Drone Ports

Infrastructure & Gender

A study into the hypotetical relationship between
the Redline drone infrastructure and its Drone Ports

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# Contents

The *Redline* Concept

Africa is one of the fastest growing economies in the world. However, their infrastructure is not developing with the same pace. According to architects Fosters + Partners, only 1/3 of Africa's population lives within 2km of an 'all-season road' and even these roads can often be in terrible conditions (Norman Foster Foundation, 2016). As an opportunity to leapfrog Africa's infrastructure ahead, Africanist *Johnathan Ledgard* saw an idea in the emerging drone technologies. Ledgard and his many partners are investigating the opportunity to use the airspace above the hostile African terrain to transport goods between towns and villages. One of his partners; Norman Foster, founder and executive chairman of Fosters + Partners has been leading the process of developing a architectural concept for the drone 'airports', the place where the drones can land to be re-stocked, re-charged etc. Together with EPFL and several other universities, Foster + Partners have created the Drone Port. A concept consisting of a simple structure that is acting as a hub and support system to the drone traffic. At the time of writing this, the concept is still under development and is still merely a concept.

Ledgard is proposing that the first phase of the project will be focused on transportation of medicines and other health related necessities like blood, hence the name Redline. As the technology evolves and the infrastructure grows, the Blueline will come into place, transportation of 'general goods'.

In this written work I will investigate the hypothetical relationship between the Drone Port and the Redline drone infrastructure and how it could affect the communities involved with this new infrastructure.

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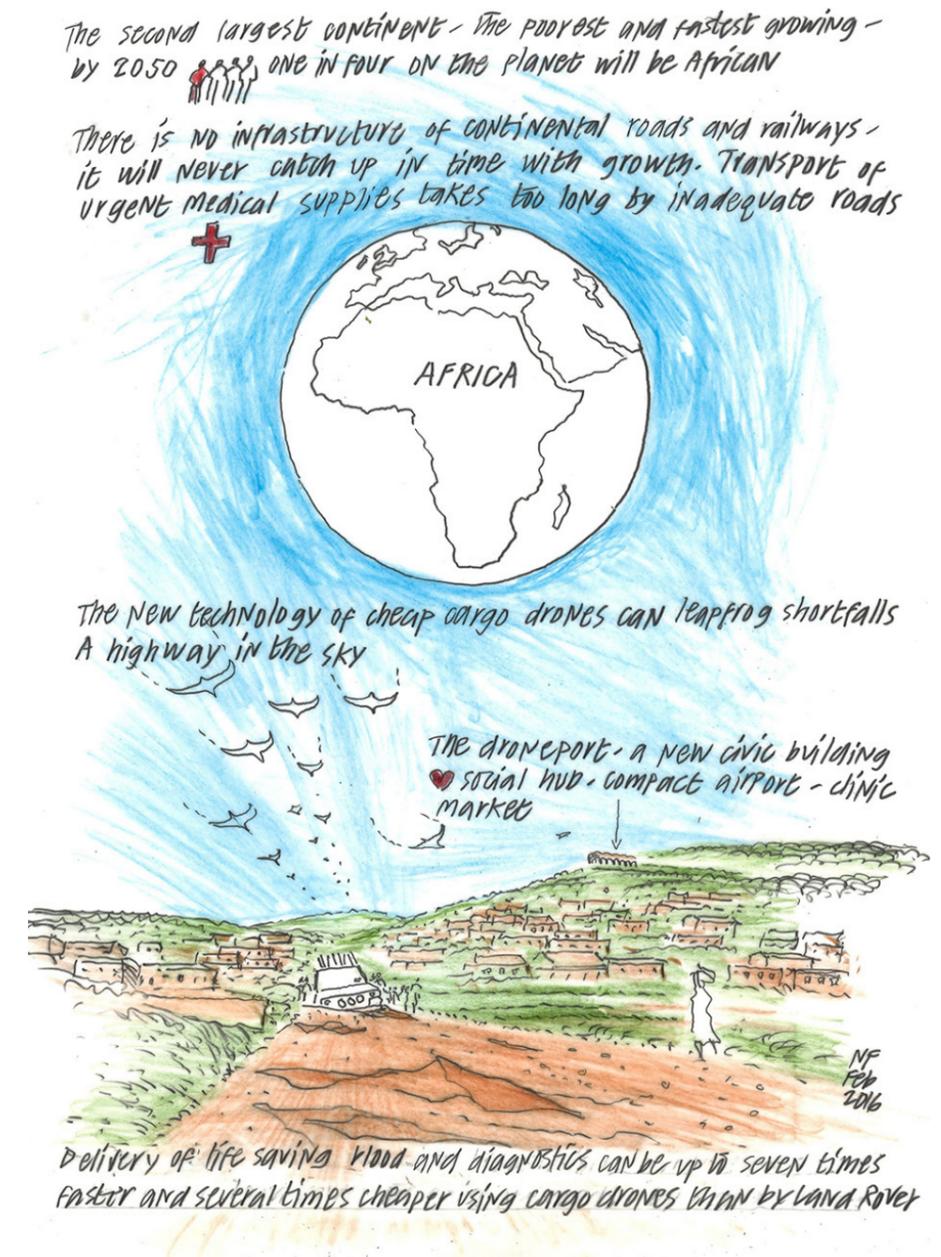
Gendered Infrastructures

"Calculated indolence on the part of the architect … produces great work by others"
– Cedric Price

I find it interesting how this new technology could potentially affect less developed parts of the world, in particular its effect on gender equality. How would they use it and would it be helpful?

The architecture of the Drone Port is deliberately designed as a mere framework which the community can inhabit and change however they see fit. The idea is that the community; people of different ages and gender will to some degree take ownership of the spaces and the place created by the architecture.

The architecture of the *Drone Port* is a simple vault structure constructed by the local community using local materials. It almost sounds absurd that multiple great organisations such as MIT, ETH, EPFL, Fosters + Partners and more has been involved in a project that is currently a simple structure. No matter what, it is arguably a good design fit for purpose. I believe this is where Cedric Price's quote about the Architect's indolence should be remembered (Easterling, 2018). The users are meant to adapt the structure to their needs and therefore create a place which is more than just an infrastructural hub. I suppose you can also draw parallels to many of Price's unbuilt ideas, i.e. the *Fun Palace*, a 'framework', designed to be altered by and adapted to the user. *Keller Easterling* describes Price's architecture like this: 'His constructions were essentially choreographies of human and non-human actors unfolding over time', (Easterling, 2018). One can argue that the Drone Port allows for more important choreographies to take place than the ones imagined by Cedric Price in his Fun palace as it will serve the Redline drone infrastructure. An imagined infrastructure that will fast forward Africa's transportation infrastructure, in particular its tranportation of medicine, medical equipment, etc. and hopefully save lives by doing so.
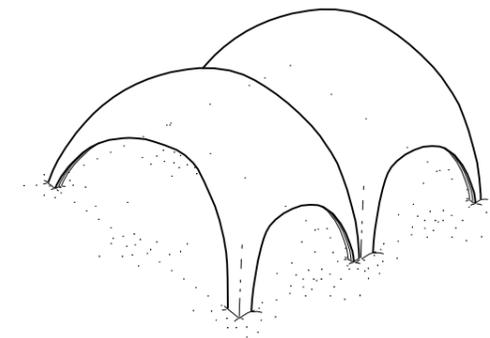
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Infrastructural Vulnerabilites

Early in the interview with *Judith Butler* by *Arne De Boever,* Butler says that 'right of assembly has often been understood as an abstract right without thinking about the fact that it requires bodies to come together' (Butler and De Boever, 2015). I find this very interesting as we are living in a time when the internet plays a massive part in how we communicate. Of course, it would depend on how one defines such terms as 'assembly' and 'bodies', but at first it seems almost obvious that that statement is no longer true. One could point to the Arab Spring, a series of mass demonstrations that started in 2010 against various regimes in North Africa and the Middle East. The first demonstration is said to have started through online 'assembly' on various platforms, with Twitter arguably being the most important one. When assembling through the internet there is no need for bodies to come together, people communicate and express their voices via the cloud instead. One could of course argue that the people are coming together via physical servers and the demonstration is therefore still in need of physical space, however I believe that is not relevant in this case. Being able to express oneself through the internet also plays a massive role in terms of who's demonstrating, people more vulnerable to physical presence in a physical assembly are arguably more likely to raise their voice online, this is of course an effect which can have both positive and negative consequences. If we go back to the Arab Spring, we find that the demonstrations eventually evolved to physical assemblies. People were going out in the streets and assembled in physical public spaces. This seem to be the recipe for most demonstrations today, first and partly online, then eventually physical assemblies. One can therefore argue that public spaces may not be essential to our right of assembly, but it plays a very important part. However, that argument relies widely uninterrupted access to the relevant online platforms and the infrastructure that is the internet. What happens when that infrastructure breaks down, or when people do not have access to it in the first place? It seems that we fall back on that right of assembly requires a physical space where bodies can come together to communicate and express their opinions.

Although the primary function of the drone port is to physically exist and to act as a base for drones sending and receiving goods it also has important bi-functions. The concept of the Redline drone port involves an architecture that the community would be able to build themselves. This would of course be a cheaper and more realistic approach to realising the concept. One can also argue it would strengthen the community's relationship with the drone port, it could allow the community to take ownership of it and use it. This brings us to another bi-function which Ledgard and his team are hoping to happen; that it would essentially act as a community meeting place (Ledgard, 2016). In a sense, the community would be creating its own public space that could be used for assemblies. As the drone ports are connected to a larger system, it could also be seen as a great place to demonstrate in terms of outward attention. There are of course several problems arising parallel to this, one being the vulnerability of the demonstrators using a potentially essential piece of infrastructure they themselves depend on as a bargaining chip in demonstrations.

I find it interesting how the whole concept of Ledgard and Foster's drone port was developed as a mean to avoid the current unreliable road system in Africa. A system which breaks down and shows its weaknesses time and again due to weather and other various reasons. As mentioned, the drone system is firstly meant to aid humanitarian work, but it is hoped to eventually become one of the main ways of transporting goods between African towns. In the best-case scenario, the African infrastructure of goods, which is currently discussed and visible due to the many moments of failure would eventually become less noticeable due to it running smoothly. If that happens, the drone port could then potentially take on a social role such as a market where people sell and buy goods, rather than a transportation hub.

Butler, J. and De Boever, A. (2015). Demonstrating Precarity: Vulnerability, Embodiment, and Resistance - Los Angeles Review of Books. [online] Los Angeles Review of Books. Available at: https://lareviewofbooks.org/av/demonstrating-precarity-vulnerability-embodiment-resistance/#! [Accessed 10 Oct. 2018].

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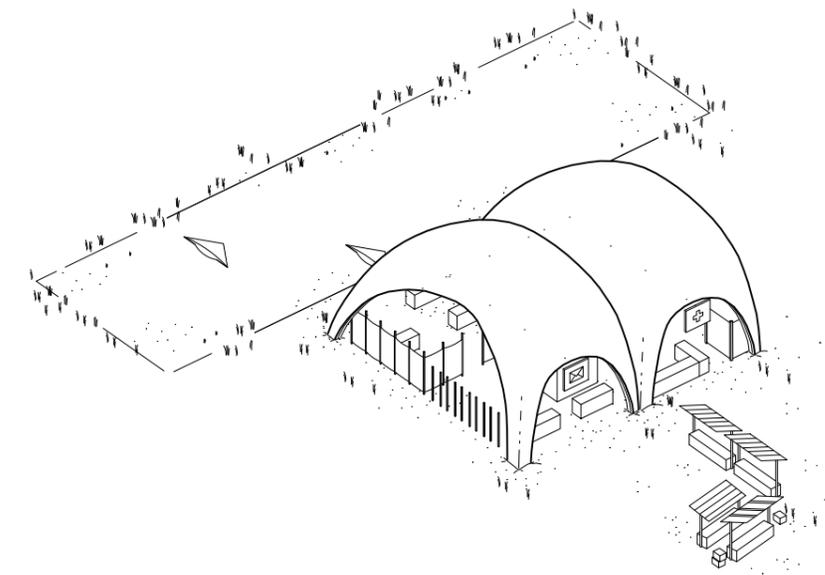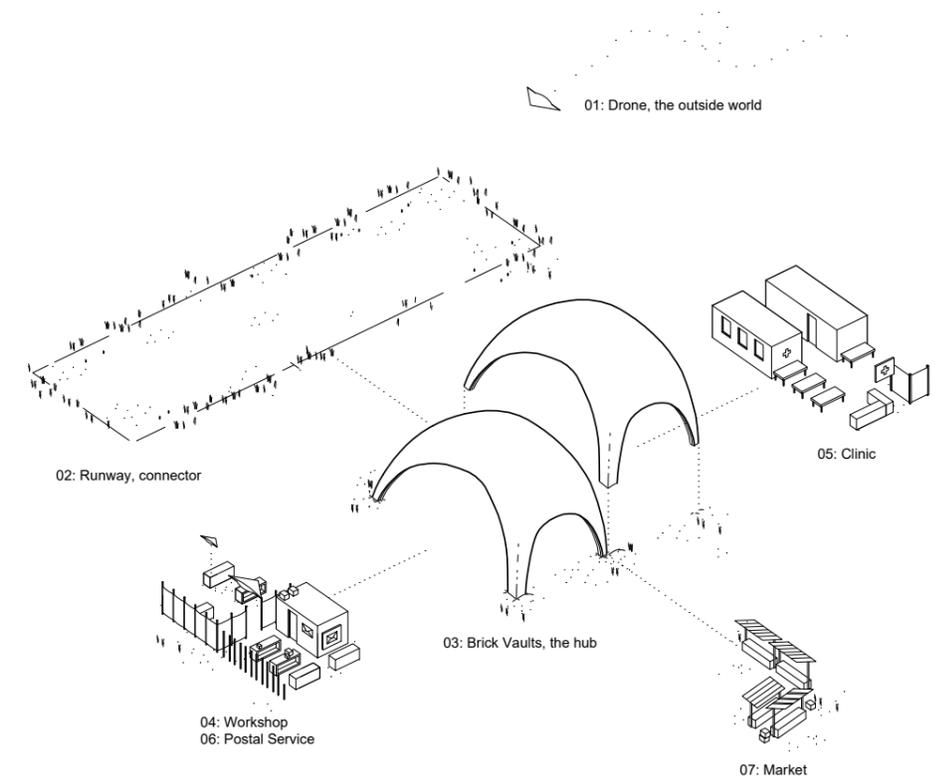
Infrastructural Instruments

Ronald Rael is in his text; *Boundary line infrastructure* discussing the border wall between Mexico and the United States. In the extraction from pages 76-82 and in multiple lectures he is particularly discussing how efficient the existing wall is in terms of its main purpose; to stop or slow down the stream of immigrants coming from Mexico to the United States and he is comparing it to relevant alternative solutions. As many of his proposals for the border wall are seemingly infeasible, he is questioned whether his written work and speculations are merely a social project, or if it is a design project as well. He responds with "why can it not be both?" and adds that more surreal projects related to the border wall has already been ventured (Harvard GSD, 2017). He refers to his seemingly reasonable proposal of building a small library at the border and compares it to a project where people were launched over the wall with a canon. Whether one agrees that it could be a design project or not, his work definitely sheds light on an important issue and an interesting opportunity; to allow other social functions to 'piggy-back' onto the seemingly lasting infrastructural system that is the border wall. He also argues that these bi-functions, or components if you like, may help or even do a better job in preventing unwanted immigration across the border (Rael, 2012).

The Drone Port concept by Johnathan Ledgard has the complete opposite goal from that of a traditional border wall. The Drone Port's main objective is to connect people rather than to separate them. However, the same idea of having other functions 'piggy-back' onto the main function could help tackle other issues in the community. In contrast to the border wall project, Ledgard and Fosters incorporated positive bi-functions into the project from the very beginning. As mentioned in previous posts, the Drone Port will not only act as a port or a station for the drones connecting the communities, but also as a small hub for the immediate community (Ledgard, 2016). The initial concept includes additional 'components' such as a health clinic and eventually it will include a postal service. In addition to this it is to be expected to create a scene for other components as well; such as markets of different kinds. Like a maritime port and other historical precedents, one can argue that the Drone Port will attract different activities due to its 'physical connection' to the outside world. I am using the term physical connection in terms of the possibility to transport physical objects and to separate it from connections such as phonelines and the internet. The immediate connection to the drones arguably makes a good place for a health clinic and the clinic will in addition to the interest in the drone port itself bring people to the area. The stream of people would then most likely invite different activities to take place and with the implementation of a postal service where people can send and receive goods one can argue the stream of people will increase. Essentially, the Drone port is an empty shell architecture that will house several different and somewhat uncertain components.

Rael, R. (2012). Boundary Line Infrastructure. Thresholds, 40, pp.75-82.

Harvard GSD (2017). GSD Talks: Ronald Rael, "Borderwall as Architecture". [video] Available at: https://www.youtube.com/watch?v=eDFzZKQpd7s [Accessed 27 Oct. 2018].

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01: Drone, the outside world
02: Runway, connector
03: Brick Vaults, the hub
04: Workshop
06: Postal Service
05: Clinic
07: Market

Infrastructural Love

Ever since our first online encounter a couple of years ago I have been wondering when we will be able to meet in person or if we ever will. At first it was our common interests that got me fascinated, however, it was your passion kept me intrigued. You have always been slightly mystical, you never reveal too much, you never seem to want to tell me if you will be around. Now and then I hear others talking about you and occasionally I hear what you have been up to lately. It makes me happy to hear that you are still alive, but also slightly confused. Why can I not hear these things from you instead? I try not to get sad or angry, however I do get a bit frustrated at times, I just want to see you and hear from you myself.

You look so elegant and proud, I get inspired every time I look at you. However, incredibly enough, your best attribute is not your looks. What I love the most about you is what you do, who you are and the way you affect others. The ability you have to bring people together is unbelievable. I have never met anyone quite like you before. The thought of the impact you can have on the whole world if you get the chance to evolve is unimaginable. To me you are a symbol of a positive future and I am sure that is true to many others as well. This is what I undoubtably what I love the most about you and I hope you get the chance to grow. Even if we never meet, I hope you will hear about you and your success in the future. No matter what, I will always love the idea of you.

Drone Port News

Infrastructural Affect

''The happy object circulates even in the absence of happiness by filling a certain gap; we anticipate that the happy object will cause happiness, such that it becomes a prop that sustains the fantasy that happiness is what would follow if only we could have "it." The happy object, in other words, is a gap-filler. The promise of the object is always in this specific sense ahead of us; to follow happiness is often narrated as following a path (it is no accident that we speak of "the path of happiness"), such that if we follow the path we imagine we will reach its point.'' (Ahmed, 2010).

Parts of Africa's current road system is known to be an infrastructure in poor condition. Its poor quality mainly affects rural villages and communities that can only be reached by seasonal roads. One could argue that it has both negative as well as positive effects on the affected communities. A positive side of staying disconnected may be the perseveration of culture. However, looking at it from a 'western' point of view, poor infrastructure is generally connected to less development and that has a habit of affecting the social equality. The equality of gender being one of them. To be able to leapfrog the infrastructure between rural villages several decades forward in time (comparing it to the rest of the world), it would most likely affect development and create a better platform for gender equality and equality in general. Not only that, but it would also affect aspects like health and education. We know that improvements in infrastructure usually results in better 'quality of life' overall (IESE Insight, 2018). Therefore, it may be natural for many to believe that this would lead to some sort of increase in happiness. However, considering Sara Ahmed's The Promise of Happiness one may argue that the improvement in the infrastructure, in this case through the implementation of drones is a mere social promise of happiness. Personally, I find it hard to believe that an improvement in quality of life would not lead to a change in happiness, even if just a small change. However, I can believe it may only be a brief temporary feeling before a new obstacle hinders the 'path' to happiness. One can clearly see the parallels with the common conception; if I just had that thing I would reach happiness or if I were 'there' and not 'here', I would reach happiness. The Drone Port itself, which would be the concrete representation of the infrastructural system that is the Redline, can be looked at as a happy object, which Sara Ahmed describes in the same text. It is a promise of a bright or 'happy' future.

IESE Insight. (2018). Quality Of Life: Everyone Wants It, But What Is It?. [online] Forbes. Available at:https://www.forbes.com/sites/iese/2013/09/04/quality-of-life-everyone-wants-it-but-what-is-it/ [Accessed 20 Nov. 2018].

Ahmed, S. (2010). Promise of Happiness. Durham: Duke University Press, pp.22-49.

The Drone Port is coming to town!

Infrastructural Maintenance

Some of the main reasons behind many rural roads in African countries being in poor condition are weather and the difficulty of maintaining them. Rural roads are often made of natural materials such as clay, gravel or sand, all which can easily be affected by weather. Heavy rain can cause substantial damages to a road and thereby a break down in the infrastructure. This might be hard for a local community with limited resources to fix. Even worse, the damages might happen far from any village or town, leaving the road damaged for even longer. The Drone Port and the Redline drone infrastructure would also be affected by the African weather. However, due to being much less dependent on the ground conditions and easier to maintain (in theory), the infrastructure could be up and running again much quicker.

Much like the example of the garage and the automobile in Janek Ozmin's chapter *The garage, Maintenance and gender* in *Architecture & Feminisms,* (Frichot, Gabrielsson and Runting, 2018) one could think that the Drone Port and the drones could be the community's own garage and automobiles. Only in this situation, potentially free from societal gender roles. As we are not talking about communities in complete isolation, but rather poorly connected villages, we will have to assume that there are gender roles applied in the communities already, but one could try to approach the communities with the idea of this new (to them at least) type of work and maintenance work related to the Drone Ports being gender neutral. The drone port will in other words bring a new industry to these communities, and introducing new industries with a deliberate gender-neutral profile may be an effective way of creating gender equality in a community. Making the Drone Port depending on everyone instead of a specific group of people makes it less likely to break down. In any case where a certain group of people may be affected by an event which results in less attention to the Drone Port, e.g, change of generation, disease, war etc. the drone port and the infrastructure will benefit from being dependent on a broad group of people rather than a specific one. An extreme example of this could be seen in London during the First World War. A city like most others at the time, heavily dependent on the male gender, faced a massive problem when the United Kingdom was going to war. Thousands of 'men', the one group the city so heavily depended on left their homes to go fight in the war on continental Europe. London had to adapt and in a highly radical manner; women replaced men in many of the roles only men had previously held.

Nevertheless, this is only a few of the reasons why the Redline drone infrastructure could break down. The Drone Ports and the drone infrastructure would also be vulnerable to the aspect of economy, lack of resources, unstable communities and vandalism to mention some.

Frichot, H., Gabrielsson, C. and Runting, H. (2018). Architecture and feminisms. Abingdon: Oxon: Routledge, pp.256-264.
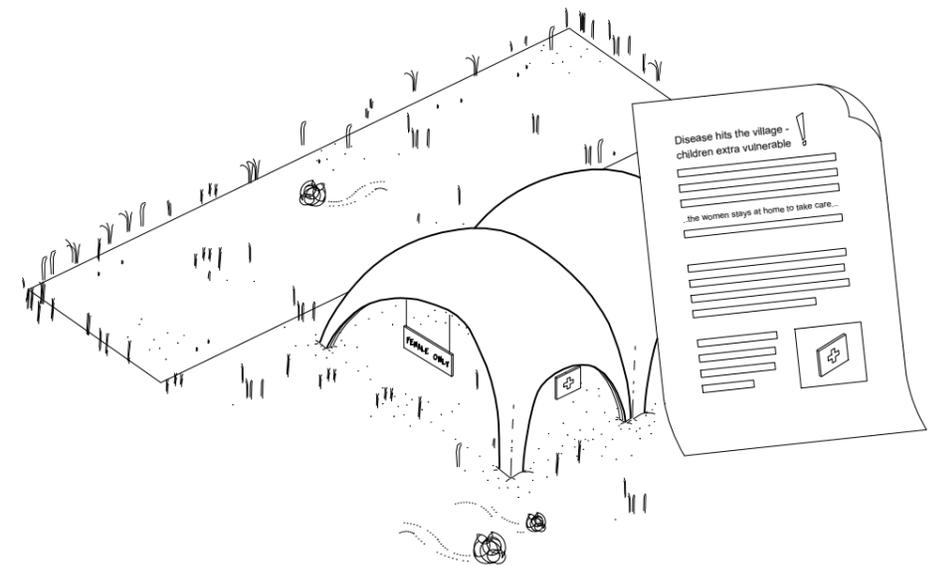
Infrastructural Care

Caring for the sick is arguably one of the most extemporaneous aspects of care. Even though it is a broad term, the images of doctors and nurses may often appear when we are talking about care. Caring for the sick is the very core concept behind the drone infrastructure that is the Redline. Even though you could argue it cares for many other aspects as well, caring for the less privileged is arguably the most important; how can the architecture help with this? Firstly, and maybe it goes without saying, but I still would like to point out that without the architecture the concept would remain only a concept, a beautiful idea without any infrastructure, and thus no action. Therefore, one could argue that any architecture that allows a concept to live, is architecture that cares. Maybe one could even boil it down to; if it exists, it cares. The part of the Redline infrastructure I have chosen to focus on are the rural drone ports, the architecture that ties the infrastructural system to the villages. Following the previous notion that as long as it exists, it cares, one could say namely that, as long as the ports exist and support the Redline, the architecture cares for the infrastructure.

When being asked to take on the project of designing the Drone Ports, Norman Foster and his team's first question to Johnathan Ledgard was; 'do you actually need a building? Don't you just need a truck or a series of shipping containers with the equipment inside?' According to Narinder Sagoo, one of the partners at Fosters + Partners, they 'quickly realised that drones, particularly in Africa, needs a hub, a place where they can be built, [a place where] the technology can be advanced, as that technology advances […] the building can advance and evolve at the same time' (Norman Foster Foundation, 2016). What Fosters + Partners has set out to do is creating an Architecture that not only cares about the infrastructure to work, but that cares for it to be great. The concept of Foster's drone port takes into consideration much more than just the bare minimum to get the infrastructure up and running. Through the particular construction process that is using local labour, the architecture cares for the community, which again is vital for the infrastructure to work. When one starts to separate the aspects and elements of the architecture one quickly realises how connected it is and on the surface, it seems that the more aspects that is being cared for results in a more 'cared for' infrastructure.

De la Bellacasa, M. (2012). 'Nothing Comes Without Its World': Thinking with Care. The Sociological Review, 60(2), pp.197-216.

Norman Foster Foundation (n.d.). Droneport — Norman Foster Foundation. [online] Norman Foster Foundation. Available at: http://www.normanfosterfoundation.org/project/droneport/ [Accessed 20 Sep. 2018].
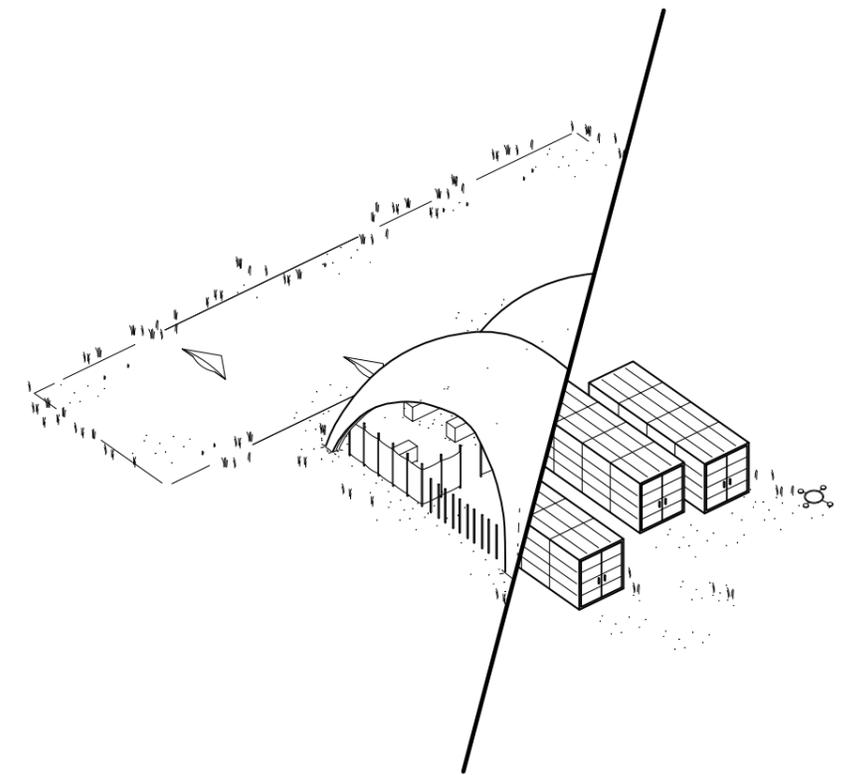
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Illustrations

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All other illustrations are the author's own work