TrueFootprint, Ltd.: a case study in the use of SME innovation to combat the COVID-19 pandemic

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Abstract

Purpose – This case study aims to explore the efforts of a small start-up company, whose unique solutions are being deployed in the fight against COVID-19, with encouraging results. Using innovative technology and local volunteer networks, they have set out to identify the medical needs of local care providers, while reducing the effects of fraud, corruption and mis-management.

Design/methodology/approach – This case study involved the interrogation of data made available by the company and an interview with the chief executive officer.

Findings – The research suggests that small enterprises can have a positive impact, far beyond what either the state or the market might assume. By properly equipping and empowering people at the grassroots level, they can identify and solve local resourcing issues and root-out fraud, corruption and mismanagement before they happen.

Originality/value – This is a unique approach to the problem of resource management in the non-profit sector, with implications for grant projects beyond the COVID-19 pandemic.

Keywords SME, WHO, COVID-19, Pandemic, Innovation, Majority world, Direct investment, Investors, Start-up, Technology, Solutions, PPP, Self-advocacy, Empowerment, Analytics, Ethics, Data protection, Impact measurement

Paper type Case study

Since being declared a pandemic by the World Health Organization on March 11, 2020 (WHO, 2020), the COVID-19 virus has cost the global economy an estimated US$16tn (NBER, 2020), including more than US$10bn (HHS, 2020) of direct government investment in Operation Warp Speed [1] alone. Despite the unique capability of governments and central banks to infuse the economy with liquidity, it is only through the efforts of private enterprise that these investments ultimately bear fruit. While it is understandable for governments and private investors to focus on the sheer scalability of large multinational corporations to produce the therapeutics and vaccines necessary to combat a deadly pandemic, there are other, less visible and far less costly opportunities for small- to medium-

sized enterprises to deploy innovative technologies in the battle to save lives and reduce human suffering, especially in smaller and less affluent countries. This article explores the efforts of one such company, TrueFootprint, Ltd., a Cambridge (UK)-based start-up whose unique solutions are being deployed on a pilot basis in the Majority World, with encouraging results.

Before the pandemic

Fredrik Galtung is a man who knows all too well; the three-headed beast that haunts the world of international development, otherwise known as: fraud, corruption and mismanagement. Having spent ten years at the anti-corruption advocacy group, Transparency International, he saw first-hand the pros and cons of trying to address these issues from the "top, down."

Despite producing such useful tools as the Corruptions Perception Index [2], and working successfully with the United Nations and other intergovernmental bodies, to enact binding anti-corruption legislation; their efforts are generally limited to policy-level actions that miss a major source of fraud, corruption and mismanagement, namely, "bad actors" operating at the last mile of projects and services. "How?" Galtung thought:

> [. . .] can we empower people working on the front-lines of development projects, especially the intended beneficiaries, to audit these projects in a way that would both root-out fraud, corruption and mismanagement, and improve the efficiency of their projects in the process? [3]

This question led to Galtung envisioning a very different kind of advocacy group, one that successfully addresses the problems of fraud, corruption and mismanagement, not from the "top, down," but from the "bottom, up". Integrity Action (formerly known as Tiri) is a non-profit organization that has successfully monitored over $1.2bn worth of development projects in dozens of countries, by training local "monitors" to identify and fix problems, in real time. Using smartphone technology, and an app known as DevelopmentCheck[TM], they not only identify problems in the field, they share their findings with local contractors, non-governmental organization (NGOs), government authorities and other stakeholders, to develop cost-effective and timely solutions to those problems [4]. To date they have fixed 4,000 problems, out of 7,000 identified by local monitors (a 57% "fix-rate") [5], and are currently working on over 500 projects across Africa, Asia and the Middle East.

Seeing the effectiveness of this approach, Galtung turned his attention to the more complex problem of sustainability reporting in the corporate world. It is well known among environmental advocacy groups, that a company's actual environmental and social footprint, can only be measured, if the impact of its entire supply chain and product life cycles are taken into account. By using the "bottom, up" approach that he and his partners had developed at Integrity Action, and by redesigning the user-friendly, hand-held technology that had empowered local monitors to audit development projects, Galtung believed that multinational companies could also benefit from data captured this way, directly from the producers and communities at the base of supply chains. TrueFootprint was born from this idea. Then came the pandemic.

COVID-19 – a unique set of challenges in the majority world

When COVID-19 hit the headlines in January of 2020, little was known about the novel virus, other than the deadly effect it was having in Wuhan, China. In the earliest stages of the yet-to-be declared pandemic, health officials at the WHO were not even sure whether it was spread through human-to-human contact, much less through air. As the evidence mounted, however, it was clear that the deadly disease was indeed an airborne virus that passed easily

from person to person, and on March 13, 2020, the WHO officially declared it a pandemic, calling for countries to "take urgent and aggressive action" [6] against its spread.

Despite countless warnings from epidemiologists [7] that such an event was virtually inevitable, the world was caught flat-footed, especially, as it related to personal protective equipment, aka PPE. In the USA, the first concern was for health-care workers working on the front lines in hospitals and clinics around the country who were in desperate need of masks, gloves and shields. Dr Patrice A. Harris, President of the American Medical Association, famously implored the Trump Administration to make PPE a national priority:

> Physicians and front-line health care workers across the country are pleading for more personal protective equipment (PPE), doing everything they can to raise awareness of this crisis. Those on the front lines of the COVID-19 pandemic are concerned that the lack of adequate PPE endangers not only themselves, but their patients and families as well [8].

The pleas would generally go unheeded, however, as the Administration refused to invoke the Defense Production Act to increase PPE supplies [9]; and individual States competed with each other and with the Federal Government itself to procure whatever PPE they could. The situation became even more critical, as private citizens themselves began to purchase medical-grade masks; many users resorted to re-using disposable products; and others made non-medical-grade products on their own. This was happening in the richest country in the world. And as is often the case, the situation was potentially more dire in the countries of the majority world, and especially in sub-Saharan Africa, Southeast Asia and parts of the Middle East.

In a report published in July 2020 – *Strategies for managing acute shortages of personal protective equipment during COVID-19 pandemic* [10] – Africa CDC gave specific guidance on the preservation and rationing of PPE, including the decontamination and reuse of masks, the use of face shields when masks are not available, the use of gloves for direct patient care and the reuse of disposable gowns. However, little guidance was given on the procurement and effective inventory management of PPE. Shortages, it would seem, were merely assumed and pilferage, no doubt, highly anticipated.

In August of 2020, the COVID-19 Action Fund for Africa (COFA) announced its efforts to raise US$100mfor the procurement of PPE, noting that:

> While a global shortage of PPE is affecting all health workers, the brunt has fallen on low- and middle-income countries and community health workers in particular. In the absence of PPE, community health workers put themselves and the people they serve at risk. The current drop in access to PPE in Africa has already been followed by a 203 % increase in COVID-19 infections among health workers. The experience of past epidemics, including the 2015 West African Ebola crisis, has shown that disruption of essential health services often leads to higher mortality rates than the epidemic itself [11].

The plan called for supplies to be centrally procured, then unloaded at major ports of entry, where local COFA partners and Ministries of Health would distribute them across the 24 countries involved. While this was no doubt welcome news to the community care workers and the patients they serve, there was still the aforementioned problem of fraud, corruption and mismanagement that could easily bedevil the program and put thousands, if not millions of lives at risk.

Enter TrueFootprint, Ltd. and the COVID-19 Care Monitoring Coalition (CCMC).

Developing a solution

The term "pivot" is an overused expression. It is often used to describe what is actually no more than a logical response to market conditions. Change is a natural part of the business process, and those companies that do not adapt to change will soon become obsolete.

A "pivot" however, is when a company chooses to move in a completely new direction, requiring a total re-imagining of the business, its mission and its objectives. This was the case with TrueFootprint, when it saw an acute need in the fight against COVID-19 in the Majority World and decided to re-engineer its business model to meet that need.

Calling upon his 20 years of experience in the development sector, Fredrik Galtung knew, (even before the COFA announcement), that a huge influx of both governmental and philanthropic money would create an environment too tempting for the previously described "bad actors" to ignore. He also knew that the distribution challenges of a multinational effort conducted in places where infrastructure and other public services are limited would undoubtedly result in an uneven distribution of resources and unnecessary PPE shortages at the local level. He believed, however, that the technology the company possessed could be deployed in this context. And if he was able to put his technology into the hands of healthcare workers and patients with chronic medical conditions – two of the groups with the most at stake in terms of their risk to infection – it might be possible to produce the insights and support self-advocacy for improved safeguards on the ground.

The company started by focusing on "one key data point," i.e. "are the health facilities safe: safe for the people who work there [. . .] (and) safe for patients, especially those in high-risk categories?" This one metric has driven the entire CMC project, with the ultimate aim being to "improve health outcomes [. . .] (and) reduce infection and mortality rates for health workers" [12].

Finding local partners

While the technicians concentrated on the redesign of the TrueFootprint FieldApp (more on that below), Galtung and his team began assembling the networks necessary to establish an effective "coalition" of partners. Drawing on their own vast database of contacts, the company was able to team up with a remarkably diverse group of partners, including several Ministries of Health, well-known global health donors such as the Global Fund [13] (co-founded by Bill and Melinda Gates), members of Catalyst 2030 [14] (an expansive network of social entrepreneurs dedicated to achieving the United Nation's Sustainable Development Goals by the year 2030), and countless other local partners and healthcare providers, who today, constitute over 90% of the CCMC network .

As their own internal documents note:

"The Covid-19 Care Monitoring Coalition (CCMC) is a network supported by a set of self-advocacy tools for health workers, at-risk populations, and local communities. It enables this by:

- Providing granular data dashboards that are easily customised to address the specific needs and entitlements of at-risk groups, which helps to facilitate their self-advocacy with the policy makers and local officials with whom groups often already have prior relationships.
- Sharing insights across the network of how specific problems were solved.
- Providing a live data feed (and PDF reports) to relevant health officials.

Crucially, it provides a real-time data feed and knowledge sharing of:

- The *resolution-rate* of identified problems.
- *Where* they are being solved.
- *How* problems are being solved (and then sharing these experiences across the network so that they can be replicated and emulated elsewhere).

- As well as eventually identifying *Who* is doing the solving and giving these people or organisations recognition for this if they are open to receiving it.

All the emphasis and all the incentives are geared towards solving problems, not just identifying them. Problem-solving is ultimately what empowers and motivates self-advocacy and what will contribute to better health outcomes for affected workers, populations and communities" [15].

Equipping and training health workers in this way, empowers them to meet the needs of their local populations, without having to wait until external auditors identify shortages, or worse, criminal networks steal and sell the PPE intended for use in their local communities on the black market. This is a problem that has dogged the distribution of PPE from the outset of the pandemic [16].

Finding, training and supervising local monitors is no small task. It is replete with technical and ethical challenges. To ensure their monitors are neither tempted to operate outside the bounds of both law and ethical custom, nor ill-equipped to do their jobs effectively, the Company has established a robust protocol for both "digital inclusion," "data protection" as well as a code of conduct for the monitors.

Local partners for instance, are required to provide monitors with the telephony and connectivity necessary to carry out their assigned tasks; and in extreme cases, provide manual (i.e. "pen and paper") formularies as an alternative. The data protection policy meets or exceeds the EU's General Data Protection Regulation; monitors are eligible for a "certification" process, that includes advancement to "Advanced Monitor" and "Supermonitor" status; and all monitors are asked to sign a detailed "Code of Conduct." The firm's commitment to the development of local monitors is so central to the ethos of the program, that local partners are asked to commit 7.5% of their operating budgets to "Monitoring, Evaluation and Learning (MEL)" [17].

Technology development (minimally viable product) and proof of concept

To roll-out the program as quickly as possible, the company concentrated on the delivery of a "minimally viable product" (MVP), that could be tested in the field among a handful of partners, establishing "proof of concept" at very little cost. This meant developing a basic Android-use version of the FieldApp, that may be easily adapted for iOS use at a later date if required [18]. Other attributes of the app and the process connected to it are that it: only requires a few minutes of training; can generate reports in a matter of minutes; and may be used off-line for audits, and on-line for data sharing.

As the screen shots below demonstrate, the information requested is relatively basic, but extremely critical. Users can simply tick a few boxes, and the information on the ground is captured in "real time" (Figure 1), allowing local monitors to react quickly to local shortages. As the data from various locations are automatically collated however, patterns across regions and even countries can be identified, so that authorities in those jurisdictions can respond accordingly and quickly (Figures 2–5).

Two-week pilots were trialed in 26 countries on five continents with sufficient results to convince the company to proceed with the further development of the FieldApp and to raise the funds necessary to scale the program accordingly.

Finding investors and the road ahead

Again, as their internal documents state:

Successful execution of this project depends on a combination of factors...(including)

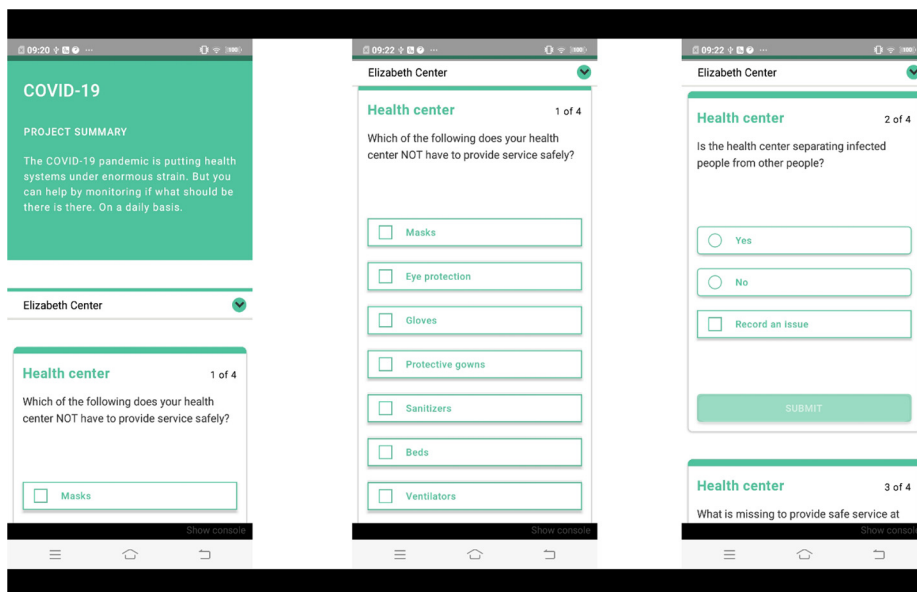- *Scalable technology:* The core technology must be user-centered and truly built for scale.
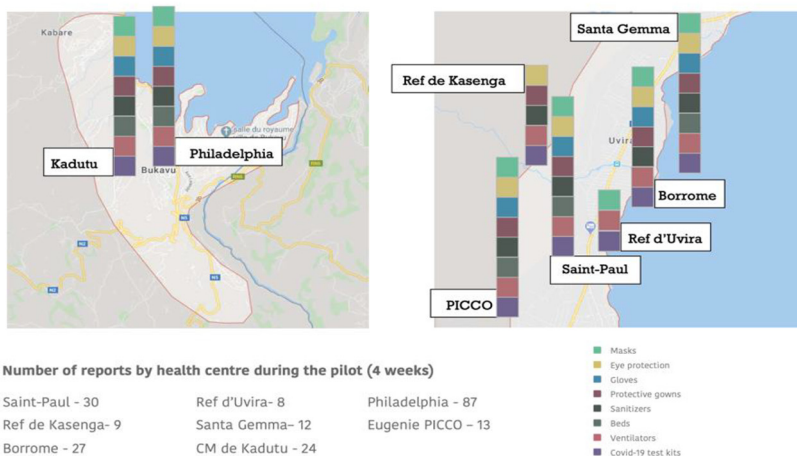
Figure 1.
Fieldapp checklist

Figure 2.
Fieldapp missing
item report

- *A credible theory of change:* The theory of change is that the people with the most at stake (in this case health workers and at-risk groups) are the best possible changemakers because they are motivated and they see the problems first hand and in real-time; these people benefit from a solution that is secure, that safeguards their
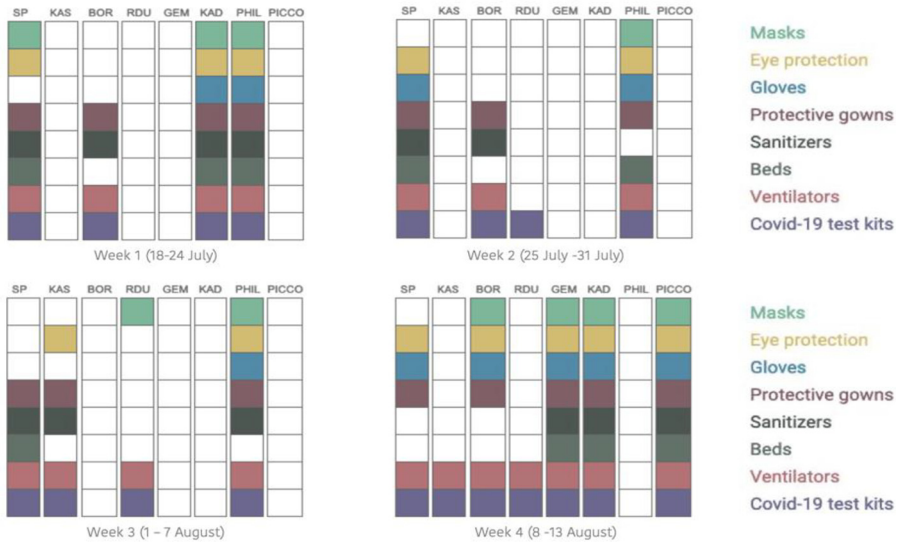
1. Reports of missing items by health centre over time

Week 1 (18-24 July)

Week 2 (25 July -31 July)

Masks
Eye protection
Gloves
Protective gowns
Sanitizers
Beds
Ventilators
Covid-19 test kits

Week 3 (1 – 7 August)

Week 4 (8 -13 August)

Masks
Eye protection
Gloves
Protective gowns
Sanitizers
Beds
Ventilators
Covid-19 test kits

Figure 3.
Fieldapp missing
item report
(over time)

2. Reports of separating patients by location

- Over the entire pilot period there were **25** reports of patients being mixed and **12** of separation.
- In the last week **11** reports of patients being mixed and **0** of separation. The week before **5** reports of mixing.
- The colour bars below indicate whether there was at least one report for mixing patients:

Separated
Mixed
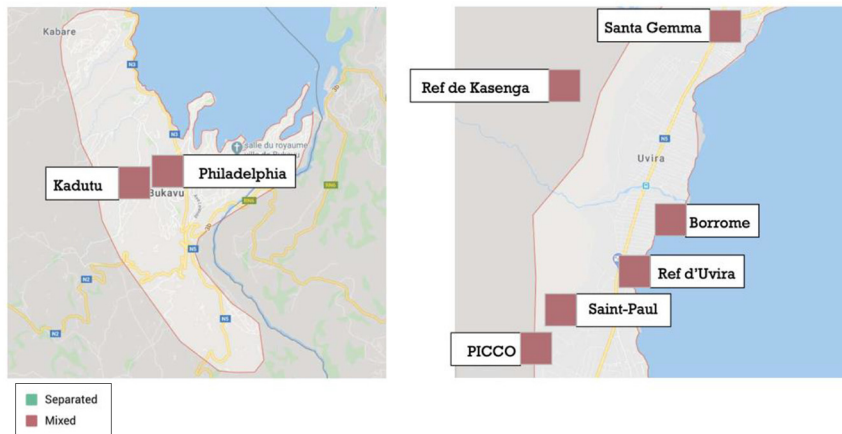
Figure 4.
Fieldapp missing
patient report

confidentiality and that enables them to create a collective voice; people who are successful changemakers are delighted to get recognition for their achievements, leadership and innovations and are happy to share this with their peers; and insights learned from peers tackling similar problems elsewhere are rapidly adopted.

4. Issues over time

Issues over time across all health centres
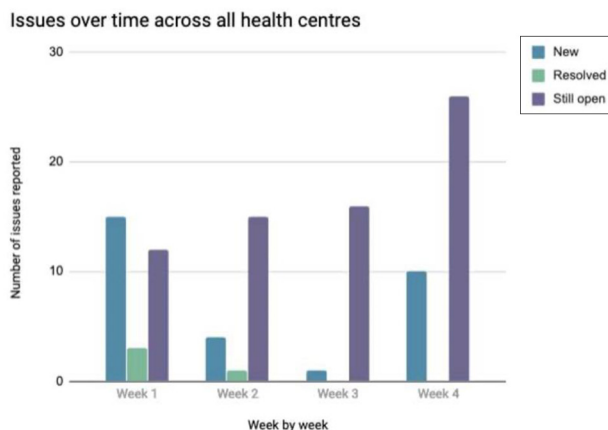
Figure 5.
Fieldapp issues
report

- *(Expanded) Distribution networks:* (As noted above), the CCMC's main distribution network is Catalyst 2030 a collaborative of 300+ social entrepreneurs who operate in 160 countries combined and that cover more than 90% of the SDG targets. The majority of the current partners of the CCMC are members of Catalyst 2030 or their national partner organizations. In the coming months (they) will also be seeking partnership with major international networks [. . .] and major health INGOs.
- *Data and evidence:* The production of real-time, verifiable data is a key output of the CCMC. The utility of the CCMC is tested further through controlled studies overseen by researchers and data scientists independent of TrueFootprint and the CCMC.
- *Local ownership:* Adoption and sustainability require local ownership. Over 90% of the partners in the CCMC are local organizations. The main stakeholders are 100% local.
- *Government buy-in:* Scale-up and long-term adoption will depend on adoption, in this case, by national and local health authorities, including the Ministry of Health. In several countries already, national and local health authorities have given their support to the national scale-up efforts[18].

To do these things effectively and at scale, it is necessary for the company to raise approximately $3 Million Euros (US$3.6m). These funds will be used to complete the development of the FieldApp, and to roll-out the program, at scale across several targeted countries/territories, covering an estimated 130 million people.

In time, the company expects to become financially self-sufficient by monetizing the use of their model and their technology, without having to charge impoverished communities or organizations a fee for their services. As they state in one of their prospectus documents:

"Our eventual goal is to provide the FieldApp and all its key features for free to organisations that work directly with communities, including to governments in Middle Income and Least Developed Countries.

We have three main ways of generating revenues for TrueFootprint to sustain this technology and still be in a position to provide it for free for end-users and the organisations that service and support them:

(1) TrueFootprint's core value proposition is to provide better impact and sustainability data for the asset management industry, corporates and through them to their key suppliers. These services are provided on a commercial basis.

(2) We are testing a business model wherein systematic data collection, for example in projects funded by aid donors, foundations and corporate CSR, will include micro-payments to certified monitors, and more significant payments to people who qualify as "Supermonitors"; in such a scenario TrueFootprint would charge a transaction fee as a percentage of those payments.

(3) Commercial arrangements on large projects, such as projects with more than 1,000 users.

All the tech we build in the context of CCMC is instantly reusable for non-Covid-19 use cases in support of these self-funding value propositions."[18]

While the testing phase has gone better than anticipated, and more potential partners have been approached and expressed interest in the CCCM program, as of this writing, the principals are still in the process of raising the funds necessary to take the company to the next level – a phenomenon well attested in the Impact Investing space, and beyond the scope of this article [19].

Observations and conclusions

The ongoing need to raise additional capital notwithstanding, (the money required by TrueFootprint is tantamount to a "rounding error" in the overall scheme of things COVID-19 related), TrueFootprint is a success story in-the-making.

They have demonstrated the power of creative thinking in the face of potentially existential threats. They have shown how small companies with good ideas can have a positive impact, far beyond what either the state or the market might assume. They have proven, once again, that people at the grassroots level, if properly equipped and empowered, are the ones best suited to identify and find solutions to problems, not to mention root-out fraud, corruption and mismanagement before they happen.

TrueFootprint is the epitome of how small, privately held companies can positively impact society. It is now up to socially conscious private investors, and associated stakeholders to invest in their continued success.

Notes

1. Operation Warp Speed is the US Government's program to support the development, procurement and distribution of several COVID-19 vaccines, in partnership with multiple pharmaceutical companies in the USA and abroad. Similar programs are being run by other governments, most notably in the UK.

2. www.transparency.org/en/cpi/2020/index/nzl

3. The author interviewed TrueFootprint chief executive officer, Fredrik Galtung on January 13, 2021.

4. https://integrityaction.org/devcheck/about-us

5. www.integrityaction.org/what-we-do/impact/

6. https://apnews.com/article/52e12ca90c55b6e0c398d134a2cc286e

7. For a prescient warning, readers are directed to: Quick (2018).

8. www.ama-assn.org/press-center/ama-statements/ama-urges-critical-steps-protect-frontline-health-care-workers.

9. The Defense Production Act was used to increase the number of ventilators, respirators and other medical devices, but not PPE.

10. https://africacdc.org/download/strategies-for-managing-acute-shortages-of-personal-protective-equipment-during-covid-19-pandemic/

11. https://reliefweb.int/report/niger/coalition-launches-100-million-ppe-initiative-africa-s-community-health-workers

12. This and other elements of the business plan are taken from an unpublished internal company document. More information on the Care Monitoring Coalition strategy may be found at: www.truefootprint.com

13. www.theglobalfund.org/en/covid-19/

14. https://catalyst2030.net

15. This and other elements of the business plan are taken from an unpublished internal company document. More information on the Care Monitoring Coalition strategy may be found at: www.truefootprint.com

16. www.asisonline.org/security-management-magazine/latest-news/today-in-security/2020/april/ppe-shortages-fuel-black-market-recalls-confiscations/

17. This and other elements of the business plan are taken from an unpublished internal company document. More information on the Care Monitoring Coalition strategy may be found at: www.truefootprint.com

18. Android is by far the most commonly used smartphone platform in Africa.

19. https://knowledge.wharton.upenn.edu/article/whats-next-for-impact-investing/

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