

DIGITAL ECONOMY: THE ROLE OF DATA-DRIVEN INDUSTRIES AND CHINESE GIANT TECH COMPANIES: THE CASE OF HUAWEI IN AFRICA

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Introduction. It is without a doubt that technology and innovation play big roles in making some countries manufacturing-savvy making them wealthier than others. Countries that encourage their firms to innovate, and those that invest in educating their people and pushing the boundaries of science and technology, generally grow richer than those that do not. Yet the hope that ideas and technologies would flow across borders like air and be adopted by poor countries letting them catch up quickly with the developed and rich world, has been realized only in very little parts of the world. For example, Asian countries such as Japan, and later Taiwan, South Korea and China embraced many of the world's latest technologies to build formidable manufacturing economies. But Africa was largely left out of the most recent waves of globalization, in which labor-intensive manufacturing moved out of Europe and America and into Asia. In the year 1990, African countries accounted for about only 9% of the developing world's manufacturing output. By 2014 that share had further slumped to only 4%.

Methodology and literature review. In his article entitled "China in Africa: win-win development or a new Colonialism," Nick Van Mead (2018) posited that for over the past nine years, China overtook the United States of America as Africa's largest trading partner. And although Kenya and Ethiopia were the only two African nations among thirty signing economic and trade agreements at the Belt and Road Forum (Barf) in Beijing in May of 2017, China has been busy on the continent (Nick Van Mead, 2018). While East Africa has been the main focus of the Belt and Road on the African continent, Chinese infrastructure projects (including those of Huawei) stretch all the way to Angola and Nigeria, with ports planned along the coasts from Dakar (Senegal) to Libreville (Gabon) and Lagos (Nigeria). However, as Kadi, T.H.T. (2002) observed, Trade between China and North Africa has increased significantly since the early 2000s, but it has largely reproduced patterns of unequal exchange. Since they were unveiled, the Belt and Road Initiative (BRI) and the Chinese government's 2016 Arab Policy Paper have signaled the promise of a qualitative shift in China's engagement with the region. China has committed to increase investments in high-value-added sectors and to boost cooperation in science and technology with countries across North Africa.

China has become a global power, but there is too little debate about *how* this has happened and what it means. Many argue that China exports its developmental model

and imposes it on other countries. But Chinese players also extend their influence by working through local actors and institutions while adapting and assimilating local and traditional forms, norms, and practices. Skidmore (2022) however observed that, projects in the region, unveiled with great fanfare, have ultimately struggled. This includes the great Chinese Belt and Road in East Africa. A connecting thread across such cases has been China's inability to manage the political complexities associated with infrastructure development. Three main reasons have been attributed to this: First, the political leadership with whom they are dealing is either too weak or too venal to challenge contract terms that decidedly favor China; and, second, these same leaders will be strong enough to fend off resistance to ambitious infrastructure projects by opposition politicians and civil society groups while also mobilizing the financial resources necessary to sustain expensive, long term projects (Skidmore, 2022). But in an article entitled, "Billionaire Ren Zhenfei to focus on Survival amid global recession", Ren Zhengfei, the billionaire founder of Chinese smartphone and telecom giant Huawei, says his company must focus on survival and cut back on business lines that can't turn a profit as the global economy is poised to enter a recession over the next decade, according to local media reports. (Wang,2022)

Scientific novelty. This article critically investigates whether the Chinese technologies giant, Huawei, could step in and help Africa fill in the technology-gap and help African countries catch up with manufacturing to enable the continent to be abreast with the most recent waves of globalization, in which labor-intensive manufacturing moved out of Europe and America and into Asia. This, when achieved, stands to help Africa develop its digital and technological bases for economic growth and development.

Huawei. Founded in 1987, Huawei is a leading global provider of information and communications technology (ICT) infrastructure and smart devices. The company has approximately 195,000 employees and operate in over 170 countries and regions, serving more than three billion people around the world. Huawei's mission is "*to bring digital to every person, home and organization for a fully connected, intelligent world.*" To this end, the company drives ubiquitous connectivity and promotes equal access to networks to lay the foundation for the intelligent world; provide diversified computing power to deliver ubiquitous cloud and intelligence; build powerful digital platforms to help all industries and organizations become more agile, efficient, and dynamic. The company redefines user experience with Artificial Intelligence, offering consumers a more personalized and intelligent experience across all scenarios, including home, travel, office, entertainment, and fitness & health.

Huawei and Manufacturing Technology. Chang, et al (2009) posited that, if you walk into a bookstore in Beijing in China, and you will find shelves filled with books

about Huawei Technologies. Chang et al (2009) described Huawei as one of China's fledging multinational companies and a major force in the international telecommunications equipment industry, which is rewriting the rules of competition in a global industry. Chang et al (2009) also confirmed Huawei as the first non-state-owned Chinese company to have successfully expanded its operations internationally, and some observers said, it had become a model for other Chinese companies and a source of national pride. Despite the challenges facing the global economy and the telecommunications industry, Huawei achieved contract sales of US\$16 billion, representing a 45% year-over-year increase, with approximately 72% of its revenues coming from international markets (Chang et al, 2009).



Figure 1.Global Web Usage of “Huawei”
Source: Canals (2018)

Figure 2 shows Huawei's sustainable growth across the world. The company hugely replicates this growth on the African continent. In less than a decade, Huawei has penetrated almost every market around the world, investing heavily in its business and technology product lines, which includes fixed networks, mobile networks, data communications, optical networks, software and services, and terminals (Chang et al, 2009). According to an industry insider, Huawei segments the telecom equipment industry into three major categories: Internet switches, fixed line networks and wireless networks. “Huawei is currently the number three global company in wireless networks and number two in fixed line and switches,” says founder and CEO Ren Zhenfei. “But Huawei's goal is to become number one in all three segments,” he concluded. Its competitors include both well-known European and American companies, such as Alcatel-Lucent, Cisco Systems, Nokia Siemens Networks and Ericsson Telephone Co., as well as lower-cost Chinese competitors such as ZTE Corp.

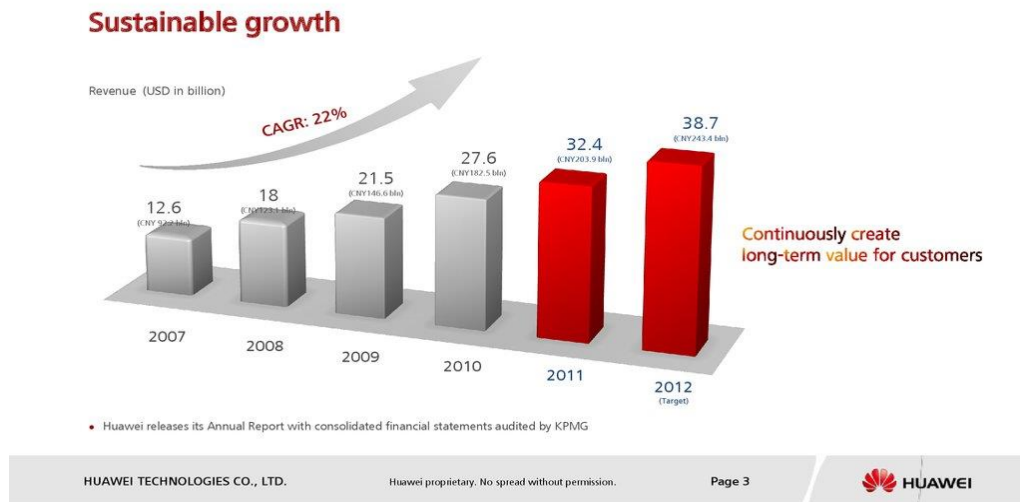


Figure 2. Huawei’s Sustainable Growth in World Contracts

Source: Huawei Technologies Co. Ltd

Huawei in Africa. Huawei entered the African market in the year 1998. The company remarkably successfully dispelled the “made in China” image of low cost and low and inferior quality. Huawei also successfully shifted its role from a manufacturer to that of a complete solutions provider. Chang et al (2009) posited that, as at today, Huawei creates some of the most sophisticated telecommunications equipment in the world and, according to the company, is “not making it cheaper - it’s making it better,” armed with its combination of a corporate culture marked by Communist roots and leading Western business practices, Figure 3 shows the fierce competition between the world three major mobile smartphone companies, Samsung, Apple, and Huawei. They are all jockeying for the African market.

Putting Michael Porter’s (1990) Competitive Advantage theory of low price and product differentiation as its theoretical backbone, Huawei executed a strategy composed of superior pricing, customer service and brand awareness to penetrate and dominate the African market, one in which few multinationals have been successful. (See Figure 3 below). Huawei has established a reputation as the preferred low-cost, yet high-quality mobile network builder. Its sales in Africa had topped US\$2 billion across forty countries by 2006 (Chang et al (2009)). According to the former head of Huawei’s operations in West Africa, Wilson Yang, Huawei’s profit margins in Africa can be up to ten times greater than those it realizes in China. Huawei manages to achieve tremendous margins while still pricing itself only 5%-15% lower than its major international competitors, Ericsson and Nokia. Furthermore, Huawei is cautious not to price itself too low so that it will not be seen as yet another low-cost Chinese provider. In contrast,

Huawei’s main Chinese competitor in Africa, ZTE, consistently prices 30%-40% below EU competitors and, its products are perceived as being of inferior quality.

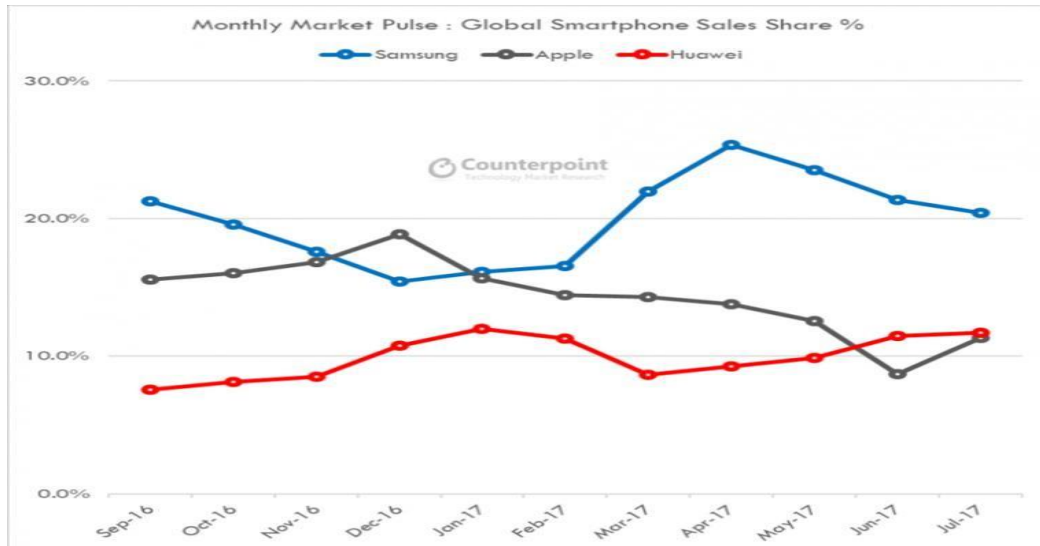


Figure 3. Global Smartphone Sales’ Shares: Samsung, Apple, and Huawei
Source: Peru 21

Figure 4 shows Huawei companies’ penetration and dominance on the African Continent. The company has made its presence felt in all regions of the African continent and consolidated its growth on the continent. Another factor behind Huawei’s African success is the company’s attention to superior customer service. Between the year 2000 and 2001, Huawei faced a barrage of challenges. The company’s IT investment had dried up, profit margins shrank, and the market faced oversupply, leading to profit growth to evaporate. Learning quickly from IBM, Huawei developed and concentrated on unmatched service attention and commitment to service which eventually came to dominate the firm’s global strategy. Indeed, superior service became the distinguishing feature of Huawei’s business model in Africa and its core competitive advantage. As confirmed by Yang, this business model leading to this approach by Huawei to customer service, ultimately led to global growth. Yang continued to conform that, Huawei brought a Chinese attitude to both work ethic and relationship building in Africa. The upshot of this was that Huawei’s clients soon realized they could rely on Huawei 24 hours a day, seven days a week. This close supplier-customer relationship helped engender that reliability and soon yielded loads of benefits to both the supplier and the buyer. Suddenly, Huawei reputation for superior service and higher quality further catapulted the company’s new introductions into decision makers in new African markets, faster network building and advanced notification of competitive bids. This hugely enabled Huawei to price its products safely below competition.



Figure 4. Huawei’s penetration and dominance of the African market
Source: Wadeisor Rukato (2016)

According to Chang et al (2009) Huawei is also using its business in Africa as a training ground for establishing itself as a global brand through three distinct channels: policy, local investment, and marketing. They also posited that, Huawei leverages its resources and products to connect with development policies throughout the African continent. Recently, Huawei opened a new training facility in South Africa, its fifth training center on the continent. A sixth is currently being built in Angola. Huawei now provides a training for up to 2,000 people annually on the continent.

Huawei has built several training centers across Africa. This study establishes the purpose of these centres in Kenya and Nigeria and presents original data on their success based on their objectives. Fieldwork was conducted in 2018 and follow-up interviews continued by phone until 2021. But, as Tugendhart (2021) argued, Huawei’s investments offered no significant opportunities for knowledge transfers that could foster technological or industrial upgrading in Kenya or Nigeria’s telecommunications sectors, for example. In part, this was due to domestic obstacles in the host countries. But, like other international equipment vendors operating in the region, knowledge transfers were also hindered by the limited scope of Huawei’s investments and the boundaries on the knowledge it was willing to share with domestic employees. Tugendhart (2021) concluded, however, that Kenya and Nigeria’s governments may have underestimated the leverage they had over international equipment vendors to induce more meaningful

opportunities for knowledge transfer. At a forum with the African Development Bank in the year 2007, Huawei set out a vision for Africa that is centered on, “bridging the digital divide and enriching the lives of Africa.” With this, Chang et al (2009) asserted that Huawei prides itself on giving back to the African community; one of the ways that it makes this manifest is through donating educational communications equipment to schools on the continent. Chang et al (2009) concluded that, Huawei Technologies has built a world class enterprise, reaped tremendous profits in Africa over the last decade and is still contributing to growth on the continent. Using Africa as an example, in China, domestic media have heralded Huawei’s success as a model for other Chinese companies trying to transform themselves from domestic entities into global players. What this means is that, as Chinese Corporations leaders face challenges going forward, they need to look back and pick up the lessons Huawei learned in Africa.

Correlation Analyses and Hypotheses Development. Survey on Huawei Technology as the Best Technology for Manufacturing and Development in Africa. This paper carried out a survey via the distribution of questionnaires to a number of Africans to gauge their (respondents’) views on whether Huawei Technology is Best Technology for boosting Manufacturing and Development on the African continent. This is in line with the research topic as well as what the article set out to investigate.

Correlation Analyses. The following correlation analyses were made on selected independent variables and the dependent variable:

Figure 6. Huawei Technology and Economic Development in Africa

Correlations

		Will Huawei Techno- logy ameliorate eco- nomic development in Africa	Most Afri- cans prefer Huawei Technology
Will Huawei ameliorate eco- nomic development in Africa	Pearson Correlation	1	.748
	Sig. (2-tailed)		.000
	N	25	25
Most Africans prefer Huawei Technology	Pearson Correlation	.748	1
	Sig. (2-tailed)	.000	
	N	25	25

Source: The Author

Figure 6 shows a correlation between Huawei Technology and Economic development in Africa. The dependent variable is Economic Development in Africa, and the independent variable is Huawei Technology. The correlation between two variables shows a significance level of .000. This indicates that there is a very strong correlation between Huawei technology in Africa and economic develop-ment in Africa.

Figure 7. Chinese Manufacturing Firms (Huawei) and African enthusiasm for Chinese technology in Africa for economic development.

		Will Huawei ameliorate Economic Development in Africa	Africans have huge enthusiasm towards Chinese manufacturing firms in their countries
Will Huawei ameliorate Economic Development in Africa	Pearson Correlation	1	.696
	Sig. (2-tailed)		.000
	N	25	25
African have huge enthusiasm towards Chinese manufacturing firms in their countries	Pearson Correlation	.696	1
	Sig. (2-tailed)	.000	
	N	25	25

Source: The Author

Figure 7 shows the correlation between Chinese Manufacturing Firms (Huawei) and African enthusiasm for Chinese technology in Africa for economic development. The dependent variable is Economic Development in Africa, and the independent variable is Chinese Manufacturing Firms (Huawei). The correlation between these two variables shows a significance level of .000. This indicates that there is a very strong relationship (correlation) between Chinese Manufacturing Firms (Huawei) and African enthusiasm for Chinese technology in Africa for economic development.

Figure 8. Huawei Technology and Lower Cost for Huawei Technology for Economic Development in Africa

		Will Huawei ameliorate Economic Development in Africa	African Countries would benefit from lower cost Huawei Technologies for development
Will Huawei ameliorate Economic Development in Africa	Pearson Correlation	1	.532
	Sig. (2-tailed)		.006
	N	25	25
African Countries would benefit from lower cost Huawei Technologies for growth	Pearson Correlation	.532	1
	Sig. (2-tailed)	.006	
	N	25	25

Source: The Author

Figure 8 shows a correlation between Huawei Technology for Economic development in Africa and Lower cost benefits for African countries. The dependent variable is Economic Development in Africa, and the independent variable is Huawei Technology with Lower costs for African countries. The correlation between these two variables shows a significance level of .006. This indicates a weak correlation of the two variables. It is bordered on being significant but was not less than the accepted level of significance ($p > 0.05$). Figure 9 shows a correlation between Huawei Technology for

Economic development in Africa and governments' acceptance of Huawei technology. The dependent variable is economic development in Africa, and the independent variable is governments' acceptance of Chinese (Huawei) Technology. The correlation between these two variables shows a significance level of .057. This indicates that correlation value of .057 is slightly outside the margins of significance. It is bordered on being significant but was not less than the accepted level of significance ($p > 0.05$)

Figure 9. Huawei Technology for Economic Development in Africa and African Governments' Acceptance of Huawei Technology.

		Will Huawei ameliorate economic growth in Africa	Various governments in Africa should champion Chinese Technology
Will Huawei ameliorate Economic Development in Africa	Pearson Correlation	1	.386
	Sig. (2-tailed)		.057
	N	25	25
Various governments in Africa should champion Chinese Technology	Pearson Correlation	.386	1
	Sig. (2-tailed)	.057	
	N	25	25

Source: The Author

Figure 10 above shows a correlation between Huawei Technology for Economic development in Africa and Chinese Huawei technology to boost the three main sectors of economic development in Africa: Agriculture, Industry and Services. The dependent variable is Economic Development in Africa, and the independent variable is Huawei Technology to boost Agriculture, Industry and Services in Africa. The correlation between these two variables shows a significance level of .005. This indicates that there is a “suggestive” relationship (correlation) between the two variables. This should be encouraging for African countries.

Hypotheses Testing. Two main hypotheses were proposed. These were tested by running a regression analysis using SPSS. The following results were obtained: The results of the first hypotheses showed a significance of .006. This indicates that, the hypotheses bordered on a statistically significant value, although it just fell short of being significant. Although the results of the statistical analysis do not give a clear-cut indication that African countries would benefit from lower cost Huawei Technologies for development, it definitely suggested to the positive that this is possible. The results of the second hypotheses above showed a significance of .035. This indicates that, the hypotheses value is less than the *significance* level. The initial response to this result would be to reject the hypothesis that, Chinese Technology manufacturing in Africa stands to boost the export of many African countries. Again, although the results of the statistical analysis do not give a clear-cut indication that Chinese Technology manufacturing in Africa stands to boost the export of manufactured products in many African countries, it definitely suggested that it could be a positive idea that could be tried.

Figure 10. Huawei Technology for Economic development in Africa and Chinese Huawei technology to boost the three main sectors of economic development in Africa:

Agriculture, Industry and Service

Correlations

		Will Huawei ameliorate Economic Development in Africa	The development of Chinese Huawei Technology has the potential to boost the economies of African Countries by improving agricultural, industrial and hospitality sectors
Will Huawei ameliorate Economic Development in Africa	Pearson Correlation	1	.545
	Sig. (2-tailed)		.005
	N	25	25
The development of Chinese Huawei Technology has the potential to boost the economies of African Countries by improving agricultural, industrial and hospitality sectors	Pearson Correlation	.545	1
	Sig. (2-tailed)	.005	
	N	25	25

Results of the Regression Analysis. Hypothesis 1. African Countries would benefit from lower cost Huawei Technologies for development

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.955	1	3.955	9.056	.006 ^b
	Residual	10.045	23	.437		
	Total	14.000	24			

a. Dependent Variable: Will Huawei ameliorate Economic Development in Africa

b. Predictors: (Constant), African Countries would benefit from lower cost Huawei Technologies for development

Hypothesis 2. Chinese Technology Manufacturing in Africa stands to boost the export of manufactured products in many African countries

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.518	1	2.518	5.044	.035 ^b
	Residual	11.482	23	.499		
	Total	14.000	24			

a. Dependent Variable: Will Huawei ameliorate Economic Development in Africa

b. Predictors: (Constant), Chinese Technology manufacturing in Africa stands to boost the export of manufactured products in many African countries

Conclusion. This paper set out by asserting that technology and innovation play big roles in making some countries run big manufacturing industries which make them richer than other countries. The paper stated that the continent of Africa was largely left out. The paper sought the views of available Africans as to whether the presence of a

Chinese technology giant (Huawei) in Africa could help engender manufacturing at high levels in Africa. Correlation tests were run on various variables and mixed results were obtained. Two hypotheses were developed on the theme and tested; the results were not quite significant but gave positive suggestions.

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It is without a doubt that technology and innovation play big roles in making some countries manufacturing-savvy making them wealthier than others. Countries that encourage their firms to innovate, and those that invest in educating their people and pushing the boundaries of science and technology, generally grow richer than those that do not. Yet the hope that ideas and technologies would flow across borders like air and be adopted by poor countries letting them catch up quickly with the developed and rich world, has been realized only in very little parts of the world. For example, Asian countries such as Japan, and later Taiwan, South Korea and China embraced many of the world's latest technologies to build formidable manufacturing economies. But Africa was largely left out of the most recent waves of globalization, in which labor-intensive manufacturing moved out of Europe and America and into Asia. In the year 1990, African countries accounted for about only 9% of the developing world's manufacturing output. By 2014 that share had further slumped to only 4%.