Building the Investment Picture for Circular Business Models in Nigeria

Circular Business Platform

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Introduction

The Circular Economy describes economic activity where waste is designed out of production and materials are re-used or re-purposed in iterative loops across their productive life. A set of tools that has been developed to mobilise the Circular Economy are circular business models. Circular business models are designed to help businesses and entrepreneurs think about how Circular Economy principles can create customer and market value.

Circular business models can be applied across any sector and any type of business, regardless of maturity. Globally, while we are beginning to see successful examples of circular business models, they are not mature or standardised enough to be treated as an exclusive investment theme by most investors, impact or otherwise.[1]

The Circular Economy and Why It Matters

The Circular Economy describes a range of activities that are designed to eliminate waste from each stage of a product's life cycle. Proponents of the Circular Economy argue that a systematic approach to reduce waste ultimately leads to improved economic growth, while simultaneously reducing environmental risk. For example, the strategy consultancy Accenture claims that a global transition towards the circular economy can result in excess GDP growth of USD 4.5 trillion by 2030 through improved business competitiveness,[2] while the International Labor Organization suggests that millions of jobs can be created through the circular transition in the global South.[3] Even more optimistic is that these economic and social gains can be achieved while reducing consumption of raw materials and GHG emissions: the UNDP Chemicals and Waste Hub argues that circular approaches have the potential to reduce global resource use by 25% and greenhouse gas emissions by 90%.[4]

Empirically, there is some evidence that the adoption of circular economy approaches in Europe, for example policies which encourage recycling and product life extension, have been successful in bolstering economic growth while also reducing material use.[5] Consequently, for many governments, especially those in Africa, where the twin challenges of economic development and environmental protection are substantial, the proposition of a circular economy is very attractive and many African states, including Nigeria, are adopting circular economy approaches.[6]

The Circular Economy and Why it Matters

While advocacy for the global transition towards a circular economy is fairly recent: the term is not meaningfully referenced on public web documents until late 2014;[7] the concept pre-dates this, with its foundations originating in the 1960s and 70s in areas such as industry symbiosis and eco-economics.[8] As the circular economy refers to a wide range of activities, a useful representation of them is the "Circular Economy Systems Diagram" published by the Ellen MacArthur Foundation. The diagram distinguishes between two types of material cycles: technical and biological, where in the technical cycle of a circular economy "products and materials are kept in circulation through processes such as reuse, repair, remanufacture and recycling" and in the In the biological cycle "the nutrients from biodegradable materials are returned to the Earth to regenerate nature."[9]

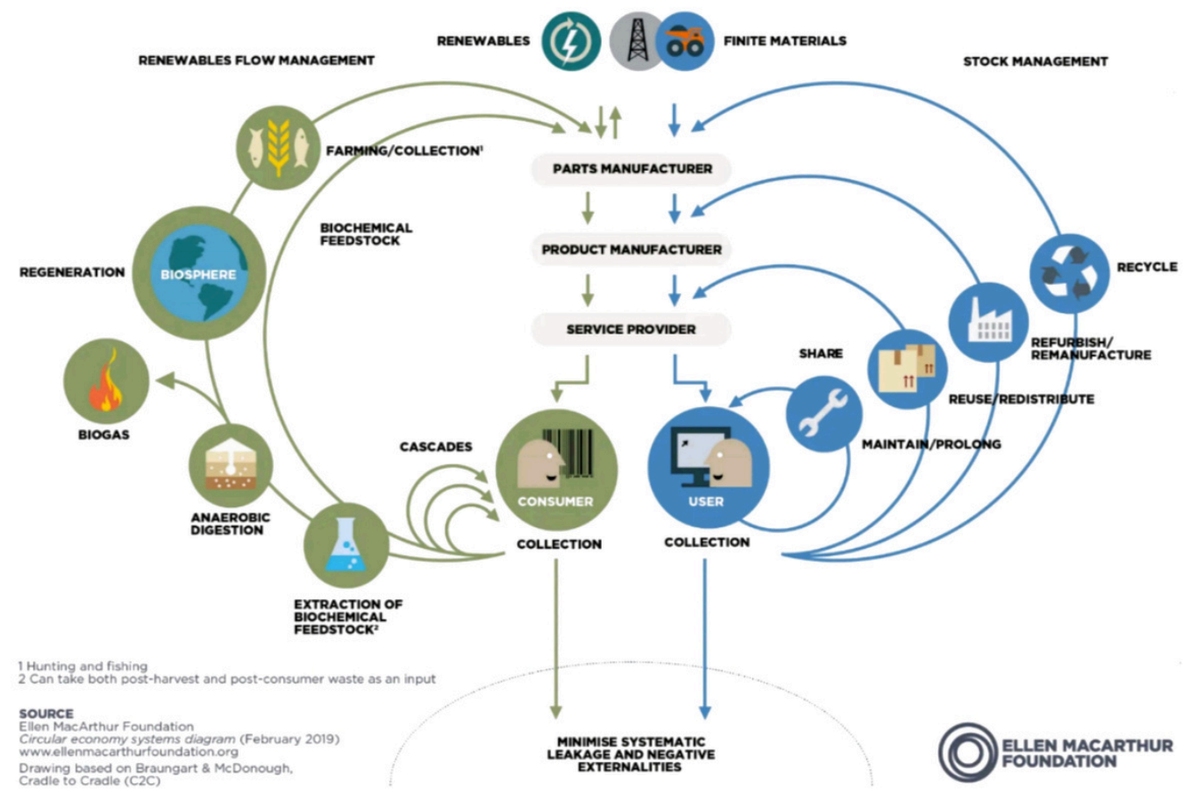

Figure 1 Circular Economy Systems Diagram, Ellen MacArthur Foundation

To operationalize the processes identified in the Circular Systems Diagram, several tools have been developed to help businesses, policy makers and other organisations identify how they can incorporate circular economy into their activities or convince others to do so. As opposed to early advocacy around business and the environment, which focused mainly on constraining business activity to meet environmental goals, circular economy approaches emphasise that material and technological innovation, combined with new forms of organisation will help drive global economic growth while "decoupling" growth from consumption of non-renewable materials.[10]

The Circular Economy and Why It Matters

The emphasis of circular economy advocacy on material and systems innovation has helped to popularise approaches which frame the circular economy as activities that are centred around value creation.[11] Circular business models, that is business models which generate value for consumers while also eliminating or reducing waste from production, distribution, use and end-of-life of a product are an example of how circular economy approaches emphasise innovation as a means of meeting the environmental goals of the circular economy. Although business model innovation is by definition not prescriptive, there are several frameworks that describe the characteristics of circular business models.[12] We use the business model strategies developed by Accenture for Sitra, the Finnish Innovation Fund, as a reference. Sitra defines five overarching business models[13] which include:

Circular Inputs: Use recycled, bio-based materials and renewable energy in production. Create sustainable, repairable and recyclable products that close material loops.

Sharing Platforms: Digital platforms make it possible to increase the utilisation rates of goods and resources through, for example, renting and sharing, that slow material loops.

Product as a Service: Offering clients access to products instead of owning products, through services such as leasing and renting that narrow and slow material loops.

Product Life Extension: Making products last longer such as through repair, maintenance, upgrade, and resale services that narrow and slow material loops.

Resource Recovery: Recovering materials and resources from products that are no longer functional in their current application. This helps to close material loops.

Circular business models offer ways for entrepreneurs and businesses to experiment with new forms of value creation. Both globally and in Nigeria, companies are exploring business models that derive value out of waste and eliminate waste from design and distribution of products.[14]

The Circular Economy and Why It Matters

However, at this stage, there are still limited examples of operational circular business models; according to the 2023 Circularity Gap Report, which measures the percentage of material inputs in the global economy that are recycled, estimates that only 7,2% of economic activity can be defined as "circular",[15] underscoring that it is not straightforward to successfully develop and scale circular business models. There are several obstacles that constrain the development and growth of circular business models.

This includes the high costs of research and development and supply chain coordination,[16] dependence on shifts in consumer behaviour[17] and on regulation such as Extended Producer Responsibility and carbon taxes[18] that improves the competitiveness of more circular products.

Irrespective of these challenges, Nigerian businesses, like their global counterparts, are also investing in circular approaches. For example, the Plastics Circularity Tracker published by the Circular Initiative estimates that between 2018-2023, USD $45,5 mln investments were made by the private sector in plastics recycling infrastructure in Nigeria.[19] Likewise, in 2019 the Government of Nigeria, the Global Environment Facility and the United Nations Environment Programme announced a USD $2 mln investment to catalyse the formal e-waste recycling industry in Nigeria, which was expected to leverage USD $13 mln in private sector financing.[20]

Topics such as waste-to-energy are a regular feature of bilateral business dialogues, with applications such as co-processing established within the cement sector. In short, it is clear there is activity that supports the development and growth of circular business models in the Nigerian market, however the broader picture that helps us to make sense of these separate activities and their role in supporting wider market development is more hazy. Building this picture is essential to help us determine the policy and investment frameworks that are most supportive for the growth of circular business models. In the next section we describe the methodology we use to start to paint this picture.

Methodology

Ernest Rutherford claimed that "all science is either physics or stamp collecting." Our approach is definitively a work of stamp collecting. We are interested in identifying the types of business models that are being developed and implemented in the Nigerian market and the types of financing instruments that currently exist which can be used to support development and growth.

As our interest in this paper focuses on the investment frameworks specifically that can enable business innovation and growth, we adopt the perspective of the Global Steering Group for Impact Investing (GSG), which distinguishes between demand and supply for investment.[21]

To identify the demand for capital, we identify and categorise businesses operating in Nigeria across two sets of dimensions. The first is according to their size, maturity, financing needs and sources of finance and the second is according to the business model. Due to the overlaps of the different categories outlined by the Sitra business model strategies, and its emphasis on digital technologies as the foundation of business models, which did not fully bear out in empirical observations we adapt from the Sitra framework to define six categories of business models including: Alternative Materials, Asset Sharing and Rentals, Platforms, Logistics and Infrastructure, Waste Management and Recycling, Conversion of Waste Materials and Secondhand and Reuse. Data about businesses has been collected over a two-year period and is based upon desktop research, open innovation calls and outreach through industry associations and other business networks.

Through this process we have established a database of over 1200 individuals and organisations working on the circular economy in Nigeria representing a diverse range of organisations in terms of size and sector. We narrowed this database to just over 90 individuals and organisations building circular business models and infrastructure in Nigeria. We emphasise this is not an exhaustive list of organisations designing or implementing circular business models in Nigeria. Importantly, as our search focused on individuals and organizations that we could verify through documentation such as a public profile and references, it excludes informal sector organizations which play a significant role in Nigeria's economy and are especially active in recovery and recycling activities.[22] However, we believe this sample is representative of formal businesses investing or raising capital for circularity at the time of writing.

Methodology

Likewise, to identify the supply of capital, we have leveraged the work of Impact Investors Foundation, an impact investing ecosystem building organisation to identify the investors that are more likely to have a mandate that is compatible with the circular economy. Drawing from desktop research and snowballing tactics through expert interviews we worked to identify other investor types and financial instruments that can be used to finance the development and growth of circular business models and use established platforms such as F6S, VC4A, i3 Connect, CBInsights, Crunchbase and Pitchbook to identify investors and transactions. We define intermediaries in this report as organisations such as incubators, accelerators and advisors that offer business support.

As there are very limited mandates that are specifically circular, limited consistent public information on investments and multiple types of financing instruments that are relevant, we elected not to quantify deal flow at this stage because we do not believe we are able to build a representative picture of transactions with the data available. Similarly, as the market is still very early, the distinction between supply of capital and intermediaries is difficult. While recognizing the significant role played by intermediaries in this market, specifically incubators, accelerators and investment advisors, they are excluded from this study.

The Demand Side

Alternative Materials

Alternative materials refer to organic materials that are used to manufacture products so they are more environmentally sustainable. The materials that we identified in use by businesses identifying as circular include water hyacinth, banana fibres and jute, which are primarily used in the fashion, home and lifestyle sectors.

In our dataset there are only seven organisations designing, producing or marketing alternative materials, although this sample does not include importers or distributors of alternative materials such as packaging and disposables. While there are a limited number of organisations working with alternative materials, a significant percentage are heavily focused on product development, particularly for water hyacinth, which is used in furniture and home décor and banana fibre, used for textiles and bags because these materials are not widely available in a processed form.

The Demand Side / *Alternative Materials*

One of the pioneering companies working with alternative materials is MitiMeth [1]Established in 2011 by Achenyo Idachaba-Obaro, MitiMeth is a social business that sought to convert water hyacinth, an invasive weed that compromises the livelihood of fishing communities around Lagos to a source of income generation. Idachaba-Obaro identified the potential of water hyacinth to be used in new applications and established Artisan communities in riparian areas affected by water hyacinth infestation. Over the years, Idachaba-Obaro has worked in-house and with experts to develop methods to harvest, process and manufacture luxury home goods using water hyacinth and agricultural residues.

In its foundational years, MitiMeth was a recipient of a few grants and awards, much of which was invested in developing production methods. However, as production is based upon developing networks of skilled weavers, as the organisation has continued to evolve, so have its capital requirements. MitiMeth's focus on innovating new materials and bio-composites from water hyacinth and agricultural residues and deploying these in mainstream applications such as fashion and textiles requires further research and development which is capital intensive [2] MitiMeth does not have a fundraising profile and appears to have focused on organic growth through linkages with international markets. [3] Notably, no companies that we categorised as "alternative materials" had a public track record related to fundraising at the time of writing. In this respect, the example of MitiMeth is typical in this category insofar as it highlights the high level of research and development needed to produce and market alternative materials.

Asset Sharing and Rentals

While we did not come across examples of asset sharing and rental models identifying as circular, there are examples of business models operating in Nigeria that can be defined as such. A notable asset sharing model is Hello Tractor, a company established in 2014 that rents farm equipment to farmers in short increments, which received seed funding from Heifer International, an impact investor, and a venture development programme run by John Deere in 2022 to implement a PAYG system and support tractor financing.

Similarly, TREKK, a scooter company, has entered into partnerships with large institutions such as Pan Atlantic University to offer scooter rentals to campus students. Although it is not made public who owns the asset in this model and how it is financed, rental models require higher levels of capital expenditure.

The Demand Side / *Asset-sharing and Rentals*

Similar models are deployed in the solar sector, where PAYG and solar-as-service models are relatively well established. These models require high levels of capital investment and economies of scale to justify it. It is notable that in the case of Hello Tractor that the company was operating for 8 years before there was a seed round investment, indicating that evidence of market penetration is a prerequisite to access capital. In other words, despite the similarities between technology and PaaS platforms, we cannot draw parallels with the tech sector, which can see high levels of VC capital before business models are proven.

Although there currently are not many visible examples of asset-sharing models and available financing appears scarce, in our interviews one mid-sized contractor in the construction industry expressed an interest in asset sharing of vehicles and equipment. Given the potential of asset sharing and rentals and to improve both the environment and economic productivity, we are hopeful there of wider market potential although we expect that unlocking this will depend largely upon the feasibility of building market demand.

Platforms, Logistics and Infrastructure

From a financing perspective platforms, logistics and infrastructure is a broad category but essentially refers to the nuts and bolts that enable production and trade for circular economy businesses. Platforms in this definition are primarily digital markets where information can be shared and trades may be executed. Logistics may be digital or physical infrastructure that improves the delivery and transportation of materials. Infrastructure is physical buildings and spaces that are designed with circular economy principles or that enable more circular economic activities to take place.

Our dataset includes more than ten independent platforms, all of which may be described as start-ups. Based upon information in the public domain, of these, only two: Pakam and Scrapays, have progressed from pre-seed to seed funding rounds even though a high proportion of platforms identified participated in incubation and accelerator programmes. In our view, this underscores the complexity of getting the model right in terms of engaging platform users and matching supply and demand.

The Demand Side / *Platforms, Logistics and Infrastructure*

Logistics companies are not included in our dataset, although we note examples of service providers such as QTONNS in the case of a Circulary, a trading platform launched by the Delegation of German Industry and Commerce in Nigeria (AHK) to enhance them and manufacturers such as Thinkbikes, which supplies recycling companies, there is not a distinct set of logistics companies that service circular economy businesses directly.

Infrastructure includes ports, Special Economic Zones and real estate that have adopted circular economy strategies, including plans for material reduction, waste conversion and industry-symbiosis. We have identified three companies in our dataset that have adopted or are in the process of adopting infrastructure development strategies that have a circular economy component with sources of funding expected through discounted green financing, infrastructure investment and company funds. As no project is operational, we are careful to draw any conclusions about circular economy infrastructure in Nigeria apart from the fact that it is a frontier area, involving a diverse set of organisational profiles.

Recovery and recycling includes activities related to collection, aggregation and processing of waste materials. The recovery and recycling market in Nigeria is extremely dynamic and has evolved significantly over the past half decade. Materials that are actively recovered include paper, cardboard, scrap metal, tires, aluminium, a wide range of plastics, organics, textiles and e-waste, although rates of recovery vary significantly across material type, unsurprisingly depending upon price and capacity for off-take.

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Conversion of Waste Materials

We describe materials that valorize waste into new products as conversion of waste materials. We identified 35 businesses working on waste conversion projects or business models, with conversion of waste materials into energy (13) making up the highest percentage. Other types of material conversion include plastic to finished consumer goods, fashion and construction materials; organic waste to fertiliser and black soldier fly production and organic waste into food inputs such as cassava peels to ingredients for animal feed and cashew fruits into spirits.

Waste-to-energy includes large scale incineration projects that involve close cooperation with the public sector and depend upon stable distribution agreements with suppliers and off-takers. We have observed announcements of a planned waste-to-energy investment involving West Africa ENRG and Lagos State valued in the hundreds of millions of dollars in 2021; by far the largest transaction size that we were able to capture. However, we find no public evidence of investment or project implementation following this announcement. We infer from this that incineration projects are technically and politically challenging to advance to FID, but this may be expected of projects of this size and does not appear to arrest efforts to facilitate waste-to-energy transactions as there are several companies that continue to work on such transactions.

There are also many examples of biogas projects that have been sponsored as R&D or demonstrations. We find that while some of these projects remain operational, such as a facility in Ebonyi State that converts rice husks to energy, which was financed by UNIDO, none in our sample have grown from pilots into commercial operations. In our interviews, issues such as logistics and low willingness of consumers to pay were reasons why biogas projects struggled to develop into larger commercial ventures. Interestingly, we note that whereas early projects were publicly funded, there are now examples of private pilots and micro-retailing schemes that are planned or being implemented and new public projects such as the NASENI waste-to-energy project that have been announced, which may signal greater market readiness for biogas solutions.

The Demand Side / *Conversion of Waste Materials*

As with alternative materials, start-ups and SMEs working on waste conversion are heavily involved in R&D, specifically in respect to product innovation and innovation processes. Small companies such as Lumos Lab, which converts urine to green hydrogen, was acquired by Hydrofuel, a Canadian company, on the basis of its R&D capacity. Support through public agencies such as Innovate UK-KTN, GIZ , USAID and the Dutch Enterprise Agency have also helped to stimulate R&D and technology exchange around agricultural waste, including cassava, coconut and manure. There are also examples of private sector organisations that have invested in R&D to develop and improve waste conversion processes, with companies like BASF and DOW involved in processes such as pyrolysis.

While there is not yet evidence of broad commercialization for many of these processes, commercialization runways are often long and can yield other benefits such as knowledge and collaboration, which can strengthen commercial networks.

Second hand and Reuse

Secondhand and reuse models extend product life cycles. While secondhand and reuse are very established practices in Nigeria, with the Ikeja Computer Village a shining example of the dynamism of refurbishment markets in Nigeria, there are not many examples where these models are integrated into formal economic activity. Consequently, the pool of companies we have identified in this category is relatively small.

Reuse models are emerging almost entirely from start-ups and small businesses. Examples in the fashion sector include Clozetsales, a company that promotes reuse and resale of clothing, Africa Collect Textiles, which collects, redistributes and upcycles used clothing and Nkwo, a sustainable fashion brand which recently launched a fashion line that allows customers to have old garments redesigned. Other notable reuse models are Pad Up Creations, a social enterprise manufacturing and distributing reusable sanitary napkins and Jaebee Furniture, which introduced a furniture return programme.

Summary

Tables 1 and 2 on the following pages provide a summary of our findings. Table 1 summarises the investors we identified in the public domain that have financed circular businesses in Nigeria. This list does not include organisations that have intentions to invest but have not, nor investments that have not been verified in the public domain. Table 2 summarises our findings in respect to company structure and investments across each type of business model defined.

Unsurprisingly, across all categories we defined, business models are in early stages, irrespective of whether they are driven by start-ups or larger organisations. In terms of numbers we observe that experimentation with circular business models, while concentrated in our sample with start ups and SMEs, is also being carried out or supported by larger, more established companies, including indigenous and multinational businesses. In our sample, it is investments by these companies that are the largest source of private capital for circular business models.

Table 1: Sources of and Origins of external CBM Financing in Nigeria

Country of Origin	Organisation	Type of Instrument
Canada	Loyal VC	Equity
Canada	Marine Litter Mitigation Fund	Grants
Canada	Mastercard Foundation	Start up Grants
Estonia	Start Up Wise Guys	Equity/Grant
Germany	Business Angels Club Berlin	Equity
Kenya	Africa Guarantee Fund	Technical Assistance & Credit Readiness
Luxembourg	Luxembourg House of Financial Technology Foundations	Start up Grants
Nigeria	UNIDO	Grants
Nigeria	All-On	Grants
Nigeria	ACT Foundation	Grants
Nigeria	LASRIC	Grants
Nigeria	Tony Elumelu Foundation	Grants
Nigeria	Eko Innovation Centre	Start up Grants

The Demand Side / *Summary*

Country of Origin	Organisation	Type of Instrument
Nigeria	Lagos State Employment Trust Fund	Grants/Discounted Loans
Nigeria	Bank of Industry	Discounted Loans
Nigeria	FCMB	Line of Credit
The Netherlands	Dutch Enterprise Agency	Market development
The Netherlands	Invest International	Full product line contingent on Dutch cooperation
The Netherlands	Rabobank	Debt
The Netherlands	DOEN Foundation	Grants
The Netherlands	Orange Corners	Start up Grants
Norway	Norfund	Debt
Portugal	Ocean Community	Start up Grants
Switzerland	Deloitte FoodTech Accelerator	Start up Grants
United Kingdom	Unilever	Grants, Debt
United Kingdom	Innovate UK -KTN	Research & Innovation
United Kingdom	Sustainable Manufacturing and Environmental Pollution	Research & Innovation
United Kingdom	GSMA	Grants
United States	Acumen	Impact first - Equity
United States	Because International	Start up Grants
United States	USAID	R&D, market development
United States	Coca-Cola Foundation	Grants
United States	Clean Cooking Alliance	Impact Investor - Equity
United States	Starta Ventures	Angel Investing & Venture Capital
United States	Heifer International	Impact Investor -Equity
United States	Google Black Founders	Grants/Non-dilutive capital
United States	MIT Lab	Start up Grants

The Demand Side / *Summary*

Table 2: Circular Business Models in Nigeria and Sources of Financing

Business Model	Size	Maturity	Types of Financing	Sources of External Financing
Alternative Materials	Start-ups, SMEs	Early stage	R&D, product and market development	Public, Foundations
Asset Sharing and Rentals	Limited Examples	-	-	-
Platforms, Logistics and Infrastructure	Start-ups (platforms), mid-large companies (infrastructure)	Early stage	Varies	Public and private venture funds (platforms), re-investment, project/infrastructure finance
Recovery and Recycling	MSMEs, social enterprises/NGOs, mid-size companies	Maturing	Grants, subsidies, debt, equity	Public, foundations, corporates, impact investors
Conversion of Waste Materials	Varies	R&D, Pilot (with some exceptions)	R&D, Pilot Projects, market development	Varies
Secondhand and Reuse	Start ups	Early Stage	R&D, market development	Bootstrapping, Venture Funds

While it is expected that there are not many examples of commercialised circular business models in Nigeria at this time, this is a necessary threshold for business access to traditional forms of private capital. In the next section we discuss the supply of capital, looking specifically at the tools in development and already available that can be used to facilitate further experimentation with circular business models and accelerate their path to broader commercialization.

The Supply Side

An orthodoxy of the Sustainable Development Goals facilitated by the United Nations is that financing the transition to a more socially and environmentally just society depends upon the mobilisation of private capital.[24] However, in our study of businesses working on the circular economy in Nigeria, we see relatively little evidence of business models (although there are notable exceptions) that are absorbing traditional forms of private capital. The notion that private capital must be mobilised to grow sustainable business is therefore problematic: substantial levels of market support are clearly needed to create conditions for private markets to develop.

This issue is not lost on the financial services industry and significant efforts are being made to develop blended finance and catalytic products that allow private investors to participate in markets that may not otherwise produce required returns. Based on this view, in this section we focus specifically on products and approaches that may be used to make circular business models more competitive (and thus investable). The key approaches we evaluate are carbon credits, plastic credits, green bonds, EPR and green taxes and, finally, incentive-based approaches. Based upon these assessments, we conclude this section with recommendations in respect to actions that can be taken to improve opportunities for circular business models to develop and scale in Nigeria.

Carbon Credits

There is much hope pinned on carbon markets, but carbon credits are not yet widely used in Nigeria. Our sample included one waste-to-fertiliser project implemented by Earthcare in 2015, financed by the Clean Development Mechanism, a tool which enables organisations participating in statutory carbon markets to purchase credits for projects implemented in developing countries.

There are several reasons why carbon credits are not yet mobilised for circular business models in Nigeria. Firstly, carbon credits are designed to act as a subsidy and not as seed finance.[25] As the unit economics for early stage businesses are not necessarily obvious, it is not a relevant tool for young businesses.

The Supply Side / *Carbon Credits*

Secondly, it is expensive and not necessarily straightforward for small businesses to access carbon markets. In our investigation of the potential of carbon markets for circular businesses, we found that carbon accounting frameworks could not be generalised and so depend upon an advisor to support deal structuring. Given the high costs of doing this, there are limited advisors in the market willing to work on small projects,[26] which excludes a large number of businesses in the Nigerian market.

Thirdly, for voluntary markets, which are those most accessible to Nigerian companies, prices for credits can often be too low for the value to be material in respect to enabling businesses to participate in the market.[27]

In other words, while carbon credits are a very promising instrument, the way they are currently designed does not make them appropriate for R&D or start-up activities, which represent the highest percentage of activities in our sample. Carbon credits are also limited in respect to the way they can serve SMEs. Because they have so much potential to enable otherwise unprofitable business activities to develop, we believe that more work is needed to make credits accessible to small businesses.

Plastic Credits

A close cousin of carbon credits are plastic credits. Plastic credits are designed much in the same way as carbon credits insofar as they are designed and produced to be traded as offsets. While plastic credit- like instruments have recently been introduced to finance recycling projects in Ghana by the World Bank,[28] there is not yet a statutory plastic credit market in operation.

Needless to say, the structure of the World Bank plastic credit, where private investors provide upfront financing for recycling capacity and equipment that is guaranteed by the Bank and investors forego initial coupon payments but are expected to be compensated via a hedging instrument and through the sale of credits is both sophisticated, risky and worthy of study for its potential in the Nigerian market.

The Supply Side / *Plastic Credits*

However, if the World Bank instrument is a sign of how plastic credits will be generated, we must be careful to make assumptions that they may easily be deployed in the Nigerian market.

Irrespective of the complexity of large scale plastic credit deals, entrepreneurs in the Nigerian market are generating their own plastic credit markets. For example POP Beachclub has sold annual plastic offsets to individuals, which is based upon the estimated volume of plastics that one person consumes throughout the year. We are enthusiastic supporters of entrepreneurial "waste compensation" approaches such as this, which companies such as Closing the Loop, a Dutch-based e-waste collection company operating in Nigeria, whose main clients are large companies that pay to recycle one phone for each phone they sell or purchase, although we recognize that the current market environment in Nigeria does not lend itself as well as Europe to waste compensation models.

Green Bonds and Green Credits

Green bonds and credit are financing instruments that are designed to stimulate investment into green enterprises. Bonds are typically larger issuances by companies for projects that meet a specific set of criteria. Bonds that have been issued in Nigeria do not offer discounted coupon rates but are highly subscribed and companies that issue them receive technical support to meet investment criteria. Due to the size of the issuances, green bonds are not relevant for the business models we identified.

Green credit are lending instruments offered through commercial banks and can be discounted and/or guaranteed products so banks are able to lend to riskier clients. In Nigeria development finance institutions and the Development Bank of Nigeria play key roles providing capital and guarantees for commercial banks. These products are more suitable for businesses in our sample and we advocate for further work on the part of banks and their partners to determine how credit products could be designed for businesses that may be expanding their activities or buying assets and equipment to grow.

The Supply Side / *Green Bonds and Green Credits*

Based on our interviews with commercial creditors the key questions we believe could be investigated are whether the cost of capital could be reduced further through the incorporation of carbon or plastic credits into its own products; however, based on our understanding of the carbon credit market we do not believe this is a feasible short term goal.

A further issue is in respect to origination of demand for green credit products. In our sample, grants and subsidies were a key source of financing for equipment essential for business growth and it was unclear the extent to which credit was used to finance asset purchases. It was furthermore reported that the most attractive credit products are very difficult to access in administrative terms and tools such as cooperative financing do not offer competitive rates, particularly in respect to saving. In this respect, we believe additional work may be needed to determine the types of credit products that can be attractive to market participants. We believe this is most relevant in the recycling sector, where circular business models are most developed.

Extended Producer Responsibility and Green taxes

Extended Producer Responsibility (EPR) is an essential tool for market development. There are two EPR regimes that are operational in Nigeria. The Food and Beverage Recycling Alliance (FBRA) is the Producer Responsibility Organization for FMCG packaging, specifically plastics, and the E-waste Producer Responsibility Organization of Nigeria (EPRON) covers e-waste.

While essential tools that can and do help stimulate investment in recycling: FBRA has provided subsidies for collection and has also financed infrastructure and EPRON has succeeded to make membership to a PRO statutory for companies importing, manufacturing and retailing electronics and has also began roll-out of subsidies for collectors; EPR in Nigeria will likely be a partial solution for some time as the tools to enforce and administer it are as strong as the enforcement capacity of the state.

The Supply Side / *Extended Producer Responsibility and Green taxes*

While regulatory agencies may be highly resourceful and creative in respect to monitoring and compliance,[29] they do not have sufficient resources to regulate the grey and informal economy which makes up the majority of Nigeria's economic activity. In other words, government agencies are likely to have a hard time to enforce producer contributions to EPR regimes, which leads compliant companies to complain about unlevel playing fields. Closer dialogue with industry and with countries with comparably-sized informal sectors may help to identify approaches on how EPR regimes may be expanded and support market competition.

Green taxes are another tool that can be used to incentivise more circular purchasing behaviours. For example, taxes on products that are produced with virgin materials might improve the competitiveness of products, such as rPET, that are made from recycled materials. Regardless, we are cautious to suggest such an approach without clarity about how it may be implemented so that it can encourage the intended investments and stimulate local industry, as we note in 2023 a green tax was introduced and subsequently revoked on the basis there was no proper consultation about it but we are not aware of any ongoing consultation that might help shape a strategy for green taxes in Nigeria. We believe that deeper industry-government dialogue should be pursued to continue to explore whether and how a green tax could be structured so that it enables investment in more circular products and activities. We believe this dialogue should be technical in nature, assessing specifically materials and activities where a

Incentives-based Approaches

There were several examples of R&D and pilot activities in this study. Our view is that substantially more investment is needed in R&D to develop and experiment with technologies and business models in the Nigerian market. This can come from multiple sources, the first being direct investment into research and development by the government.

The Supply Side / *Incentive-based approaches*

The second could be larger ticket funding from grant-making programmes. A third might be through improved linkages between Nigerian and international R&D institutions.

In a moment of fiscal distress, these are of course whimsical recommendations. Another option may be to offer incentives to companies who spend on R&D and product development. While Nigeria has developed a framework that provides tax and other incentives to businesses with "pioneer" status and to businesses investing in R&D, this could be reviewed to determine with sectors like waste management could be awarded pioneer status and whether changes could be made to improve rates of R&D spend among companies.

Finally, we also advocate for procurement-based approaches to support market development. Here, the government and large organisations have a significant role to play to produce opportunities for emerging business models. Recognizing that procurement is a fraught topic, a bottom up approach, focused on identifying nodes of demand that have the potential to create market opportunities for the types of businesses in our sample may be one approach that can serve to build foundations.

Recommendations

This paper focuses on identifying circular business models that have been developed or are operational in Nigeria. We assess these models against the size of the businesses deploying them, their maturity and their sources of financing. We find that circular business models in Nigeria are at very early stages of development, with very few in our sample using traditional sources of commercial financing. Our assessment is that deeper work to support market development is needed to create conditions where more traditional sources of financing are relevant to businesses. We review the type of instruments in the market which are used or are being developed to improve the competitiveness of green businesses and facilitate market development. Across these instruments we recommend the following:

The Supply Side / *Incentive-based approaches*

Carbon Credits: Work with credit advisors and with organisations such as the Nigerian Council on Climate Change and the African Carbon Markets Initiative to explore how small businesses can access carbon credits more seamlessly.

Plastic Credits: Study successful issuances of plastic credits, such as the World Bank Plastic Reduction-Linked Bond in Ghana to determine potential for transferability and learning for Nigerian market. Encourage and support entrepreneurial experimentation around waste compensation frameworks.

Green Bonds and Green Credit: Explore methods of reducing cost of capital through carbon or plastic credits, deepen understanding of borrowing needs for businesses. Improve accessibility of discounted interest schemes and interest rates for saving.

Extended Producer Responsibility and Green Taxes: Mobilise technical group on green taxes to explore whether there are materials and activities for which green taxes may produce market opportunity while also preserving competitiveness.

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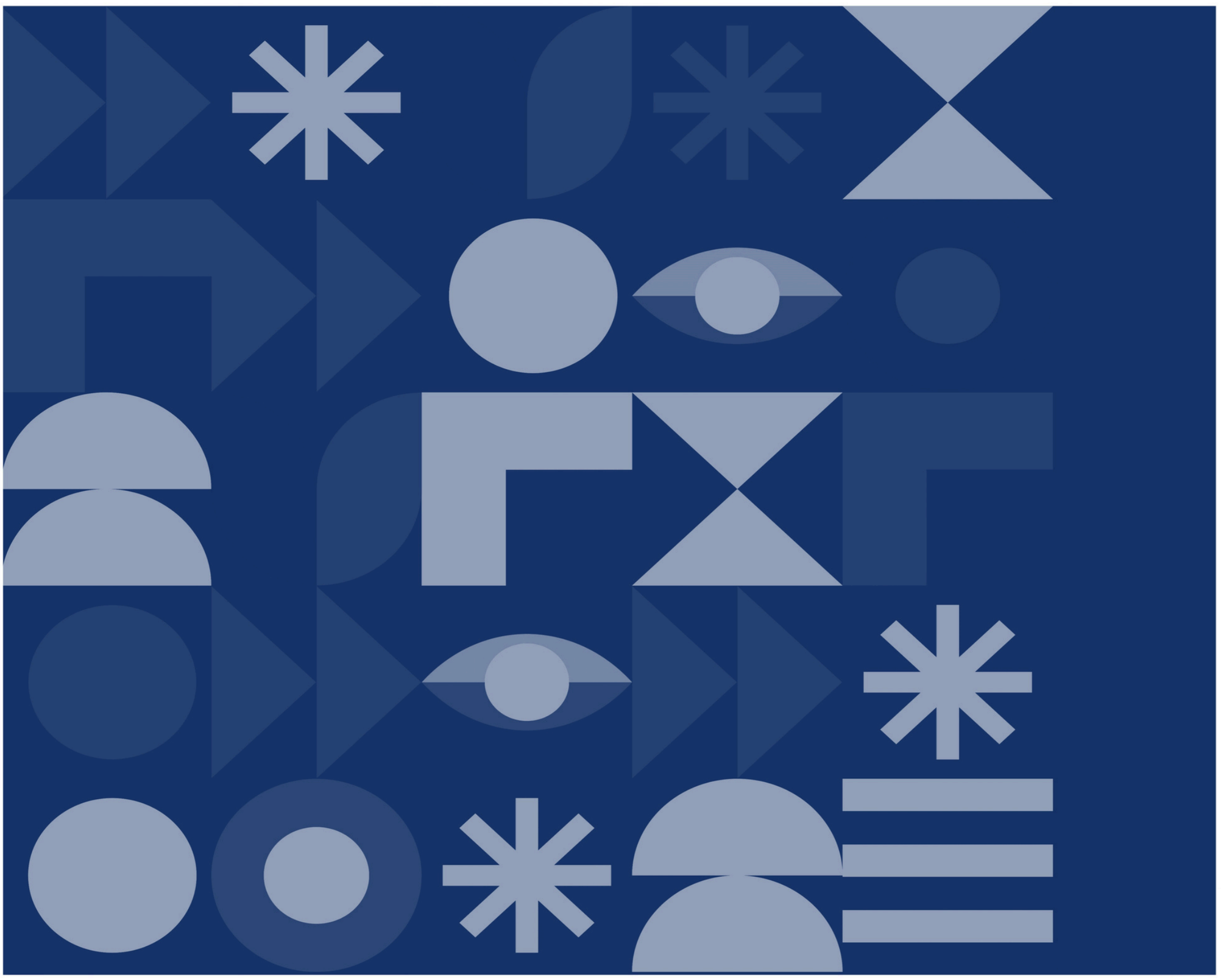

Circular
Business
Platform