From Africa to Britain: how technology can solve social problems

Kieron Kirkland, Winston Churchill Memorial Trust Fellowship 2015

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Contents

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Lastly thanks to Winston Churchill. Without him, I probably wouldn't be alive, much less able to take a Fellowship in his name.

Abbreviations and glossary

I have attempted to keep this report concise and jargon free - hopefully this enhances the experience for you, the reader. That said, some abbreviations and specific terms are used, and are explained here:

B2B – Business to Business. A business model that relies on selling products or services to other businesses rather than directly to end consumers.[1]

B2C – Business to Consumer. A business model that relies on businesses selling direct to end consumers rather than, for example, to other businesses.[2]

Incumbent public sector organisations - here I refer to public sector organisations that provide social services for the population. For example, in the UK, this would include the NHS or state school system.

Incubator and Accelerator - while often used interchangeably in SSA, Accelerators are generally understood to be a space where an early stage company undergoes a short, intense period of business development within a structured programme. Conversely, Incubators are more often seen as space where early stage businesses work from, and where they are offered lighter touch support over a longer period of time.[3]

Intrapeneur – An individual behaving like an entrepreneur, for example autonomously generating new products and services, but while working with a larger organisation.

KPI – Key Performance Indicator. A business metric used to evaluate factors that are crucial to the success of an organization.[4]

SSA - Sub Saharan Africa.

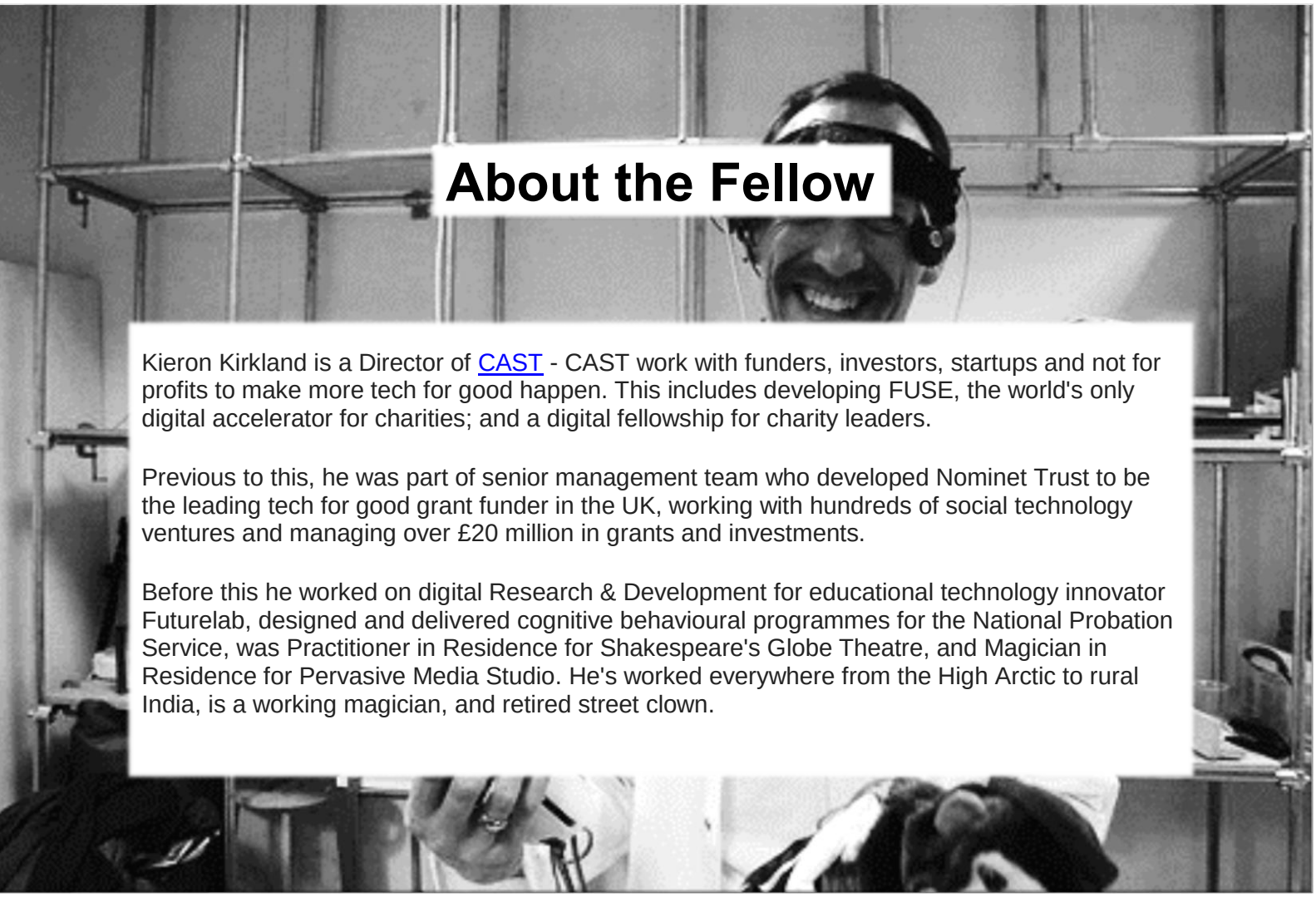
Social Enterprise - definitions of social enterprise are endless. To be pragmatic, I am defining it as a business that seeks to address a social outcome, as well as achieve financial sustainability and profitability. As I note in this report, what is understood by a social business is more elastic in SSA.

[1] https://en.wikipedia.org/wiki/Business-to-business

[2] http://www.investopedia.com/terms/b/btoc.asp

[3] For more on this area see this comprehensive review https://hbr.org/2016/03/what-startup-accelerators-really-do

[4] http://searchcrm.techtarget.com/definition/key-performance-indicator



About the Fellow

Kieron Kirkland is a Director of CAST - CAST work with funders, investors, startups and not for profits to make more tech for good happen. This includes developing FUSE, the world's only digital accelerator for charities; and a digital fellowship for charity leaders.

Previous to this, he was part of senior management team who developed Nominet Trust to be the leading tech for good grant funder in the UK, working with hundreds of social technology ventures and managing over £20 million in grants and investments.

Before this he worked on digital Research & Development for educational technology innovator Futurelab, designed and delivered cognitive behavioural programmes for the National Probation Service, was Practitioner in Residence for Shakespeare's Globe Theatre, and Magician in Residence for Pervasive Media Studio. He's worked everywhere from the High Arctic to rural India, is a working magician, and retired street clown.

Executive summary

Background to the Research

Across Africa, technology platforms like Ushahidi[5] have gained international recognition for the way they have supported vulnerable or disenfranchised people to improve their lives by increasing access to information, health and social care, or education. In the UK, despite better access to technology and digital infrastructure, there are limited examples of technology-led interventions creating such social impact at scale.

My Fellowship focussed on exploring what the burgeoning UK 'social technology' sector can learn from these leading African examples of technology improving the lives of individuals across SSA (Sub Saharan Africa). It aimed to uncover the characteristics of the ecosystems and individuals who are enabling the apparent success of these interventions, and to understand their respective roles in supporting the development of innovative and scalable digital products and services that target the most marginalised populations of SSA.

The research focus covered two key themes:

Firstly, four distinct research questions that emerged from a comparative analysis of the leading social technology interventions in SSA and the UK:

- *Are we over engineering?* - Frequently in the UK context there is a pressure to innovate. This leads to a tendency to use the latest technology to deliver social interventions. For example, in mobile interventions the default technology chosen is mobile apps, rather than SMS services, even when these older platforms may be more appropriate for the user group. Given the lower level of technical availability in Sub Saharan Africa, is their use of older tech platforms limiting the potential efficacy of interventions, or enhancing it by enabling greater adoption?

- *Are we failing on product adoption?* - The UK 'social tech' community frequently develops innovative product offerings. However, these are rarely sustained over time or get adopted at scale. For example, few health apps are taken up by the NHS. However, in SSA, there are many prevalent examples of social technology products that have experienced mass rapid adoption. Is this to do with the design and development of the products themselves, or because there are no incumbent systems the products have to integrate with or compete against?

- *Can we scale and replicate SSA models?* Are the social technology products and services that are developed in Sub Saharan Africa suitable for adoption in the UK? Either through direct company expansion or through replicating their models? Or is the context so different that they would not work in UK?

- *Are the success stories representative of the whole community?* - There are a small number of high profile success stories of social technology interventions in SSA. What is the wider enabling ecosystem that sits behind this? Are these success stories just enabled by a burst of foreign aid funding in this area and significant media

[5] https://www.ushahidi.com/

attention? Or is there a stronger underpinning sustainable ecosystem of skills, cultures and individuals supporting the work that the UK could learn from?

The second research theme sought to understand how social tech communities grow. In particular - what are the key components that need to be in place at different times to best enable the growth of a social technology community? To do this I focussed my research on a range of countries in SSA, each at a different stage of technological infrastructure and social technology community development. This ranged from those with nascent technology scene (Ethiopia), through to the most technologically advanced countries in SSA (Kenya and South Africa). By understanding the barriers and enablers for the individuals working in these different conditions, I could explore what characteristics of these communities made the biggest difference.

Major findings

The socio-economic conditions in SSA mean (almost) every business can be seen as a 'social' business
All the countries I visited in East and South Africa were experiencing extreme social and economic challenges, ranging from youth unemployment to famine. In these conditions, the lens by which one views social enterprise changes. In many cases, any enterprise generating jobs is having a social impact by enabling economic empowerment.

The lack of social enterprise identification in SSA had positive benefits for the entrepreneurs
Most entrepreneurs I visited did not self-identify as social entrepreneurs, even if their businesses were focussed on delivering tangible social outcomes, such as access to education or healthcare. On the whole, this was beneficial for the entrepreneurs. By virtue of seeing themselves as businesses above all else, the entrepreneurs I met working in the social impact space were, in general, much more savvy about commercial growth and sustainability than many of those in the UK.

African incubators and accelerators can risk 'reinventing the wheel'
The UK accelerator scene is, on the whole, more developed than in the countries I visited in Africa. Partly this is because they have been operating longer, and so have had more time to refine their models and processes, but also because UK accelerators are often commercially funded, and so much more focussed at rapidly pushing business to achieve profitability and scale.

In contrast, most hubs in SSA that call themselves accelerators are actually incubators. These incubators are still finding their models and often being funded by consortiums of international aid funders. This can result in some 'reinventing the wheel'. That said, this technology support infrastructure in SSA, by virtue of being funded by social purpose grants, is more supportive and encouraging of social technology than the commercially orientated accelerator scene in the UK. This funding focus partly accounts for the disproportionately large number of technology social enterprises in SSA.

SSA is leading the world in sustainable businesses focused on the 'bottom of the pyramid' populations.
UK social enterprise can learn a lot from African entrepreneurs who are building business models that focus on, or are inclusive to, lower income individuals. In general, these businesses rely on a high volume of low value transactions direct from low income individuals for revenue. M-Pesa, the mobile based money transfer service, is a prevalent example of this. Conversely in the UK, most social business models rely on a lower volume of higher value transactions from consumers, funding or contracts. This revenue is used to either subsidise services or improve working conditions for vulnerable or hard to reach

individuals in the supply chain. This model can result in split priorities between the paying customers of service and the intended beneficiaries. Moreover, it can perpetuate a lack of access to services in the UK for marginalised individuals.

Development aid can negatively impact start-up social businesses.
The influx of foreign aid presents challenges for the social start-up scene across Africa. For example, big NGOs operating in a region push up rents and operational costs for small start-ups. This artificial subsidy is less present in the UK.

African entrepreneurs face huge challenges through the lack of supporting infrastructure.
African entrepreneurs face significant challenges from the lack of supporting infrastructure, especially outside of the capital cities. This ranges from power and internet outages, to unsupportive SME policies, to governments blocking the use of social media. The flip side of this is that these restrictions are driving the use of low cost but highly accessible services, such as using SMS.

Technical skills shortages
There are significant skills shortages in technical expertise in all the areas I visited, with the exception of Nairobi, where there were just shortages. This means that the organisations seeking to use technology are hampered by the availability of people to deliver the work.

There are a lot of start-ups, but not many businesses
Many of the leading examples of social technology interventions I visited were still struggling with business models, and were not sustainable. Instead they were relying on foreign aid bolstered with contract work. This is the same as the situation in the UK. However, there were examples of other SSA businesses who had been operating successfully for a number of years, were revenue positive, and taken equity investment.

The socio-economic conditions in SSA mean the impact of interventions is clearer than in the UK
Given the lack of public services in all the SSA countries I visited and the size of the population in need - it's perhaps unsurprising that it's easier to understand and identify the impact social technology organisations are having. In contrast in the UK, the population is smaller and there is better public service provision. As such, ventures in the UK struggle more to grow their user base or be the exclusive provider for those in need. It also makes it difficult to solely attribute social impact to these organisations, as they are not operating alone. Clearly this is a good thing in terms of service provision for vulnerable people, but explains why it's easier to point to clear success stories in SSA than in the UK.

Top Recommendations

- Funders, investors and support bodies need to stop defining social enterprise through the presence of assets locks or guaranteed profit redistribution. Instead they should explore and incentivise alternative models of social enterprise that maintain mission locks, but also that prioritise an intertwining of social impact KPIs[6] and business KPIs.

- Start-ups and incumbent public sector bodies need to better integrate. This should either be through more open procurement practices and opportunities to involve social technology enterprises in the supply chains of incumbent organisations, or enabling intrapreneurship[7] in incumbent organisations.

- We need more programmes to train individuals from marginalised communities in coding to support their job prospects rather than other traditional, and shrinking, industries.

- Despite the high level of technology adoption and ownership in the UK, UK social technology entrepreneurs would benefit from learning the lessons of African ventures who have enabled rapid scaling and adoption of digital interventions by marginalised groups through the use of low cost and low barrier to entry technological solutions like SMS.

- UK accelerator staff should connect with African incubator and accelerator managers to share learning about successful approaches.

- The UK social technology scene should develop more 'bottom of the pyramid' business models. Tailored support and exploration of which areas and industries where this could work in UK would be a useful starting point for this.

[6] KPI - Key Performance Indicator. A business metric used to evaluate factors that are crucial to the success of an organization.

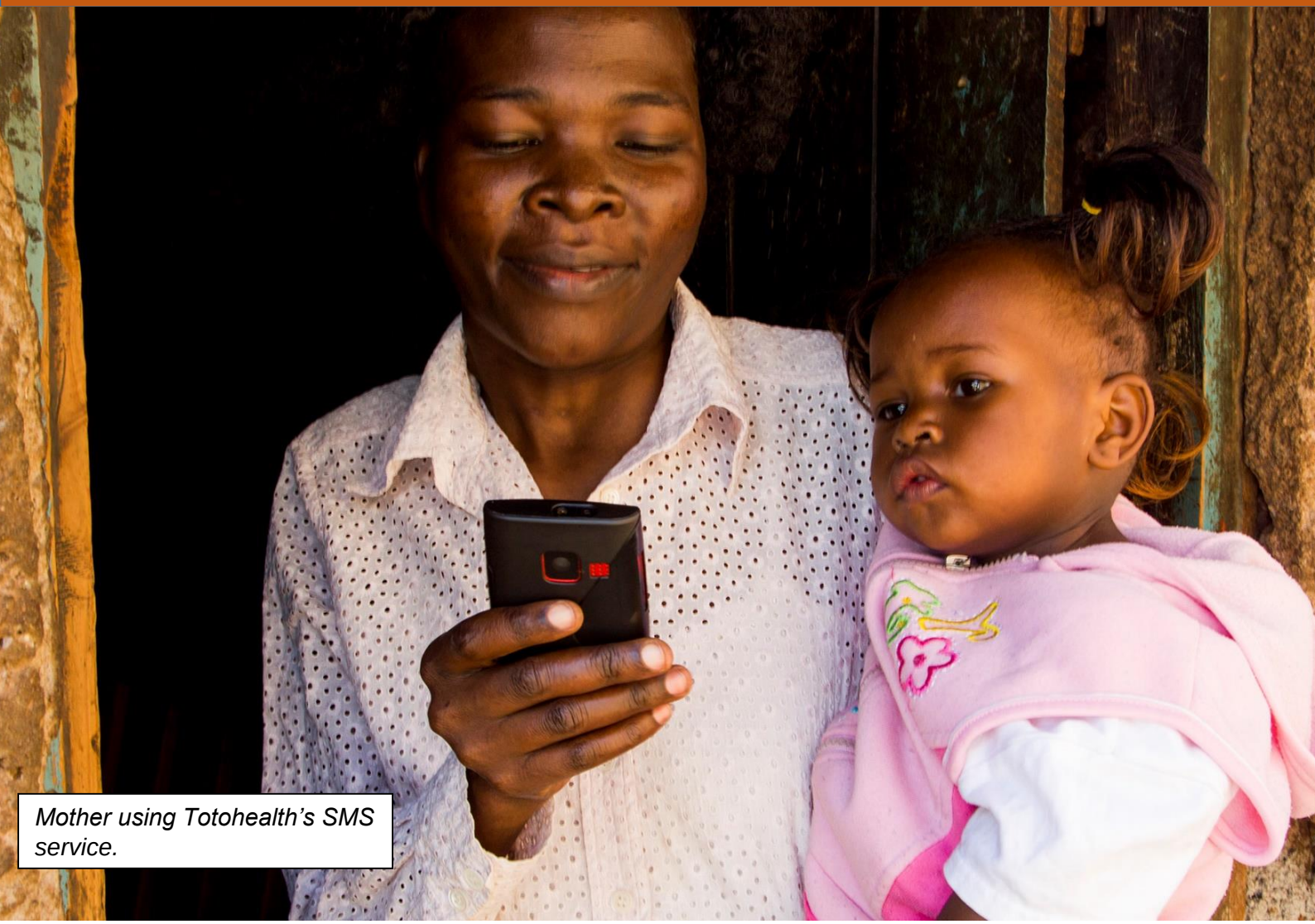
[7] Intrapeneur - an individual behaving like an entrepreneur, for example autonomously generating new products and services, but while working with a larger organisation.

Case Study – Totohealth

The World Health Organisation found that SSA is the most dangerous place in the world for a woman to have a baby. Even after birth, the risk remains high. Children in SSA are 15 times more likely to die before the age of 5 than children in developed regions.

To address this, a team from Kenya have developed Totoheath. A SMS messaging service that supports mothers with information and guidance over the course of their pregnancy, and into the early years of a child's life. The parents receive several texts a week that help them monitor their child for signs of illness as well as giving them tips on breastfeeding, nutrition and recommended inoculations. The service is not just an information platform. It also asks simple diagnostic questions that parents can use to understand if their child is at risk of certain conditions. For example, when the child is one-year-old, parents are asked about the direction of the child's feet, their answer to this simple question can result in early diagnosis of preventable mobility health conditions.

In just 18 months the company has scaled their free service to over 20 000 parents across the most deprived areas of Kenya and are currently exploring plans for expansion.



Mother using Totohealth's SMS service.

Background to the Fellowship

Technology has revolutionised the way we shop, eat and even how we date. However, we have yet to see these revolutions in digital technology solving social problems at scale. There are a number of reasons for this, ranging from a lack of skills and experience in the incumbent social sector, through to a lack of funding from donors for digital projects.[8]

In previous decades, the potential of technology was arrested by its availability. However, computers and computing power is increasingly accessible and the 'digital divide', while it still exists, is less so now than at any time in history. The UK is particularly technologically connected with the average household owning around 7 connected devices and 78% of adults accessing the internet on a daily basis[9]. However, with the exception of large scale (and well-funded) projects like the Government Digital Service, most UK digital solutions are still not operating at scale, and the hard to reach individuals in the UK are still not seeing the benefits of technology in the way they access services like health care, social care or education.

However, across SSA, there are a range of scaling digital solutions for pressing social problems that appear to be having significant social impact. On average they reach more people in challenging circumstances, more effectively than many interventions in the UK. One of the reasons they scale so rapidly may be because they have low technical barriers to access, for example, through use the increasingly ubiquitous mobile technologies of SMS (text messages). Equally the legal form and business models underpinning these solutions appear to be enabling them to scale and become sustainable in a way that many UK social enterprises are not.

Aims of the Fellowship

The focus of the Fellowship was to see how these successful African social technology interventions may be of value in supporting the UK to create and develop more effective digital social interventions. This included their use of technology, ability to reach marginalised populations, but also the way they structure their operations and business models.

Approaches and methods

The Fellowship employed three distinct approaches to answer the research areas outlined above:

1. Connecting with leading social technology leaders to understand the barriers and enablers on their individual journeys. To do this, I visited the countries with the most prevalent examples of social technology: Kenya and South Africa.
2. Developing an understanding of the supportive infrastructure behind these leaders in their respective countries through connecting with the funding, policy, technology, and incubation and acceleration landscape.

[8] http://www.thinknpc.org/publications/tech-for-common-good/

[9] http://www.ons.gov.uk/peoplepopulationandcommunity/householdcharacteristics/homeinternetandsocialmediausage/bulletins/internetaccesshouseholdsandindividuals/2015-08-06

3. Constructing an understanding of the different stages of social technology ecosystem development in Sub Saharan Africa. In order to understand this, the Fellowship explored a range of countries that went from those who are just beginning to explore social technology interventions, through to the most active producers. To ensure I had findings that could be more easily compared, this section of the research minimised other variables by focussing on East Africa. While clearly having differences, the countries in this region share many similar challenges, such as governance, agriculturally driven economies, climate, education levels, and limited technological infrastructure. The focus moved from Ethiopia, characterised by an underdeveloped technology scene, state-owned technological infrastructure, and a highly regulated business environment, through to Kenya, which has a highly developed technology ecosystem, better technology infrastructure and state support for entrepreneurship.

The fellowship applied grounded theory[10] to uncover and connect with a large number of individuals and organisations. This approach was best suited to enable as broader spread as possible of data points about trends occurring in South and East Africa in order to inform thematic areas of learning that could be developed in the UK. A subsequent benefit of this approach was that I could connect many organisations I met to further support. Either through UK partners or to other organisations operating in SSA.

Core research methods

- Review of grey literature, for example blogs and specialist media publications to identify leading entrepreneurs and 'nodes' (well connected individuals) in the social technology network
- Site visits to key innovation and incubation spaces to understand the design and structure of the support systems available to entrepreneurs
- Site visits to marginalised communities, such as informal settlements and slums in order to under the operating context for many of the organisations
- Extensive use of my personal network, including funders and entrepreneurs, to identify organisations and individuals operating in the space that may not have had the benefit of publicity or appearances in existing publications
- Semi-structured interviews with individuals identified from the literature review and through my personal network
- Conducting qualitative analysis of these interviews to draw out key themes
- Audio and video documentary production with leading organisations, but whom did not already have a significant media presence. These were edited into podcasts and short films to offer extra value to the wider 'social tech' community and raise the profile of less well known organisations
- Social network analysis to explore relationships between key players in the system

[10] https://en.wikipedia.org/wiki/Grounded_theory

Mesh Power rural electrification installation in Rwanda

Case Study – Mesh Power

Mesh Power are a solar energy company providing access to solar power across Rwanda. While solar power providers are increasing in number across SSA, Mesh Power are unique in offering micro grids for homes. The team work with individual villagers in remote areas to install a solar panel than can provide electricity for much needed lights, televisions and phone charging. The team behind Mesh Power studied together are Imperial College and take advantage of their access to modern manufacturing tools like lasercutters to create the hardware for the installations.

The benefits of this work are clear when visiting their sites. In one village a woman explains how she is now able to run an evening class for the village because they have lighting to study by. A local vet explains how the lighting offered by Mesh Power has enabled her to improve her treatment of animals in the area. There are also side benefits to this work that you might not expect. One villager explains that having a television means parents can ensure the local children, often fanatical football fans, can watch the games in safety rather than visiting bars or informal drinking establishments.

Findings

I visited a range of organisations, including incubation spaces, not for profits and for profit businesses (for full list of meetings and site visits conducted see appendix A). They exhibited a range of key differences to organisations I work with in the UK:

Operating environment
The organisations I visited were all targeting marginalised populations and, with the exception of South Africa, were all operating in countries that were classified as low income or 'developing'. These countries face significant social challenges that dwarfed those of the UK, including corruption, mass unemployment and lack of access to health care. Given that all these countries have rapidly growing youth populations; youth unemployment was a significant challenge. For example, 53% of Uganda's population are under 15, and 63% of those who are unemployed are under 24[11]. In this context, enabling employment is a social impact in and of itself. As such, the classification of social enterprises, either through organisational structure such as Community Interest Companies (CIC), or through self-identification as a social entrepreneur was not as meaningful as it was in the UK.

Lack of social enterprise identification had positive benefits
Social enterprise was not a distinct category in most of the places I visited. Most entrepreneurs did not self-identify as social entrepreneurs, even if their business were focussed on delivering a tangible social outcome such as access to education or healthcare. However, in the most part, I found this was beneficial for the entrepreneurs. By virtue of seeing themselves as businesses above all else, the entrepreneurs I met working in the social impact space were, on the whole, much more savvy about commercial growth and focussed on sustainability more than many of those in the UK.

The effect of this is that African entrepreneurs are often developing different business models to their counterparts in the UK - where business growth is more directly intertwined with social impact rather than seeing the social impact being manifested through other means, such as a redistribution of profits. An example of this is Safemotos[12]. Due to the large number of deaths in Kigali, Rwanda, by motorcycle taxis, Safemotos created a company that offers safe motorcycle taxi drivers. People pay slightly more for the taxis, but are getting a safer ride. Their KPI is safety. The safer the taxis, the more people take their service (business growth), but also the more people are safe (more social impact).

Incubators and accelerators
In the UK the accelerator scene is, on the whole, more advanced than in the countries I visited in Africa. The UK accelerators are more much focussed at pushing business to grow and scale fast, with the pressure that accompanies this. Most spaces in SSA that call themselves accelerators are actually incubators, and are still finding their models. The problem is that, despite some initiatives to connect them, they are doing this independently. This means there's a lot of 'reinventing the wheel'. This issue is compounded by the fact that they are often funded by foreign aid agencies. This means that they are juggling conflicting and disparate requests from a range of funders rather than focusing on a core business model or value proposition. Where incubators have become self-sustaining they are offering a more precise, but focussed service.

[11] http://www.worldbank.org/en/news/feature/2015/08/04/empowering-ugandas-youth-to-be-job-creators
[12] http://www.safemotos.com/

Businesses focused on the 'bottom of the pyramid'
Many African entrepreneurs are building profitable businesses that focus on, or are inclusive to, lower income individuals. M-Pesa, the mobile based money transfer service, is the most obvious example of this. It's business model relies on high volume, low value transactions. This means that lower income individuals are able to access a money transfer service which they previously would have been unable to do because of a lack of a bank account or prohibitive money transfer fees. In the UK most business models, even for social enterprises, target their revenue generation from people who have money (e.g. middle class if it's a B2C[13] model, or government funds if they're operating contracts) and some of that revenue is used to subsidise the service for hard to reach or marginalised people. The knock on effect of this is that many low income individuals are still not able to access these services if revenues are not high enough.

Development aid alters the operating context
While development aid is spread across NGO and social business activities, the influx of foreign aid presents challenges for the social start-up scene across Africa. For example, big NGOs push up rents and other operational costs for small start-ups. This makes it harder for them to operate. This artificial subsidy is less present in the UK.

Lack of supporting infrastructure
African entrepreneurs face significant challenges from the lack of supporting infrastructure, especially outside the capital cities. Throughout the countries I visited there were power outages, poor internet provision and numerous other prohibiting factors for technology based organisations. For example, the cost of data meant accessing video content for staff training was unrealistic. Equally the government was often inhibiting growth, whether because of widespread corruption, bureaucracy or the lack of supportive policy environment. A particularly pertinent example of this was in Ethiopia, where the government is restricting the access and use of free internet. This presents clear barriers to digital entrepreneurs, especially those I met in the news and media space. The flip side of this lack of infrastructure was the opportunity it provided for many entrepreneurs to offer a service. For example, off grid solar providers exist for communities who are unlikely to be connected to mains electricity supply in the near future. Equally the use of technologies, such as SMS, resulted from this poor resource environment, and is an appropriate technology for the intended user groups of the interventions.

Technical skills shortages
There are significant technical skills shortages in all the areas I visited with the exception of Nairobi, where there were simply technical skills shortages. This means that the organisations seeking to use technology are hampered by the availability of people to deliver work.

[13] B2C – Business to Consumer. A business model that relies on businesses selling direct to end consumers rather than, for example, to other businesses.

Solomon King with one of his teachers in the Fundibots workshop

Case Study – Fundibots

Solomon King is on a mission to use robotics training in African schools to create and inspire a new generation of problem solvers, innovators and change-makers. His organisation, Fundibots, uses the technological process of building robots as a way to develop student's skills in problem identification, brainstorming, collaboration, construction, programming, final deployment and system feedback.

A core part of their mission is provide better career and development opportunities for African children through STEM (Science, Technology, Engineering and Maths) education in a way that is equally accessible to any child.

While STEM learning is the core, it's clear that far more is happening at their learning space in Kampala than learning facts. There is a palpable excitement from the children in the room, as they explore and collaborate on technical challenges. Overall the sense is of interactive investigation and play, rather than a dry learning environment. It also a testament to Solomon's vision of equitable access to engineering that there's huge range of ages working together, and that half **of** the children are girls.

What the UK can Learn from the African Social Technology Scene

Social business as independent category
The development of the social enterprise movement in the UK has had positive effects on supporting its growth and acceptance into the business and third sectors. However, speaking and working with entrepreneurs in SSA has shown me that a separately defined 'sector' for social enterprise has actually harmed the development of many UK entrepreneurs who are targeting social outcomes.

- Firstly, this is because the social enterprise sector places a heavy emphasis on social impact targets at the early stage, often due to priorities of the funders and foundations supporting the space. This can lead to a lack of focus and pressure on the enterprises to develop sustainable business models. Most of the entrepreneurs I spoke to in Africa had a more advanced understanding of key business principles, such as their place in the value chain, than UK social entrepreneurs at the same stage of development. This, in turn, meant many African entrepreneurs were more sustainable through revenue or investment, and less reliant on grants.

- Secondly, the debate around social enterprise definition in the UK has led to restrictive categorisation of social enterprise business models. This focuses on the role of redistribution of profits, rather than exploring alternative, and possibly more successful business models where social impact and business growth were more intertwined. An example of this given above is Safemotos, the motorcycle taxi company in Rwanda.

Skills shortages
Skills shortages are prevalent in both countries, such as the lack of programmers. This has two areas of opportunity:

- Firstly, skills exchanges between African and the UK accelerator scene would be very valuable.

- Secondly, the widespread youth unemployment, rising mobile penetration, and the growth of digital industries in SSA, means that many organisations see digital skills development for marginalised communities as a solution to youth unemployment. This focus is not common in the UK outside of large cities. Given the higher level of internet infrastructure there are significant opportunities to train coders and engineers in more remote areas of the UK to address issues of youth unemployment.

Infrastructure
Encountering and working around the lack of supporting infrastructure in SSA has two important learnings for the UK.

- Firstly, the UK should enable more integration of incumbent public sector institutions and start-up organisations. Many of the organisations I met in SSA did not have the challenge of working, or competing, with existing incumbent organisations. For example, start-up SSA technology health services did not have to compete with the NHS as a route to market. There is a significant need to address this lack of integration between start-ups and incumbent public institutions in the UK. This involves understanding and developing ways for these organisations to interface, for example better procurement procedures would enable incumbents to more easily use the services offered by smaller technology organisations. But equally, the UK would benefit from linking the entrepreneurial drive of start-up organisations with the expertise, skills and scale networks of the incumbent organisations. This could be

through joint projects, or supporting intrapreneurship within these larger incumbent organisations.

- A second learning from the infrastructure challenges was the need to continue to support the free and open internet in the UK. Having encountered first-hand the challenges organisations face around restrictions to internet use, both financial and political, it highlighted the role that equitable access to the internet has in enabling social technology development in the UK. The free internet movement, while it exists in the UK and US, is often seen as a campaigning group which is politically or ideologically motivated. Highlighting the implications of internet freedom for social sector organisations and mission driven businesses would be a mutually beneficial area of activity.

Business models

Most countries in Africa have significantly bigger populations than the UK, but the people living there generally have a greater level of poverty. This means that while SSA businesses have a potentially larger market they can target with their services, due to the levels of poverty, the amounts transacted are likely to be lower. As indicated above, this has led to the growth of high volume, low transaction business models such as M-Pesa, which enables access to money transfer services for low income individuals. This ability to build sustainable businesses around low income individuals is a key area of learning for the UK. Most UK mission driven enterprises operate business models that are the inverse - high value transactions for a lower number of people. This often results in the social enterprise separating out the social impact of the service from the revenue source by either:

- Operating a B2C[14] model where the end product is sold to the middle class at a premium, but where vulnerable people are used in the supply chain (such as selling high cost furniture made by ex-offenders).

- Operating a B2B[15] model where high value services are paid for through social purpose funding (either government contracts or charitable foundation funding) and then delivered to vulnerable individuals at a free or subsidised rate, such as government funded skills programmes.

This separation of consumer from customer has two negative results:

- Firstly, it leads the business to have a split focus between the people paying for the service, and the service users. This can lead to split priorities and focussing more on the paying customers' priorities than the users.

- Secondly, it means that the sector is not finding ways to build sustainable businesses that deliver equitable access to vulnerable users through high volume, low value transactions. A strong example of this problem is the energy sector where higher value customers get benefits such as direct debit discounts, whereas lower income individuals are frequently directed to use more expensive key meters.

There are lots of start-ups, but not many businesses.

There has been a rise in funding for social technology in SSA over the past five years, primarily originating from foreign aid and charitable foundations. This has corresponded to the growth in social technology solutions. However, while early stage funding is not as much

[14] B2C – Business to Consumer. A business model that relies on businesses selling direct to end consumers rather than, for example, to other businesses.

[15] B2B – Business to Business. A business model that relies on selling products or services to other businesses rather than directly to end consumers.

of a challenge, investment and sustainable business models are. Many of the organisations I worked with in SSA are being supported by international funding, even if that funding is being channelled through a local organisation. As such, despite their early success, many of these organisations have not found sustainable business models. There is an interest in moving from grant funding to investment, but there are not many investors willing to invest at seed stage. This results in an early stage funding gap because it's too risky for commercial investors to step into, and the sums required are too big for grant makers. This situation is paralleled in the UK. Understanding this has enabled me to talk more widely about a consistent pattern in the growth of social technology ventures here in the UK, and see it as a problem shared globally. We need to plug this gap if we are to see mission driven businesses operating at scale.

Kigali Case Study – kLab Incubator, The Office Co-Working Space & Impact Hub Kigali

Kigali, Rwanda is a rapidly developing digital Hub. At the heart of this development are the incubation and co-working spaces who host the growing digital entrepreneur scene.

kLab is an incubator in Kigali. It's bustling offices provide a vital working environment for startup entrepreneurs. But just as importantly, it's programme of training, mentoring sessions and pitch days provide a vital network of support for startup entrepreneurs. While kLab host software startups, they are also exploring the creation of a FabLab to ensure they can develop support for African companies wanting to take advantage of the hardware revolution.

While these sorts of incubator spaces offering support for startups are important, there is an equally vital role for dedicated co-working spaces. The Office offers a space that is an energizing balance of freelancers, existing companies who have outgrown start up spaces, and community events. These sorts of dedicated co-working spaces are vital to enable the rapidly growing startup scene both the next step in their journey, but also a creative mixing pot where individuals from different backgrounds and companies can collaborate.

The Office have recently begun a collaboration with Impact Hub network to create Impact Hub Kigali. This international movement focuses on supporting impact business and social enterprises to grow and scale their operations.

kLab brings together a consortium of international partners

Jon Stever, founder of The Office, and Maria Mayanja, of the Impact Hub Kilgali

Conclusions

My research set out to understand what the UK can learn from SSA across a number of key areas:

- The extent to which the UK social tech scene is over engineering products
- How the UK can enable better adoption of social technology interventions from SSA
- The extent to which products and services from SSA could be scaled to the UK
- Whether the strength of the scene in SSA is a focus on a small number of successful entrepreneurs, or whether there is a significantly stronger social tech environment than in the UK
- What the barriers and enablers are at different stages of development of a social technology community

These questions have been well answered by the Fellowship research.

Over engineering and technology choices
Many African entrepreneurs do make better use of 'older' technologies, such as SMS, than their UK counterparts. But this is largely determined by the technology availability of the marginalised populations SSA entrepreneurs are targeting. That said, there are significant skills gaps in SSA that are impeding these organisations from developing alternative technology options. One prevalent example I saw was a shortage of engineers skilled in developing 'internet of things' applications. These skills gaps need to be addressed if the relevance of social technology interventions are to keep up with the pace of technology availability and ownership in SSA. However, the UK social technology scene needs to keep focused on using technologies that are appropriate for the user group of their interventions - and be aware that frequently these are different from broader technology consumer trends.

Adoption of services
Adoption of services was a challenging area. The socio-economic environment in the countries I visited made the impact of African social technology ventures clearer and more identifiable than the UK counterparts. In the countries I visited in SSA, for the most part there were very few public services operating effectively due to the lack of resource and infrastructure. In this environment, any type of support to marginalised communities, offered by social technology ventures or otherwise, is more notable. In relation to this, the size of the population is so large and so in need, that any effective interventions that can scale easily, such as the digital interventions I visited, have the opportunity to engage larger numbers of people in need. The lack of provision, numbers involved and level of need make it easier to identify the value of these services than in the UK, where organisations may be operating alongside other public services.

However, there are significant opportunities in the UK to see how these incumbent public services can be better integrated with the potential of social technology. This could be through incumbent organisations using more social technology ventures in their supply chain, or encouraging intrapreneurship in existing incumbent organisations.

Scaling
There are limited opportunities for African social technology entrepreneurs to immediately scale services to the UK without extra resource because of the work needed to adapt them to the differing social and policy environment. However, where there are similar problems, such as youth unemployment, there could be value in sharing platforms and approaches that could be appropriated. In the short term it would be best enabled through directly connecting the individuals leading projects and organisations with similar aims. Equally

however, there may be more systematic opportunities to enable the reuse of assets across organisations operating in the UK and SSA. For example, a requirement to open source and document code which has been funded by charitable foundations or international aid funding.

There are also policy barriers to international collaborations and the enablement of cross-country investment. Within African countries entrepreneurs face restrictions, for example several of the ventures operating in Ethiopia struggled with government restrictions in everything from taking foreign investment through to obtaining work visas for their staff. Equally investors and procurers in the UK face challenges, for example some impact investors are limited by financial regulations which mean they can only work with UK registered organisations. These macro political conditions, set by national governments, have the beneficial effect of supporting national entrepreneurs, but negatively impact international collaborations and exchange.

Strength of the Community
During my Fellowship research I did not find that there were better digital service delivery models operating in SSA than in the UK. The UK has just as many innovative ideas and a greater capacity of skills and infrastructure to realise the potential of social technology. However, there are two key factors that make Africa social technology appear more effective. Firstly, the African technology sector has mainly been powered by a large growth in foreign aid funded technology incubation hubs. This has meant that the prevailing culture in the technology scene is more predisposed to supporting more social orientated projects, rather than purely commercial ones. Secondly, the lack of public service infrastructure across SSA meant that the pressing problems entrepreneurs are focussing on are more social in their nature anyway, such access to energy, healthcare or education. In the UK the presence of public institutions delivering these services means that on the most part, these issues are being (partially) addressed for most of the population.

Recommendations

Explore and incentivise alternative models of social enterprise
Many funding organisations and impact investors preference a model of social enterprise which is based on redistribution of profits as a primary social accountability mechanism. This is limiting innovation and development in effective business models for social entrepreneurs. Work should be undertaken to test and explore alternatives to this instead. For example, social investors and funders prioritising social impact KPIs that directly correlate to business KPIs - rather than separating these out into two different areas. Doing this ensures that foundations and impact investors have the confidence that their funds are being channelled towards social impact areas, but that the business knows that doing this will not limit their operations or attractiveness to future investors. Moreover, it ensures that social business growth is directly correlated to greater social impact.

Links between incumbent and social enterprises
Given that UK social technology projects are operating alongside, and between, other public services. These need to be better linked to avoid duplication of services and their mutual enhancement. This could be through

- More open procurement practices and opportunities to involve social technology enterprises in the supply chains of incumbent public service organisations. This includes greater transparency of procurement processes and clearer specifications on procurement restrictions. Equally however, better collaboration between these two types of organisations could enable incumbent organisations to manage the potential

risk of using SMEs in their supply chain, and support social technology organisations to target their services more effectively.

- A second area of opportunity would be enabling more intrapreneurship in incumbent organisations. Programmes which support intrapreneurs to couple their knowledge with externally 'brought in' design and digital skills could generate targeted digital products which capitalise on the scale and reach of incumbent public sector organisations. For example, the FUSE accelerator programme from CAST[16] is designed to do this for medium to large charities. Such programmes could be usefully applied to public sector organisations.

Technical skills
There are several African organisations who are training individuals from marginalised communities in coding to support their employment prospects. More focus needs to be placed on this in the UK. Few employment programmes focus on these skills, yet they are some of the most in demand in the job market. There are two options to do this rapidly and effectively: existing coding schools enable more open access, or new schools are created that are geographically located those communities in need. There are pros and cons to both sides. Moving individuals out of their local areas can enable them to participate in a new culture and context. Equally hosting schools in the local environments can provide more equitable access. Since the Fellowship ended I am working on a project to develop this work and am currently in conversations with funders.

Accelerators
Incubators in SSA could learn from existing US and UK models. Particularly the focus on moving organisations along a trajectory of growth with specified targets and more defined programmes of support. Most effectively this learning is likely to be done between linking individuals from SSA incubators with UK partners for mentoring and support. I have made connections between individuals in the UK and those running accelerators I visited in SSA to enable this process.

Bottom of the business pyramid models
The UK social technology scene could learn a lot from 'bottom of the pyramid business models which have been developed across SSA. Scoping work to explore sectors and areas of opportunity for where this could work effectively in UK could be transformative.

[16] wearecast.org.uk

Appendices

Appendix A - Trip Itinerary and Meetings Conducted

Places Visited	Organisations / individuals visited
13th Jan - 20th Jan: Cape Town, South Africa	Aunnie Patton, Innovative Finance Lead, Bertha Centre for Social Innovation Sarah-Anne Arnold, Solution Space Manager, Bertha Centre for Social Innovation Elizabeth Gould, CEO, Project Codex Maximilian Pichulik, CEO, Impact Amplifier Marlon Parker, CEO, Rlabs Ravi Nadoo, CEO, Interactive Africa Ennnis Jones, CEO, Obami Yassen Khan and Dr Mohammed Dalwai, Directors, Open Medicine Project Glen Stein, Tech Lead, Aweza Roger Norton, CEO, Play Logix
20th Jan - 27th Jan: Johannesburg, South Africa	Sam Manclark, Hub Manager, Jozihub Gustav Praekelt, Director, Praekelt Foundation Derrick Kotze, CEO, mLab Josiah Eyison, Founder, iSpace
27th January - 4th Feb: Kigali, Rwanda	Jon Stever, Founder, The Office Maria Mayanja, Founder, Impact Hub Kigali Aphrodice Mutangana, General Manager, Klab Mesh Power team, included site visit and film making Safemotos Founder and Development team, included filmmaking Julienee Oyler, Founder African Entrepreneur Collective

4th Feb - 12th Feb: Kampala, Uganda	Barbara Birungi, Founder & CEO, Hive Colab Development Data Hub team (Development Initiatives) Alex Okwaput, CEO, Kampabits Richard Zulu, Community Manager, Outbox Accelerator Roy Gakuo, Country Director, Mara Foundation Solomon King, Founder & CEO, Fundibots Hilary Miller-Wise, CEO, Esoko Asia Kamukana, Executive Director, Maendeleo Foundation
12th Feb - 20th Feb: Addis Ababa, Ethiopia	Hosted by Ice Addis Incubator team Abel Asrat, CEO Addis Insight Eskinder Mamo, Founder, Ahadoo Tec
20th February - 3rd March: Nairobi	Douglas Ogeto, Founder, Founders Hive Josiah Mugambi, Executive Director, iHub Shelia Birgen, Executive Director, mLab Angela Oduor Lungati, Co-Founder, AkiraChix Illuminum Greenhouses team Echomobile Founding team James Wachira, Country Director, Mara Foundation Jay Larsen, CEO, Tunapanda, including visit to centre in Kibera slum Kenfield Griffith, CEO, mSurvey Kytabu Founding team Hannah Clifford, Operations Manager, Nairobi Garage Tech for Trade leadership team Su Kahumbu, CEO, iCow Attended Sankalp Africa Summit http://www.sankalpforum.com/events/sankalp-africa-summit-2016

Appendix B - Press and PR

Series of articles published on Tech for Good TV http://www.techforgood.global/blog/

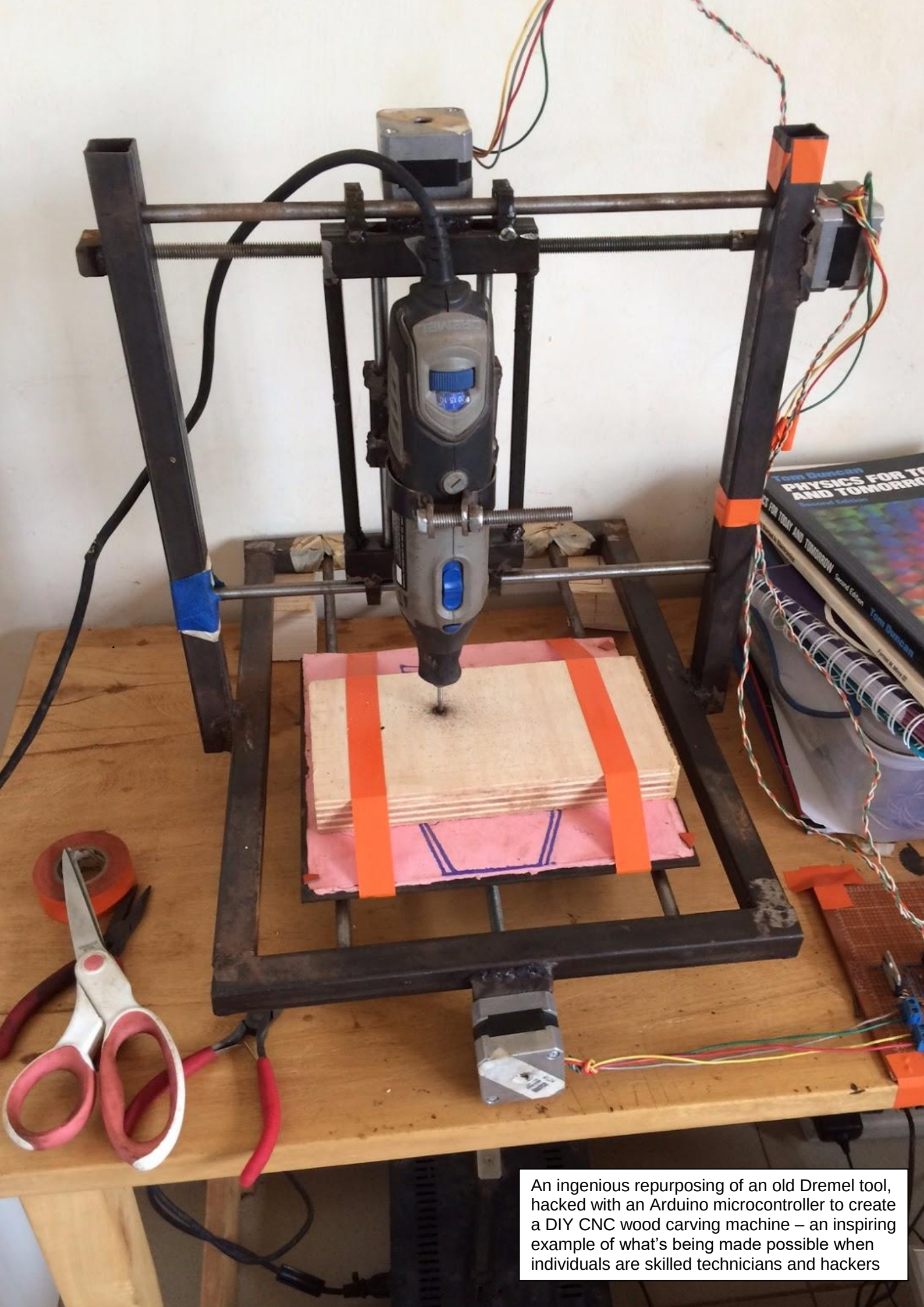
Series of articles commissioned by the Nominet Trust – currently being pitched to PR agencies but includes coverage in VentureBurn http://ventureburn.com/2016/04/rwandan-motorcycle-taxi-startup-can-teach-uber/

Series of blogs posted on Medium https://medium.com/@kieron_75142/

Film produced for SafeMotos https://www.youtube.com/watch?v=95xtY2azMh4

Film produced for Mesh Power - current in post-production

Podcast produced for TunaPanda - currently in post-production



An ingenious repurposing of an old Dremel tool, hacked with an Arduino microcontroller to create a DIY CNC wood carving machine – an inspiring example of what's being made possible when individuals are skilled technicians and hackers