

TEA-PICKING MACHINE

A portable motor-driven tea leaf picker can reduce the cost of picking tea for the same quantity



PROVIDING RELIABLE LOW COST INTERNET

Unity Innovation Lab has devised a way of providing reliable low costs internet to the residents of Kakamega.



Innovation

MAPPING OF KENYA'S INNOVATION ECOSYSTEM

The Struggle and Promise of Innovators and Start-Ups in Kenya



Introduction

This publication distills insights on the Kenyan innovation ecosystem from the perspective of innovators and start-ups, deriving from their experiences as key players in this critical space. It sheds light on their struggles, hits and misses, triumphs, heartbreaks and, of course, their unlimited potential. We document their journey through the narrow and winding path of innovation - from ideation, setting up, building the required physical and governance foundations through to commercialization of their products.

Reading through their testimonies, it is clear that the journey of innovation is not for the faint-hearted. These case studies bring out not only the ingenuity and richness of ideas in the Kenyan innovation tapestry but also highlights their indefatigable spirit and will to succeed despite the odds. It is simply inspiring.

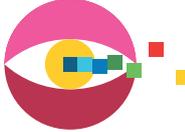
The range of innovations highlighted in this document cut across different sectors and regions: from a marine engineer with several innovations including a UV disinfectant and an oxygen concentrator to a new machine that has reduced the cost of tea-picking by 75% per cent. There are also exciting digital applications in health, education and environment, two of which have raised over KSh 400 million in seed funding. Also, an innovator in Kisii is using solar drying to reduce post-harvest losses, and in the process, he has established a thriving enterprise based on the banana value chain.

And whereas the innovators and start-ups that form the basis of this publication were randomly selected, their views - more or less - reflect the status of the Kenyan innovation ecosystem. Though they may not be exhaustive - they are not intended to be - they provide a window through which we can get a glimpse of the Kenyan innovation ecosystem.

THE CONTEXT

These case studies are part of a broader study on the Kenyan innovation ecosystem commissioned by the United Nations Development Programme (UNDP) and Konza Technopolis. The study set out to map out the ecosystem with a view to identifying opportunities for collaboration, learning and investment; and to support the growth and development of local innovators across the country.

The study has mapped out the Kenyan innovation ecosystem by identifying its characteristics, organization (players and actors), challenges and its key levers while also highlighting emerging themes and opportunities. It was conducted by the African Centre for Technology Studies (ACTS).

The logo features a stylized eye shape composed of overlapping circles in shades of pink, red, and yellow, with a blue and green horizontal bar across the center. To the right of the eye is a small cluster of colored squares (red, yellow, green).

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Award winning marine engineer with exciting innovations

Simon Kupalia can be described as a serial innovator: he has innovated a machine that converts coconut shells into briquettes, developed a robotics disinfection system which uses UV radiation, invented an oxygen concentrator which uses IoT technologies and developed an e-learning platform that supports the Competency-Based Curriculum (CBC).

Despite the challenges and heartbreaks that paved the path of the innovation journey, Kupalia never gives up; and now, his persistence has started to pay off. The highest water mark in the tide of his innovation journey came when he won the International Health Innovation Award in Nigeria, which came with a monetary award of KSh 400,000. Since then, he has come up with three innovations in energy, health and education; many more are on the way. In addition to his innovations, he is also a prolific author with more than 8 publications.

WHERE DID HIS INNOVATION JOURNEY BEGIN?

His innovation and entrepreneurial journey began seven years ago while in college when he started thinking about how to manage and combust municipal solid waste into energy. However, the idea hit a snag: he did not have funds to actualize this innovative idea.

“The technology at the time was a bit new in the country, there was a challenge in picking it up. I tried to seek support from the county governments of Mombasa and Kilifi and even Nairobi but nothing came out of it. So I decided to just try and see if I could begin somewhere with what I had,” he revealed.

Initially, he targeted Kibarani dumpsite in Mombasa where he wanted to build a plant that could turn the waste into energy. But again, due to lack of funds, he modified the idea: he developed a small portable device that could be used to turn waste into briquettes within an office setup, a residential area or even an industrial set-up. Through this, he hoped to generate enough capital to enable him set up the plant. Still, the plan could not work.

Just when he was about to give up, he applied for an innovation challenge which won him KSh 400,000, with the possibility of being matched by a similar amount. Eventually, he managed to raise about KSh 1,000,000.

Armed with the funds, he developed a business plan in which he would develop a simple briquetting plant in the first phase of the project that could raise money by making and selling briquettes. This, he hoped, would generate adequate cash flows necessary to persuade investors put their money in the start-up. And in 2019, he set up the briquetting plant in Kilifi, which uses coconut shells as raw materials.

ROBOTICS DISINFECTION SYSTEM

His other innovation, which was inspired by the Covid-19 pandemic, is a robotic disinfection system, which uses UV radiation to disinfect rooms and surfaces. It is controlled using an app installed in a smartphone.

The device is put on the table and turned on and the app is used to estimate the size of the room. The app allows you to select the disinfection energy depending on the viruses or bacteria you want to kill and input the time required to disinfect the room or surfaces. It takes only few minutes to disinfect the room; it is also cheaper than existing fumigation services.

“This innovation can actually disinfect the room in only 5 minutes and people can get back to work. The goal was to do it faster, more efficiently and also provide a cheaper solution. The deal is that you buy a device that you get to keep, is faster, more reliable, doesn’t require much human effort and can be controlled using a smartphone,” he said.

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“This innovation can actually disinfect the room in only 5 minutes and people can get back to work. The goal was to do it faster, more efficiently and also provide a cheaper solution...”

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“So we would collect all the coconut shells around and bring them to the plant, process them to make coconut shell briquettes and sell them. We’ve been supplying to schools. We have done this for almost two years. Things are okay and we are grateful for that,” he said.

The second phase of the project, according to the plan, is to process municipal solid waste to produce green energy.

Existing fumigation services can charge as much as KSh 50,000 per session while this device cost KSh 20,000 and could be used indefinitely. Given that UVC radiation is dangerous, the device gives a signal for the user to leave the room and will not start until there is nobody in the room and in case someone gets into the room accidentally, it stops instantly. The device was tested at KEMRI and found to have 99% efficacy.



Charcoal briquettes made from coconut shells.

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“We are always trying to look out for new ideas and fresh solutions that would supplement what we have. This keeps us in business because after one year or so, the solution which you’re providing may become outdated or people are not appreciating it anymore and you have to give them something better,” he said.

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We have this tested at KEMRI and we managed to get an efficacy of 99%, which was quite good. We are also trying to pursue KEBS certification but they didn’t have the standards for such devices because this has not been done before in Kenya,” adding that they have now built bigger products for halls and bigger rooms.

OXYGEN CONCENTRATOR

He has also build an oxygen concentrator which uses IoT technologies and artificial intelligence, which made him win Healthcare Innovation Excellence Award last year in Nigeria. The concentrator is fitted with a temperature sensor and an oximeter which enables doctors to monitor the patient remotely.

“This concentrator has a tablet which enables the doctor to monitor the patients from different wards from his office to see how they are doing; and at any point there’s a danger, he gets an alert as well,” he said.

E-FUNZA LEARNING PLATFORM

Kupalia has also developed an e-learning platform that helps in learning and teaching of the CBC curriculum. The platform has already been introduced to schools.

“Some of the schools are already running our programs and we are still trying to market it to more schools because the goal is to have up to about 5000 schools using our services in the next two years,” he noted.

It helps children to learn languages, how to write and draw. It also helps in learning science and engineering and entrepreneurship. It helps children to code online, build electronic systems and simulate them. For example, learners can build an alarm system and simulate the same on the platform.

The platform can also diagnose cognitive challenges for individual learners and prescribe possible solutions

“If they fail in the various tests we’ve given, we are able to come up with a good report that explains the possible reason for the poor performance in the tests and provides tailor made solutions for them, even if it means writing an entire textbook for them or providing some other materials that they can have to address the problem,” he said.

It also has a competition component that allows different schools to compete on specific tasks or challenges after which they are awarded points based on their performance.

MAJOR BREAKTHROUGHS

Simon identifies two major breakthroughs that exposed innovation to the entire world. One of them was a recognition by Arrow Electronics, a leading electronic company based in the United States of America. “They got interested in my story so they came to shoot a documentary about me. That got me a bit of exposure out there,” said Kupalia.

Winning the Health Innovation Award in Nigeria was a great milestone which exposed his innovation ideas to the world.

“As a result of the exposure, I had someone offering me a space in Mombasa for free where I could establish the e-Funza center; someone in Nairobi offered me a warehouse to store my products because I didn’t have a store in Nairobi. Some of these things come along because of these achievements or exposures you’re getting through recognition,” he said.

ADVICE TO INNOVATORS

Simon warns innovators not to be so much engrossed in their innovations and instead focus on the impact. Also, most investors will only put their money on an idea that has been tested in the market and have proven to be viable. This means innovators have to find a way of getting their own money to start their business before investors can come on board.

“Most people believe that when you have a beautiful creation you will get investors. Rarely, would an investor put in money to a fresh idea that doesn’t even have a proof of concept or a product. Investors come on board when you have financial statements showing you’ve been in the business, you’ve tested the product and people are buying the product or services,” he explained.

KEY LESSONS

Kupalia has learned some key lessons along his innovation journey. One of the lessons is that you can have a great idea but that does not guarantee that it will work. “Sometimes our innovations are great and they seem very promising but they don’t guarantee market success. It doesn’t mean that they’re going to make it in the market,” he warned.

Continuous innovation is very important. Innovators must continuously develop new ideas. They must also invest in research and development.

“We are always trying to look out for new ideas and fresh solutions that would supplement what we have. This keeps us in business because after one year or so, the solution which you’re providing may become outdated or people are not appreciating it anymore and you have to give them something better,” he said.

KEY CHALLENGE

One of the key challenges facing innovators is that some ideas take time to be accepted; people are slow to embrace change and prefer to stick to what is familiar.



An oxygen concentrator incorporated with a patient monitoring system. It can concentrate atmospheric oxygen up to 97%.

“It might take some time for people to learn and understand the need of some of these products or innovation and why they should be supported. You propose a solution to the county government, but they don’t see the necessity of having that. They’d rather just stick to the tradition of doing things,” he said.

WHAT NEXT?

Kupalia has big plans for all the three innovations which he has commercialized. For his energy company, he wants to expand the factory and venture into processing plastics to oil.

“I see myself becoming a fully-fledged energy company in the next five years. I will be processing different kinds of waste and extending my market segments, solving multiple problems related to waste management,” he said.

An oxygen concentrator incorporated with a patient monitoring system. It can concentrate atmospheric oxygen up to 97%.

For his biotech company, he plans to venture abroad and set up a manufacturing company in the United States of America and distribute his products to different countries. He is already working with a partner to achieve that dream.

He also has big dreams for the e-Funza platform. He expects to integrate the platform into the school system and have it deployed in all public schools and create jobs for teachers and content developers.



Mathew Lelach with the tea-picking machine. The portable motor-driven tea leaf picker can reduce the cost of tea-picking by 75%.

An innovation that reduces cost of tea-picking by 75 per cent

The portable motor-driven tea leaf picker can reduce the cost of picking tea from an average of KSh 12 per Kg down to only KSh 3 for the same quantity.

Tea farmers in Kenya can now significantly reduce their cost of production by using a new tea-picking machine. The portable motor-driven tea leaf picker can reduce the cost of picking tea from an average of KSh 12 per Kg down to only KSh 3 for the same quantity.

According to Mathew Lelach, co-founder of M-Chai - the company that invented the machine - the cost of tea farming was becoming unsustainable due to the high cost of plucking.

"Tea farming was becoming unsustainable because the costs of plucking 1 kilogram of green leaf was around KSh. 12 and above and it was going up; so this innovation came to address the high cost and reduced it to around KSh 3-4 per kilo of the green leaf," said Lelach.

According to Lelach, it had reached a point where many tea farmers were considering doing away with the crop because of the cost of plucking.

"Several tea farmers were trying to do away with their tea at the farm, but with this innovation, they are able to continue farming and get quality green leaf that meets the standards required by KTDA and the international markets," he observed.

In addition, the tea leaves plucked by the machine are also of higher quality than those picked by hand. The quality of tea plucked by the machine ranges around 85 per cent compared to 65% of those picked by hand. The machine, which has been approved by the Kenya Tea Development Authority (KTDA), is also affordable, it costs KSh 28,000.

And unlike other mechanized tea-pickings methods, the machine is environmentally friendly as it uses a lithium battery, which can retain power for 8 hours and has a socket for electric charging. It also comes with a carrier bag.

“The machine is also environmentally friendly because unlike the ones owned by multinationals, which are powered by petrol, this one uses a battery,” said Lelach.

Lelach believes the machine is a win-win equation for the tea farmers, pickers and KTDA. The farmer is able to reduce the cost while the picker increases his/her output and saves time. In the meantime, KTDA gets quality leaf. He explains how the cost reduction comes about.

“Tea pickers are now making more money than previously. If you are doing more than 260 kilos per hour and you get paid KSh per kilo, you earn more than KSh per day. Previously, they could hardly earn more than KSh 500 per day. For the farmer, if you are plucking 1000 kilos and pay KSh 12, the cost is Ksh 12,000. With the machine you can reduce the cost to Ksh 5,000 for the same amount of tea thereby saving KSh 7,000 per 1000 Kgs,” he explained.

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“We don’t do a lot of marketing because once the farmers are using it, their neighbors would want to have the machine,” he said.

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THE MOTIVATION

As alluded to earlier, the cost of tea-picking was becoming too expensive; at the same time, there was not enough labour. And if you are farmer and you don’t pick your tea consistently, you lose greatly.

Taking into account the above challenges, Lelach and one of his colleagues visited tea farmers with a view to finding out how they could alleviate this problem. After the visit, they conceived of the first design and sent it to china for production because it could not be done in Kenya.

Interestingly Lelach and his co-inventor have never been to engineering college.

“We came up with the concept amongst ourselves just because of the interest. We don’t have an engineer amongst ourselves. We innovated the product as a result of curiosity to solve our own local challenge but realized this is a product that can be rolled out widely and have a much bigger impact,” he explained.

They also approached KTDA and together they conducted tests on the machine in several tea farms – which took about 2 years – to evaluate whether the machine could pluck green leaf of the required standard. Officials from KTDA verified that the machine could produce green tea leaves of the required quality.

“After two years, KTDA allowed us to supply the machine to their farmers countrywide. We conducted training on how the machine works in various tea farming regions - Kericho, Nandi, Kapsabet, Mount Elgon, Kiambu, Limuru, Nyeri, Kirinyaga, Meru and Embu. We work in collaboration with KTDA in rolling out the training program” said Lelach.

The company expects to produce and sell about 10,000 machines in the next 2 years. To achieve the above target, the company is working on setting up a production plant to manufacture the machines.

The plant will also help lower the cost of producing the machines, which will in turn make them more affordable to farmers.

The company is also still trying to mobilize enough finances to set up the plant and are hoping to get financial partners to support this venture.

“We are establishing an assembly plant for the machine in Eldoret to increase production. We hope to have it up and running as soon as we can,” he revealed.

Mchai has supplied close to 2000 machine to tea farmers across the country and targets to have about 10% of them using the machine in the country by next year. According to Lelach, the innovation has succeed mainly because of the support from KTDA and the Cabinet Secretary for Agriculture who have endorsed the machine.

“The rollout approval by KTDA is what has really enabled us to go out there in mass. The endorsement of the machine by the Cabinet Secretary (CS) for Agriculture in every factory really helped. He endorsed the machine in every factory he visited urging farmers to use the machine to save on the costs of production,” said Lelach.

CHALLENGES

The biggest challenge prohibiting farmers from acquiring the machine is the high cost. To alleviate this problem, the company is in the process of partnering with financial institutions to help the farmers get loans to buy the machine.

According to Lelach “we are trying to form MOUs with several banks who can then finance the small scale farmers to acquire the machine through a check-off system. This is easy because farmers’ funds from KTDA are channeled through the banks,” he said.

LESSONS LEARNT

According to Lelach, one of the main lessons he has learnt from his innovation journey is that once you develop a solution which can solve a real problem within an industry, it will easily adopted by those who need it.

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“After two years, KTDA allowed us to supply the machine to their farmers countrywide. We conducted training on how the machine works in various tea farming regions.”

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The tea-picking machine in action. It is environmentally friendly as it uses a lithium battery, which can retain power for 8 hours



Reducing post-harvest losses through solar drying in Kisii

Jared Nyakundi has found a way of reducing post-harvest losses across the banana value chain using solar energy; and while at it, he has established a thriving enterprise in Kisii that specializes in processing of both ripe and raw bananas into various products.

A significant percentage of agricultural produce, especially among small scale farmers in Africa, is lost after harvesting. This phenomenon, commonly known as post-harvest losses (PHL) ranges between 20% to as high as 40%. In Kisii region, which is a leading producer of bananas in Kenya, the losses are enormous.

Jared Nyakundi has found a way of reducing post-harvest losses across the banana value chain using solar energy and while at it established a thriving enterprise in Kisii that specializes in processing of both ripe and raw bananas into various products. After realizing that electricity was too expensive to dry bananas, Nyakundi turned to solar energy to dry process bananas into various products.

The bananas are sliced, dried and processed into various products including dog food and military rations. They are also processed to produce flour and other products which are then supplied to supermarkets across the country. He has also established a bakery which makes use of the flour to make snacks from raw bananas.

“After removing the peels, we slice them into smaller pieces and put them on trays which are placed inside the solar dryer and after one or two days, they are dry because the temperature inside the solar dryer is around 85OC to 900 ,” he said.

*PICTURE ABOVE:
Workers packing snacks to be sold in shops and supermarkets.*

To ensure nothing is lost from the bananas, he has also found a way of processing banana peels into a pharmaceutical product used to alleviate pain arising from stomach ulcers. And lately, he has begun drying vegetables, which he supplies to schools and various outlets as far as Mombasa County.

"I've got the ability of drying one ton of raw bananas every day through solar dryers. The ripe bananas are sliced, dried, and mixed with other ingredients to

SETTING UP

The idea of using solar dryers started when Nyakundi was taken for training in India under the Switch Africa Green initiative. When he came back, he was supported by USAID to install the solar dryers under the umbrella of the Kenya Agricultural Competitive Project.

"We had an agreement with USAID who supported me in setting up the solar dryers," he said.

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"Using cold storage, you can only preserve bananas for 9 to 17 days but drying can preserve them for about 6 months. In addition, it also makes it possible to mill the dried bananas into flour," he said.

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make dog foods and military rations. I also make flour from the bananas which I sell to local supermarkets. I also have a bakery nothing is lost, we dry the banana peels whose flour is commonly used to treat stomach ulcers. We have also started to dry vegetables which we sell to schools and supermarkets across the country," he said.

At some point, Nyakundi noticed that after harvesting bananas, the stems were not very useful and mostly went to waste. He has come with a technology to process banana stems into fibre.

"I noticed that when we carry bananas from farms, banana stems are not very useful and are thrown to waste. So recently, I've come up with the technology of utilizing the banana stems to obtain fibre," he said. After demonstrating successfully how solar dryers can be used to preserve bananas, many people have started adopting the technology for drying other agricultural products.

"People have started to adopt this new technology of preserving vegetables and fruits. Some people even come from Nairobi and want us to dry for them local vegetables which they export," he said.

According to Nyakundi, using solar dryers is an effective ways of preserving bananas as opposed to cold storage. Drying can preserve bananas for about six months as opposed to cold storage which only preserves bananas for 9-17 days. Drying also enables the bananas to be processed into flour easily.

MARKET DEMAND

According to Nyakundi, the market demand for their banana products is overwhelming to the extent that they cannot satisfy it. In 2018, they were given a tender by Tuskys Supermarket - which has since gone under - to supply their product but could not meet the demand.



Parked snacks ready for sell in shops and supermarkets.

“The market demand is too high to the extent that we cannot meet all the needs. Because even if I we do not go out to sell, our products still get finished. In 2018, we got a tender from Tusksys to supply our products but we could not meet the demand,” he said.

CHALLENGES

The main challenge for using the solar dryers is that there are occasions when there is not enough sunlight. At the same time, the initial costs of setting up solar dryers is prohibitive because it is capital intensive. He is lucky to have gotten support from USAID through the Kenya Agricultural Competitive Project. “In most cases here in Kisii there is a lot of cloud cover which limits the number of hours of sunlight. Also, the cost of installing solar dryers is very expensive and needs a lot of capital,” he said.



Bananas being dried by using solar energy before processing.

NEXT STEPS

Nyakundi plans to establish a bigger processing plant that would enable him expand production to meet the high demand. Towards this end, the county Government of Nyamira has already donated 2 acres of land for this purpose. He also plans to automate equipment to enhance production.



Bananas being sliced before being dried using solar energy.



Some of the products manufactured from banana fibre.



Bottles of wine made from dried bananas ready for sale.

A digital solution for businesses selling goods on credit



Paylend Limited has developed a new integrated digital platform which prepays for their clients who sell goods on credit. Based on the ingenuity of the solution and its potential impact on small businesses, Paylend has already attracted seed funding to the tune of KSh 200 million.

One of the key features of small businesses in Kenya, especially those operating in rural areas, is that they sell goods and services on credit and expect payment later- mostly at the end of the month. However, for this arrangement to work effectively, the business must keep updated records and have adequate working capital, a challenge for such entities.

But as the old adage goes, every cloud has a silver lining. The aforementioned challenges provided an opportunity for a young entrepreneur in Kenya to develop a digital application that not only supports SMEs to integrate emerging technologies in their operations but also prepays for their clients - enabling them to have sufficient cash flow to run their businesses. Paylend digital solution, a new digital innovation, is

designed specifically to solve these problems. The platform not only enhances good record keeping for small businesses but also prepays for goods and services sold on credit.

HOW DOES IT WORK?

Paylend has developed a technology that enables small businesses digitize their records and also get funds equivalent to the goods they sell on credit. Essentially, they get to digitize their records while at the same time get funds to continue running their businesses normally when they sell on credit.

When a business is enlisted on the platform sells an item on credit, the proprietor is instantaneously reimbursed an equivalent amount worth of the goods he or she has sold - on credit.

“In rural areas, many small businesses sell their products on credit and expect to be paid at the end of the month, which is mainly based on trust. So when the business sells products on credit, he immediately gets reimbursed the amount and can pay back when the customer pays. The same apply to services,” said Eliutherius Juma, the founder and CEO of Paylend.

The same principle applies to private schools, where Paylend pays school fees upfront on behalf of the parents allowing the latter to pay the same in installments. This allows school operations to continue smoothly. This specific service is referred to as Okoa School fees.

The schools who have signed up to the platform are happy with the services saying their operations are not disrupted; they are able to get funds to run the school upfront and can easily plan their activities.

“For example, if a school needs KSh 1 million to run its operations and parents cannot pay on time Paylend can prepay for them. Schools have attested to the fact that their operations have been smooth than before. They really appreciate the convenience that comes with it,” he said.

OTHER SERVICES

Paylend has an array of services which include Okoa Shopping, which ensures users access consumer goods in retail outlets; Oko Kilimo, which ensures farmers access farming products and services; Okoa Bills, which provide for bill payments such as power, rent, water and internet; Okoa Afya, ensures access to healthcare and provide access to affordable medical care/treatment and Okoa Saloon, a service that ensures access lifestyle services.

The start-up also offers virtual events which bring specific audience together for digital activities that help educate, encourage, and motivate followers of a particular activity.

Paylend tools ensure the funds disbursed are used for the intended purpose by locking them to specific services and products and makes it easy for individuals and organizations to create, share and collect funds with ease.

THE BEGINNING

Paylend was incorporated in 2019 with a significant part of 2020 taken up building the application, a web portal and a USSD component. After building the App, the company conducted tests in early 2021 based on market demands. In mid 2021, the products were ready for the market and their operations began.

Within one year, Paylend has grown exponentially, registering 10,000 customers and more than 3,000 shops onto the platform. In addition, 63 schools from Nairobi have already enlisted on the platform.

However, for Paylend to prepay for business who sell on credit, they must have adequate capital reserves, which many start-ups do not have. Luckily Paylend had been able to raise KSh 200 million through a venture capitalist, which has enabled the start-up to fulfil its obligations to SMES.

One of the reasons for the success of Paylend, especially their ability to attract funding from a venture capitalist can be attributed to their relationship with Adanian Labs Africa, an incubation centre where tech startups can access all key resources that allows them to launch and grow sustainably.

The labs support start-ups in form of access to funding, developing their technologies, marketing strategies and scaling.

Juma credits Adanian Labs for getting Paylend to where it is and believes that incubation hubs can play a big role in increasing the number of starts-ups that become commercially viable and sustainable by providing critical services and mentorship at the initial stages. They can also help source for funds. The support from incubation hubs also allows innovators to focus on developing their products.

“Without Adanian Labs, I don’t think we would have been where we are now because they played a great role in getting us where we are now by helping us with accounting, business development and marketing services which we could not afford at the beginning. They also provided mentorship. Without them, the journey would have been lonely and it would have taken longer to get where we are now,” he said.

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“Once the schools have verified the details of the child having difficulties in paying school fees, we pay the amount to the schools and the parent can pay us in instalments. In this way, schools can run their operations without any hitches,” said Juma.

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CHALLENGES

One of the key challenge that Paylend has faced is finding the right team to work with, those who believe in the dream of the start-up.

According to Juma: “at the beginning, it is very difficult to find the right people to work with because at this point you don’t have capital and finding people who believe in your dream is not easy.”

But even after getting the right people to work with you need finances to maintain them so they don’t leave for better paying jobs.

Also, getting funds to get the idea of the ground is very challenging for start-ups. Getting funding for innovators in Africa is a herculean task that makes many start-ups fail within the first one year; many innovators have very little knowledge on how to source for funds to commercialize their ideas.

ADVICE TO INNOVATORS

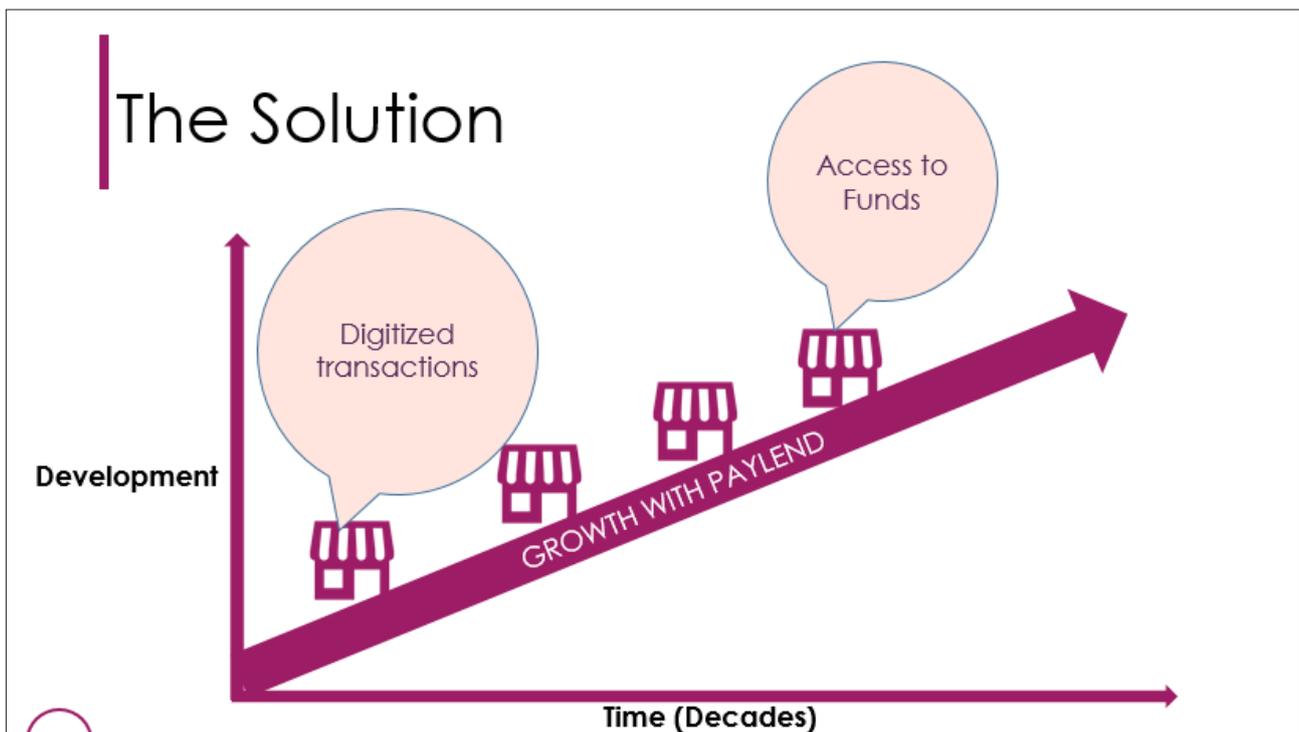
According to Juma, the most important thing for an innovator is to believe in himself or herself and his or her ideas and have a clear roadmap on how to actualize their ideas.

Also, he advises that when developing a digital application it is important to engage the community you are building it for, those who will use it or consume the services. He made a similar mistake and has learned that it is important to involve consumers in the process.

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Most innovators just identify an idea in the market and rush to develop the product and spend 6 months or one year developing the product and release it to the market without involving the target market,” Juma said.

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Reliable low cost Internet for residents of Kakamega

Unity Innovation Lab has devised a way of providing reliable low costs internet to the residents of Kakamega. The service costs as low as KSh 10 per hour or KES 50 per day for unlimited Internet connectivity.

The high cost of Internet and associated challenges of unreliable connectivity and lack of flexible payment modes can be greatly inconveniencing to small businesses outside of Nairobi. To alleviate this problem, Faruk Ali, the founder of Unity Innovation Lab in Kakamega has developed a model that enables local residents access low costs reliable Internet within their business premises. Though not a novel idea, the service is becoming popular and many business premises are subscribing to it. Through this model, clients do not have to cover the costs of installation - mainly the routers and associated equipment - making the service affordable to small businesses.

The company has installed access points strategically located within Kakamega town and its environs where clients can plug in and purchase Internet vouchers depending on their needs and economic status. Thus, anyone within a radius of 300 meters from the access can access their portal and see the packages on offer.

There are also packages for KES 20, 30 and 40. To access Internet for 24 hours, clients only pay KSh 50. Majority of clients purchase KSh 20 voucher for 2 hours. Payment is done through Mpesa.

THE BEGINNING

Faruk came up with the idea of starting a business in 2018. And in 2019, he came up with a business which he named Unity Bridge Technologies; he later changed it to Unity Innovations before settling on Unity Innovation Lab. He started with customizing and selling CPU cases, mouse pads and other computer accessories which enabled him to build capital to start offering Internet services. As the name suggest, his intention was to start a hub which would support tech innovations. This was not possible because he did not have the funds to support it; he shelved the idea.

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“So when a client open the WIFI, they are redirected to that portal where they can see our packages. If you pick unlimited internet for an hour, you will be requested to purchase a voucher. They can get the voucher from local shops or buy them online,” he said.

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So my turning point was the bad experience that came after I lost my job. But as a creative person I'd say these bad experiences are what turn out to be good experiences ...

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LOST HIS JOB

Faruk reveals that he started the company when he lost his job. He was working in Nairobi and when he lost his job he decided to relocate to Kakamega.

“I lost the job and then I had to face it rough. That means starting offering services as a broker. So my turning point was the bad experience that came after I lost my job. But as a creative person I'd say these bad experiences are what turn out to be good experiences,” he said philosophically.

LESSONS

Though getting funds is a challenge for most start-ups. Faruk warns entrepreneurs and start-ups to be careful about rushing to take loans to finance their businesses as this can be counterproductive. Based on his experience with loans, he asks start-ups to tread carefully. He said “I went for a loan and then there was a bad experience with this loan because I did not have enough clients to sort such a facility. However, if the start-up has generated enough liquidity or has enough assets, then a loan would help take the business to the next level. However, he also believes that to succeed, start-ups must take risks. He recalls an experience where he got a lucrative business opportunity outside the country which he thought was too ambitious. Nevertheless, he took the risk and it paid off handsomely.

The company has also developed an ecommerce solution, Kach deals, which allows farmers and traders to sell their produce online and thereby bypass middlemen who exploit them. The company is now registering farmers in Kakamega who will use the platform to sell their produce online.

“For instance, if there is a farmer who does fish farming, we need to go there, take the pictures and get to know if the fish are safe for consumption and everything before we put the product on the platform for sale. We will also help the farmers with logistics including handling deliveries,” he said.

NEXT STEPS

Faruk hopes to grow the number of clients using their internet service in Kakamega to more than 100,000 in the next two years and also enable farmers to sell their produce online.

THE ACCESS POINTS

Faruk has made arrangements with owners of business premises to allow him install access points from which individual clients can access the Internet. Clients are required to purchase vouchers – which can be bought in shops and also online - that enable them to access the Internet services.



How we got KSh 200 Million seed funding for our start-up

Barely two years old, Afya Rekod, a start-up which focuses on digitizing health records, has managed to raise over KSh 200 million (USD 2 million) in seed funding, a feat considered out of reach for many start-ups.

Funding is a key factor that determines - to a large extent - whether a start-up takes off successfully or dies at the ideation stage. And whereas many start-ups find it difficult to raise funds to commercialize their products, Afya Rekod has raised KSh 200 million (USD 2 million) barely two years after being set up.

However, the funding did not come on a silver platter; it took a whole year of meeting different investors, taking part in start-up competitions and showcasing their solution on every available opportunity. And finally, it paid off.

“I remember we had several conversations with multiple venture capitalist funds. Basically just having conversation after conversation sending our deck, joining meetings, presenting our solution, taking part in

start-up competitions, showcasing our solution to get visibility. It was a long journey,” remembered Hanny Zuhudi, the general manager.

Before they got the funding, the digital health solution was gaining traction but they did not have funds to scale it up. The little pre-seed funding they had was running out.

“We needed to grow. We were getting so much traction but didn’t have enough money to scale up,” she explained adding that it took only three months after the initial contact with the investor when they funds hit the account in December 2021.

*PICTURE ABOVE:
John Kamara, CEO Afya Rekod (right) and Eyong Ebai, General Manager, GE Healthcare, Sub-Saharan Africa, pose for a picture after signing an MOU on strategic collaboration on healthcare delivery.*

One of the key reasons Afya Rekod has been able to raise such substantial funds within a short time is their association with Adanian Labs, which is an incubation centre for start-ups. They depended entirely on Adanian Labs for accounting, legal and marketing support as they developed their product. Adanian Labs also linked them to a pool of potential investors, one of whom decided to fund the business.

Afya Rekod was formed in 2020 and mainly focuses on developing digital solutions to manage health records. So far, they have developed three solutions for this purpose. It all began, when one of the founders - a medical doctor - noticed a gap in how medical records were managed in Kenya and decided to come up with a solution for this problem.

“One of our founders, a dermatologist based in the United States who visits Kenya occasionally noticed that it was difficult to find records of previous visits and follow-ups. This meant he had to start the whole process afresh. That is how Afya Rekod started,” Zuhudi shared.

At the beginning, they had outsourced development of this solution to a consultant in the United States. Then came Covid-19 pandemic and everything changed.

“We realized how important our solution will be and how critical it was to manage the pandemic. We realized we were not building the right solution and took over the product from the outsourced developer and changed the focus of the solution. And in 2020, we launched a new solution in partnership with Telkom Kenya as a strategic partner,” she said.

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“We deploy the system for free and start billing you depending on the number of patients using the system. We bill KSh 50 per patient or per unique visit. We can also bill per year. With small numbers, you’re not making anything. But imagine getting to 1,000,000 users? It adds up,” said Zuhudi.

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The solution involved digitizing the investigation form which could be filled electronically without introducing any bias. The system automatically picked the patient’s location and placed them in clusters based on their risk factors - high risk, medium risk and low risk. It could also create a geographical map indicating areas with the highest number of Covid-19 cases. This enabled health workers to make timely decisions. The system could also automatically generate a Covid-19 certificate if the results were negative while assigning those who are positive into different risk categories.

Afya Rekod also developed an Electronic Health Solution (EHS), a disease management tool which they have deployed in several hospitals in Kenya and Nigeria; it is also being piloted in Zambia and South Africa. They first introduced this solution to hospitals under the umbrella of the Association of Sisterhoods of Kenya, whose global director is Joyce Meyer.

“Joyce Meyer introduced us to the association and asked us to support their facilities. We met with them and started working with their facilities spread across the country. They did not have any health system and were keen to deploy the system so that their patients could easily and conveniently access to their health records” she said.

With time, Afya Rekod was able to enlist 20 health facilities where they deployed the EHR solution, which not only enables them to digitize their records but also provides a portal through which patients can access their data. But there was a problem.

“We were digitizing health data, which is just one aspect of a health facility yet most facilities were still operated manually. The hospital staff ended up doing double work where they recorded data manually then again fed the same data into the system,” she explained. Also, some of the facilities didn’t have any technological, infrastructure and Telkom Kenya had to donate some of their equipment for internet connectivity.

Currently, Afya Rekod has enlisted 50 health facilities and digitized health records for over 130,000 patients in Kenya and Nigeria. They are currently conducting pilots in Zambia and South Africa.

“We call this functionality the Gmail of health care, where you can just pull your Google Drive with one account, sign in using any device and upload or get data anywhere,” revealed Zuhudi.

The third functionality of the system is the patient portal, which comes with a diagnostic tool alongside a digital equipment that allows an X-ray image to be sent directly to a patient's phone after it is taken from a health facility.

"Basically the image will be sent automatically to your phone and instead of you going back to collect the hard copy, you'll have everything in real time when it's ready" revealed Zuhudi.

WHAT IS THE BUSINESS MODEL FOR AFYA REKOD

Afya Rekod deploys the digital system in hospital and charges the hospital depending on the number of patients using the facility.

According to Zuhudi, Afya Rekod is starting to have impact with regard to digitizing health records and believes that it is possible to digitize health records in all health facilities.

She gave an example of dispensary in Mombasa, which did not even have a laptop when they started working with Afya Rekod. And now, the dispensary has been elevated into a level 4 hospital and has digitized all its health records.

According to Zuhudi, the facility had one nurse who was also the receptionist and one doctor. She was able to set them up and they slowly started to digitize their records, and now, all their records have been digitized.

"Two years down the line, it is now a Level 4 facility. We were able to digitize it when it was just a dispensary, and now that it's at level 4 they are able to use the digital system to run all their operations without any other additional system," she noted.

The transformation of Mikindani dispensary into a level 4 hospital demonstrates the possibility that all health facilities can digitize their records. Patients are also happy with the system because they do not have to remember details related to their previous visits.

And what will they do differently if they were to start all over again?

"If we were to start all over again, I think we'll definitely start with the patient portal. Initially, it was a small functionality but with time, we have realized that it is very significant feature of the system. Patients can view and have control of their data even if they visit different hospitals," opined Zuhudi.

Zuhudi advises developers of digital systems to always consider the needs of their clients; they should not just focus on building the product. Also, they must invest in a good customer relations management system to ensure their product reflects the needs of their clients who can then use it without any difficulties.

CHALLENGES

The health industry is highly regulated given the sensitivity of patient's data and related issues especially privacy policies. For this reason, developers in this space must overcome several hurdles for their products to be approved.

Another great challenge is the fact that many people are not ready to adopt new ideas, especially those which are digital in nature; people prefer to stick to how things have always been done. She believes that people need to be open to new ideas.

VISION

Afya Rekod is working to provide cutting edge patient driven healthcare digital tools. Towards this goal, they are now focusing on deploying artificial intelligence and machine learning products that will take their digital solutions to the next level and allow patients to self-manage their health.



A healthcare worker being oriented on how to use Afya Rekod



How UNDP and Konza supported our Tele-health Innovation

Daniel Kimani, the founder of Ohospital, an online app that links health providers with patients in Kenya, has always had great innovative ideas but could not take them to the next level, a challenge faced by many entrepreneurs not just in Kenya but globally. However, UNDP Accelerator Lab and Konza Technopolis came to his rescue and supported him to build a successful start-up.

In his third year at the university, Daniel established his first company, Suhade Investment, which focused on computer services and marketing. However, he wanted to do something with a greater impact on society. In 2019, when he lost two of his close family members because they could not access medical facilities, he thought of starting a platform that could provide online health services for those who could not physically access medical facilities.

Though the idea had crystalized in his mind, he had no idea how to take it to the next level and actualize it. Given his background in Muranga County, it was not easy to get support to translate his ideas into a viable start-up. Fortunately, the UNDP Accelerator Lab and Konza Technopolis came in handy and set him towards a path that eventually made his dream come true.

“I’ve been lucky to work with the UNDP Accelerator Lab, under the great COVID-19 challenge in partnership with KONZA, Oracles and other partners. They

incubated us for three months where they mentored and took us through the key processes of how to build an idea to a business at start-up (a prototype). Since then, they have been supporting us through our journey. And most importantly, they gave us seed funding” Kimani revealed.

SO WHAT DROVE HIM TO START OHOSPITAL?

It all started when he lost two of his family members; both of them started feeling unwell on different occasions but passed on before they could get medical attention. The medical facilities were far away and not easily accessible to them.

At first, he thought of building a hospital or starting a pharmacy but these ideas were not viable. Then he thought of developing an App that could help solve

*PICTURE ABOVE:
Daniel and one of his colleagues receiving an award when they participated in the Great Covid-19 Innovation Challenge in 2021.*



Daniel Kimani, the founder and CEO of Ohospital.

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“When building my first company, spent a year without even a single cent, it inculcated in me the virtues of patience and persistence in whatever I’m doing. I’ve been working hard to make sure I get the things right because of the passion I have to make sure everything is right,” Kimani revealed.

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the problem; he did a bit of research and market testing then built his first product in 2020. He put the platform on the market in 2021 and on March 15th, 2021 Ohospital was launched.

Ohospital was launched with 33 doctors, with the intention of offering online diagnosis and prescription for patients who could not access medical facilities. However, the team realized the business model could not be up-scaled. They embarked on further research with a view to improving the product in such a way that it could be offered in all the 47 counties in Kenya.

In May 2022, an improved version of the product was ready, with more functionalities and capabilities to offer better services. “We now have a single app which is more of an online taxi service provider, where one can download the app and get more services both online and also in the physical hospital. The next step is to set up a USSD code and a customer care portal,” he said. The online platform has so far provided diagnosis and prescription for over 1,000 medical cases.

CHALLENGES

Funding is a key challenges for many start-ups. Fortunately, Ohospital received KSh 600, 000 (U\$ 6,000) in seed capital from UNDP and WIDU Africa; the latter provides funding for SMES in Africa.

“We were lucky to have gotten seed funding of about KSh 500,000 from UNDP. We have also gotten funding from other organizations like WIDU Africa, which is an outfit that matches Kenya and Germany entrepreneurs. They gave us KES 100,000,” revealed Kimani.

According to Kimani, one of the key challenges they face is the low trust for online health services.

He says: “many people still don’t trust online health platforms. Our challenge has been how to build trust and awareness. This could be the reason why about 90% of organisations working in tele-health are in Nairobi.”

And why is this so? Kimani explains: “it’s mostly the behavior where patients want to see the doctor in person and be able to discuss their medical problems. We have to try and create that trust and awareness. Our focus now is how to build a sustainable business which will be acceptable to everyone, from all levels of society. That is a big challenge for us,” he said.

Ohospital has tested the model and it works well. The next step for them is to work with the National Hospital Insurance Fund (NHIF) to widely roll out the product across the 47 counties in Kenya.

However, despite the aforementioned challenges, Daniel believes that his start-up is on the right track and expects to gain traction as more doctors join the platform and patients start trusting the online application.

In his view, passion, patience and persistence have been the key virtues that has made him come this far; for him, giving up has never been an option despite the obstacles in his journey of innovation.

CHALLENGES FACING INNOVATORS

Kimani believes that raising funds to develop and successfully commercialize an innovation and how to market the products are two of the key challenges facing innovators in Kenya.

“First is how to raise the money to commercialize your idea and secondly how you approach the market. The other problem is how to get someone to help you develop the product further to a sustainable business. You must also find ways of keeping the company going by making sales,” he said.



Kithi Mogulh, the Chief Technical Officer (CTO), Ohospital.

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“We are creating employment for healthcare providers. We are making sure general consulting and mental health can be as affordable as possible. When we launch our customer care portal, a patient will be getting 5 to 10 minutes each day to talk to a professional health specialist ...”

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SUPPORTING START-UPS

Given that funding is a key success factor for start-ups, Kimani believes that it would be important to groom local investors who can support budding entrepreneurs.

“We have to groom our own investors locally. I know several investors locally who cannot invest in your start-up directly but can do it through a syndicate or a venture capital organization. So we have to build that trust from local investors who can support start-ups,” he suggested.

Secondly, it is important to educate the masses on investing in start-ups rather than popular investments like land and real estate.

Kithi Mogulh, Ohospital’s Chief Technical Officer believes the platform has the potential of changing the landscape of healthcare provision in the country.

Apart from enabling more people easily access healthcare services, the platform will also help in improving the management of mental health.

IMPACT OF OHOSPITAL

The innovator believes that the start-up is creating employment for the healthcare providers in the country and also ensuring mental health care is affordable. “We are creating employment for healthcare providers. We are making sure general consulting and mental health can be as affordable as possible. When we launch our customer care portal, a patient will be getting 5 to 10 minutes each day to talk to a professional health specialist to consult or talk about mental issues for free.

We have been able to deliver about 1000 plus solution on cases,” explained the Chief Technical Officer, Kithi Mogulh.

VISION

Kimani believes Ohospital will be a leader in the provision of online medical interventions in Africa and even beyond.

KEY LESSONS LEARNED

- Resilience and persistence is key, without these two attributes, you cannot succeed as an innovator;
- You have to keep on learning, and reiterating what you are doing. We should always test the market and let it interpret the ideas.m succeed.



A smart integrated solar-powered waste management device

Eddy Gitonga has built a Tech Bin, an intelligent and integrated solar-powered waste management device that promises to revolutionize how we manage waste in urban centres.

Poor disposal of household waste is increasingly becoming a major problem in urban centres especially in Africa. With a growing population, urban management authorities are grappling with efficient disposal of household waste.

courtesy of the Young African Leaders specifically to learn more about new ways of waste management.

And now, we may just have found a solution in form of a 'Tech Bin' or simply T-Bin. Fitted with an LCD screen, the system comes in form of an intelligent device that integrates solar energy, internet of things (IoT), audio-visuals, data analytics, an in-built CCTV and proximity sensors. It is also capable of providing street lighting and free Wi-Fi to the public.

Of course, it also helps to manage waste by separating it at source.

SEPARATION OF WASTE

Surprisingly, in spite of its amazing and exciting tech capabilities, the device is based on a very simple principle: separation of waste at source.

"I also got an access to the US Embassy library where I used to borrow books and read about waste management in different countries like in Australia, US, Europe. I realized that our biggest problem is that we do not separate waste at source. We just put all our wastes in one bag, give it out to private waste collectors where it all ends up in dumpsites," said Gitonga.

*PICTURE ABOVE:
Gitonga explains how the T-Bin system works to an audience who included the British High Commissioner to Kenya, Jane Marriot.*

WHERE IT ALL STARTED

Armed with the knowledge and skills on waste management, Gitonga embarked on building the T-Bin system that would do exactly what he had in mind. However, he was confronted by a familiar foe, which afflict many innovators at the initial stages of implementing their ideas – lack of funds.

One day as Gitonga was sitting in his mum’s house watching TV, a news item appeared in which Kenya’s Cabinet Secretary for ICT announced a competition for start-ups in Kenya – the Great Covid-19 Innovation Challenge - supported by Konza Technopolis and UNDP. He sent an application explaining his idea and was shortlisted alongside 40 other innovators.

The next phase of the competition was to present his innovation to a panel of judges. This also proved to be a challenge because he did not have a prototype. The presentation was also to be made virtually, which presented another challenge: he did not even have electricity, leave alone Internet connection.

“I didn’t even have any materials to present. I didn’t have a laptop or any device back then so I sent my mom to get some manila papers and a felt pen which I used to draw the business model canvas and the value proposition. I took a photo of it and sent to the coaches,” he remembered.

Of course, he never expected anything to come out of it because his presentation was very rudimentary compared to his competitors, who had great start-ups. To his surprise, he was selected among 15 innovators who were to get into a three month acceleration program to fine tune their innovations.

“We got into a three month acceleration program and received our first seed funding from UNDP and Konza to actualize our ideas. For the first time, I believed I could build something from just a drawing on paper” he said.

The acceleration program coupled with the seed funding was instrumental in helping Gitonga build the first T-Bin device. That was February 2021.

In March 2021, he showcased the T-Bin at Dedan Kimathi University in Nyeri County, an occasion attended by the British High Commissioner to Kenya, Jane Marriott. From that time, T-Bin was becoming a reality. In May, 2022, T-Bin made it to the top 15 start-ups in Kenya and clinched the best innovation award in waste management.

Gitonga had planned to use T-Bin to educate the public on proper waste disposal mechanisms. But again, the device was very bulky and transporting it to various places was proven to be another challenge. And with Covid-19 restrictions in place at the time, it was not possible.

When Covid-19 restrictions were eased, Gitonga was able to secure public place from where he could demonstrate the functionalities of the device and also sensitize members of the public on how to manage waste.

“We secured a public space in Thika town, adjacent to the County Government offices of Kiambu where we showcased the T-Bin for about 2 months and received hundreds of visitors every day who were curious to understand how T-Bin works,” he shared.

HOW IT WORKS

Gitonga explains how the T-Bin device is configured and how it works.

In addition, the T-Bin is fitted with proximity sensors which get activated when someone approaches and also sends alerts when full and needs to be emptied.

“When you approach the T-Bin, it directs you to dispose organic waste on the green bin and plastic waste on the blue bin. It also gives alerts when the bin gets full and requires to be emptied. It also has an inbuilt WIFI,” added Gitonga.



Gitonga explaining the functionalities of the T-Bin system.

WHY T-BIN?

Apart from the tech components, the device also educates citizens on the different types of wastes - and more importantly - how to separate and dispose them responsibly. According to Gitonga, T-Bin aims to reduce the amount of waste that goes into dumpsites by catalyzing and energizing the circular economy whose key elements are reusing, repairing, refurbishing and recycling existing materials and products.

"With the T-Bin, we want to minimize about 95 per cent of the urban waste that ends up in dumpsites, rivers and is finally washed up to our oceans. We shall not just have thriving circular cities but also improved health systems, better security structures and a brighter world full of opportunities," he said.

T-BIN is a convenient waste separation and disposal mechanism for use in urban public spaces, green spaces, hospitals, government institutions, NGOs, bus and railway stations, airports, restaurants, shopping malls, stadiums, and all outdoor business premises. It can also be used in refugee camps and schools for educational purposes.

"T-Bin can be used in a refugee camp as a resource center where we provide eBooks. We can use the T-Bin in schools where you can use the digital screen as notice boards and also have e-newspapers and different kind of information" said Gitonga.

T-BIN WORKSHOP

In the next one year, Gitonga plans to set up a workshop that will manufacture the T-Bins and expect to build more than 100 devices which will be placed in strategic positions in urban major cities and towns.

"We're looking for investors and we are looking to raise 9 million so that it can help us set a workshop. We will allocate 20% towards setting up the workshop, 40%-50% to build about 100 T-Bins and the rest will cater for other costs like transport and labour," he said.

Gitonga showcasing the T-Bin device in an office set-up.

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"Getting the knowledge to understand how sensors work, how to use AI, the electricity connections was a big challenge. But I did read, searched for knowledge online and I was able to build the T-Bin," he said.

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LESSONS LEARNT

Persistence and resilience, according to Gitonga, are the key success factors of a budding innovator. In addition, innovators should fall in love with the journey. Once you have something you really want to get out there, you really have to knock on doors, even with bleeding knuckles, you don't shy away from knocking on doors. Also, when you love with the journey, you keep on walking and walking and even when awards come, they don't derail you from loving the journey." he says adding that there will be many naysayers along the way, whom one should ignore.

He likens his innovation to culmination of nine years of pregnancy saying "T-Bin is a baby that was born from the nine years of not giving up, of research and knocking on doors"

CHALLENGES

One of the main challenges he faced when building T-Bin was lack of knowledge to bring his idea to reality. This is also a challenge that many innovators face.

"Getting the knowledge to understand how sensors work, how to use AI, the electricity connections was a big challenge. But I did read, searched for knowledge online and I was able to build the T-Bin," he said.

Of course, funding is always a challenge facing many innovators and start-ups "especially for a new product, it is very difficult to find someone who believes in you and can fund your idea" he explains.

Another interesting component of the T-Bin intelligent system is its ability to cater for the needs of people living with disabilities.



Gitonga showcasing the T-Bin device in an office set-up.



Conclusion

The case studies distilled in this report are both exciting and promising: exciting because they elicit the 'wow effect' laced with a sense of wonder; and promising because they showcase abundant potential resident in the youth of Kenya with respect to innovative ideas. And that is just the tip of the iceberg.

However, an innovation ecosystem is made up of enabling policies and regulations, accessibility of finance, informed human capital, supportive research markets, energy, transport and communications infrastructure, a culture supportive of innovation and entrepreneurship, and networking assets - which together support productive relationships between different actors and other elements of the ecosystem.

All the above aspects must be geared towards supporting innovators, it's most critical actor. On the basis of the views from the innovators, it is clear that the problem is not lack of ideas; but rather the support structures that enables this ideas to grow. And as is often quoted, a chain is as strong as the weakest link. These case studies, therefore, serve to highlight both the strongest and weakest link in Kenya's innovation ecosystem, providing a window through which to get a glimpse of what is happening from the perspective of the innovators.

The testimonies from the innovators provide cause for optimism. They highlights the richness of ideas in various sectors and the extent to which innovators are ready to push themselves to actualize these ideas.

What is needed is a conducive environment and legislative framework that would catalyze continuous development of this innovative ideas and their actualization through commercialization. This stage has already been set.

For the umpteenth time, the key challenge facing innovators seems to be lack of funds to commercialize their ideas. Innovators with access to sources of funding are more likely to be successful in their ventures. And while this is true, a good number of starts-ups in Kenya seems to be securing seed funding as illustrated by Paylend Limited and Afya Rekod. Other challenges include inadequate infrastructure and weak collaboration amongst the innovators.

In the context of the above, it would be important to provide and/or create more awareness of existing funding avenues and how to access the funds; invest more on infrastructure that support innovators; create more opportunities for networking and partnerships; build the capacity of innovators through training, enact policies geared towards supporting innovation, and enhance national and county- level legal and regulatory frameworks.

In sum, skills training and funding for innovators is critical, supporting more innovators - whether skilled or unskilled - is paramount, cooperation and collaboration within the industry is crucial while trusting and supporting innovators is necessary.

The Kenyan innovation ecosystem is growing and can only get better!