

## Examining Critical Success Factors for Africa's Sustainable Industrial Development with Special Reference to Zambian Manufacturing Sector – Challenges, Prospects & Opportunities



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**ABSTRACT:** This study was intended to examine critical success factors for Africa's industrial development with special reference to the Zambian manufacturing sector - challenges, prospects & opportunities. The study had three (3) research questions; what are critical success factors for Zambia's industrial development? How efficacious are the existing policy frameworks and /or governmental undertakings to guarantee Zambia's achievement of SDG # 9 by the year 2030? What are socio-economically viable and actionable policy imperatives to industrialize the country by the targeted year? The study used a qualitative interpretive paradigm in targeting middle and top management key informant policy makers in line government parastatals and association [(Zambia Development Agency (ZDA), the Industrial Development Corporation (IDC), the Citizens Economic Empowerment Commission (CEEC), the Lusaka South Multi-facility Zone (LSMZ), and the Zambia Association of Manufacturers (ZAM)] within the manufacturing sector in which 25 were interviewed comprehensively through convenient and purposive sampling techniques. Content analysis was used to analyse the data. The study established that technology, innovation, infrastructure, skills development, financing, R&D, and actualized favourable manufacturing policies were critical success factors to Zambia's industrial development. These parametric variables and policies must be anchored on a well guided and pragmatic political will from the politicians with required technical know-how. Besides, the study found out that although the country has close to enough policy instruments and frameworks to guarantee meeting its SDG # 9 if implemented coherently, consistently, and timely, there is no coherent systematization, co-ordination, and prioritization in attending to critically important productive sector policies for achievement of intended industrial development outcomes as the said factors (variables) fall across sectors / ministries thereby creating disjoints, discord and fragmentation in development actions. On the other hand, the study discovered with concern that there were no properly streamlined and sectoral delineation policies for foreign investors' investments as some of them were found to be investing in mundane activities such as running retail grocery shops, auto shops, and hardware; mending motor vehicle tires; operating casinos; moulding bricks / blocks; rearing livestock like chickens, pigs, goats; roasting maize on city streets. which economic activities are too basic to be done by an investor at the expense of local people. The study concluded that the country needed to implement and actualize its industrial development policies and programmes as contained in its national policy documents, SDGs and the constitution with a further caveat that the social, cultural and economic rights be enshrined in the republican constitution as a matter of urgency in order not to rationalize and make optionless socio-economic development by politicians who always want to venture into rent-seeking activities at the expense of sustainable national development. The study assuredly noted that if these policies could be implemented in correctly identified productive manufacturing sectors / industries, the nation would in no time overcome its alarming poverty, unemployment, debt mountain, and inequality levels, which have dogged it for generations now as Zambia has necessary raw materials such as minerals, land, forestry, wildlife, water, energetic youthful population, sunshine, forestry, etc. for cutting edge industrial development. Raw commodity trade does not guarantee sustainable development but bleaks the nation's and its generations' future, hence the imperative to circumvent this bliss by sustainable industrialization and value addition to the country's products and services for increased value.

**KEYWORDS:** Critical Success Factors, Industrial Development, Africa, Zambia

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## 1. INTRODUCTION AND BACKGROUND

Modern industry contributes significantly to the accumulation of physical and human capital. It provides relatively well-paid jobs for large numbers of unskilled or under-educated workers—particularly those who are not integrated in the formal economy—which increases household income and, hence, domestic demand. In this way, industry generates substantial backward and forward linkages with other sectors, providing a wealth of opportunities for suppliers, distributors, retailers, and business services (Signe' & Johnson, 2018).

*Sustainable Development Goal number 9 (SDG#9)* set for fulfilment by 2030 candidly envisions **“Building resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation”** (SDGs, 2030). This SDG creates an imperative context for the coherent discourses within the framework of the 2023 ECA Conference themed: **“The Imperatives for Industrial Development: Challenges and Prospects”** as it pin-points specific aspects of socio-economic pre-occupations and policy focus for Africa and the rest of the countries in order to meet the set benchmark.

Industrialization is pivotal to Africa's long-term socio-economic development, and broadening and deepening the manufacturing sector will build more resilient economies which will automatically sustain the growing populations. Africa is endowed with vast resources – in agriculture, mining, and maritime resources, as well as a youthful labor force, which if properly harnessed, can stimulate a resource-based industrialization strategy (ECA, 2019).

The key boon of manufacturing is that it absorbs large swaths of workers and places them into productive and decent paying jobs. Throughout history, this exact recipe has transformed the United States, United Kingdom, France, Japan, and Germany into some of the world's wealthiest nations. Most recently, a new age of industrialization has helped push China into one of the world's fastest growing economies boasting the largest middle class, with other Southeast Asian countries following closely behind. These are all examples of how industrialization can generate rapid structural change, drive development, and alleviate poverty and unemployment (Signe' & Johnson, 2018).

However, this narrative seems to exclude many African nations. Despite their manufacturing potential and promising trajectories, most African countries have remained relatively dearth of factories. This limited industrial development represents a missed opportunity for economic transformation and quality employment generation that alleviates poverty (ibid).

With permissible contextualization of the study and using Zambia as a case in point; the country is among the richest globally, yet very de-industrialized and underdeveloped. Zambia is a large, landlocked, resource-rich country with huge mineral resource endowments, especially with copper, forest and water resources, substantial agricultural potential (rich soils), home to the world's 7<sup>th</sup> natural wonder- the Victoria Falls and with sparsely populated land. Situated in the Southern Central part of Africa, Zambia has a total surface area of 752,618 square kilometres of landmass and 9,220 km of water i.e. 48% of SADC water, shares borders with eight neighbouring countries that serve as an expanded market for its goods / services, and is Africa's second largest copper producer (World Bank, 2015). The description of Zambia herein is epitomic of many other African countries and the LDCs in general but the question which has remained begging/yearning for an answer is, **“Why the alarming levels of de-industrialization and underdevelopment amidst plenty of raw materials and natural resources in these nations?”**

### 1.1. problematization

Today, politicians, policy-makers, business leaders are increasingly realizing that manufacturing is a major factor in ensuring that African countries achieve their goals of successfully reaching the next stage of socio-economic development. The African Union, for instance, has put the sector front and center in its Agenda 2063. African governments are seeking new and innovative ways to attract investment and nurture industry by implementing strategies that involve targeted investment in infrastructure, improved regional integration, and the establishment of special economic zones (SEZs) for priority subsectors (Signe' and Johnson, 2018).

*Zambia's revised National Industrial Policy* has prioritized the manufacturing sector as a driver of its envisioned industrialization, economic diversification, growth, wealth generation and jobcreation, especially for youths and women. Through its National Industrial Policy (NIP), food and beverage processing have been identified as the leading subsectors to improve manufacturing sector growth from 5% to 20% p.a. and to improve manufacturing sector contribution to GDP from 8% to 15% by 2027. Agro processing enjoys special tax incentives and pays the least corporate income tax (10%) (2018).

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kilometres of landmass and 9,220 kilometres of water i.e. 48% of SADC water, shares borders with eight neighbouring countries that serve as an expanded market for its goods / services, and is Africa's second largest copper producer (World Bank, 2015). The description of Zambia herein is epitomic of many other African countries and the LDCs in general but the question which has remained begging/yearning for an answer is, ***“Why the alarming levels of de-industrialization and underdevelopment amidst plenty of raw materials and natural resources in these nations?”***

It is against the foregoing background that the study took a critical focus on the urgent need for the country's sustainable industrialization and value addition in order to bridge the alarming poverty and unemployment gaps especially among the youth and women by reviewing and bringing out critical sustainable industrial development success issues for sustainable policy solutions.

### **1.2. Study Objectives**

- 1.2.1. To establish critical success factors for Zambia's industrial development.
- 1.2.2. To assess the efficacy of existing policy frameworks and/or governmental undertakings for guaranteeing Zambia's inevitable industrial development.
- 1.2.3. To describe socio-economically viable actionable policy imperative measures to industrialize the country.

### **1.3. Study Justification**

Africa's need for sustainable industrialization cannot be over-emphasized as it has been long overdue. It is imperative to note that Africa could have been the first continent to industrialize on the globe had precautionary measures been taken from the inception of civilization. This continent has had all the necessary ingredients for industrialization and value addition to its raw material and services even before Great Britain industrialized. Therefore, carrying out a study premised on critical success factors for the continent's sustainable industrial development provides insightful and imperative steps that the policy makers, politicians and business houses need to put in place to position the continent and respective countries on the socio-economic development agenda deemed to be the panacea for its numerous challenges.

## **2. REVIEW OF RELATED LITERATURE**

### **2.1. Critical Success Factors for Sustainable Industrial Development**

Since the turn of the millennium many African economies have been reintegrated into the world economy on a positive note and experienced substantial economic growth. This growth has primarily been concentrated in commodity exports. The central question, however, facing African economies is how to use economic growth to foster industrialisation and value addition thereby facilitating general development (Morris and Fessehaie, 2014).

Thus, far higher GDP growth rates have not proportionately impacted poverty reduction. This was because growth failed to translate into commensurate job creation and social progress. Indeed, sub-Saharan Africa, particularly in Central and East Africa, has shown the lowest growth-poverty elasticity in the world (Fosu, 2011). The mineral and oil sectors are capital intensive hence have lower employment linkages than the manufacturing sector. Moreover, the potential benefits accruing from higher revenues have often not materialised because of low tax regimes, tax evasion and financial mismanagement.

Africa needs to provide job opportunities to millions of young people. Only a massive industrialisation effort will enable Africa to eradicate poverty and achieve sustainable development. At the same time, this will facilitate dynamic processes of technological innovation, skills development, knowledge-intensification and capital accumulation. Linkage development to commodity sectors can open important opportunities in this respect (Morris et al. 2014).

Industrial development opens up opportunities for positive externalities that are difficult to quantify. African countries can promote a diversification of technological capabilities and of their skills base by developing backward linkage supply firms to the commodity sectors and resource-processing industries. The variety of technological capabilities and skills fostered in linkages also opens up opportunities for lateral migration into other sectors. However, policy makers need to carefully assess the competencies developed within a sector because some have more potential than others for horizontal linkages (Hidalgo et al., 2007). For example, engineering services and manufacturing competencies have a general applicability across a wide variety of sectors. Investment into building broad “engineering skills” is therefore crucial.

There are many other variables which are largely considered to be critical for a nation's sustainable development. These are, but not limited to, human capital, innovation, supply demand, technology, natural resources, research and development, infrastructure, political will etc.

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The quality of a country's workforce, or its stock of **human capital**, is related to the country's flexibility, productivity, and ability to innovate. Illiteracy, low education levels, and poor health conditions among the population hinder an individual factory's productivity and its ability to absorb **new technologies**, creating a negative impact on the diversification of manufactured goods in the whole economy. Moreover, only through continuous **innovation**, either in formal product development or management process improvement—which need quality human capital—, can growth be achieved over the long term (Prakash and Gupta 2008; Schumpeter & Narayanan, 2001).

**Infrastructure** also has a huge role to play in the industrial development of a country owing to its capacity to either increase or lower the cost of doing business.

Cost effectiveness is widely viewed as the primary constraint on growth in manufacturing for firms of all sizes, but particularly for SMEs. For example, Radelet and Sachs (1998) have produced a wealth of research linking shipping costs to a country's prospects for growth in manufactured exports, as well as to its overall economic growth. These transport costs are largely determined by structural constraints, such as access to seaports, but also by macroeconomic policies, bureaucratic red tape, and the quality of infrastructure.

According to Signe' & Simons (2018), the current trends in cost effectiveness, supply networks, and domestic demand indicate that Africa is poised for rapid industrialization in the coming years. In the near future, the region will possess a more productive and cost-efficient workforce, improved transport infrastructure and regulations, larger and more developed supply networks, and consumer markets to support a range of manufacturing subsectors. In Côte d'Ivoire, for example, the impressive projection of about 7 percent annual GDP growth through 2020 is attributed to about a 10 percent increase in the value of household consumption, growing access to markets across the Economic Community of West African States (ECOWAS), increasing public investment in infrastructure and agribusiness, and a shift in the workforce from farming (currently 70 percent of the workforce) to formal employment (Business Sweden, 2016, p.6).

From the Zambian context, the country's long term aspirations are embedded in its long term policy national document commissioned by the 3<sup>rd</sup> Republican President Levy Patrick Mwanawasa in 2006 dubbed: Vision 2030. This document envisions Zambia to be "*A Middle-income Prosperous Nation*" by then. It is Zambia's first ever written long-term plan, expressing Zambians' aspirations by the year 2030. It articulates possible long-term alternative development policy scenarios at different points which would contribute to the attainment of the desirable social economic indicators by the year 2030.

Although Zambia's 2030 Vision espouses a socio-economically grown and developed country to a middle-income status by measurement, the document does not identify or pin-point industrialization as a promising vehicle to attaining such a development level. The document does not equally categorically identify and describe critical success factors for Zambia's industrial development by the set year which equally coincides with the SDG 2030.

However, the 8NDP recapitulates that diversification and industrialisation are constrained by inadequate infrastructure in economic sectors such as transport, energy, agriculture and ICT, especially in rural areas. This contributes to the high cost of doing business and ultimately affects productivity and the competitiveness of the economy. In addition, inadequate access to productive resources, especially low-cost financing, adversely impacts efforts to industrialise and diversify the economy at the desired rate. Further, limited research and development, coupled with low use of applied research and innovation have compounded the low rate.

The enlisted description of the critical teething bottlenecks to Zambia's industrial development in the 8NDP in the foregoing paragraph is an eye-opener and a hope-filling breath that the government might now objectively deal, by policy and action, with issues necessary for the industrialization of this country.

### 2.2. Policy Frameworks and Governmental Undertakings for Industrial Development.

At continental level, according to the African Union Commission (2015), there is still significant room for growth in African manufacturing within the continent. Intra-African trade in manufactured goods has already increased from 10 percent of total trade in 2000 to about 16 percent in 2014. In order to support that growth, African regional bodies and governments are breaking down trade barriers, improving financial structures, and investing public resources in much-needed infrastructure—especially transport and energy networks and the Internet.

Industrialization in Southern African Development Community (SADC) has been slow, particularly in the manufacturing sector, which has shown a decline in contribution of 10.6 percent to Gross Domestic Product (GDP) in 2015 compared to 14.1 percent in 2005 (SADC, 2020). The SADC framework hinges upon regional commitment, creation and intensification of individual country policies. The SADC region needs to increase the manufacturing sector share of GDP to above 25 percent to significantly transform the economic and social status of its citizens (Southern African Research and Documentation Centre, 2015). While

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there are concerted efforts towards regional industrialization in SADC, it is still a very individual experience. Member states will take different paths to achieve this goal. A study by Mkwizu et al. (2021) on Impacts and Challenges of Industrialization in SADC made a finding that *“while there is an impact on policy provisions targeted towards industrialization, there are challenges such as poor policy implementation that, if not addressed, could dampen efforts by policymakers in achieving the goal of industrializing the countries.”*

From the Zambian context, the National Long Term Vision 2030 (Vision 2030) is the country's first ever written long-term plan, expressing Zambians' aspirations by the year 2030. It articulates possible long-term alternative development policy scenarios at different points which would contribute to the attainment of the desirable social economic indicators by the year 2030. The Vision is operationalised through the five-year development plans starting with 5NDP (2006-2010) and annual budgets.

The foregoing Zambian Document detailing the aspirations of the country's citizenry by the year 2030 has mouthfully generalized issues which do not speak to specificities of industrial development of the country. It must be clearly stated that industrial development cannot happen in a vacuum devoid of favourable targeted policies with equitable financing, co-operation between the public and private players and prioritized considerations of investment in productive manufacturing sectors and line industries for potential achievement of backward and forward linkages.

Since the launch of the country's Vision 2030 in 2006, the country has had a number of NDPs (2006-2010, 2011-2016, 2017-2021) and the current 2022-2026 with their attendant budgets. Most of these documents, if not all, have been acknowledging the manufacturing sector as a pivot of economic development through its backward and forward linkages to economic growth, exports and employment creation through its potential to provide a market for primary products and sets the basis for exports with employment generation capacity. Policy, institutional and legislative reforms undertaken during the FNDP contributed towards a more conducive investment environment for both foreign and domestic investments, including the Micro, Small and Medium Enterprises (MSMEs). The main thrust during the SNDP period was to facilitate the up-scaling of the manufacturing sector towards higher value addition and upgrade capacity in the provision of related services. Emphasis was placed on transforming industrial businesses and complementary services particularly MSMEs into strong value-creating entities (6NDP).

The current NDP, the 8NDP (2022-2026) is themed: is **“socio-economic development for improved livelihoods.”** It targets massive job creation, poverty and inequality reductions anchored on investments in productive sectors like the manufacturing, mining, tourism and agriculture. *“It is, therefore, the focus of the country to attain economic transformation that will be marked by **advancements in industrialisation and economic diversification for sustained growth driven by agriculture, mining, manufacturing and tourism.** It will entail shifting labour and other resources from low to higher productive activities between and within sectors. Ultimately this will increase employment opportunities for all Zambians. To ensure sustainable economic transformation and resilience of the economy, measures will be undertaken to transition Zambia to a modern green and resource efficient economy.”*

The country equally has a revised industrial policy which espouses the growth of the manufacturing sector. *Zambia's revised National Industrial Policy* has prioritized the manufacturing sector as a driver of its envisioned industrialization, economic diversification, growth, wealth generation and jobs creation, especially for youths and women. Through its National Industrial Policy (NIP), food and beverage processing have been identified as leading subsectors to improve manufacturing sector growth from 5% to 20% p.a. and to improve manufacturing sector contribution to GDP from 8% to 15% by 2027. Agro processing enjoys special tax incentives and pays the least corporate income tax (10%) (2018).

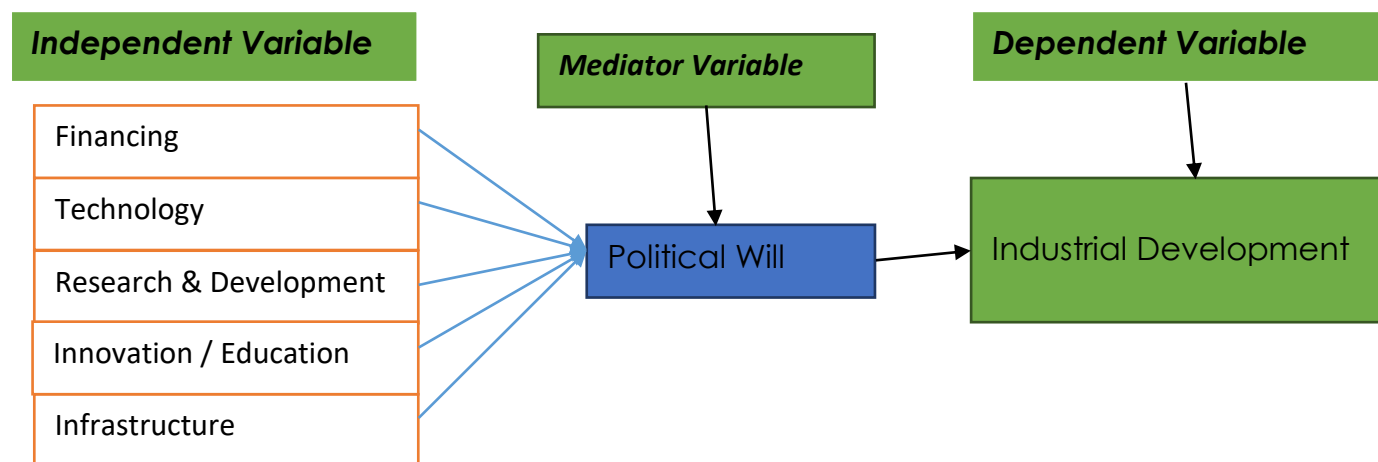
There are many other development national documents and institutions which speak to the socio-economic growth of the nation in the area of industrialization. These include the Zambia Development Agency (ZDA), the Citizens Economic Empowerment Commission (CEEC), the Industrial Development Corporation (IDC) which houses all public industrial parastatals and is chaired by the Republican President.

Therefore, from the studies reviewed, it is quite evident that firstly there are no specific industrial development success factors have been attributed to Zambia. Secondly, the country's multiple policy documents are notable but the challenge could be coherence, coordination, financing and harmonization of them for targeted industrial development. Thirdly, they equally do not delineate the critical success factors for the country's sustainable industrial development.

### 2.3. Conceptual Model for Potential Actionable Industrial Development Policies

A conceptual framework is a narrative or diagrammatic structure which the researcher believes can best explain the natural progression of the phenomenon to be studied (Camp, 2001).

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**Source:** *Researcher's Design (2023)*

**Figure 1:** Study Conceptual Framework diagrammatically presents the variables that anchor this study and attempts to explain the interrelationships between and among them believed to be panacea to Africa’s industrial development challenges. The CF identifies five independent variables, namely; Research and Development (R&D), financing, infrastructure, skills development, technology, and innovation which are deemed pivotal to the stimulation of the African continent and Zambia in particular to industrially develop.

**2.3.1. Research & Development (R&D)**

R&D has proved to be a trustworthy vehicle in transforming many developed countries now. The decisive synergy between academia and industry create a necessary condition for Higher Education Institutions (HEIs) to achieve socio-economic development by developing prototypes which are made available to industrialists to invest in industries.

**2.3.2. Financing**

This is a critical catalyst to industrialization. Industries cannot be opened devoid of sufficient capital investments in targeted productive sectors. Financing is also necessary for the industrial infrastructure development of the country. Industries require adequate investment in production plants, machinery, tools and equipment which need sufficient budgetary resources from the central government and /or through public private partnership frameworks.

**2.3.3. Technology**

Technology is an equalizer. This means that the LDCs must radically shake their primary industries structure to begin adding technology to their production to produce finished products. The Artificial Intelligence (AI) can be of great use in revolutionizing service provision by the public sector which is mostly marred with delays, bureaucratic inertia and red tapeism.

**2.3.4. Infrastructure development**

This is critical for any sound and meaningful development to take place. In the context of industrialization, the country needs to have basic and minimum standard infrastructure to support the crusade for industrial development. This may, among others, include good road and rail networks, airstrips, airports, warehouses and production plants, internet infrastructure, telecommunication towers, and many other industry specific infrastructure necessary for the development of industries.

**2.3.5. Innovation,**

This implies the citizenry’s trained / educated minds and mindsets to create or design new products or add value to goods and services given favourable resource endowments of the country. This means that the education curricular of such nations must not just emphasize academics but vocational and other entrepreneurially oriented pathways which squarely resonate with their country’s environmental resource endowments. In this way, education of citizens will be relevant and the citizens will participate fully in the socio-economic development of their respective nations. It entails overhauling colonial masters’ reflective curricular at all levels and designing educational goals / curricular which are responsive to the countries’ socio-economic development needs through specified skills training and development of human resources who will be useful to industrial development of their nations.

**2.3.6. Political Will**

This variable has been recognized in this study as a paramount intervening one whose presence or absence largely explains the industrial development status of these nations. Countries which have industrially developed in the past and present have been

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able to achieve such on account of the political leaders' and policy-makers' deliberate targeted efforts and financing of industrial-based policies coupled with consistent oversight roles on the same. In the African set up where development is largely politicized, it is of paramount importance that the ruling politicians give an outright buy in to industrial development initiatives, policies, programmes and projects with equitable financing or indeed an enabling business environment and policies supporting industrialization by the private players.

### **2.4. Theoretical Models: Growth Pole Theory & Innovation Paradigm**

This study is anchored on French Regional Economist, Francois Perroux's Growth Pole Theory, developed in 1955 and Joseph Schumpeter's Innovation and economic development model. These two theoretical models speak not only to the industrial imperatives of modern times but also to the benchmark SDG which envisages industry, manufacturing and innovation as critical catalysts for the countries' meaningful socio-economic development. These theories equally complement each other. It is Perroux's considered view that investment in productive sectors which have backward and forward linkages can quickly equalize development. He considers development from a satellite perspective in which an investment in one industry automatically stimulates growth and development of other industries from respective regions towards the centre.

## **3. METHODOLOGY**

The study was conducted with Lusaka district, the capital city of Zambia. It used a qualitative interpretive paradigm in targeting middle and top management key informant policy makers in line government parastatals [(Zambia Development Agency (ZDA), the Industrial Development Corporation (IDC), the Citizens Economic Empowerment Commission (CEEC), the Lusaka South Multi-facility Zone (LSMZ), and association, the Zambia Association of Manufacturers (ZAM)] within the manufacturing sector / peripherals in which 25 were interviewed comprehensively through convenient and purposive sampling techniques. The researcher equally reviewed national policy documents of the country and policies / legislations of these entities as secondary sources to complement / corroborate the primary data garnered through key informant interviews. The data was analysed thematically and the highest ethical considerations were adhered to.

## **4. ANALYSIS AND DISCUSSION OF FINDINGS**

### **4.1. Critical Success factors for Zambia's industrial development**

#### **4.1.1. Political Will**

The key informants collectively emphasized the significance of political will if Africa and its nations were to be sustainably industrialized. They cited other jurisdictions like UK, Singapore, Asian Tigers, among others, who made significant scores in industrial development on account of their leaders' political will.

*"Without political will, there is no expectation of industrial development as there is scanty evidence of any industrialized country which attained such status without the pivotal role of politicians working with policy makers to industrialize those nations world over. Examples of South Africa, China, Singapore, Malaysia, USA, UK, among others, speak volumes to this effect"* they observed.

#### **4.1.2. Financing**

Financing was equally pointed out to be a critical success factor to Zambia's industrial development and indeed any other LDC as industrialization required huge capital investments.

One informant observed:

*"Without adequate financing, no one should expect industrialization of a nation and this is where most LDCs fail because their annual budgets mostly revolve around basic and consumptionist needs. The lack of industries, ironically, is the cause for constricted resource envelopes for these nations and Zambia in particular is equally affected by this phenomenon. It is even worse that most of these countries survive their annual budgets through debts from financial institutions which they later have to pay back at high interest rates which further dwindles their ability to dedicate resources for industrial development."*

The financing gap was re-echoed as a resounding challenge in the development of industries. The CEEC Director General, Dr. Charles Muwe Mungule, during a special interview on Prime Television, hosted by Amb Frank Mutubila, on 13<sup>th</sup> July, 2023 from 20:30 to 21:30, monitored by the researcher, stated the following with regard to the financial and operational challenges of the commission:

*"CEEC as a citizens' economic empowerment statutory body began its operations in 2008 with a total budget of K1.5 billion (USD 75,000,000.00) from 2008 to 2023 but only K880 million (USD 44,000,000.00) has been received since its inception. From 2008 to 2021, only 28% of the budgeted amount from treasury was released but the new government has demonstrated commitment in that in 2022, all the K350 million (USD 17,500,000) (budgeted amount was released to the commission and for the current year*

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*K236 million (USD 11,800,000) of the K397 million (USD 19,850,000) budgeted has already been received by mid-year. The commission has also operational challenges in that it has a very small labour force which affects loan recovery at only 28% recovery rate as of 202. The commission has a strategic plan 2022 to 2026 targeting value addition projects but the challenge is the financing gap of K29 billion (USD 1,450,000,000) currently which makes the commission refer some of the projects to banks for possible financing though at higher interest rates compared to the commission lending rate of 12% simple interest per annum."*

### 4.1.3. Innovation, Skills Development, Research and Development

Key informants generally lamented that the country's levels of investment in R&D were sub-optimal. They stressed that R&D was a priority aspect of financing in most countries which have made significant progress in industrial development in which resources were dedicated to scientific research to bring out product prototypes and product development including service value addition.

One of the informants cited an R&D research institution at the University of Zambia and said, *"Technology Development and Advisory Unit (TDAU) at UNZA has capacity to engage in production of industrial products. In fact, during COVID – 19, the unit produced an industrial ventilator but the project could not be scaled up due to lack of funding. Therefore, I can say the country has quite some skilled human resources and institutions which can engage in R&D to produce desirable results but the main challenge is lack of political will to decipher the necessity of financing such undertakings."*

The informants collectively understand innovation to be the ability to creatively design new products or enhance features of such products and to add value to goods and services. Asked how they assess the country's levels of entrepreneurial spirit and innovation; the informants were generally in unison that much leaves to be desired.

One of them stressed that:

*"The country is immensely rich in all manner of natural and human resources to turn this country into an industrial hub. I cannot fathom why a country with all manner of resources like copper, cobalt, gold, silver, emerald, coal, sugilite, nickel, manganese, iron, zinc, steel etc can still be a mere producer of such raw materials decades after their discovery but without appreciable value added to them for direct industrial use."*

Another informant observed that the country has vast forestry which is valuable for timber and also with such trees like Mukula with medicinal value as well as gun handle production:

*"Can you imagine that this country has so much forestry which is an input in furniture production; Mukula for medicinal production and gun handle manufacturing but we still import finished products of our raw materials? We have vast land with fertile soils for agribusiness but the country is still largely at peasantry level in terms of production and productivity with no desired value added to these products thereby trading in raw agricultural materials. The same case goes for our fish heritage which is simply fished from rivers and lakes and then sold as is. This development approach has been responsible for the country's alarming poverty levels and the earlier we realized and changed direction the better."*

When asked what could be done to improve the levels of entrepreneurship and innovation, a number of the informants cited common issues of interest. They stated that there was a need to relook and decolonialize the education curricular from Kindergarten to university levels so that those curricular reflect the resource endowments of the countries and provide relevant skills in multiple pathways along such. They also stressed the need to have university curricular which do not just churn out white-color-job graduates but those that create employments by applying their university acquired skills in production, R&D and various other innovations which revolutionize the economy. The mindset of most Zambians was also said to be faulty as most of them were living dependent lives devoid of hard work, business risk taking, self-reliance and industry.

Some of the informants stressed that:

*"The country needs to invest a lot of resources in human resources skills development necessary for the achievement of SDG #9. The government's introduction of free education from pre-grade to grade 12 was a step in the right industrial development direction but it must take into account revolutionization of the curricular if the intentions of free education are to be achieved. There is nothing more important than having rightly skilled human resources across the productive sectors of the economy if the innovations and industrial development is to be achieved."*

In agreeing with the foregoing, Prakash and Gupta (2008) hold that the quality of a country's workforce, or its stock of human capital, is related to the country's flexibility, productivity, and ability to innovate. Illiteracy, low education levels, and poor health



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conditions among the population hinder an individual factory's productivity and its ability to absorb new technologies thereby creating a negative impact on the diversification of manufactured goods in the whole economy.

On the other hand, Sungur (2007:12) stresses that, "product innovation expresses a product, whose performance features are increased, to be commercialized or to be adopted and in the simplest expressions, is defined as a new product. It is possible to divide into two the product innovation as goods and service innovation. In another word, the word "product" is a definition to encompass both goods and services."

The innovation, as a process, expresses to transform an opinion into a usable product and service, a new or developed method of manufacture and distribution, or a new method of social service (TÜBİTAK, 1997). This innovation includes significant changes in techniques, equipment, and software and is made to reduce the production and delivery costs per unit, improve quality, and produce new products (OECD, 2005: 53).

The foregoing emphasizes the necessity of skilled workforce for innovation and creativity in the production processes in order to produce finished goods and value added services which have higher value for socio-economic development. This is the aspect where Africa and Zambia in particular has been lagging behind.

### **4.1.4. Technology and Infrastructure Development**

75% of informants reiterated the importance of infrastructure to guarantee industrial development. They stressed that infrastructure such as good road networks, telecommunication and internet facilities, airports, production plants, warehouse, railway and water transport were of paramount importance in ensuring that the manufacturing sector booms. They observed that industrial products need to be transported to various destination for sale and without necessary infrastructure success cannot be recorded.

One of informants stressed that:

*"It is the role of government to ensure that necessary infrastructure is available in the country for industrial development. The basic infrastructure such as roads, railways, airports, telecommunication towers and internet facilities cannot be left to the private sector to develop as they were capital intensive in nature. Such infrastructure needsto be available to ensure that connectivity and networks within and across national borders are ease. Zambia, for instance, is still lagging in availability of such infrastructure necessary for industrial development. The country still has a lot of areas without roads, telecommunication towers, airports, internet infrastructure, among others, thereby making it practically impossible to achieve meaningful industrial development. The country is now gravitating towards electric battery motor vehicles but without building infrastructure to make a success of such a development, nothing will materialize."*

O'regan et al. (2006) in emphasizing the importance of infrastructure for industrial development demonstrate by produced wealth of research linking shipping costs to a country's prospects for growth in manufactured exports, as well as to its overall economic growth. These transport costs are largely determined by structural constraints, such as access to seaports, but also by macroeconomic policies, bureaucratic red tape, and the quality of infrastructure within the country.

On the other hand, almost all the informants stressed the necessity of technology in the undertaking of the nation to desired industrial development. They noted that technology was a major missing link in the LDCs industrial development policies for socio-economic development as resources such as money were not sufficient to acquire necessary technologies which are pegged at high development or patenting fees.

One of the informants narrated that:

*"Technology in our context means adding value to our raw materials so that they become finished products which would have higher sales value." The creation of the Ministry of Science and Technology by the Government of the Republic of Zambia must be seen as a step in the right direction as it government's realization of the important role played by technology in industrialization of the country. What is important now is to ensure harnessing appropriate technologies and providing an enabling environment for the private players to participate fully in the industrial development of the country through relevant policies from this ministry."*

Another informant remarked that:

*"The world has now gone digital and is in the 4<sup>th</sup> industrial revolution but our country has not yet moved some inch towards realizing some benefits from the digital world. A lot of office and industrial operations are still analog yet automation from Artificial Intelligence (AI) and the internet of things (IT) has revolutionized the globe with many countries cashing billions of*

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*dollars through digital platforms while improving their service delivery. There is need for a revolution in this direction sooner than later or the country will find itself drowning in high digital waters."*

It is, however, important to note that owing to the rampant unemployment levels in most LDCs, Zambia inclusive, the technologies / digital platforms to be harnessed and utilized must be ones which are labor intensive in order not to solve a problem by creating another. This observation is buttressed by the G20 2019 Japan Conference too in the recap below:

*"The challenge for industrialization in Africa is how to leverage digitalization and information technologies to drive competitiveness of African manufacturing, and industrial development more generally. Digitalization of the economy is often viewed as being associated with the large-scale introduction of labor-saving technologies, requiring appropriate skills development for the labor-force (and general citizenry) across the region, in order to take advantage of digitalization. This, however, cannot be the focus for Africa, especially given the youth employment challenge in the region. There is need to leverage ICT technologies to support growth of productive sectors, especially those industrial sectors with high labor-intensity and strong backward and forward linkages. In addition to African manufacturers directly benefiting from the use of digital technologies, African governments can also use such technologies in public administration to enhance service delivery to (directly or indirectly) support the continent's industrialization."*

### **4.2. Efficacy of Existing Policy Frameworks for Guaranteed Targeted Industrial Development.**

The informants were asked to assess the efficacy of government policy frameworks and instruments in place to guarantee meeting the SDG # 9 benchmark and a lot of them raised critical issues while agreeing to a large extent that the country was not in want of policies but political will and citizens' revolutionized mindsets.

The informants generally observed that the country has a National Industrial Policy (NIP), the Industrial Development Corporation (IDC) – a supervisory authority of industrial development, Zambia Development Agency, Citizens Economic Empowerment Commission, Zambia Association of Manufacturers, Multi-facility Industrial Zones, National Scientific and Research Centres and various line ministries echoing the aspirations of these policy institutions. However, the missing links revolved around lack of implementation of brilliant ideas enjoined in these bodies' policies and strategies emanating mostly from lack of financing, political will and relevant technologies.

In reinforcing the foregoing observation, one of the informants noted:

*"If you look at the Country's Vision 2030, the successive national development plans (NDPs), the NIP, the establishments of the Ministry of Science and Technology, the CEEC Act, ZDA, TDAU, among others, they have extremely brilliant industrial development trajectory, but over the years, most of these are not annually funded equitably to implement those ideas and innovations. The issue of the political will is paramount in determining the successful implementation of the industrial development agenda."*

Some informants also yearned for effective and implementable energy policies which they observed were a serious impediment to Zambia and Africa's industrial development.

One informant stated that:

*"Zambia has over 40% of SADC water but has no stability yet in the production, generation, distribution and consumption of electricity. The industries are severally disrupted due to this erratic power supply which is also demotivating to would be industrial investors. The solar energy sector also has huge potential but the country is not seemingly tapping into this aspect to its detriment. There is need to ensure that existing energy policies are actualized so that the country can mitigate the national energy deficit and guarantee stability of energy to industrial investors. The country currently has the energy generation capacity of 3,356.6 MW, which may not suffice for multiple commercial industry operations."*

Scholars observe that while there are concerted efforts towards regional industrialization in SADC, it is still a very individual experience. Member states will take different paths to achieve this goal. A study by Mkwizu et al. (2021) on Impacts and Challenges of Industrialization in SADC observed that *"while there is an impact on policy provisions targeted towards industrialization, there are challenges such as poor policy implementation that, if not addressed, could dampen efforts by policymakers in achieving the goal of industrializing the countries."*

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### **4.3. Viably Actionable Policies for Industrialization**

#### **4.3.1. Political Will and Constitutionalism Aligned Policies**

A lot of informants stressed the need for policies and legal reforms which will censor and sieve individuals to occupy highest political offices at parliamentary and presidential levels to ensure they espouse values and virtues of nationalism with competency and self-motivation for national and not personal development.

One of them specifically remarked, *“we need politicians who understand and can apply their skills to policies around industrialization as the mainstay of the nation's socio-economic development. The country long been singing songs about job creation, poverty and inequality reductions but without integrating the actual panacea to the realization of these benefits which is industrial development. The social, cultural and economic rights need to be included in the republican constitution so as to compel these politicians to act in the direction of development and not self-service.”*

In stressing the import of political will in dealing with industrial development bottlenecks, the Africa Union Commission (2015, p.5) stresses that “in order to address the remaining, non-structural constraints that can be improved through political commitment, African Union member states have committed themselves to substantial public investment in infrastructure, specifically a high-speed rail network, oil and gas pipelines, ICT broadband cables, and sea and air ports. All of this is part of the regional project to drive industrialization and to increase intra-African trade from 11 percent to nearly 50 percent of total trade by 2045.”

#### **4.3.2. Innovation, Skills Development and Technological Adaptation**

The informants noted with concern that despite the availability of various policy instruments and frameworks on innovation, skills development and technological adaptation, the nation was still lagging behind in the implementation of the same.

*“Actualization of Innovation and entrepreneurship policies is the way to go. The Ministry of Small and Medium Enterprise along with the Ministry of Science and Technology, needs to ensure that various innovations, R&D purposed for industrial development are undertaken in order to fulfill the SDG # 9 target. The country has a brilliant industrial policy which must be actualized through adequate investment in required technologies, innovations and scientific research which must provide industry prototypes and patents for commercial markets.”*

In his study which recognizes and buttresses the complementary role of technology and innovation in industrialization and value addition, Kaya (2015) noted that developing innovations is determined by the technologic and economic conditions, in which the firm (making innovation) is. Innovations may be intensified in certain periods and sectors, because in order for a radical innovation to be able to use its all technological potential, many complementary (small) innovations are needed. In other words, after a radical (successful) innovation, technologic change follow a certain way defined as —technological trajectory.

#### **4.3.3. Streamlining FDI Policies**

There was a collective observation by the majority informants that there is need to revisit the nation's FDI policy which they described to be open-ended and encourages unfair competition as it was equally more favourable to foreigners than locals. The informants lamented that the FDI policy allowed foreigners to invest in any sector of the economy and in almost all forms of business including those which could be done only by local people. They observed that there are a lot of foreign investors who are simply running retail grocery shops, selling chickens / eggs, roasting maize by the streets, providing wheel burrow transport, growing agricultural crops on a small scale, selling minerals by-products, selling raw timber, raw minerals, raw wildlife, mineral water etc rather than being involved in manufacturing of finished products.

One informant remarked,

*“how can the government policy allow an investor all the way from Europe or China to come and invest in selling retail sweets of auto spares which are equally imported? The country cannot even produce tooth picks despite the vast forest, nails despite immense copper deposits and pharmaceutical products despite so many trees with medicinal value and investors are allowed to come and cut these trees, mine the minerals, kill the wildlife for raw export to Europe, China, Asia, etc.! This must change! Our FDI policies must be reviewed and changed to cure this recklessness as it does not guarantee sustainable development.”*

The informants reiterated the need for the government to streamline sectors and industries where foreign investors should invest with specific levels and amounts of investments. This, they said, should be tied to the need for them to use joint ventures with locals as a pre-condition for investment approval. They lamented that it has become a development misdemeanor for investors to own chunks of arable land while locals are squatters or displaced by them due to the porous investment policies the country has.

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### 4.3.4. Infrastructure Development Policy

There was collectivism from most informants that the infrastructure development of the country lacked coordination, prioritization and therefore effective implementation as most politicians directed the development of infrastructure merely for political mileage and not development though huge resources are spent. They expressed a lot of misgivings on policy convergence between or among infrastructures to be developed by the municipalities, the Road Development Agency, the Zambia National Service and the Ministry of Infrastructure Development, among others.

*“There is need to have policy clarity and coherence on who is responsible for road and railway transport development, telecommunication and internet infrastructure, industrial development and energy infrastructure for the country to have an objective focus on industrial development. On the other hand, the government must prioritize the development of infrastructure in productive sectors which will add more value to the country's GDP than venturing in rent-seeking activities. In fact, infrastructure development must be de-politicized if it is to be meaningful and sustainable. Policy expert in public offices must be able to register harmony and coherence in national policies to curtail discord and disjoints in the execution of national development projects” one of the informants stressed.*”

Radelet and Sachs (1998) in agreeing with the important role of infrastructure in industrial development stress that it has a huge role to play in the industrial development of a country owing to its capacity to either increase or lower the cost of doing business. Cost effectiveness is widely viewed as the primary constraint on growth in manufacturing for firms of all sizes, but particularly for SMEs. There is a wealth of research linking shipping costs to a country's prospects for growth in manufactured exports, as well as to its overall economic growth. These transport costs are largely determined by structural constraints, such as access to seaports, roads, airports, but also by macroeconomic policies, bureaucratic red tape, and the quality of infrastructure.

## 5. CONCLUSION AND RECOMMENDATIONS

The study has ably examined and critically analysed the critical success factors for Zambia's industrial development and its strides towards meeting the SDG #9 benchmark by the year 2030.

First and foremost, there is convergence, in this study and the literature surveyed, that innovation, technology, skills development, infrastructure development, energy, and research and development, and financing are critically necessary for the nation to industrialize. These variables equally mirror the success stories of most industrialized countries as benchmarks of focus and investment with political will as an intervening or mediator variable. The context is such that Zambia as a country has most of the critical productive raw materials but the absence and/or inadequacy of these parametric variables coupled with political will has rendered the nation socio-economically de-industrialized and underdeveloped with alarming inequalities and poverty levels of about 65% in a population of about 20 million in which the majority are energetic young people with about 752,000 km<sup>2</sup> of underutilized arable land, vast valuable forestry, and enormous diverse mineral deposits across the country but largely traded in raw form for decades.

Secondly, the study has concluded that Zambia as a country, has close to enough policy frameworks, instruments and legislation to guarantee its success in the implementation of the national industrialization agenda as espoused in its Vision 2030 and successive national development plans along with the SDG # 9. Nevertheless, the drawback has been on the absence of a clear road map for effective implementation of such policies, which require, among others, deterministic political will, financing, bilateral co-operation and inclusion of social, economic and cultural rights in the national constitution as a way of compelling politicians to de-politicize development but take pragmatic actions for socio-economic development of the nations.

Last but not the least, it is not yet too late for Africa in general and Zambia in particular to revolutionize their socio-economic structures through industrialization. Zambia needs to appreciate the local, regional and global favourable environment to implement its industrial development policies in order to derive the value from them. There is need to implement and actualize the technological, innovation, skills development, infrastructure development, energy and R&D policies with correct, coherent and consistent coordination, prioritization and financing. Through this prescription, the NIP, the TDAU, the CEEC, the Vision 2030, the SDG #9, the 8NDP, the National Science Policy, the innovation and entrepreneurial policies, the ZDA policies, the manufacturing policies etc must receive due support and timely implementation for the benefit of the nation as a whole.

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