

Poverty and Government Priorities for Action: Lessons from the Theory of Disruptive Innovations in Africa

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Abstract

It is a fundamental mistake for the government in Africa to focus on modernizing infrastructure to address the issue of poverty among the population. This had been the strategic mistake for the programme of the Government of the Democratic Republic of Congo's "5 chantiers" which did not improve the social situation of the population. The real question is: "how can innovations bring prosperity to a nation?" This article provides an answer to this question. Based on an exploration of the existing literature, in particular the new approach on disruptive innovations (Clayton Christensen, 2002, Clayton Christensen, Efossa E, et al 2019), this research aims to provide a new lens on priority choices that a government in Africa can take on the issue of poverty.

Index terms— disruptive innovation, incremental innovation, poverty, strategic choice, prosperity, management, Africa.

1 Introduction

The Democratic Republic of Congo (DRC) is nowadays presented as a land with multiple investment potential in the industrial, agricultural, social and other sectors (ANAPI, 2018). This country has more than 80 million arable lands, at least 10% of which are currently being exploited. Its population, estimated in 2016 at 70 million inhabitants, 60% of whom are between 14 and 25 years old, represents an internal market estimated at more than 80 million consumers (ANAPI, 2018). Despite these potentialities, the DRC presents a paradox of being both a potentially rich country and a country with a very poor population. Several reasons are put forward to explain this paradox: the extroversion of the economy for essential goods, the high dependence of the economy on mining products. However, despite this wealth, the country has not yet succeeded in identifying priority lines of action to eradicate poverty and create economic prosperity.

This article is thus devoted to the following question: what are the priority courses of action to be undertaken by the government of the Democratic Republic of Congo to resolve the issue of poverty?

Based on an exploration of the existing literature, in particular the new approach on disruptive innovations (Clayton Christensen, 2002, Clayton Christensen, Efossa E, et al 2019), this research aims to provide a new lens on priority choices that a government can take on the issue of poverty. This article focuses on three important points. In a first point, it is a question of understanding the theoretical basis of the theory of the disruptive innovation developed by Christensen, C. M., Ojomo, E., Gay, G. D., & Auerwald, P. E. (2019). In a second point, it presents a case study of the government policy called "5 chantiers" in the Democratic Republic of the Congo implemented from 2006 to 2011. In a third point, it is a question of identifying the theoretical lessons on the priority actions to be implemented from the reading grid of breakthrough innovations.

The objective of this research is essentially theoretical. It consists to guide policy makers to identify the nature of investment to address poverty eradication issues.

2 a) The Prosperity Paradox: A Grid on the Theory of disruptive Innovation and Economic Growth

The idea of the paradox of prosperity developed by Christensen, C., Ojomo, E. and Dillon, K. (2019) started from the desire to understand the reasons why some nations have become prosperous while others have remained poor for more than half a century?

For example, the United States of America's economy presented the following indicators around the 1850s: ? 70% of the population who lived in rural areas, ? 52% of American household incomes were spent on food needs, ? 10% of the population had access to secondary school, ? Life expectancy was 45 years at the time.

3 Christensen et al (2019) answer this question by

showing the dominant economic models of economic growth over the past fifty years have failed to provide an effective answer to this question. These models repair the visible signs of poverty rather than focusing on creating sustainable prosperity.

Two theoretical models have been dominant in explaining economic growth.

The first model is from the american economist Robert Solow (1956) (known as the "exogenous growth model") who considers that progress is due to factors outside production, without explaining the cause, and who concludes that economies are converging towards a state of stationary growth. The increase in economic activity follows the pace of population growth or technological progress, which remain external factors to the model. The predictions of this exogenous growth model have proven to be wrong over time.

The second dominant model is that of the economist Paul Romer, through the endogenous growth model that explains economic growth by endogenous factors such as the development of human capital, know-how and technological progress. Endogenous growth theory focuses on four factors that influence the rate of economic growth: ? Increasing returns through economies of scale. ? The judicious intervention of the State, in particular through investment in infrastructure, ? Research and development or innovation, an activity with increasing returns and a minimal cost of ownership, ? The knowledge or human capital that accumulates.

However, the problem with the latter explanatory model is its inability to demonstrate three main contradictions. First, not all forms of infrastructure investment lead ipso facto to economic growth. Secondly, not all innovation leads ipso facto to economic growth because there are innovations that create jobs, innovations that generate a high flow of liquidity and innovations that destroy existing jobs. Finally, investment in human capital such as training does not ipso facto lead to economic growth. It can promote the accumulation of knowledge without necessarily leading to the creation of wealth. "Knowing how to make a cake is not the same as knowing how to gather all the ingredients necessary to make a cake". The cake consists of knowing how to perform the sequence of operations specified more or less closely in a cake recipe.

In his book "The innovator's dilemma: when new technologies cause great firms to fail", Christensen (1997) notes that many large companies go bankrupt not because they have poorly executed their strategy but because they try to do things right. In some cases, today's successes and capabilities are barriers to successfully approaching tomorrow's market and technologies. Innovation is becoming a relevant element to be considered when thinking about the solution on the issue of poverty. The research question of Christensen, C., Ojomo, E. and Dillon, K. (2019) is the issue of knowing: how innovation can lift nations out of poverty?

They assume that entrepreneurship and innovation are at the heart of economic development and prosperity. Indeed, the current foreign aid development paradigm of capital and institution-building programs, mainly funded by the government and imposed from the outside, is ineffective. They must be replaced by an approach that categorizes the types of innovations that can create jobs and bring prosperity to an economy. Sustainable prosperity does not come from efforts to reduce poverty but from investment in innovations that will create new markets, especially for current non-consumers.

First, let us start by clarifying the notion of innovation and its categories.

The word "innovation" is commonly overused and underestimated. According to Christensen, C., Ojomo, E. and Dillon, K. (2019), innovation is a change in the process by which an organization transforms labor, capital, materials or information into higher value products and services. Innovation is not necessarily a cutting-edge technology, neither too advanced nor entirely new. It is therefore different from invention and creativity.

When we talk about innovation (Bakengela, 2018), there are several preconceived ideas that need to be clarified. Some people think that innovation is invention. Others think that innovation is creativity or a technological process. Still others believe that innovation is simply a scientific discovery. Invention is about creating something new. It may be new knowledge or even a new object. For example, in 1960, the American physicist Theodore Maiman obtained for the first time a laser emission using a ruby crystal. A year later, Ali Javan developed a gas laser (helium and neon) and in 1966, Peter Sorokin built the first liquid laser. However, at that time the invention of the laser did not have much significance for many people until some practical applications of the laser began to be found. For example, thanks to lasers, scanners have been set up to identify product codes in stores or perform surgical operations targeted at specific organs of the body. Creativity is about finding or generating new ideas. These ideas can remain at the stage of simple concepts. In this case, they are not innovations. Innovation is the process of transforming new ideas into useful marketable products. Innovation is not always technological. The implementation of a new procedure to improve the way of working in a company is an innovation. Lewis Duncan

(Bakengela, 2018) defines innovation as the ability to transform ideas into invoices. Thus innovation is both the invention added and the commercialization. According to Gilles Bressy and Christian Konkuyt, (Bakengela, 2018) innovation is the economic application of an invention or a new idea.

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To better understand their contributions, Christensen, C., Ojomo, E. and Dillon, K. (2019), the notion of innovation must be clarified and categorized.

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Christensen, C., Ojomo, E. and Dillon, K. (2019) distinguish three types of innovation: ? Disruptive or market-creating innovations; ? Incremental or improvement innovations; ? Efficiency innovations.

Disruptive or market-creating innovations focus on non-consumers in a market and provide them with a product or service that meets their needs. Creative market innovations are transforming complicated and expensive products into products that are much more accessible to a growing number of consumers. In some cases, such innovation may create entirely new product categories. For example, microfinance has been a disruptive innovation in that it has enabled many of the people excluded from the traditional financial system to access finance. According to Christensen, C., Ojomo, E. and Dillon, K. (2019), these innovations create significant social change and create jobs. They are the driving force behind economic growth.

Incremental innovations are improvements to existing solutions on the market. They generally target customers who are looking for better performance of a product or service. Incremental innovations are omnipresent and represent an essential element of the world's economies. They often allow companies and their host countries to remain competitive, but their impact on an economy differs from that of disruptive innovations (market creators). For example, companies rarely need to create new sales, distribution, marketing and manufacturing methods when developing incremental innovations in a mature market, because they use established channels to sell to existing customers in a familiar segment of the target population.

Efficiency innovations allow companies to "do more with fewer resources". More specifically, to the extent that companies make maximum use of existing and newly acquired resources, their underlying business model and the customers they target remain the same. Therefore, as market sectors become increasingly crowded and competitive, efficiency innovations are essential to keep companies viable. Efficiency innovations are generally process innovations that focus on how a product is manufactured and not necessarily on the recipient of the product. They can make a company more profitable and, above all, free up cash flow (Christensen, C., Ojomo, E. and Dillon, K., 2019). For example, outsourcing is one of the most common examples of efficiency innovation. When a company decides to relocate part of its activities to a region where costs are lower, it innovates in terms of efficiency. Another example is where an organization uses technology to reduce operating costs in order to generate more profits. Resource extraction and lowwage manufacturing industries are excellent examples of operations based on efficiency innovations (Christensen, C., Ojomo, E. and Dillon, K. 2019). These innovations generate a significant cash flow; however, they reduce existing jobs. This analysis by Christensen, C., Ojomo, E. and Dillon, K. (2019) shows that not all investments in innovation have the same impact on the economy. Breakthrough innovations create new markets and new jobs, while incremental innovations improve customer satisfaction by improving existing products. They do not create sustainable jobs. Efficiency innovations reduce production costs and are destructive of existing jobs.

4 B) CASE STUDY OF THE PROGRAMME CALLED” 5 CHANTIERS” BY THE FORMER GOVERNMENT IN THE DEMOCRATIC REPUBLIC OF CONGO

The main question, according to Christensen et al (2019), is whether to start by investing in the development of incremental innovations, including adequate infrastructure: building roads, schools, hospitals or fostering disruptive innovations within a country that will foster institutional growth? Christensen, C., Ojomo, E. and Dillon, K. (2019) note that in all cities around the world, there is a complex set of institutions designed to manage traffic management systems (traffic lights, level crossings), urban planning (pedestrian crossings, bridges), a legal system to enforce traffic: laws, and so on. However, these institutions clearly did not create urban traffic; traffic came first and human communities had to find ways to manage it. But what created the traffic? For Christensen, this is a breakthrough innovation (market creator).

The analysis by Christensen, C. et al (2019) shows that disruptive innovations create economic prosperity and are therefore an appropriate solution for poverty eradication.

4 b) Case study of the programme called” 5 chantiers” by the former government in the Democratic Republic of Congo

After his election in 2006, the former President of the Democratic Republic of Congo set up a programme for the reconstruction of the country called ” 5 chantiers” from 2006 to 2011. The objective of this programme was to improve the living conditions of the entire Congolese population and eradicate poverty. KANKWENDE K. J-P (2009) in his book entitled ” 5 chantiers and the Reconstruction of the DR Congo” takes up an excerpt from the then President of the Republic’s speech: ”I announced Five priority projects: infrastructure, job creation, housing, water and electricity, as well as health and education” And also: ”I remain convinced that the completion of these Five projects will give a lasting new impetus to the Democratic Republic of Congo, which we wish to be strong and prosperous, open to development. This is what justifies the priority of these main lines of action of the government”.

At first sight, the intentions behind this programme of the ”5 chantiers” are noble: to improve the living conditions of the population and eradicate poverty. The choices to invest more than 2400 km of roads, 2000 km of railways, 32 hospitals, 145 dispensaries, 2 modern universities, etc. for a total cost was 9 billion dollars for which the DRC had to provide nearly 10 million tons of copper and 600 thousand tons of cobalt to China, was it relevant to eradicate poverty? The theory of disruptive innovation thus provides us with an adequate analytical grid for analysing the relevance or otherwise of the priority choices made in these programmes.

The first lesson is that the program of the ”5 chantiers” was mainly based on incremental innovations. The latter make it possible to improve existing infrastructures but do not create new markets.

The illustration of the limited effects of incremental innovations is the implementation of the ”Hôpital du cinquantenaire 1 The establishment of this agri-food park was planned as part of the National Agricultural Investment Plan (PAI) launched in September 2012 by the Congolese government (\$5.7 billion), which provided for the development of planned agricultural development zones for the period 2013-2020. The main objective of the plan was to encourage both national and international investors to mobilize to revive highly ” a hospital with the highest technical platform in the country and sub-region, including magnetic resonance imaging and one of the largest scanners in the country. The capital cost of this hospital was US\$100 million. At the time of its opening, the price of the medical consultation ranged from 20 (twenty US dollars) to 25 (twenty-five US dollars). This price, which is already very selective financially, has not allowed a large majority of the Congolese population to access this health care.

However, World Bank statistics in 2012 show that 77% of the Congolese population lived below the poverty line (\$1.90 per day).

The solution of building the ”50th anniversary hospital” seems irrelevant in terms of impact on the poor population.

”The daily difficulties and suffering of our people are well known and unacceptable. It is therefore not necessary to describe them further in this programme. It is sufficient to note that in the social field, the Government’s ambition is to reduce mass unemployment, especially among young people, to improve human capital, the quality of social benefits and to extend social protection coverage to all.»

A second example to illustrate the failure of programs based on incremental innovations according to Christensen et al (2019) is the investment of US\$150 million to build a state-of-the-art industrial agro-food park in BUKANGA LONZO. This park has been defined as being at the cutting edge of technology.

The idea of building this agro-industrial park was based on factual data that demonstrate the existence of a real demand in the Democratic Republic of Congo to cover the food needs of its entire population. Indeed, the DRC relies on substantial imports of maize, wheat, rice, sugar, meat... for nearly \$1.5 billion annually The growth of agricultural production (1.4% per year between 2007 and 2012 according to IFPRI) is lower than the population growth (2.4% per year), which puts the DRC in a precarious situation. Nearly 70% of households are food insecure.

productive and precision agriculture based on new technologies. To this end, some twenty areas ranging from 1,000 to 150,000 hectares have been identified in the various provinces to become agro-industrial parks (PAI) Bukanga Lunzo Park was the first park to be established under the National Investment Plan (NIP). Located in Bukanga Lonzo in Bandundu province because of the very high value-added production potential: high yield

arable land, water availability and irrigation facilities, proximity to the city of Kinshasa, which constitutes a market and commercial outlet for more than 10 million people” (Maisin, 2016).

Inaugurated in 2014, Bukanga Lonzo Park covers 80,000 hectares to ensure the implementation of a three-phase production programme. The first phase is devoted to the production of legumes (maize, soya, beans), the second phase provides for the production of vegetables and livestock products (broiler chicken, fish, eggs, meat) while the third phase is reserved for the processing stage (groundnut and soya oil, canned tomatoes) (Maisin, 2016).

However, three years after its launch, the agroindustrial park is on the verge of bankruptcy. What is the linkage between the investment of US\$150 million to build the agro-industrial park and the poverty eradication ?

5 Table 1: Investment costs and prices

Source: Our analysis c) Lessons learned from the case study and selection of priority actions for government It emerges from past experiences in the government programme of ”5 chantiers” from 2006 to 2011, including its extension through the programme called ”la révolution de la modernité”, two major errors in relation to the choice of priority actions to eradicate poverty.

The first mistake is to think that incremental innovations create prosperity at the level of a nation. During the programme of the ”5 chantiers” of the Republic from 2006 to 2011, including the programme of ” la révolution de la modernité” from 2011 to 2016, priority investment actions were focused on the modernization of infrastructures in order to make them sophisticated and modern. Unfortunately, this choice did not allow non-users of the old infrastructure to access the new improvements. The investment in the ”Hôpital du cinquantenaire” did not provide the most disadvantaged segment of the population with access to the best health care. On the contrary, the higher consultation prices have further favoured the wealthier by accessing higher levels of care.

Thus, despite significant amounts of money spent, very little social impact has been felt for poverty eradication.

The theory of Christensen, C., Ojomo, E. and Dillon, K. (2019) demonstrates a limited effect of investments focused on incremental innovations on a nation’s growth and prosperity.

Did development begin with incremental innovations (construction of highways, hospitals, etc.) or with disruptive innovations (the management revolution with the scientific organization of work that allowed Ford to create a car at a lower cost and accessible to a large number of the population)? Christensen (1997) shows that disruptive innovations initially make it possible to provide simple and sometimes lower quality solutions to a wide audience of consumers, including non-consumers of old solutions. These disruptive innovations create the new market in the sense that they are aimed at nonconsumers of current products and consequently they create economic growth.

The second mistake is to adopt a ”push” approach in which the welfare state must solve all the problems of the population. The \$100 million investment for the development of the ”Hôpital du cinquantenaire” in Kinshasa is a ”push” approach. This centralized solution forces the population of Kalemie to take a plane to Kinshasa to get medical care. Unfortunately, the transport costs, including those related to access to health care, for this centralized solution therefore make this solution irrelevant.

The implementation of disruptive innovation would consist in investing in a solution through a ”pull” approach that would allow people in the informal sector to have access to basic health care, including through innovative means such as pooling efforts without the State having to spend \$100 million on a solution accessible to a small part of the population. For example, people working in the informal sector can form a cooperative and contribute to a mutual health insurance scheme and be able to access a minimum package of carefree of charge in identified health centers. The formalization of informal sector actors should make it possible to support people excluded from the current consumption of health services and to pool efforts to solve common problems together. The State will thus be able to better monitor the activities of the informal sector by letting the actors of this sector take initiatives to create wealth, jobs and prosperity for the nation.

The government’s priority is not to put in place investments in modern infrastructure, but these should be the consequence of disruptive innovations that create new markets and facilitate access for original non-consumers. Nor is it a question of transforming the State into a foster mother who must solve all the population’s problems. On the contrary, the strategic options to be adopted will consist in involving the Congolese in solving their problems through entrepreneurial initiatives. Innovation thus becomes a driving factor in the economy that promotes the growth of society.

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Types of innovation	USD 100 million	Cinquantenaire	Park USD 150 million	29
Competitive advantage strategy	High	Incremental	High	Volume XIX Issue IV
		Incremental Sophistication		Version I

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[Note: G]

Figure 1:

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