A Market Analysis of the Sub-Saharan Africa Energy Sector

Introduction

Sub-Saharan Africa (SSA) is the geographical area on the African continent which encompasses all the countries below the Sahara Desert. This includes countries like Nigeria in the West, Kenya in the East, South Africa in the South as well as all central African Nations. Each of the nations are in different stages of their development and face different challenges as a result. Most notably these are access to affordable basic services such as clean water, health and energy with varying poverty rates as a result.

Market Outlook

The SSA Energy market is the focus of this analysis as the access to affordable energy for the population is a major inhibitor of growth for the region. According to the International Energy Agency (IEA), SSA has the lowest energy access rates in the world with electricity reaching only about half of the population (approximately 600 million people) while two thirds of the population (approximately 890 million) still rely on traditional fuels such as wood and coal for cooking. The challenges that this widespread lack of energy access poses for both micro and macro levels are well studied, especially in Africa, and put simply these inhibit the economic growth of the region as energy is a foundational infrastructure which enables and sustains other industries and the provision of other services like, clean water, transport and healthcare. The focus of this analysis will be on residential energy.

As previously mentioned SSA has an energy access rate of about 50%, however, the rate is much lower in rural areas at about 25% and what is more concerning is that because of the rapid population growth in recent decades on the continent, the growth in electrification has been outstripped by population growth. This an indictment on the efficacy of current systems and regulatory frameworks in the sector, but is both a serious challenge and an opportunity when viewed through the lens of a large and ever growing total addressable market.

The markets in each country are fairly unique and complex as they are regulated and governed differently, however, a few general trends appear which give insight into the current state of the overall market as well as the challenges and opportunities looking forward. The minority of the population that has a grid connection today, often faces unreliable electricity supply which necessitates the use of back-up fuel powered generators. These are often costly but the widespread adoption of these generators in countries like South Africa speaks to how poor supply reliability can be. Moreover, the cost of energy in the region is high, with electricity tariffs in SSA often being
among the highest in the world. This coupled with the low average income for most individuals

in the region ultimately puts pressure on consumers. While South Africa and its parastatal utility Eskom are a prime example of the effect that mismanagement and corruption can have on the implementation and maintenance of energy generating facilities, which is a common problem across SSA, other countries sustain losses due poorly maintained transmission and distribution networks at double the global average.

Market Size

It is clear then that there is great opportunity for success in this market if the challenges around regulation and other barriers to entry can be solved. But what is the size and growth potential of the market?

The size of the market will be assessed using the following formula:

TAM = *(Total Number of Customers in a Market) * (Average Annual Revenue of a Customer in that Market)*

The total number of customers (TNC) will be assumed to be the 890 million people who still rely on traditional fuels and energy for daily use as previously discussed.

The average total revenue is calculated as follows:

- The weighted average household cost of electricity (ACOE) in the region is $0.11/kWh, as used by the International Renewable Energy Agency (IRENA) in their SSA analysis as part of their Global Renewables Outlook (2019).
- In South Africa, Free Basic Electricity for low income households is set at 50 kWh per month. This is often criticised as not being sufficient for a lot of the appliances and daily needs of the average modern individual, much less a family, so this figure will be doubled in an attempt to be more accurate whilst still conservative. Therefore, the average annual consumption per customer (AAC) is:

$$AAC = AverageConsumptionpermonth * 12 = 100 * 12 = 1200kWh$$

Therefore the average total revenue is:

$$ACOE * AAC = 0.11 * 1200 = 132USD$$

Finally :

$$TAM = TNC * ACOE * AAC = 890000000 * 0.11 * 1200 = 117.48 Trillion USD$$

With regard to the growth rate of the market, the best approximation would be to assume the population growth of SSA to be the benchmark. The IRENA estimates SSAs population growth until 2050 to be at 2% annually. In all likelihood, the market will not be able to match this, however this would be the best case scenario.

Customer Analysis

With the widespread lack of access to reliable, modern and safe energy supplies across SSA it is to be expected that the applicable consumer base will be large and broad or highly variant as a result. However, for the purposes of this analysis low income families and individuals in rural and informal areas will be the main customer as their need for products is greatest and thus the potential for large returns on great solutions is high as a result.

According to Statista, “nearly 55 percent of the total population of Sub-Saharan Africa is aged 15 to 64 years old. Moreover, children younger than 15 years constituted a large 42 percent of the inhabitants. Overall, Africa has a youthful population.” Such a youthful population presents a wonderful opportunity for rapid economic growth and improvement of living standards if this young and rapidly growing population can be translated into a skilled workforce; especially in the STEM fields and digital sectors which require reliable energy supply for internet access.

The challenges discussed earlier in this analysis have led to a situation where today, four out of five people in sub-Saharan Africa rely on the traditional use of solid biomass, mainly firewood, for cooking. And therein lies the major pain point for the consumer, they naturally seek an improved standard of living and know that the best way to do that is through a safe and reliable energy supply, however, these customers cannot rely on their governments to provide the infrastructure and services necessary. This forces the main consumer to rely on gathering (which in itself is a time and energy consuming activity) or buying firewood for cooking, as discussed, as well as using candles and other means for lighting. The serious need for energy and lack of faith in current government led systems can be seen in some of the innovate ways people have taken matters into their own hands with DIY wind turbines, hydro electric generators and mini solar farms among many others.

Naturally the main customer is not content with this and in a South African context most people are aware that the lack of access and slow progress to remedy this is in large part due to the monopoly status Eskom holds in the market at this stage, with legislation allowing larger scale independent power production only being passed very recently. Consistent unreliability and failures in this sector from governments across SSA has frustrated the customer made them acutely aware, pessimistic and critical of their access to reliable energy services and the future thereof.

Market Trend Analysis

The SSA energy market is a growing one, despite its volatility, with rapid change playing a role in this growth. The key trends which will be discussed in this section include the following:

- SSAs position on Global Carbon Net Zero Goals.
- Continuous subpar growth in SSA domestic generation capacity as a result of insufficient investment.
- South African government adapts regulatory frameworks to reduce barriers to entry.
- Increased research and development and declining costs of key technologies. (solar, batteries, carbon capture)

SSA nations have been openly opposed to committing to ambitions climate goals similar to those that more developed nations have targeted. Just two African countries (South Africa and Malawi) have committed to reaching carbon net zero by 2050. Egypt on the other hand has committed to ensuring that 30–40% of its energy mix is renewable (solar and wind) by 2035 and is on track to meet their target. The general reluctance to make these pledges on the parts of SSA nations, is due to the implications that using renewable technologies, which are still relatively expensive compared to fossil fuel options, would have on the already poor and developing African nations. The biggest of which would be a costly and slow industrialisation process. Moreover, it makes little sense to expect SSA nations who are amoung the poorest and least developed in the world to have the same time horizons for reaching net zero as developed and advanced nations; who reached that status on the back of exploiting fossil fuels like coal and crude oil. The global community has somewhat conceded to this point and agrees that a global transition to net zero must be just, inclusive and equitable. One of the big take aways of this agreement is developed nations pledging to invest $100 Billion annually to Africa’s net zero development.While this target has been missed since its inception it is a useful commitment which is likely to aid the SSA energy market in moving towards a balance between fossil fuel energy production with an emphasis of efficiency and renewable energy production in favourable contexts and applications.

The growth potential of this market has been highlighted however, the real world performance has been subpar. According to Africa-Energy’s live data portal, “Only nine SSA countries added any new on-grid capacity at all, four of which added less than 5MW.” This slow growth period which started in 2019 has been the worst on the continent since the 2000s. This is due primarily to a lack of investment, such that the KfW Development Bank in partnership with IRENA noted that investment in energy generation on the continent must double to approximately $40-65 Billion by 2030 to achieve widespread access on the continent. One of the biggest barriers to gaining this vital increase in investment is the high cost and risk profile of energy generation projects on the continent, both political as well as financial.

The market outlook showed how government regulation can be an inhibitor of the growth of the market with South Africa and its parastatal Eskom being used as an example, however there is some light at the end of the tunnel as the South African government has adjusted the regulations governing own use power generation, by removing licensing requirements for generation facilities under 1MW and reducing licensing requirements for own use generation above 1MW. As one can imagine this will greatly alleviate the demand pressure on the struggling Eskom facilities by encouraging large energy consumers to take matters into their own hands and invest in generating their own power. Better still, forecasted improvements in the systems used to sell electricity to Eskom or the Grid will turn some of these large independent producers into suppliers too. This coupled with the newly launched Risk Mitigation Independent Power Producer Procurement Programme (RMIPPPP), which was created to source 2 000MW from private sector producers using a range of technologies, points at the South African Government taking the right steps to improve regulatory frameworks to help aid development of the market; by reducing barriers to entry. If governments across SSA could employ similar approaches within their different contexts, this would greatly improve domestic generation and the growth rate of the market.

The global push towards using renewable energy technologies like wind turbines, solar panels and batteries have caused significant drops in the cost of electricity generated using these technologies. This is thanks mostly to the increased investments in research and development in these technologies, which is driven by higher demand as governments put in place stricter regulations on power generation. The result is competitive manufacturing driving up the efficiency of these technologies whilst driving down the cost. According to IRENA, the cost of utility scale solar photovoltaic (PV) generation decreased by 85% between 2010 and 2020, moreover, the global weighted average levelised cost of electricty (LCOE) generated using wind turbines fell 13% between 2019 and 2020 alone. This kind of reduction in cost has made renewable technologies competitive with fossil fuel technologies and this will surely benefit SSA countries as the diversification of their energy mix no longer has to come with an exorbitant price tag. IRENA even goes as far as to project that, “In emerging economies, the 534 GW added at costs lower than fossil fuels, will reduce electricity generation costs by up to USD 32 billion this year (2020).” That saving is approximately equivalent to the total average annual investment in SSA generation (pre-2019) which needed to double.

The onset of the global Covid-19 Pandemic caused deal activity in SSA to drop in the second half of 2020 compared to the second half of 2019. Year-on-year, deals were down in both volume and value compared to 2019. As the region prepares to try and launch a post-pandemic recovery, these trends should be turned around with investments and deals in the Technology, healthcare and minerals and energy being huge targets for the region and leading the way. This is evident in some big domestic deals in the second half of 2020 leading into 2021.

The Mozambican energy sector boasted $145 million in deals announced in the second half of 2020. This is due to the acquisition of Central Termica de Ressano Garcia by the UK's Actis LLP, for $145 million.

Eni, Shell and Total E&P closed a US$800 million sale of a 45% stake in oil mining lease (OML) 17 to the Nigerian investment company Heirs Holding and its affiliate Transnational Corp. OML 17 is a region demarcating 17 oil and gas fields, 15 of which are currently producing.

Another significant deal includes Zambia Consolidated Copper Mine (ZCCM) acquiring a 90% stake in the Mopani copper mines, owned by Glencore. The rising demand for copper globally, with the metal trading at over US$8,000 per ton, is being driven by decarbonization (battery production for renewable energy storage) and the rapid rise in demand for EVs.

Competitive Landscape

In an attempt to give broad yet valuable insights into the competitive landscape of the SSA energy market, a oil & gas company as well as two renewable energy companies in the region will be used as key players and benchmarks for both analysis and comparison.

Oil & Gas - Shell PLC

Shell is primarily an oil and gas exploration, production, refining transportation and marketing company, with the Shell group consisting of more that 2000 companies worldwide. The company has also diversified its interests with ventures in coal and metal mining, forestry, solar energy and biotechnology.

- Shell has a variety of exploration missions, refineries and operations, pipelines in the regions with presence in Gabon, Nigeria, Kenya, Namibia, South Africa, Tanzania and Tunisia.
- Their revenue for year ended 31 Dec 2021 was $ 261.5 Billion.

Shell is identified as a key player not only because of its massive market share in African oil & gas but also because of the vital role liquid fuels will play in the SSA energy market’s growth and transition. Shell’s competitors will also play a key role and include, Total, Chevron and Mobil. Interestingly, Shell has recently been entangled in legal battles with Southern African Wildlife activist groups over seismic surveying for oil and gas reserves, which planned to be done along the wild coast.

Renewable Energy - BTE Renewables & Anergi

BTE Renewables is a utility-scale wind and solar project developer operating in Africa. They execute full project life-cycle development from feasibility assessments and development through to operations.

- Raised over $ 1 Billion in funding to close projects and has installed over 436MW.
- Today, BTE renewables has approximately 400MW of projects operating in their portfolio.
- This is a growing company estimated to have between 250 and 500 employees.
- BTE Renewables completed its fourth project in South African in 10 months (in May 2021), with the close out of their 123 MW wind farm in the Eastern Cape.

A competitor in the renewable power project development space for BTE Renewables is Anergi.

Anergi was established in 2017 with the purpose of becoming the leading power company in SSA. Their primary operations include, managing their existing portfolio and growing its asset base through either origination, project development, fund-raising, equity investment, asset operation or strategic partnership.

- Their portfolio comprises of five total assest in both the operation and construction stages, which produce a combined 1,413 MW of thermal and renewable energy.
- These projects are spread across four African countries: Ghana, Kenya, Nigeria and South Africa.
- Thus providing energy to 23 million customers.

Anergi Turkana Investments Limited, a portfolio company of the Anergi Group or “Anergi”, has acquired an additional 12.5% stake in Lake Turkana Wind Power Limited from KLP Norfund Investments.

Lake Turkana Wind Power owns and operates Africa’s largest wind farm producing 310 MW, using a total of 365 wind turbines. The wind farm is located in Kenya, reliably and affordably providing approximately 17% of Kenya’s installed capacity.

Evaluating My Chosen Startups

A weighted scoring model will be used in conjunction with the qualitative analysis of the startups in the required categories. This is done in order to give a holistic view of the value and potential of each startup but most importantly to also provide a basis for comparison between the startups.

The model

There are five categories upon which each startup will be assessed; Market, Problem & Product, Founder & Team, Metrics and finally my opinion. These categories are defined/described as follows.

Market - describes the sector and industry in which the startup is operating. Addresses the market size, trends, competitors and barriers to entry as far as each startup is concerned.

Problem & Product - looks into the problem that the startup is trying to solve and their solution in the form of their product or service. Is the problem worth solving? Is the product/service suitable and does it address the intended problem?

Founder & Team - assesses the suitability of the founder and team of the startup to solving the identified problem in the specified market. This takes into account their expertise and experience as well as their soft and hard skills.

Metrics - The startups I have selected are in the early stage, all pre-seed and have no accessible financial information to either calculate or estimate the required metrics. Therefore I have decided to neglect this factor.

My opinion - This looks at the overall potential of the startup and is essentially my concluding remark, it can include any concerning or promising additional information I find in the process of assessing each startup.

Each category will be given an overall score out of 5 (with 5 being excellent and 1 being terrible). The following weightings are assigned based on importance:

- Market - 3
- Problem & Product - 4

- Founder & Team - 5
- My opinion - 2

Therefore the minimum score is 15 and the maximum possible evaluation score is 70

Juabar

- Market - 4
    - According to the World Bank the informal business sector accounts for approximately 80% of jobs and is therefore the backbone of the African economy. This ranges from the charging stations from which Juabar started their concept, to street food and consumer goods sales.
    - The team developed the solution specifically with the informal business sector in mind and has proven the product market fit over years having been operating.
    - The mobile payments and fintech industries are accelerating the digitisation of African economies and making banking accessible to rural communities, as well as low income individuals and families. The only barrier to this trend is the lack of access to affordable energy to power and charge devices as discussed in the market analysis. This uniquely positions Juabar to provide the infrastructure for a sector of the economy with a severe need. This coupled with the simplicity of their product means they can scale very quickly and look at expanding to other countries and markets.
    - The key players include other possible competitors in the space which include, Musana in Uganda and others. There are no obvious regulatory barriers to entry because Juabar’s offering is essentially a decentralised micro-energy supply which removes the necessity for adherence to complex and restrictive government regulatory frameworks for power utilities.
- Problem & Product - 5
    - Juabar aims to solve the problem of access to energy/electricity for lower income and rural communities. They developed the kiosk based on the insight that it can be very difficult to find charging points in cities in Tanzania and recognised that the need for energy for digitisation was ever increasing. The Juabar is a simple yet effective combination of tech (solar panel and

battery storage) with low tech (metal fabricated kiosk on wheels) making it cheap to manufacture and affordable for potential franchisees.

    - Energy access is a big problem which inhibits the mobile money and fintech industries from their growth in making banking and digital banking accessible to low income and rural communities and is definitely worth solving given the scale thereof. This is reinforced by the buy in from their franchisees
    - Juabar solves the problem and creates an opportunity for people to start businesses around the Juabar kiosk in the process.

- Founder & Team - 4
    - Olivia Nava and Sachi DeCou founded Juabar in 2012 after identifying the scale of under served mobile users in Tanzania and Sub-Saharan Africa as a whole.
    - They were able to fund and build a prototype in collaboration with the California College of the Arts' Center for Art and Public Life, the IMPACT Social Entrepreneurship program, and the local Rural Technology Institute in Tanzania.
    - The lean approach to the design and launch of the product indicates rapid but thoughtful execution and their choice to collaborate to develop the prototype shows their openness to working in teams and learning from others.
- My opinion - 1
    - The company is no longer in operation due mostly to the founders' in ability to stay in Tanzania and commit fully to the project, since they are US citizens. While I can't speak on their decision to cease operating it is strange that they wouldn't commit to what seems to be an extremely promising venture. The business model should be investigated further.
- Total Score: 54/70

World Tech Consult

- Market - 5
    - According to the Exchange Africa Publication, SSA has 23 million smallholder farm's which is approximately 5% of the global total. The socio-

economic impact of these farms and the markets and economies built around them cannot be understated, as these farms contribute massively to employment especially in rural communities and to women who provide for themselves and their families by selling food in markets.

    - This impact is especially evident in East African Countries (EAC) since smallholder farms produce 70% of the region's food thereby contributing between 30 and 40% of GDP and employing about 70 to 80% of citizens.
    - Key players include farms and organisations around the agricultural sector such as the Sub-Sahara African Farmers Organization (SSAFO). As far as competition is concerned, Worldtech Consult has a few strong competitors in the perishables cold storage space, namely, FreshBox in Kenya and ColdHubs in Nigeria. Worldtech Consult is very well placed to enter the market given their experience in the space while developing the product since 2013. The company has been able to refine their product as well as diversify their offerings at the same time.

- Product & Problem - 4
    - Food scarcity is a severe problem with 281 million Africans suffering through disastrous food shortages. This is mostly due to climate change and disasters such as floods, drought and even pandemics like Covid-19; which ruin harvests and stall markets and economies. But food scarcity and the resulting malnutrition has been a longstanding problem for the continent. Food waste is a global problem that SSA also faces but in order to reduce malnutrition and hunger this must be solved.
    - With the unique insight that Ghana's food markets, entreprenuers and smallholder farmers had no way of reducing the amount of food waste due to produce going off before sale.
    - Worldtech Consult addresses the problem by designing and manufacturing solar powered walk-in cold rooms for the storage of perishable crops. These cold rooms increase the shelf life of crops by slowing the oxidisation process, which would otherwise cause some of the crops to rot before being sold and safely consumed. Using solar power ensures a consistent and low cost energy supply for the cold room.
- Founder & Team - 1
    - The 'Our Team' page in the website is not fully developed and very little information on each member is given. this in my opinion is not a good

impression at all.

- My opinion - 4
    - This is another innovative solution which addresses a serious problem not only in developing African nations but globally. I think making these cold rooms portable via truck would also be a key feature for food transport. I think the potential of this startup is very promising.
- Total Score: 44

Inno-neat

- Market - 5
    - As discussed sub-saharan African market is hampered by a lack of energy access especially in rural and low income communities; with about 66 percent percent of the population relying on traditional fuels for their daily energy needs. This market is expansive in the african context and the problem is analogous in other developing countries across the world.
    - The company understands this issue and aims to reduce this figure by reducing the cost of electrification while decentralising it at the same time, thereby reducing people’s reliance on government utilities
    - Inno-neat is positioned to capitalise on the waste economy and demand for energy with a low cost and innovative solution. The market is increasing rapidly with the uptake of renewable energy (especially solar PV) which is intermittent and can only be effective with a storage facility.
- Product & Problem - 5
    - Renewable energy such as solar power is intermittent in nature and without a means to store this energy when the sun is not shining, users risk being left without electricity.
    - Inno-neat’s insight into the problem of renewable energy storage is that batteries are being discarded before their full life has been used. This waste increases the costs of energy storage especially lithium ion cells and batteries which in turn acts as barrier for low income communities and households for adopting renewable energy as a solution to their energy needs.

    - They solve the problem by manufacturing solar ready repurposed lithium ion batteries from Lithium ion cells, for use as a storage solution for solar power in low income and rural communities. These batteries are cheaper than new ones as they maximise the potential of wastage and are still effective.
- Founder & Team - 5
    - Godfrey Katiambo – Founder

      Has 14 Years' Experience in Sales, Product Innovation, and Customer centered Design and Development, and Marketing in Social Enterprises and BOP Market focused businesses. 8 years in Solar and Renewable energy products working for companies such as Solarkiosk, African Solar Designs, SunCulture and Head of Sales and Operations at SUNami Solar. Entrepreneurship trainer for Techbridge Invest and Close the Gap Innovation Hubs.

      Holds a Bachelor of Commerce Degree from the University of Nairobi and Master of Business Administration from Kenya Methodist University.
    - Edwin Amwoka – Co-Founder

      An Electrical Engineering graduate from Technical University of Mombasa with over 5 years' experience in the solar industry. Experienced in energy efficiency analysis and design, electronics design, robotics, software integration and switching protocols.
- My opinion - 5
    - This is a innovative product and business which leverages the waste economy and the need for energy. It positions the company within the circular economy and growing energy sector (electrification) which I believe will develop to be incredibly valuable. The founding team is also passionate and experienced which is very important for the success of the business moving forward.
- Total Score: 70

Conclusion

I would rank my startups in the following order:

- Inno-neat
- Juabar

- Worldtech Consult

All three of the businesses and their business models show incredible promise but naturally have some holes. I also think more research would need to be done in order for me to be confident in presenting any of these potential ventures to my team. This is especially because of the lack of metrics and financial data such as Annual Recurring Revenue (ARR) and Cost of Acquisition (CAC). I would engage in some networking and contact people in the industry as well as the businesses and the founders themselves to get a closer look and hopefully gather some of this data.

Reading Pitch Decks

TransferWise

https://www.failory.com/pitch-deck/transferwise

- The problem is that the current currency exchange and international payments market is dominated by brokers (banks, currency exchanges etc.) which take a high percentage of the payment value in transaction fees as well as taking a profit by exploiting hidden margins in currency differences. Millions of people and companies transact internationally in a year and therefore experience this problem.
- Since it is estimated that global corporate entities move approximately 23.5 trillion US Dollars across international boarders annually, which is 25% of global GDP; the total addressable market (TAM) is close to this figure. However, a more conservative outlook would be to estimate TAM to be a fraction of this, because the current target market seems to be individuals seeking to make cross border transactions. Disrupting banks, global corporate entities, foreign exchanges and taking a large market share will take time.
- The team:
    - Kristo, co-founder and CEO - Background in financial services consulting at both Deloitte and PwC
    - Taavet, co-founder - Skype early emplyee, Angel investor and INSEAD MBA graduate

  Their team also comprises of back office support and a team of developers. The team itself looks to be experienced in both the the startup/tech sector (with angel investor and startup experience at Skype) as well as the financial sector (with Financial services consulting expertise and an MBA) between them. Their team of developers provide the technical skills rounding off what looks to be a good team.
- Their Traction is impressive, with:
    - Immediate revenue.
    - Growth of 20% monthly in new users and 70% of the volumes of transactions on their platform are return users.

    - A Cost of Acquisition (CAC) of £0 - Due to reliance on word of mouth marketing.
    - High consumer trust with total transactions amounting to over £1M.

  This all indicates a healthy platform with huge potential for growth and a stable revenue stream.

- Their approach to the problem is unique in that it is very apparent that brokers take high percentages of international payments in fees etc. and so they choose to implement extremely low transaction fees in comparison with the aim of drawing customers in and leveraging economies of scale as a result.
- Metrics:
    - The company doesn't give a figure for Annual Recurring Revenue (ARR) instead stating that 70% of their volume of transactions is from returning customers while their customer base grows at 20% per year. Given that the total value of transactions on their platform come to £1M, if we know the date they acquired their first customer and find the number of years that passed to 2012, the ARR could be estimated.
    - They do not provide a figure for Monthly Recurring Revenue (MRR) and this would be difficult to estimate without knowing what the averages over a reliable period looked like.
    - Their Cost of Acquisition (CAC) is £0 given that they do not use paid marketing, relying on word of mouth.
    - Given that the company was in seed stage it wouldn't have been prudent to state a Lifetime Value (LTV) figure.
- Questions I would ask:
    - Have they estimated how much of their funding will go to each specified project?
    - How do they plan to increase the average revenue per customer? Will this involve increasing the transaction fee? Have they accounted for how their customer base will react to this?

Zestful

https://www.failory.com/pitch-deck/zestful

- Zestful are solving the problem of managing allowances/perks/rewards memberships and cards because of how dispersed these can be since each has its own account and card. They offer the ability to track transactions and manage allowances real-time with no reimbursement process, all from one account on one platform. This is a problem that all companies who wish to take a lower salary with allowances route.
- Fortune Business Insights estimated the loyalty management market to be approximately USD 3.65 Billion in size in 2020. Moreover, they've projected the market to grow to USD 18.22 Billion by 2028. This is a very sizable market and the projected growth indicates great opportunity in the space.
- Team:
    - Matt Vogel, CEO: Experienced founder, mentor (Techstars and YC companies) and product designer.
    - Malte Muenke, CTO: Co-creator of GoToMeeting, VP of Engineering at Citrix and experienced technical leader.
    - Max Richman, Head of Engineering: Multi-time founder and experienced entrepreneur in the payments space.

  This team is very well skilled and experienced on the technical front with two veteran software engineers but crucially also have an experienced product designer which is vital in this sort of application where UX from on boarding to daily use of the platform will be vital to the success of the product. Overall the team looks to be both capable and driven to make sure the venture is a success.
- The team's traction shows great promise as they had 30k cards issued at the end of Q4 2019. More importantly this is 3X what they had in Q2 of 2019 and 6X their issued cards in Q1 of 2019. Their growth in 2019 was impressive to say the least. This traction early on in the venture as well as the growth rate that took place to that point is an indication of great product-market fit. Zestful also benefits from immediate revenue as they charge customers from on-boarding which is rare in tech.
- Do they have a unique approach or insight to the problem they are solving, and/or a competitive advantage? They gained a unique insight from data collected from a survey in which 10 000 employees were asked if they would rather have a high salary with no perks/allowances or if they would rather take a lower salary in exchange for perks/allowances like streaming subscriptions (Netflix, Hulu etc.) gym memberships etc. Interestingly enough they found that

80% of the survey participants would prefer the payment that included perks. Their approach to solving for this need or desire is inspired because they found out why companies avoid this kind of remuneration; it's an administrative nightmare. So Zestful allows companies to track transactions and manage allowances real-time with no reimbursement process, all from one account on one platform, while giving employees one account/card to manage all these payments from. Zestful has consolidated and streamlined perks/allowances/loyalty card/rewards programs.

- The focus of their metrics is on total users as well as user growth, with an emphasis on Monthly Recurring Revenue (MRR). See the following data:
    - Launched in November 2018 with 1000 employees on the beta list.
    - Q1 2019 saw the public launch with 5k total users and USD 20k MRR.
    - Q2 2019 saw a doubling of the total users to 10k a MRR of USD 40k. This thanks to opening the product to co-working spaces and apartments.
    - Q4 2019 Zestful reached 30k users with a MRR of USD 120k. The product was opened to individual consumers and partnerships with banks and payment providers were secured.
- Questions I would ask:
    - What sales and marketing strategies would they look to employ once a full sales team is hired, in order to reach their goal of getting into every company in the US?
    - How do they plan on building the future of payment tech, what features and capabilities are in the pipeline?

Fyre

https://www.failory.com/pitch-deck/fyre-festival

- Fyre is trying to solve the inefficiencies and difficulties associated with booking talents for live performances or experiences. There is no seamless and guaranteed or trustworthy way to contact, negotiate and pay for these events and performances. This is a problem for individuals who can afford this as well as events and marketing companies all over the world.
- Market - How large is the TAM (Total Addressable Market)? The problem Fyre proposes to solve is very diverse with several niches, so a base case of a

specific industry will be taken to give context and an idea of the TAM. The online event ticketing market was estimated to be valued at USD 28.49 Billion in 2021 by Mordor Intelligence. Moreover this niche is expected to grow to about USD 94.92 billion by 2027.

- Who is in the team? Are they formidable? The team is large with experience across the tech, music and creative arts as well as digital spaces and industries the combinations of skills and experience throughout both the executives and managerial roles is impressive. The Founders specifically have investor and founder experience which is also an advantage.
- Their traction is very focused on the Fyre festival which from what I'm understanding is a marketing vehicle for the platform and business and is not actually part of the core business model. With that being said their strategy for this festival and the overall experience they are offering is attracting plenty of attention to their brand. Look at the following metrics:
    - 300M social media impressions
    - 1.5M Media impressions
    - Expecting early sell out of all tickets.
- Their unique insight is that they have both a customer and talent perspective of the talent hiring process.
- Questions I would ask:
    - What are their user stats on the platform. Transactions facilitated etc.

Mission 3.4: Dealflow

I have a good network of driven and talented graduates from my University who have started businesses or are planning to start businesses in the near future. More over I have started my own business and have built a significant following on social media through a YouTube channel I was a part founder of.

I could leverage these advantages to build a reputation for working with early stage businesses and creating value for their founders. In the process of doing this and building strong relationships with these founders I can generate deal flow.

My 3-Step Plan:

- Network with early stage businesses in all fields. Make a point to collaborate and help wherever I can and ensure I provide connections and insights.
- Use my social media following and blog to document my experiences working with early stage businesses by way of a themed monthly blog post. This will show my audience my growth, expertise and what I can offer as a collaborator. This will help me build a reputation and eventually draw founders to me.
- Once I’ve added business collaboration and Venture Analysis to my brand I would like to start curating events for founders and other stakeholders in the South African Venture space.

Asking my family members in various industries especially banking will help me through gaining connections and developing my identity in the ventures space. Another key contact point for help will be former class mates at university.

Mission 4.2: Writing an Investment Memo

Introduction

Inno-neat has been working on circular life cycle battery storage for several years, refining and improving their product offering along the way. They also have a versatile and formidable leadership team with experience in both the STEM fields and tech as well as business and ventures. The company is currently able to manufacture solar ready repurposed and recycled Lithium Ion Batteries for use in rural and informal settlement homes for their solar power applications.

The team has been recognised as a startup with great potential through winning the Startup Energy award in September 2021, in which five start ups from the decentralised energy sector in East Africa presented their products and services. The criteria informing the decision of the panel of judges were the level of innovation, the market size and the start-up team. The prize money for each winner was 2,500 Euros for further development of the business idea. The winners also received a free (virtual) stand at the Off-Grid Expo in Germany.

While the team is showing slow growth through their seed and scaling process achievement in competitions such as the Startup Energy award indicates that the companies' foundation (market size, product-market fit and the team) is set for continued growth and makes the company more likely to be able to execute and achieve their goals.

Market

Sub-Saharan Africa (SSA) has an energy access rate of about 50%, however, the rate is much lower in rural areas (at about 25%) and what is more concerning is that because of the rapid population growth in recent decades on the continent, the growth in electrification has been outstripped by population growth; especially in rural areas and informal settlements. This an indictment on the efficacy of current systems and regulatory frameworks in the sector, and is both a serious challenge and an opportunity when viewed through the lens of a large and ever growing total addressable market.

The markets in each country are fairly unique and complex as they are regulated and governed differently however, a few general trends appear which give insight into the current state of the overall market as well as the challenges and opportunities looking forward. The minority of the population that has a grid connection today, often faces unreliable electricity supply which necessitates the use of back-up fuel powered generators. These are often costly but the widespread adoption of these generators in countries like South Africa speaks to how poor supply reliability can be. Moreover, the cost of energy in the region is high, with electricity tariffs

in SSA often being
among the highest in the world. This coupled with the low average income for most individuals in the region ultimately puts pressure on consumers. While South Africa and its parastatal utility Eskom are a prime example of the effect that mismanagement and corruption can have on the implementation and maintenance of energy generating facilities, which is a common problem across SSA, other countries sustain losses due poorly maintained transmission and distribution networks at double the global average.

Inno-neat is based in Kenya and manufacture solar ready, repurposed Lithium Ion Batteries from recycled cells for use in solar applications for low income communities in rural offgrid locations. The need for affordable and accessible energy is expansive in the African context and the problem is analogous in other developing countries or regions across the world. Therein lies an opportunity for growth for the current business model into other countries facing similar challenges, whilst looking at developing capacity for recycling other (high demand) kinds of batteries such as those used in mobile electronics; could diversify their product offering and boost future revenues.

The total addressable market is analysed as follows:

TAM = *(Total Number of Customers in a Market) * (Average Annual Revenue of a Customer in that Market)*

The total number of customers (TNC) will be assumed to be the 890 million people who still rely on traditional fuels and energy for daily use as previously discussed.

The average total revenue is calculated as follows:

- The weighted average household cost of electricity (ACOE) in the region is $0.11/kWh, as used by the International Renewable Energy Agency (IRENA) in their SSA analysis as part of their Global Renewables Outlook (2019).
- In South Africa, Free Basic Electricity for low income households is set at 50 kWh per month. This is often criticised as not being sufficient for a lot of the appliances and daily needs of the average modern individual, much less a family, so this figure will be doubled in an attempt to be more accurate whilst still conservative. Therefore, the average annual consumption per customer (AAC) is:

$$AAC = AverageConsumptionpermonth * 12 = 100 * 12 = 1200kWh$$

Therefore the average total revenue is:

$$ACOE * AAC = 0.11 * 1200 = 132USD$$

Finally :

$$TAM = TNC * ACOE * AAC = 890000000 * 0.11 * 1200 = 117.48TrillionUSD$$

With regard to the growth rate of the market, the best approximation would be to assume the population growth of SSA to be the benchmark. The IRENA estimates SSAs population growth until 2050 to be at 2% annually. In all likelihood, the market will not be able to match this, however this would be the best case scenario.

Inno-neat is positioned to capitalise on the waste economy and demand for energy in rural and informal settlements, with a low cost and innovative solution. The market is increasing rapidly with the uptake of renewable energy (especially solar PV) which is intermittent and can only be effective with a storage facility. The need for batteries is already evident and the fact that Inno-neat can sell effective batteries at a lower price and the global market shift from traditional fuels and centralised electrification methods (e.g coal fired power stations supplying a national grid) is another indicator that the market is ripe for disruption and will respond favourably to this product.

Competition

With such a promising market opportunity it is no surprise that Inno-neat is not the only company in the problem space. Second Life Storage is a company working on Battery Recycling for Telekom Operators in Rwanda which puts them in direct competition with Inno-neat, both region wise as well as in their product offerings as these are similar problems being solved. The space hasn't over saturated as yet with very few companies being as publicised as the two above however the potential for recycled batteries for energy storage is a competitive market with other companies in the East namely India and West in the USA also building solutions.

Product

Renewable energy such as solar power is intermittent in nature and without a means to store this energy when the sun is not shining; users risk being left without electricity for extended periods of time. Inno-neat's key insight into the problem of renewable energy storage is that batteries are notoriously non-reusable or non-recyclable and are being discarded before their full useful life has been extracted as a result.

This waste increases the cost of energy stored by the battery, for the owner, especially lithium ion batteries which in turn acts as barrier for low income communities and households for adopting renewable energy as a solution to their energy needs. The company understands this issue and aims to solve the problem by manufacturing solar ready repurposed lithium ion batteries from Lithium ion cells, for use as a storage solution for solar power in low income and rural communities. These batteries are cheaper than new ones as they maximise the potential

of wastage and are still effective, thus reducing the cost of electrification while decentralising it at the same time; thereby reducing people's reliance on unreliable government utilities.

The product is currently proven to be functional and effective through its minimum viable product and now the company is looking at how to scale production.

Sales & Distribution

- There is little to know readily available and verifiable data on their sales, marketing and traction in the market. I have however made use of their contact us page to try and source this information directly from their team and to build networks and relationships.

Metrics

- As previously mentioned no reliable metrics are publicised for the company, however an effort has been made to contact the team and get some useful information.

Team

The team is led by the founders Godfrey Katiambo and Edwin Amwoka. The former has 14 years of experience in Sales, Product Innovation, and Customer centered Design and Development, as well as Marketing in Social Enterprises and BOP Market focused businesses. He also has 8 years of experience in Solar and Renewable energy products working for companies such as Solarkiosk, African Solar Designs, SunCulture and performing the role of Head of Sales and Operations at SUNami Solar. He is an entrepreneurship trainer for Techbridge Invest and Close the Gap Innovation Hubs.

Godfrey holds a Bachelor of Commerce Degree from the University of Nairobi and Master of Business Administration from Kenya Methodist University.

Edwin is an Electrical Engineering graduate from Technical University of Mombasa with over 5 years of experience in the solar industry. He is experienced in energy efficiency analysis and design, electronics design, robotics, software integration and switching protocols.

One can see that the leadership of the company is not only experienced in the field but also has the complimentary combination of a technically skilled and experienced leader in Edwin and a business minded and skilled leader in Godfrey. Their experience across the energy, business, sales and marketing as well as general engineering fields makes them a formidable leadership team and positions them favourably to be able to grow the business and make it a success.

Deal

- There is currently no funding round for the business, however should the company seek funding it is my recommendation that an offer of capital for equity be made with option shares if possible. This company has the potential to be a winner in East Africa or even SSA. Given that the company is in seed phase, the capital investment wouldn't need to be too high initially although it may require supplementation as well as more auxiliary resources; such as time and mentoring/expertise as the business tries to scale.

Mission 4.3: Due Diligence

This document outlines the due diligence conducted regarding the potential for an investment in Inno-neat. Information online is extremely limited however, an attempt was made at contacting the company and this leaves the opportunity for this document to be open to development, thus becoming a working document. In the cases where specific and credible information could not be found; questions and requests that could be posed to Inno-neat in order to get this information have been suggested.

Team & Management

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The founders and their team have a proven record of not only putting themselves in positions to learn and grow the business through incubators and the experience that comes from working with the mentors and facilitators; but in the process have also built a track record of success in the competitions that often run concurrently in these incubators. The most notable of which are the Circular Innovation Hub’s Incubator Program (https://www.linkedin.com/feed/update/urn:li:activity:6935497433661468672/) as well as the PAUSTI Incubation Centre of Excellence (https://www.linkedin.com/feed/update/urn:li:activity:6892753961074733056/)

Market

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The starting costs for the business were not exorbitant (which is usually the case for deep tech ventures) given the ability for the team to manage operations without any notably large funding rounds on record. This bodes well for the business when added to the fact that they can sell their products for a profit immediately or lease them to lower income households that can’t afford the upfront cost.

The biggest market trend supporting Inno-neat is the massive reduction in the cost of energy production from solar PV panels, across the board. The National Renewable Energy Laboratory in the USA has estimated that the cost of residential scale PV systems has dropped by 64% since 2010; while this is now beginning to stabilise, which is expected due to the rising demand, it is still a positive indicator for companies like Inno-neat because more African households will

be inclined to use solar PV systems to power their homes and need an affordable storage solution.

Product

- The evaluation of the product is paramount to the final decision regarding investing in this company. Given that there is very little information online and Inno-neat has recently taken down its website, I think the best way to conduct such an evaluation would be to request a live demo session from Inno-neat. In this session I would request:
    - Product Prototypes (MVPs) - A working demonstration of the current version of the product would be favourable and any older versions to get an idea of the iteration and development process.
    - Formal Record of any patents.
    - A walk-through of the companies facilities and manufacturing process
- The description of the product fits their targeted market fit and the story surrounding their problem; by providing affordable and reliable energy storage through the re-purposing of waste lithium ion batteries. This act of re-purposing and recycling creates value for Inno-neat's customers by turning low value waste into valuable storage facilities at a lower cost.

Traction

- **Customer Acquisition**
    - What are your customer growth metrics and what are they indicating?
    - Does the company have a marketing budget? If so, how much?
    - What's Inno-neat's primary marketing tool or channel?
    - The battery packs obviously have a certain lifespan but have you had any return customers yet?
    - How do your customers feel about the product? Are their any online or hard copy records of reviews or complaints?
- **Unit Economics**
    - What is Inno-neat's monthly recurring revenue?
    - Are there any auxiliary products or services Inno-neat offers to customers that can generate revenue over the product lifecycle e.g services, repairs or upgrades? What are they?
    - What is the average lifetime customer value?

Legal

- Does the company need any permits or licenses in order to operate?

    - My research indicates that this is not the case however this is a vital question to ask and to ensure that the company is aware of it’s legal and regulatory obligations.
- What are Inno-neat’s current insurance policies, if any?
- Does the company have any past or current litigation ?

Financials

- **Assess financial data**
    - Can the company provide us with a year’s worth of Balance Sheets, Income Statements and Cash Flow Statements
    - Are there any documented financial projections?
    - Does Inno-neat have shareholder equity agreements?
- **Contracts**
    - What are the active contracts and agreements implicating the company? e.g Founder’s/Shareholder’s Agreements, Business Loans, Supplier contracts etc.