Introduction: Africa and the 'leapfrog'

Digital in Africa: a focus on simple or even reverse innovation

Writing an essay on Africa is always complicated because it is difficult to condense the abundance and complexity of this continent into a few pages. It has 54 countries, more than a billion people – set to double in a generation – and almost 100 official languages. This can be dangerous by definition, as simplification is the enemy. Africa should not be taken literally here. This is not intended to be an exhaustive study and the reader should remain mindful of the major disparities between African countries.

Fortunately, the topic of digital technology in Africa is compatible with this sort of exercise, as it is a major component of what makes Africa different. Again, all countries are not equal, but digital technology in Africa is a good example of simple or even reverse innovation: digital did not arise in Africa, but an African digital landscape has developed in line with specific local characteristics.

The reverse innovation process begins with a focus on the needs of disadvantaged groups. But what really sets reverse innovation products apart and makes them unique is that they are devised and developed within the countries themselves.

A holistic definition of reverse innovation could be split into four parts:

- **a form of innovation**, i.e. the roll-out of a new process or the creation of a new product, service or organisation that differs from an invention,

technological or otherwise, in that its market and uses are in the public sector;

- **an extension of what the literature calls 'frugal innovation'** or '*jugaad*' (Hindi concept), which have the same meaning: inventive low-income groups simplifying or diverting a product, service or business model to adapt it and respond to an unmet need. Reverse innovation goes beyond frugal innovation in the sense that it implies a feedback loop from emerging countries to developed countries, and starts from scratch rather than an existing system;
- **a 'reverse' process**, i.e. a process that reverses the traditional innovation cycle paradigms:
  - from innovation driven by supply ('push technology' described by Schumpeter), characterised by the desire to bring new technology to the market, to innovation driven by demand ('demand-pull', highlighted by Schmookler in 1966), characterised by a product devised to meet end user needs,
  - from head office to subsidiary: until this point, R&D was the preserve of the parent company in a western country. This approach has been questioned and senior management is realising that local teams are better placed to understand the needs of local consumers. Major international businesses are relocating their engineering and innovation departments evermore frequently and the proportion of global R&D in developing countries is on the increase,
  - from niche market straight to mass market: reverse innovation products target a mass market from the outset, bypassing the 'lead user' and 'early adopter' phases. Profitability is a given due to a mass effect on a very low-margin product, and the target market is most often the 'Bottom of Pyramid' (BoP[1]) group;
- **products with very high added value** marketed directly to a mass market, offering good value for money (low production costs and low retail price), then distributed in other equally or more developed countries. These products have very high added value as they satisfy an as-yet unmet need on a massive scale.

---

1. The 'Base of the Pyramid' or 'BoP' is a concept developed by the Indian Coimbatore Krishnarao Prahalad in his book *The Fortune at the Bottom of the Pyramid*, Wharton School Publishing, 2004. This targets the least wealthy socioeconomic class which accounts for more than four billion people living on less than $2.50 a day.
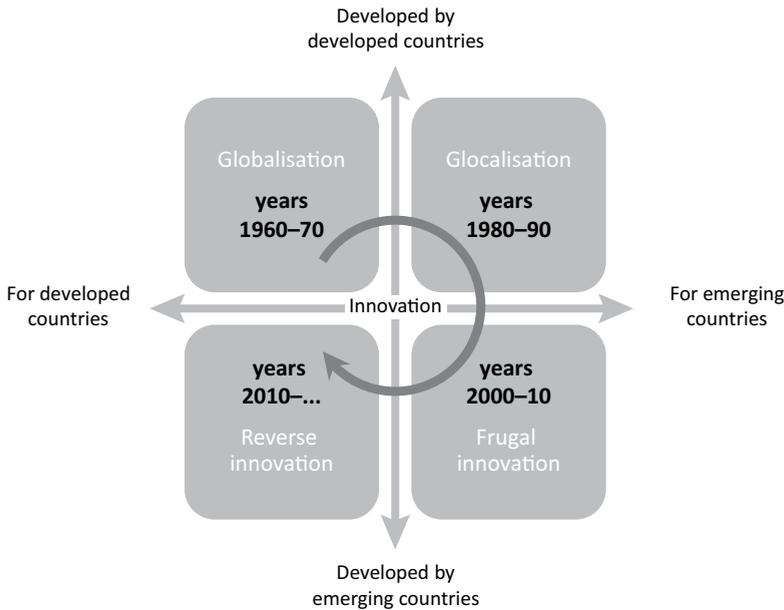
Figure I.1 The innovation cycle[2]

Researchers Govindarajan and Trimble outline key success factors guaranteeing the benefits of reverse innovation. Combined, these factors set out criteria which must be met for an innovative idea to be labelled as 'reverse' rather than simply frugal. They involve strategy, staff organisation and project management, illustrated as follows:

1. Reverse innovation is different from a simple export in that its existence is dependent on the needs of emerging markets.

2. It involves a profound cultural shift marked by skill development in local staff, the emergence of new creative skills within teams, the creation of a local participatory ecosystem to boost reverse innovation-based product development, and a business model integrated into the local infrastructure.

3. It implies real autonomy for local teams and the freedom to start from scratch as they create new solutions and draw up a governance system appropriate to their situation.

----

2. Glocalisation = global + local.

Digital in Africa is a fully fledged part of this frugal-reverse innovation strategy. We use the term frugal innovation because, from the late 1990s, the development of prepaid mobile phone offers has created a fertile ground for ICT (information and communication technology). The 2000s then saw the arrival of mobile payments, and the 2010s lightweight versions of social media sites (Facebook texts), African e-commerce (a marketplace rather than an e-commerce site strategy, e.g. Amazon) and specific e-government and e-health variations. Each time, a form of technology was adapted to a specific use on the continent, taking the individual features into account (low banking level, few monthly employees, few postal addresses, etc.). The reversal process is underway and European players are currently considering whether the digital success factors in Africa have a place in more developed countries.

What is digital?

What is digital? The answer to this question could be a book in itself. From a critical standpoint, we could say that it is one in a long line of portmanteaux. In France, in the late 1990s, 'e-business' was the buzzword, followed by 'numérique'. Nowadays, 'digital' has taken centre stage. It's a fashionable word. Most interesting is that it is central to a profound transformation within businesses and organisations. Many digital-related concepts – even economic models – were put forward during the first dot-com bubble which burst in 2000. However, there is a major difference now: the number of people with access to these services is not in the tens of millions but in the billions, across all six continents – including Africa, which was not the case in 2000. So digital itself is not the issue but, rather, the sweeping changes brought about by the technology at the root of digital transformation.

"Digital's potential is enormous. It is changing how we conduct our business, tell our stories and engage consumers. It's a rapidly changing landscape and a big part of our future"; "If you went to bed last night as an industrial company, you're going to wake up this morning as a software and analytics company". These quotes are not from young startuppers. The first is from Mark Palmer, Chairman and CEO of Nike Inc., and the second is from Jeff Immelt, Chairman and CEO of GE.

Digital is not a recent development, but it is what we are making of it that is bringing about the current revolution. Let's take a simple example: how we watch a recorded film. In the 1980s, we had the famous analogue VHS cassette while the higher-quality digital DVD emerged in the 1990s. Nowadays, we have access to digital services, including unlimited video catalogues, mobile and multi-screen services, instant viewing, etc. All that has happened in the past 30 years is that access to information and services has become easier. From the user's point of view, it means lower transaction costs. So, for any one individual, the digital transformation means a decrease in indirect transaction costs as a result of new technology. For a customer, it impacts ease of access, time and complexity of use. For a company, it impacts links with suppliers, prospecting effort, quality control, etc. For a government, it affects the centralisation of information, the efficiency of communication within the civil service and the distribution of information to citizens.

To understand digital, we must grasp these four major criteria:

- **Access** to data is essential. It is at the heart of the telecoms and ICT revolution of the past 25 years, comprising the digitisation of all possible data, the development of communications networks to exchange this data and, finally, interoperability between technical teams to remove all obstacles to the exchange. The standout feature of recent years has been the major new role of mobility in exchanges.
- **Data** is a key element of the digital era. Whether the data is simple (a text message or USSD message) or complex (live spoken dialogue or a database), digital is all about how the data is used and monetised. Setting raw data aside, we must also look at what we do with this data and how we exploit it – through a data analysis mathematical algorithm, for instance.
- The ability to manage everything via these **platforms** is another key element of modern-day digital technology. A USB stick may seem digital, but Dropbox file sharing is a true example.
- Finally, digital as we now understand it is the very foundation of a major **social** dimension. This is the case for social media, both private (Facebook) and professional (LinkedIn), and the general development of digital platforms, i.e. the option to manage a partner ecosystem (open innovation, business development, etc.).

The five digital 'leaps' in Africa

Digital development in Africa comprises five major steps which we will explore in the following chapters. Analysis by economists and experts in the initial stages began in the early 2000s, and the term used was 'leap-frog'. This highlights one of the particularities of African digital – the development stages differ from what we have seen elsewhere, hence the metaphor of leapfrogging from one point to another.

The first 'leapfrog' was the fundamental one: ICT development. Without telecoms and the ability to exchange data, there is no digital technology. Until the 1990s, Africa was disconnected from the world with a telephone penetration rate of less than 3%. Landlines, deployed worldwide from the 1880s, were limited to key civil service departments, the elite and major businesses. The continent was, in essence, cut off from the world of ICT, but the catch-up is set to be swift, bypassing the landline stage and going straight to mobile. This 'leap' is twofold because the 2010s will see users connecting to the internet and social media via smartphones and 3G or 4G mobile networks rather than ADSL or fibre with computers.

Another payment-related leap is developing in tandem. With a few rare exceptions, African countries generally have little access to banking, and the use of cash is widespread, even in countries with banking. Chequebooks, bank transfers and debit cards are rare. But with the development of mobile payments (especially since 2007/08), Africa is set to leap forward in this area too. Success in some countries (Kenya and Côte d'Ivoire) will pave the way for a new medium of money exchange (prime uses are generally person-to-person) and payment. This is a great example of leapfrogging. Not only are African countries skipping stages, but their payments have suddenly become more 'digital' than their Europeans and American counterparts. To date, this stage – a good example of frugal innovation transitioning into reverse innovation – is Africa's biggest contribution to digital.

But moderation is key, echoing Jean de la Fontaine's story of the frog that bursts in its desire to become as big as an ox. African digital development has a long way to go and the next three leaps are in their infancy.

The next two leaps involve e-commerce and e-government. We are deliberately not expanding on social networks because (though they arrived late, at the end of the 2000s) they are more a continuation of the first leap (ICT) than connected with e-commerce and e-government. The OTT (*Over the Top*) such as Facebook, WhatsApp, Google and, more

recently, Uber have been quickly adopted by African phone and smart-phone users with specific features such as Facebook texts from 2009, Uber cash payments in eight countries in 2016 and even some hype around balloons and drones, though with no specific cases of African 'leaps'. However, it is important to note that while the major online global players operate in Africa, Amazon is still struggling to adapt its model to the continent. So it is in its 'e-commerce' and 'e-government' activity that Africa really stands out.

E-commerce first and foremost. Some 15 years after the USA, African e-commerce has experienced recent developments. This could be seen as catching up but, once again, the need to adapt to the local context is essential to innovation. This leaves a gap, allowing local players to suggest a new approach to e-commerce.
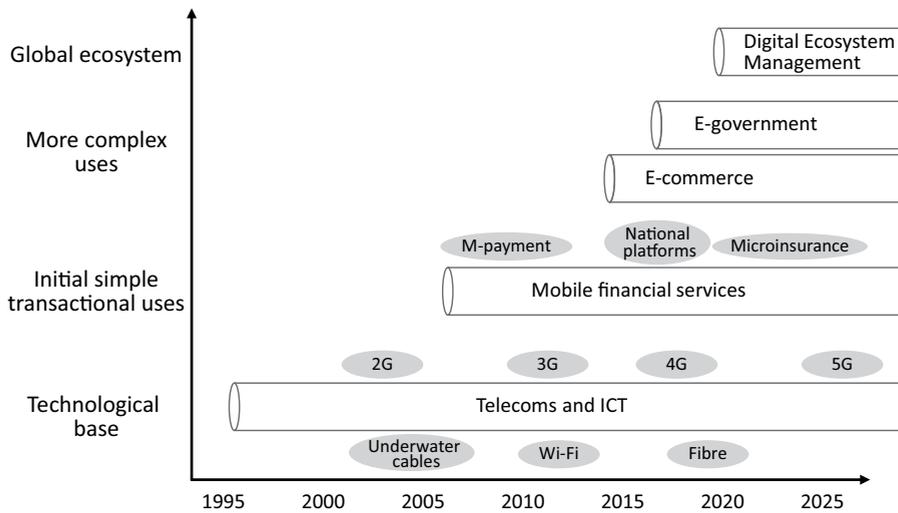

Figure I.2 The digital 'phases' in Africa

The same is true in the public sector. The eagerness to bring digital into the public sector is about drawing on digital technology to help the African public sector really leapfrog the rest. The idea is nothing new, and the first attempts were seen in the health sector in the 1990s. This has sped up since the 2010s with e-government, e-health and e-education projects, and smart cities. While many remain in the idea or concept phase, this points to a real desire to accelerate and use digital as a catalyst for development. Some African countries now have completely digital, biom-

etric national registries, which is not the case for European Member States. The continent is beginning a new 'leapfrog' move, also a breeding ground for reverse innovation.

Finally, while Africans are in short supply in the platform economy, Africa is also set to move in this direction. This is the fifth and most recent 'leap' in its early stages: the ability to manage a complex ecosystem of public or private players via digital. Once again, Africa's potential is huge.

We are going to explore the five leaps marking Africa's development over the past 20 years, which will continue to do so for at least the next 20.