides, investment limits will apply equally to all investors, including retail, institutional and accredited investors. Restrictions on how much each investor may invest throughout 12 months in the aggregate across all crowdfunding offerings depend on the investor's annual income or net worth. If either the investor's annual income or net worth is less than USD 100,000, the limit equals the greater of USD 2,000 or five per cent of the lesser of the annual income or net worth (U.S. Securities and Exchange Commission, 2016). If both the investor's annual income and net worth are equal to or more than USD 100,000, then the limit equals ten per cent of the lesser of the annual income or net worth, up to a maximum of USD 100,000 or more (U.S. Securities and Exchange Commission, 2016). During the 12 months, the aggregate amount of securities sold to an investor through all crowdfunding offerings may not exceed USD 100,000 (U.S. Securities and Exchange Commission, 2016). Therefore, investors subject to limit investments depending on the investor's earnings from USD2,000 up to USD100,000.

In terms of issuers, similarly under the United States SEC rules, which prescribes the laws governing the offer and sale of securities under Section 4(a)(6), permits an issuer to raise a maximum aggregate amount of USD 1.07 million in 12 months period (U.S. Securities and Exchange Commission, 2016). Also, there is no cumulative limit; nothing would keep the issuer from using the crowdfunding exemption to sell securities again and again, as long as the amount raised in any 12 months never exceeds USD 1,07 million (Cumming & Hornuf, 2018).

Concerning contract conditions, under the United States SEC rules, funding portals would be prohibited from providing investment advice and recommendations to investors (IOSCO, 2015; U.S. Securities and Exchange Commission, 2016). Crowdfunding platforms have something in common that is transformational in terms of data protection and privacy. Under the United States SEC rules, intermediaries are required to take steps to protect the confidentiality of information collected from investors; there are limits on affiliate marketing and intermediaries are required to develop and implement a written identity theft prevention program (IOSCO, 2015). Platforms should be required to maintain such systems and controls as are necessary for their business and, in particular, to identify, manage, track, mitigate and report risks within and to their business (IOSCO, 2015; U.S. Securities and Exchange Commission, 2016). Risks may include operational risk, cybersecurity, protection of personal data and the risk that the platform may use in the furtherance of financial crime. Therefore, these risks should be identified, managed, secured and tracked by funding online platforms themselves as part of their overall risk management framework.

In terms of market integrity, In the U.S., all crowdfunding platforms have a common characteristic that is groundbreaking in terms prevention, for example, the networking between issuers and investors. According to (Freedman & Nutting, 2015), the U.S. crowdfunding issuers and funding platforms are subject to the antifraud provisions of state and federal securities law. According to these regulations, platforms that are broker-dealers have an even higher standard for screening out fraudulent offerings. Similarly, an online crowdfunding portal is required to ensure that investors send money or other consideration directly to a third party that has agreed in writing to hold the funds for the benefit of, and to promptly transmit or return the funds to, the persons entitled. The third-party may be a registered broker or dealer that carries customer or broker or dealer accounts and holds funds or securities for those persons (IOSCO, 2015).

Regarding incentives, there are several incentives related to crowdfunding in the US. One of them is in terms of special tax relief, helping to attract start-up investors concerning their investment risk in early-stage companies (Camp & Kuselias, 2018; Demarco, 2018; Brian, 2020). Since crowdfunding platforms facilitate start-up companies to raise funds, so this tax relief can be an instrument to support the development of crowdfunding industry. Three types of tax relief provided by the government include an up to 100% exemption on Qualified Small Business Stock (QSBS) gains (Section 1202), a tax rollover (Section 1045), and a write-off (Section 1244). The first type is provided to exempt up to 100% tax-free gains on up to $10 million in gains (or 10X the cost basis) for qualified stock held longer than five years. The second type is related to rolling over gains into another QSBS investments if investors held the investments for more than six months but less than five years and deferring to pay taxes on those gains if investors invested within 60 days. This type is not applicable if the new QSBS investment has been held for five years, but investors may able to use the Section 1202 tax-free exemption when selling the new QSBS. The last type is that investors, under Section 1244, can write-off their losses as ordinary income, up to $50,000 individual or $100,000 joint. All kinds of tax relief are available if investors hold actual equity investments—Common or Preferred shares. Meanwhile, convertible securities, such as Convertible Notes or Simple Agreement for Future Equity (SAFEs) are not eligible especially for the third type, but for long-term capital gains, they still qualify if investors sold before conversion (Beebe, 2020; Brian, 2020).

Furthermore, concerning the Tax Cuts and Jobs Act creating "opportunity zones (OZs)", crowdfunding platforms have opportunities to convince their investors the investments offered are attractive through tax breaks as the form of investment incentives. OZs, principally, aims to encourage taxpayers to invest in undercapitalised communities and keep their funds in OZs, so they are offered with three benefits, such as (i) temporary deferral of taxes of previously earned capital gains, (ii) basis step-up of previously received capital gains, and (iii) tax exemption on new gains (Beebe, 2020; The Tax Policy Center, 2020). In response, several real estate-focused platforms focus on funding projects to buy properties in the OZs to get tax breaks (Beebe, 2020). However, the OZs policy raises controversial as the policy is used by certain developers and investors to take advantages from the tax break (The New York Times, 2019; Beebe, 2020).

4. Conclusion and Policy Recommendations

Financing gap still becomes a significant issue of infrastructure project considering that it is a considerably high risk, requires a large amount of capital, and long term which takes a long time to get the financial return. Because of these reasons, large portions of infrastructure projects are lack of finance and cannot be tapped by investors. Relying heavily on government budget would not be able to close the gap. To do so, we need an alternative source of financing. This paper shows that financial technology, particularly crowdfunding, is viable to become an alternative method in financing infrastructure by matching funders and project owners through technology which has some benefits compared to other traditional financing methods. The advantages include tapping a wide range of investors and projects regardless of geographical borders as well as minimizing risk through comprehensive risk assessment using artificial intelligence and other means of technology.

Referring to the four platforms discussed in this paper, crowdfunding platform has been proven successful in raising capital to finance various infrastructure projects whether the purpose is commercial, social, or combination of both. However, majority crowdfunding platforms for infrastructure project financing are operated and to fund projects in western countries such as Europe and America region. Therefore, by learning from successful crowdfunding platforms and the best practices of crowdfunding regulation from several countries, we propose specific policy recommendations for Asian infrastructure project financing. The recommendations are classified into two categories which are business model and policy. From the business model aspect, we identify four scheme of business models that can be applied both for the scope of individual Asian countries and Asia as a region.

The first model is **"blended finance"** which adopts the business model of Convergence. The success of Convergence in blending sources of finance from investors with two different purposes (social and commercial), can be applied to the Asia region. In this case, the Asian Development Bank (ADB) as the Asian development institution, the government of each Asian countries, and philanthropic institutions concerning Asian development could be the initiators. Like Convergence, funding from public investors and philanthropic institutions acts as concessional capital. This capital is used as catalytic to lower investment risk by providing an additional layer of protection for private funds and improve financial return to attract investment funds from private institutions. Other than concessional capital, it also acts as risk insurance which provides credit guarantee in case the financial gain was not as expected. The catalytic capital can also be used indirectly to the project ground-breaking such as for technical assistance and design stage grants. In short, the concessional fund is used to amplify the financing by the additional fund from private institutions. The difference between convergence is in its focus; this model will focus on financing project in Asian countries.

The second model is **“cross-border citizen funding”** adopting Citizenergy crowdfunding platform. In this scheme, the main funders are citizens of Asia. The concept is raising small capital from a large number of citizens from all Asian countries to fund infrastructure project in Asia. In short, the concept is “From Asia for Asia”. In terms of the instrument, similar to Citizenergy, to make it has a wide coverage of projects and investors, the form of investment is as various as possible including debt, bond, equity, cooperative, donation, and reward. The interesting concept in this scheme is cooperative, which is a company that is jointly owned by its members with the same vision regardless of the scope. It can be the same neighbourhood or consisting of various countries with the same goal. Cooperative offers benefits to members exclusively as well as shared investment opportunities. In addition, to amplify the financing coverage, it can also receive funds from institutions with the same vision. Furthermore, to make this scheme feasible Asian countries should jointly set up a common regulation for cross-border crowdfunding in Asia.

The third model is **“within-country crowdfunding”** adjusting from Oneplanetcrowd platform. This scheme prioritizes domestic funding for domestic infrastructure projects. The critical concept applied by Oneplanetcrowd is through impact investing that the investment made is not only yielding financial return but also impacting the development of people and planet. This campaign can attract a broader target of investors, especially those who are concern with people development and environmental aspect. By learning from Oneplanetcrowd, a factor that makes the platform one of leading crowdfunding platform in Europe is through collaborative partnership and networking with financial institutions, organizations concerning on sustainability of people and planet, consultants, and other relevant institutions. The success of its capital raising is also supported by comprehensive and clear information on its website both for prospective investors and for the beneficiaries including the risk, information for screening and choosing the project, detailed of contract, and post-investment. In addition, the difference between this scheme and the business model of Oneplanetcrowd is on investment instrument. While Oneplanetcrowd only provides two instruments which are loan and convertible loan, this scheme allows various kinds of investment instruments as also applied on the second model (cross-border citizen funding).

Lastly, the fourth model is **“commercial infrastructure financing”** which observes from the business model of Infrashares crowdfunding platform. Unlike the other schemes that mostly focused on social purposes and dominated by energy investment as well as to achieve SDGs, this scheme orientation is majorly commercial. Therefore, the main goal is to raise capital for commercially viable infrastructure projects and to provide an attractive financial return for investors. This platform aims to promote infrastructure financing through a public-private partnership by using financial technology. With this platform, even individual can invest directly in infrastructure projects and have his/her own shares in public infrastructure. The uniqueness of this scheme compared to the three previous models is that this model is specific for construction technology start-up and infrastructure projects. The project scope is also broad, not only the energy sector but also all other areas of infrastructure projects including transportation, water, communications, and other infrastructure sectors. Not only for a large-scale infrastructure project, but this scheme also allows even small-scale project such as the renovation of a small road. The difference of this model to Infrashares is that the types of investment instrument provided by this scheme are various just like two other previous schemes. This is meant to attract broad coverage of investors and projects. Moreover, those four schemes are summarized in Table 8.

Table 8. Proposed Crowdfunding Business Models for Infrastructure Project Financing in Asia.

Business Models	Uniqueness and Description	Investment Instrument	Targeted Investors	Purpose/ Orientation	Region Scope
Within Country Crowdfunding	Prioritizes domestic funding for domestic infrastructure projects. Strengthen with collaborative partnership and networking with financial institutions, organizations concerning on sustainability of people and planet, consultants, and other relevant institutions.	1. Debt 2. Bond 3. Equity 4. Cooperative 5. Donation 6. Reward	1. Domestic individuals Institutional investors	Combination of: 1. Social so-called impact investing for people and the planet 2. Commercial	Within individual Asian countries
Commercial Infrastructure Financing	This scheme orientation is majorly commercial. The main goal is to raise capital for commercially viable infrastructure projects and to provide an attractive financial return for investors. This scheme aims to promote infrastructure financing through a public-private partnership by using financial technology.		1. Individuals around the world. 2. Private Institution investors	Mostly commercial	Asia
Cross-border Citizen Funding	The concept is raising small capital from a large number of citizens from all Asian countries to fund infrastructure project in Asia. In short, the concept is "From Asia for Asia"		2. Mostly Individual citizen of Asia	Combination of social and commercial	Asia
Blended Finance	Funding from public investors and philanthropic institutions acts as concessional capital. This capital is used as catalytic to lower investment risk by providing an additional layer of protection for private funds and improve financial return to attract investment funds from private institutions.	1. Grant, in the form of: a. Concessional capital b. Guarantee/ insurance c. Technical assistance d. Design stage 2. Debt 3. Equity	1. Philanthropic Institutions 2. Public investors consisting of: a. Asian countries government b. Multilateral Institution concerning Asian countries development such as ADB, USAID, OECD, etc. 3. Private Institutions	Mostly social that is mixed with commercial purposes for private institutions.	Asia

Furthermore, regarding policy recommendation, to make crowdfunding becomes a viable alternative source of infrastructure project financing in Asia, we propose a roadmap consisting of six sequential steps. *First* is promoting domestic crowdfunding platform in each Asian country. For a start, it is better to promote infrastructure project financing for the combination of social and commercial motives such as for renewable energy and SDG purposes. The reason is that, looking from global experience, crowdfunding with such purposes is more popular and easier to raise capital from extensive coverage of investors considering that nowadays many people and institutions are concern with impact investing both for people development and environment issues. To accelerate the process, each Asian country should formulate facilitative regulations such as simplifying requirements for the establishment of the crowdfunding platform, providing incentives, and other supportive policies. For instance, to attract foreign investors operating crowdfunding in Netherland, the Dutch government provide various tax incentives and favourable policies for foreign investors planning to run a crowdfunding business in the country as discussed in the previous section. In addition, it is important to promote the establishment of a national crowdfunding association as it can help businesses to share knowledge and resources among them. It is also beneficial for today's trend of FinTech regulation trend that is semi-regulatory and self-regulatory, where the association has an active role in proposing and formulating regulations together with the authorities. For instance, in Indonesia, peer to peer lending FinTech Association set up its own business code of conduct. To ensure its sustainability and consumer protection, the association even set up its own ceiling even though the Indonesia Financial Services Authority (OJK) does not regulate it. The existence of association is also later will be the basis of crowdfunding network at the Asian level.

Second, after crowdfunding with social and environmental purposes becoming more popular and familiar in Asian countries, we should step to the next area by promoting infrastructure project crowdfunding platform for commercial purposes like Infrashares. Therefore, capital raising can reach wide coverage of infrastructure projects. *Third,* is to form a network and crowdfunding platform of blended finance, which combines public funds as concessional capital with private funds like Convergence but focusing on the development projects in Asia. The establishment of this scheme is critical because it has significant impact considering that, in terms of amount, the capital raises in this mechanism is enormous. In this step, we consider that even the cross-border regulation has not yet formulated, it still can be running, bearing in mind that all this time financing of national development projects has been done collaboratively involving government, multilateral organizations, philanthropic institutions, and private entities. The difference is that in the funding matchmaking and risk assessment process, it uses technology so that it can reach a wide range of investors and projects. Therefore, it can lie on the current regulation.

Fourth, to improve the ecosystem and knowledge sharing of crowdfunding at the Asian level, we believe that the establishment of the Asian Crowdfunding Network is essential. The experience and governance of the European Crowdfunding Network can be an excellent practice to be adopted for Asia crowdfunding development. *Fifth,* in this borderless era, funding from domestic sources only is far from sufficient. Therefore, it is crucial for Asian countries to formulate cross-border crowdfunding regulation. With this regulation, resource sharing for infrastructure project among Asia region become more effective and efficient. The Asia cross-border regulation can be initiated by Asian Crowdfunding Network and financial services authorities of Asian countries. *Sixth,* after the cross-border regulation is set-up, the government and authorities of Asian countries should promote and facilitates the establishment of cross-border crowdfunding platform in Asia. The case of Europe proves that cross-border crowdfunding platform is able to raise capital from all over countries in Europe and channelled it to many countries in the continent. In addition, to extend the network, the Asian Crowdfunding Network may also cooperate with other continent networks such as the European Crowdfunding Network. Furthermore, the roadmap of crowdfunding development in Asia for Infrastructure project financing is summarized in Figure 8.

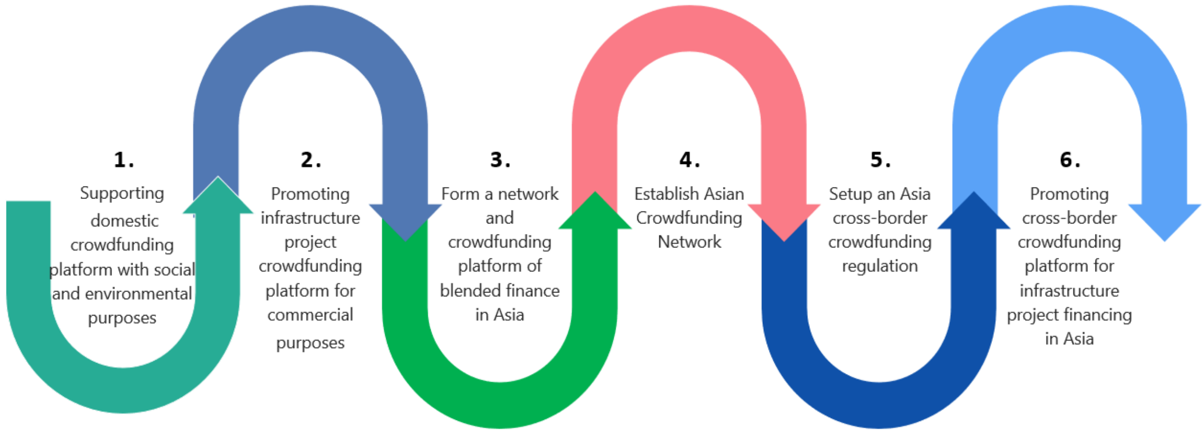

Figure 8. Roadmap of Crowdfunding Development in Asia for Infrastructure Project Financing

References

Beebe, J. (2020). Tax Considerations of Crowdfunding. In *Rice University's Baker Institute for Public Policy - Issue Brief*. Texas, USA.

Brian. (2020, March). Three Ways the U.S. Gives Tax Relief for Investing in Startups .

Camp, J., & Kuselias, S. (2018, January). Introducing U.S. equity crowdfunding: Potential risks and tax implications.

Chen, F., Ngniatedema, T., & Li, S. (2018). A cross-country comparison of green initiatives, green performance and financial performance. *Management Decision*, *56*(5), 1008–1032. https://doi.org/10.1108/MD-08-2017-0761

Cicchiello, A. F., Battaglia, F., & Monferrà, S. (2019). Crowdfunding tax incentives in Europe: a comparative analysis. *European Journal of Finance*, *25*(18), 1856–1882. https://doi.org/10.1080/1351847X.2019.1610783

Citizenergy. (2015). *THE EUROPEAN PLATFORM FOR CITIZEN INVESTMENT IN RENEWABLE ENERGY: Main barriers to crowdfunding investment in Renewable Energy sector and potential solutions*.

Citizenergy. (2017a). *THE EUROPEAN PLATFORM FOR CITIZEN INVESTMENT IN RENEWABLE ENERGY : Result-Oriented Report*.

Citizenergy. (2017b). *THE EUROPEAN PLATFORM FOR CITIZEN INVESTMENT IN RENEWABLE ENERGY: Evaluation of new implemented projects*. European Union.

Citizenergy. (2017c). *THE EUROPEAN PLATFORM FOR CITIZEN INVESTMENT IN RENEWABLE ENERGY: Handbook on citizen RES business models*.

Citizenergy. (2020a). Citizenergy: Register Project.

Citizenergy. (2020b). Citizenergy: Featured_Platform.

Citizenergy. (2020c). Citizenergy: How It Works.

Citizenergy. (2020d, November). Citizenergy: Our Story.

Cockburn, J., Dissou, Y., Duclos, J.-Y., & Tiberti, L. (2013). *Infrastructure and Economic Growth in Asia*. https://doi.org/https://doi.org/10.1007/978-3-319-03137-8

Cohen, B. (2018). *Post-Capitalist Entrepreneurship: Startups for the 99%*. Florida, USA: CRC Press.

Convergence. (2015). Convergence, first and only deal sourcing platform for emerging and frontier market blended finance deals, announced at Financing for Development conference - Press Release - Convergence News | Convergence. Retrieved June 11, 2020, from https://www.convergence.finance/news-and-events/news/3priYFIg5ykSeusoeMMyUk/view

Convergence. (2019). *The State of Blended Finance 2019*. Retrieved from https://assets.ctfassets.net/4cgqlwde6qy0/58T9bhxExlNh2RilxWxSNe/ba56fa36c81349640179779ddd68cc99/Convergence_-_The_State_of_Blended_Finance_2019.pdf

Convergence. (2020a). Blended Finance | Convergence. Retrieved June 13, 2020, from https://www.convergence.finance/blended-finance

Convergence. (2020b). *How to Mobilize Private Investment At Scale in Blended Finance*. Retrieved from https://assets.ctfassets.net/4cgqlwde6qy0/5O3FEqDOdXzf2rkEu5XRaP/9a02f9dc9953da94d2a3a537859af283/How_to_Mobilize_Private_Sector1.pdf

Council of the European Union. (2018). *Proposal for a Regulation of the European Parliament and of the Council on European Crowdfunding Service Providers (ECSP) for Business and amending Regulation (EU) No 2017/1129. COM(2018) 113 final*.

Council of the European Union. (2020). *Proposal for a Regulation of the European Parliament and of the Council on European Crowdfunding Service Providers (ECSP) for Business and amending Regulation (EU) No 2017/1129*. Brussels, Belgium.

CrowdFundRES. (2017). *Beyond the borders: Renewable energy crowdfunding in Europe*. Munich, Germany.

Cumming, D., & Hornuf, L. (2018). The Economics of Crowdfunding. In *The Economics of Crowdfunding: Startups, Portals and Investor Behavior*. https://doi.org/10.1007/978-3-319-66119-3_5

Cumming, D., & Johan, S. (2020). *Crowdfunding: Fundamental Cases, Facts, and Insights* (1st ed.). Cambridge, USA: Academic Press.

Demarco, P. (2018, March). Crowdfunding provides tax benefits in addition to investment potential.

Dorfleitner, G., & Braun, D. (2019). FinTech, Digitalization and Blockchain: Possible Applications for Green Finance. In M. Migliorelli & P. Dessertine (Eds.), *The Rise of Green Finance in Europe: Opportunities and Challenges for Issuers, Investors and Marketplaces* (pp. 207–237). Cham, Switzerland: Palgrave Macmillan.

Dorfleitner, G., Hornuf, L., Schmitt, M., & Weber, M. (2017). FinTech in Germany. In *FinTech in Germany*. https://doi.org/10.1007/978-3-319-54666-7

European Commission. (2020). Oneplanetcrowd raises €1 million growth finance from European Investment Fund.

European Commission - Intelligent Energy Europe. (2020). The european platform for CITIZEN investment in renewable ENERGY (CITIZENERGY).

European Crowdfunding Network. (2019, December). Agreed: Harmonised EU rules to boost European crowdfunding platforms.

EuropeanBank. (2018). Regulating Investment- and Lending-Based Crowdfunding : Best Practices. In *Clifford Chance*.

Farajian, M., & Ross, B. (2016). Crowd financing for public-private partnerships in the United States: How would it work? *Transportation Research Record*, *2597*, 44–51. https://doi.org/10.3141/2597-06

Freedman, D. M., & Nutting, M. R. (2015). The Growth of Equity Crowdfunding. *Value Examiner*, (August), 6–10.

GoFundMe. (2019). GoFundMe 2019: A Year in Giving. Retrieved June 6, 2020, from https://www.gofundme.com/2019

Hakvoort, A., & Machiels, S. (2018, March). Netherlands: FinTech Comparative Guide.

InfraShares. (2020). *Browse Investment Offerings*.

Interreg Central Europe. (2016). *Minimum Platform Standards*.

IOSCO. (2015). *Crowdfunding 2015 SURVEY RESPONSES REPORT THE BOARD OF THE INTERNATIONAL ORGANIZATION OF SECURITIES*.

Jenik, I., Timothy, L., & Nava, A. (2017). Crowdfunding and Financial Inclusion. In *Cgap (Working Paper)*.

Kessides, C. (1993). The contributions of infrastructure to economic development. In *World Bank Discussion Papers*. https://doi.org/doi:10.1596/0-8213-2628-7

Kickstarter. (2020). Kickstarter Stats. Retrieved June 6, 2020, from https://www.kickstarter.com/help/stats

Klöhn, L. (2018). Chapter 10: The Regulation of Crowdfunding in Europe. In *the economics of crowdfunding: Startups, Portals, and Investor Behavior* (pp. 219–253).

Louisse, M. (2018). Crowdfunding, regulation and innovation: An interview with Loyens & Loeff - Holland FinTech.

McKinsey Global Institute. (2013). *Infrastructure Productivity: How to Save $1 Trillion A Year*. Retrieved from http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:Infrastructure+productivity:+How+to+save+$1+trillion+a+year#0

Oneplanetcrowd. (2020a). Oneplanetcrowd - Convertible Loan Oneplanetcrowd.

Oneplanetcrowd. (2020b). Oneplanetcrowd - Default status.

Oneplanetcrowd. (2020c). Oneplanetcrowd - Foundation Administration Office.

Oneplanetcrowd. (2020d). Oneplanetcrowd - Invest in sustainable businesses with Oneplanetcrowd.

Oneplanetcrowd. (2020e). Oneplanetcrowd - Practical Information Oneplanetcrowd.

Oneplanetcrowd. (2020f). Oneplanetcrowd - Projects.

Ross, B. (2020a). Infrashares. *Available at Https://The-Atlas.Com/Company-Partners/Infrashares*. https://doi.org/10.1017/CBO9781107415324.004

Ross, B. (2020b). Infrashares Brings Crowdfunding to P3 Projects. *Available at Https://Iconsofinfrastructure.Com/Infrashares-Brings-Crowdfunding-to-P3-Projects/*. https://doi.org/10.1145/3132847.3132886

Smith, C. (2018). 10 Interesting GoFundMe Statistics and Facts (October 2020) | By the Numbers. Retrieved June 6, 2020, from DMR Business Statistics website: https://expandedramblings.com/index.php/gofundme-statistics/

The European Crowdfunding Network [ECN]. (2017). *Review of Crowdfunding Regulation: Interpretations of existing regulation concerning crowdfunding in Europe, North America, and Israel*. Brussels, Belgium.

The International Comparative Legal Guides [ICLG]. (2020, June). Netherlands: FinTech 2020.

The Netherlands Authority for the Financial Markets [AFM]. (2014). *Crowdfunding – Towards a sustainable sector: A review of (supervision of) the crowdfunding sector*. Amsterdam.

The Netherlands Foreign Investment Agency [NFIA]. (2020). *Incentives and Taxes 2020*. Amsterdam.

The New York Times. (2019, February). 'Opportunity Zones' Offer Tax Breaks and, Maybe, Help for Communities .

The Tax Policy Center. (2020, May). What are Opportunity Zones and how do they work? .

Toxopeus, H., & Maas, K. (2018). Crowfunding Sustainable Enterprises as a Form of Collective Action. In T. Walker, S. D. Kibsey, & R. Crichton (Eds.), *Designing a Sustainable Financial System: Development Goals and Socio-Ecological Responsibility*. https://doi.org/10.1007/978-3-319-66387-6

Tyson, J. E. (2018). *Private Infrastructure Financing in Developing Countries: Five Challenges, Five solutions* (No. 536).

U.S. Securities and Exchange Commission. (2016). Regulation Crowdfunding. *16 May 2016*, Vol. 4, pp. 1–10.

Wales, K. (2018). *Peer-to-Peer Lending and Equity Crowdfunding: A Guide to the New Capital Markets for Job Creators, Investors, and Entrepreneurs*. California, USA: Praeger.

Zetzsche, D., & Preiner, C. (2018). Cross-Border Crowdfunding: Towards a Single Crowdlending and Crowdinvesting Market for Europe. *European Business Organization Law Review*, *19*(2), 217–251. https://doi.org/10.1007/s40804-018-0110-x