
African industrial hubs and industrialization: diversity, unevenness and strategic approach*

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Abstract

Economic agglomeration and industrial clusters have always been part of industrialization and economic development. Since the 1960s, industrial hubs have proliferated in Asia, driven by policies to foster economic catch-up and structural transformation. Industrial hubs are relatively new to Africa but continue to attract attention from policymakers and researchers. However, empirical studies on African industrial hubs have been inadequate and, to date, have had only a limited influence on policymaking. Contrary to accepted wisdom, underperforming African industrial hubs offer an opportunity for policy learning from successes and failures. This paper aims to fill the existing knowledge gap from a policymaking perspective. It has three objectives: first, to demonstrate the diversity, the uneven and mixed outcomes, and the evolving nature of African industrial hubs; second, to provide insights and policymaking lessons through a comparative analysis of four diverse cases, namely those of Mauritius, the China-Africa economic and trade cooperation development zones, the Tanger Med Complex in Morocco and the recent experiment with industrial hubs in Ethiopia; third, to show that developing synergies to advance industrialization requires a strategic approach, integrating the state's productive role and executive excellence within the broader industrial policy framework.

Keywords: industrial hubs, industrial policy, economic transformation, industrialization, industrial ecosystem, export-processing zones, special economic zones, industrial parks

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1. Introduction

Economic transformation and industrialization have attracted the focus of African policymakers in recent years. The popularity of industrial hubs or special economic zones (SEZs) has increased but with inflated expectations based on inadequate knowledge of what hubs can deliver. Literature on African industrial hubs is inadequate. What exists invalidates the mixed outcomes of Africa's experiences with industrial hubs and is highly dominated by standard prescriptions and uniform treatment. A productive approach would focus on policy learning to extract positive and negative lessons and assist the industrialization of Africa. Experiences elsewhere, such as in newly industrializing economies in East Asia, shows that there is no shortcut to building successful industrial hubs and that the process requires complex policy design and execution.¹

Research on African industrial hubs has been inadequate and lacks empirical evidence to show their diversity and dynamics. This paper aims to fill the gap in empirical evidence and emphasize policymaking perspectives and learning. The paper has three objectives. The first is to demonstrate the diversity – the uneven and mixed outcomes – and the evolving nature of African industrial hubs. The second is to provide insights and policymaking lessons through a comparative analysis based on four diverse cases in Mauritius, the China-Africa economic and trade cooperation development zones (ETCDZs), Morocco and Ethiopia. Third, it shows that developing synergies to advance industrialization requires a strategic approach, integrating the State's productive role and executive excellence within the broader industrial policy framework.

The methodologies applied in this paper are the following. First, the study draws mainly from the author's primary research on the experiences of industrial hubs over time in Africa (in Mauritius, Nigeria, Morocco and Ethiopia) and East Asia (including Singapore, China and Viet Nam) from 2014 to 2021. Second, the paper relies on the author's direct policymaking experience in designing and implementing industrial policy and spearheading the strategic approach to industrial hubs in Ethiopia. This opportunity offers a first-hand understanding of African policymakers' fundamental challenges. Third, the author draws on the global research on industrial hubs that led to *The Oxford Handbook of Industrial Hubs and Economic Development* (Oqubay and Lin, 2020), to present theoretical and empirical perspectives on regions worldwide.

¹ The new industrial hubs are a post-World War II phenomenon that evolved in the 1960s. In 2019, there were about 6,000 industrial hubs worldwide, concentrated in Asia (UNCTAD, 2019).

The author uses a comparative case study based on four carefully selected experiences that allow comparative perspectives and policy learning, representing diverse contexts and exhibiting unevenness and mixed outcomes over the period 1970 to 2020:

- That of Mauritius, which pioneered export-processing zones (EPZs) in 1970 and has implemented a variety of industrial hubs over the past 50 years
- The SEZs initiated within the China–Africa cooperation framework under the Forum on China–Africa Cooperation (FOCAC) platform in the 2000s and 2010s, and popularized on the basis of the Chinese experience of industrial hubs
- The industrial hubs of Morocco, specifically the Tanger Med Industrial Complex, developed in the 2000s and 2010s, which exhibit a novel approach to industrial hubs and whose enormous scale has been unique in its strategic significance
- That of Ethiopia, a newcomer to industrial hubs, which introduced a policy in the mid-2010s and relied on the learning and experiments of a new generation of industrial parks to support industrialization

This paper consists of seven sections. Following the introduction, the second section presents conceptual insights and the global context of African industrial hubs. The third section reviews the five-decade-long experience of the most effective Mauritian EPZ and other industrial hubs, along with their synergies with its economic diversification and export-led industrialization strategy. The fourth section discusses the mixed outcomes of the Chinese ETCDZs introduced in multiple African countries after 2000, where inadequate industrial development strategy and lack of political commitment became significant impediments. The fifth section focuses on Morocco's strategic approach to industrial hubs, which exemplifies the most significant scale and scope on the continent. The sixth section discusses the journey of Ethiopia in engaging with industrial hubs and policy learning to develop a new generation of industrial hubs. The concluding section presents a synthesis of policy lessons and insights drawn from the comparative analysis of these diverse experiences.

2. Empirical and conceptual foundations of industrial hubs

Conceptual foundations of industrial hubs

The conceptual foundations of industrial hubs and external economies can be traced to the late 19th century and Alfred Marshall's pioneering work, *Principles of Economics* (1890), reflecting the observations of industrial districts during the

industrial revolution in England. Prior to this was Adam Smith's groundbreaking notion that *specialization* and the *division of labour* are central to firms' internal economies of scale and productivity. External economies of scale comprising Marshallian *localization economies* relate to the specific industry, driven by the pool of skilled labour, the availability of intermediate inputs and services, and knowledge technological spillovers.

Ohlin (1933) focused on *urbanization economies* involving multiple industries and facilitating innovation and creativity. Jacobs (1969) further enriched the concept of *productive cities* as critical drivers of innovation and new ideas, and manufacturing as the engine of economic growth, showing the nexus and interconnectedness between industrialization and urbanization. Porter (1990) enriched the empirical evidence on variations of industrial clusters and as drivers of nations' competitive advantage through advancing cooperation and competition among firms and the comparative advantages of nations. Recent literature has emphasized collective efficiency, support and knowledge networks, and openness as critical to industrial clusters (Breschi and Malerba, 2005, among others). Best (2001 and 2020) highlights those cluster growth dynamics that comprise the specialization and speciation dynamics of industrial hubs, the internal dynamics of entrepreneurial firms, the open-systems dynamics of interfirm networks and the technological diversification of new firms.²

Industrial hubs are the co-location of firms on a related sectoral or geographic basis, whether evolving organically or actively induced by policy interventions. According to Oqubay and Lin (2020, p. 6), the notion of industrial hubs is "a generic expression of economic agglomeration and industrial clusters of economic activities that have evolved since the industrial revolution, resulting in shrinking transaction costs, the external economy of scale, learning and innovation, and linkages in the development of industrialization and capitalism". Oqubay and Lin (2020, p. 30) offer a functional definition to capture the various contexts and typologies of industrial clusters: "Firms' industrial and spatial agglomeration in the same or related industries, where various support institutions and stakeholders (firms, institutions and government) interact, cooperate and compete for mutual gains in productivity, linkage effects and innovation, and develop their competitive positioning."

A structural transformation perspective focuses on "permanent and irreversible" shifts and values manufacturing as the engine of growth and structural change, and the strategic role of exports as a driver of international learning and sustainable response to balance-of-payments constraints (Kaldor, 1967; Pasinetti, 1981; Thirlwall, 2013). Ocampo (2020, p. 63) highlights that "structural change is at the

² See also Saxenian (1996) on Silicon Valley's pioneering innovation and high-tech hubs. See Garofoli (2020) on industrial districts and Kuchiki (2020) on the flow-chart approach to industrial hubs.

heart of a dynamic process of economic development, and that active industrial (production-sector development) policies are at the heart of an appropriate development strategy”, making the dynamics of production structure (such as innovations and linkages and complementarities) cardinal.

A structural transformation perspective regards manufacturing as the engine of structural change, coupled with acknowledgement that exports are critical to international learning and increasing returns to scale (Cramer and Tregenna, 2020; Ocampo, 2020; Young, 1928). Hence, first and foremost, the purpose of industrial hubs is to develop synergies to advance industrialization and incubate technological capability. At the deepest level, industrial hubs are institutional innovations that enable building on latecomer advantages to catch up and that stimulate inducements and tensions activated by unbalanced growth, as was evident in the newly industrializing East Asian economies in the post-1960 era.³

Ensuring industrial hubs function as development incubators necessitates integrating them into the broader industrial policy framework to generate long-term and strategic benefits.⁴ Doing so would ensure alignment with targeted strategic sectors and the most productive activities, integrating all policy instruments to build productive capacity and industrial transformation, and hence generating dynamic comparative advantages. Furthermore, building a dynamic industrial cluster and maximizing positive spillovers means that industrial hubs synergize urban systems and urbanization, national infrastructure development, education and research institutions, and environmental sustainability. Constant adaptation to evolving external environments, national contexts and the life cycle of industrial hubs is essential. Stimulating cooperation and competition is central to invigorating economic agglomeration and goes hand in hand with stimulating linkage effects and the learning ecosystem.

The genesis of African industrial hubs

Despite their potential contributions to accelerating industrialization, upgrading technological capability, and synergizing catch-up, industrial hubs in Africa have played limited roles. The government policies of various African countries lack a comprehensive and strategic perspective on the topic. Policy experiences and outcomes have been diverse and uneven. Despite the paucity of research on Africa's industrial hubs and their synergy with industrialization, it is possible to draw broad conclusions and policy lessons.

³ See Gerschenkron (1962) on institutional innovations and latecomer advantages and Hirschman (1958) on the strategy of inducing development through linkage effects and unbalanced growth.

⁴ See Amsden (1989 and 2007).

Mauritius built Africa's first EPZ to promote export-led industrialization in 1970, followed by Senegal and Liberia in the 1970s, with the total increasing to 20 industrial hubs by the 1990s. The significant growth occurred after the 2000s, reaching 180 industrial hubs in 2008.⁵ By 2019, the total on the entire continent had reached 237 industrial hubs, including those under development, with 50 newly planned. The data on these industrial hubs are incomplete, evidence of their dynamics and performance inadequate, and few standard features apparent. The review of industrial hubs is likely to have significant limitations, given the lack of consistent and reliable evidence and the absence of a systematic database provided by either international or regional institutions.⁶

First, there is a significant disparity in terms of geographic coverage. Four countries (Kenya, Nigeria, Egypt and Ethiopia, in that order) account for the bulk of industrial hubs on the continent, followed by some 25 countries that have developed a limited number of industrial hubs (UNCTAD, 2019). In terms of ownership, public and private industrial hubs account for 43 and 41 per cent, respectively.

Second, the economic performance of industrial hubs diverges depending on the size, scale and sector. The number of industrial hubs, taken in isolation, does not attach much meaning to their size, market orientation and performance. What ultimately matters is not the number of industrial hubs, but their scale and performance and their role in the broader economy. For instance, Morocco's Tanger Med Complex, though a single industrial hub, accounts for the bulk of Morocco's exports (\$6 billion in 2019) and has generated over 80,000 jobs, whereas contributions of many other industrial hubs in many African countries remain inadequate. Hawassa Industrial Park in Ethiopia, which became operational in 2017, had generated 35,000 manufacturing jobs by 2019.

Third, Africa's industrial hubs show a low level of industrial specialization and economy of scale. Close to 90 per cent of African industrial hubs are generic, hosting various industries and allowing minor specialization, sectoral learning and production linkage effects. Only 10 per cent are sector-specific and specialized industrial hubs, as exemplified by the Tanger Med Complex, which has specialized in various sectors, and hubs in Ethiopia, which has followed a similar path. In addition, various governments use different names for hubs based on the definition stipulated in their respective legislation. EPZ is used to describe over 30 per cent of industrial hubs; free zones and free trade zones to describe 25 per cent of industrial hubs; SEZs to describe close to 20 per cent; and industrial parks and industrial zones to describe more than 20 per cent.

⁵ See Farole (2011); FIAS (2008); Stein (2012); Zeng (2020); Zhan et al. (2020).

⁶ UNCTAD (2019, 2020a, 2021b and 2021c) has conducted extensive research on industrial hubs.

The names make little sense as a whole because of the divergent definitions stipulated in the national legal frameworks, the lack of in-depth comprehension and the inconsistent application of common concepts.

Fourth, industrial hubs in many African countries remain fragmented and do not complement their respective governments' industrial policies, having only limited synergy with industrialization. Because of ineffective industrial policy and strategic orientation, most industrial hubs have been of the "enclave" type, not promoting productive capacity, deepening domestic linkages or harnessing technological capabilities (Whitfield and Startiz, 2020). Most industrial hubs have low levels of capacity utilization and occupancy – two-thirds of all hubs operate at less than 50 per cent of their capacity (UNCTAD, 2021c). The primary orientation of policy instruments has been limited to applying financial and particular customs regimes, with limited support for investment and trade facilitation and insignificant support for skills development, technological capability and domestic linkages. This evidence is in contrast to the Asian experience, where industrial hubs evolved into development incubators – generating industrial upgrading, innovation and technological capabilities.

3. Mauritius: industrialization and pioneering EPZ

Genesis and context

Mauritius was Africa's pioneer, effectively developing the first EPZ in 1970 (at the same time as Malaysia). Mauritius has been recognized for its high economic performance and pursuit of export-led industrialization for over five decades (1970 to 2020). The Mauritian success resulted from the country's pro-growth development strategy and the practical adaptation of its industrial policies to changes in the external environment and domestic situation. The conventional explanation for the Mauritian economic success, regarded by many as an "economic miracle", has been the country's openness to the international economy and pursuit of neoliberal economic policies.

The pursuit of industrialization was a pragmatic choice by the Mauritian Government, unanimously shared by the elite of the various political parties. Social tension put pressure on the Government to prioritize the high unemployment that jeopardized the country's cohesion and survival. After a brief period of import-substitution strategy, two significant factors – the necessity for employment creation and the enormous balance-of-payment constraints – led Mauritius to pursue an export-led industrialization strategy.⁷ The main goal was to diversify from a mono-crop economy to a more diversified economy, reducing the economy's vulnerability and volatility.

⁷ See Baissac (2011); Brautigam (2005); Ramtohul and Eriksen (2018); Rodrik (2012); Whitfield and Startiz (2020).

Hence, the strategy pursued an industrial policy that focused on export orientation, the attraction of foreign direct investment (FDI) and light manufacturing, especially in the apparel and textile industry, with the dual benefits of creating jobs and promoting exports. The targeting of the apparel and textile industry matched the country's comparative advantage of low-wage labour and the preferential duty-free access to the European market offered by the Multi-Fibre Arrangement (MFA).

The Mauritian EPZ

Achieving economic diversification through export-led industrialization was a complex goal that necessitated the practical and coherent application of various policy instruments and purposeful learning in a new, competitive landscape. First, the strategy required apparel firms with production and export experience to be attracted, targeting those originating in Hong Kong (China) and Taiwan Province of China, among others. For this, the Government relied on the extensive social networks of the Mauritian private sector in Asia and Europe. Second, the Government stipulated various incentives, including fiscal ones (the provision of zero corporate tax for five to 10 years, followed by a flat corporate tax of 15 per cent), the introduction of duty-free import of capital equipment and inputs, and the application of protective tariffs and non-tariff restrictions to protect the Mauritian domestic market.⁸

Third, policy instruments were harmoniously utilized within the comprehensive EPZ regime, providing the industrial ecosystem and the required legislative and policy framework. Seeking to emulate the EPZ model practised in mid-1960s Taiwan Province of China and Singapore, the Government dispatched a delegation to study the experiences and propose recommendations.⁹ The emerging model was neither an exact imitation nor a “copy and paste”, but rather an innovative approach that stipulated the whole island (2,400 km²) as an EPZ – the first of its kind. Fourth, the industrial policy instruments and the EPZ model were constantly modified and adapted to fit the new requirements of the external environment and to tap new opportunities.

Development of industrial hubs

During Mauritius's early industrialization phase, the initial industrial hubs were EPZs established across the island without special production facilities. The second wave of the EPZ model comprised the development of industrial estates (covered

⁸ See also Brautigam and Diolle (2009); Subramanian (2009); UNCTAD (2021a); UNDP Mauritius (2021).

⁹ See Oqubay (2020a and 2020b).

buildings built on serviced land with the necessary utilities). These industrial estates consisted of multi-floor standard production buildings (mainly two, three or four floors) ready for apparel firms to commence production. The expansion of industrial estate locations followed a pattern of cheaper land space for building factory premises and significant labour pools to allow low labour costs.

As labour wages increased, firms were increasingly attracted to employing low-wage women workers who lived close to their neighbourhood. Over 39 industrial estates were developed through this scheme by both public enterprises and the private sector; the sugar plantocracy played a critical role, given the land and money they could invest in industrial estates. The Development Bank of Mauritius and the Mauritius Export Development and Investment Authority, an agency for promoting exports and regulating the EPZ, were the crucial lead agencies ensuring the success of this programme. The Development Bank of Mauritius extended credits to targeted manufacturing firms and financed the development of industrial estates. Mauritius effectively monitored the incentives supported by collaboration with the private sector.

All the policies encompassed relevant and transparently executed legislation, simplifying access in the Mauritian context (table 1). The Mauritius EPZ Act was endorsed in December 1970, while the Industrial Estate Act was stipulated in 1986, although implementation had started earlier. The new solutions were pragmatic responses to new challenges. All laws and directives specified how incentives would integrate performance through “reciprocal control mechanisms” that included the

Table 1. Legislative framework of Mauritian EPZ model

	Content and provisions
The Export Processing Zones Act 1970 (Act no. 51 of 1970, proclaimed on 8 December)	The Act provides for the setting up of EPZs, the issuing of certificates to export enterprises and the operation of such enterprises, and various incentives and exemptions to be granted, including the exemption from income tax for 10 years, the exemption from import duty and use of a bonded factory, and employment and labour provisions.
The Finance Act 1980 (Act no. 13 of 1980)	Amendments related to income tax and dividends.
The Finance Act 1985 (Act no. 52 of 1985)	Income tax at the rate of 15 per cent and exemption of dividends from income tax (within 10 years).
The Industrial Building Incentives Act 1986 (Act no. 24 of 1986, 28 July)	To provide fiscal incentives for industrial buildings applicable to floor space of more than 1,000 m ² for the exclusive use of manufacturing enterprises. The Act specifies that these provisions apply exclusively to manufacturers and exporters, but not to sugar milling.

Source: Author's compilation.

strict exclusion of those not qualifying in terms of performance, such as export performance.¹⁰ The private sector and related industrial associations played active roles in designing and executing the policies, which improved the quality of the policy directives and allowed incremental improvements during implementation. While strengthening productive collaboration, they also improved information exchange and collective learning.

Towards a new diversification of industrial hubs

In terms of employment, the apparel and textile industry in Mauritius reached its peak in 1990, when the number of workers reached 90,000, and export earnings peaked at \$1 billion by early 2000 (table 2). Earlier, between 1971 and 1980, the sector had jumped from below 1,000 to over 20,000 manufacturing jobs. The apparel industry became the primary export sector by 2000 and superseded the sugar cane industry as the top exporter. Nonetheless, the apparel and textile industry's growth slowed down as labour costs increased, and the preferential market access came to an end with the winding up of the MFA in 2005. Combining these two factors eroded the industry's international competitiveness, and it had to build on new drivers.

The contribution of the apparel industry to gross domestic product (GDP) gradually flattened below 12 per cent, giving rise to a call for new drivers. The EPZ Act became obsolete, and the apparel and textile industry continued with restructuring and technological, industrial upgrading. The effect was to reduce employment to under 50 per cent, and export earnings shrank. The incentives that applied specifically to the apparel industry ended, and the flat 15 per cent corporate tax rate applied across all businesses. Support to the textile industry moved towards qualitative support, such as upgrading skills, technologies and production linkages.

The tourism industry's contribution as a significant employer and generator of export income increased gradually, and Mauritius focused on high-income segment tourism, benefiting with better incomes and preventing negative social impacts. The sugarcane industry focused on upgrading to produce high-quality sugar and high-value products. After the mid-2000s, the government's priority sectors diversified into the information and communication technology (ICT) industry, especially business-processing outsourcing, the offshore international financial services platform, and the development of logistics hubs to strengthen the trade corridor and Mauritius's strategic positioning as a gateway to Africa.

¹⁰ Amsden (2007, p. 94) highlights: "The guiding principle of the best bureaucracies – politics permitting – was to give nothing away for free. Reciprocity was ideal ... The reciprocity principle in Korea operated in almost every industry ... Reciprocity helped governments".

Three distinct categories of industrial hubs emerged after the 2000s to support the new diversification strategy and industrial policy. First, Cyber City was launched – in collaboration with the Indian Government – to develop the ICT industry as a strategic priority sector; a second expansion phase followed the successful completion of the first phase. A financial hub was developed in the cyberhub as the synergies became evident, and the shared platform was promoted as an international business hub. The logistics hubs expanded with free ports comprising warehouses, specialized services and unique customs services.

Table 2. Mauritius: industrial policy framework and coherence with industrial hubs

Period	Phase	Critical industrial policy and hub features
Early 1970s to late 1980s	Early industrialization phase	<ul style="list-style-type: none"> • Economic diversification from mono-crop to manufacturing and tourism sectors • Sectoral focus on the apparel and textile industry • EPZ as the critical strategic approach
Late 1980s to mid-2000s	Growth stage and diversification	<ul style="list-style-type: none"> • Expansion of industrial estates as the second-phase EPZ to support the apparel industry's expansion, peaking in terms of employment and exports • Higher wages and the end of the MFA, and preferential access to the European market in 2005 • Gradual slowdown of the apparel industry and the need for new drivers of economic diversification
Mid-2000s to late 2010s	Diversification to the services sector	<ul style="list-style-type: none"> • Diversification to new services industries – ICT, international financial services and logistics • Cyber City Hub as a platform for ICT and international financial hub • Free ports and logistics hubs • Industrial complex Jen Fei

Source: Author's compilation and analysis.

The Mauritian diversification drive has implications for policy lessons and places the industrialization experience of Mauritius alongside the successful East Asian experiences (UNCTAD, 2021b). The connections are evident in the skills upgrading and sectoral shifts. Growth drivers did not happen simply as a reaction to wage increases and the end of preferential markets, but as a result of deliberate and “anticipatory” and forward-looking policy planning process. The Mauritius Government recognized that wages would go up as the economy developed and income rose. It was also cognisant of the dangers of relying on preferential market access granted by foreign governments. Mauritius benefited from the “quota” system for sugar offered by the European Union, but its planning process shows that the Government was looking for the manufacturing sector to diversify well before the MFA ended in 2005.

At the height of the growth driven by apparel exports, the Government of Mauritius was proactively exploring other higher-value industries to develop and encourage investment – hence the shift towards high-quality tourism well before the apparel and textile industry started to decline as the primary source of production and export. Mauritius was already looking for other *more dynamic* sectors to diversify, and the Government and the private sector recognized that relying on apparel alone was not sustainable. In short, although Mauritius benefited (or took advantage) of market access opportunities (including the particular quota scheme for sugar export granted to low-income economies), the Government never believed these external advantages to be sustainable – hence the continuous efforts to upgrade skills and infrastructure and shift towards other, more dynamic sectors. This policy approach resembles that of the Republic of Korea and Taiwan Province of China. In short, the policy lesson here is that, if countries are comfortable relying on low-wage and labour-intensive production systems and export structures, they will eventually get caught as wages inevitably go up, and competitiveness becomes difficult.

The government and private-sector institutional framework

The Government maximized its institutional capacity, including through inter-agency coordination and a highly professional civil service, which became responsive to the industries' requirements. The agencies responsible for industrialization, promotion of exports, attraction of investment, and improvement of the investment climate and industrial hubs had gone through various restructuring efforts, exemplifying the industrial policy approach of trial and error and constant improvements to serve the strategy and meet the industries' requirements. In the 2000s, Mauritius created Enterprise Mauritius to spearhead and coordinate export promotion, and the Board of Investment to spearhead investment attraction.

More recently, in 2018, Mauritius merged several institutions to establish an economic development institution to serve as a lead agency for coordinating the development and execution of strategies. The Economic Development Board promotes outward and inward FDI as well as exports, supports the international financial centre and brands Mauritius as a thriving destination. Various ministries, including those for trade and industry, finance, foreign relations and international cooperation, as well as other agencies play direct and complementary roles in achieving strategies. The institutional settings resemble those of the experience in East Asia, particularly that of Singapore.

The apparel and textile exporters had founded the Mauritius Export Association (MEXA) in 1976, and representation was broadened in 2007 with the aim “to promote and defend the interests of the export community of Mauritius at national,

regional and international levels”.¹¹ MEXA has been a prime player in the export sector and coordinates closely with government authorities. It is a platform for information-sharing, training programmes, lobbying and facilitation, and strengthening of networking.¹²

Various industry associations contribute to a vibrant private sector and an umbrella coordination platform in the Joint Economic Council, which has facilitated access to policymaking and forged a productive partnership with government. The diverse origins of the Mauritian private sector, and various links and networks, contributed to the attraction of FDI and joint ventures. It facilitated learning related to industrial experiences, mainly from East and South-East Asia (such as Hong Kong (China), Taiwan Province of China and Singapore), India and Europe (France and the United Kingdom). In pursuing industrialization, the Government consistently maintained a government-private sector dialogue in both regular and ad hoc platforms (Brautigam and Diolle, 2009).

Policy innovation and learning in Mauritian industrial hubs

Mauritius’s strategic approach to the development of industrial hubs highlights essential lessons. First, developing industrial hubs served the country’s economic transformation and development strategy, namely export-led industrialization. The industrial hubs approach blended with the industrial policy framework, which was constantly upgraded to reflect the sectoral focus and changes in the external environment. The Mauritian experience underscores that developing an industrial ecosystem makes a vital strategic contribution to the creation of synergies to advance industrialization and that it is a complex policy demanding multifaceted policy interventions and learning. An essential lesson is that the industrial hub is not an end in itself or a “magic bullet” – a reality that many African governments fail to comprehend.

Second, the industrial hubs were successful, and the various typologies reflected specific industries’ requirements: the Mauritian approach bore no trace of the standard prescriptive or “copy-and-paste” approach. Government policies on industrial hubs were pragmatic, and government and industry leaders were involved in targeted learning from relevant international experiences. Coherent legislative, regulatory and policy frameworks augmented the industrial hubs approach.

¹¹ MEXA, “Meet MEXA”, www.mexamauritius.org/who-is-mexa (accessed 21 January 2022).

¹² According to MEXA, the number of export-oriented firms decreased by one third, from 412 to 280, between 2008 and 2017. Half of these were apparel and textile firms. Similarly, employment declined by 16 per cent, from 62,276 to 52,172 workers, in the same period, while the number of expatriate workers increased by about 30 per cent.

Third, the Mauritian experience demonstrates the strategic and developmental role of the State in charting strategy and policies and building productive partnerships with the private sector and the broader population. The Government continued to contribute to social cohesion and political settlement among the various political and interest groups.

Fourth, despite significant progress and policy outcomes in Mauritius, the evidence does not suggest a firmly coordinated approach and synergies with other policies – particularly urban development, infrastructure and technological capability infrastructure.

Finally, Mauritius has shown that a resource-poor, remotely located, small island can thrive on export-led industrialization and emerge as a middle-income economy, even in an increasingly internationally competitive environment. In contrast to the Mauritian experience, many of the EPZs in other African countries were unsuccessful and could not develop synergies to advance industrialization and economic transformation. African countries could learn from the Mauritian development path and pioneering experience with industrial hubs.

4. The China–Africa ETCDZs

The genesis of the ETCDZs

The Chinese ETCDZs are industrial hubs with unique features related to China–Africa economic ties that aimed to leverage the former’s expertise and long experience in developing SEZs that create synergies to advance industrialization. While contributing positively to industrialization in many African countries, these industrial hubs have shown significantly uneven effects that depend on the host country’s context – its development strategy, its comparative advantage positioning – as well as the Chinese institutions and firms involved. China was the second mover in developing industrial hubs after 1978 as part of its government’s “Opening up and Reform” strategy. Being a newcomer to industrial hubs in the early phase, China learned from the experiences of other countries – notably Singapore – through study tours by top leaders and experts, combined with an experimental approach and phased implementation that benefited from intense learning. The world-class Suzhou Industrial Park in China was a joint flagship project by Singapore and China that aimed at using systematic learning to facilitate the transfer of know-how and experience – in both the development stage and the operations and management of industrial hubs – that was closely managed by the top leaders of both countries.

China has successfully introduced new types and generations of industrial hubs. During the initial stage (from 1978 to 1984), policy innovation in SEZs focused on attracting FDI and promoting exports. In the second wave (from the 1980s to

the 1990s), the Government focused on economic and technological development zones, a new type of industrial hub focused explicitly on industrialization and manufacturing industries. The third wave (in the 1990s and 2000s) focused on upgrading and developing technological capabilities and expanding high-tech firms (Lin et al., 2020).

Since the 2000s, the focus and priorities have shifted to large-scale innovation hubs (such as the Shenzhen and Beijing Science and Technology Parks), building the most complex knowledge-based economy and new urban clusters, and rebalancing the economy. Through a pragmatic approach, a sound catch-up strategy and a mastery of sophisticated policies in an increasingly globalizing world economy, China has emerged as the world manufacturing and export powerhouse and a significant competitor at the technological frontier.¹³

In the late 1990s, China's aspirations to expand its international competitive position accelerated, even more so after it joined the World Trade Organization in 2000. China's pursuit of its "Go Global" internationalization strategy included acquiring and merging with world-class leading firms and developing SEZs as a critical platform for expanding its outward FDI. This strategy coincided with the rise and strengthening of China–Africa ties, which gradually shifted from a political focus to one of deeper economic cooperation. The momentum of China–Africa economic ties accelerated after the FOCAC in 2000 gradually gained traction in industrialization, trade and infrastructure development.¹⁴

The oldest SEZ in Africa was the Suez Economic and Trade Cooperation Zone in Egypt, initiated in the late 1990s at the request of the Egyptian Government. Other SEZs evolved following the decision at FOCAC III in 2006: "China is ready to encourage, in the next three years, well-established Chinese companies to set up three to five overseas economic and trade cooperation zones in African countries where conditions permit".¹⁵ The Ministry of Commerce (MOFCOM) was mandated to coordinate this cooperation programme with African governments and agencies on the Chinese side, including provincial governments, policy banks and other institutions. In 2006 and 2007, the MOFCOM conducted two rounds of bids and selected 19 projects from a total of 120 presented, seven of which were in Africa (Xiaoyang, 2020).

¹³ China emerged as the world's second largest economy, accounting for 17 per cent of global GDP, in 2021. On Chinese industrial hubs and "Opening Up and Reform", see Kou and Zhang (2020); Lin et al. (2020); and Zheng and Aggarwal (2020).

¹⁴ Between 2000 and 2020, FOCAC emerged as the largest South–South cooperation forum. For an extensive review of China–Africa ties, see Oqubay and Lin (2019).

¹⁵ Embassy of the People's Republic of China in the Republic of South Africa, "Forum on China-Africa Cooperation Beijing Action Plan (2007–2009)", 16 November 2006, http://za.china-embassy.org/eng/zt/summit/200611/t20061116_7639248.htm.

In 2009, the FOCAC V summit reviewed progress and underscored its primacy and urgency: “Construction is underway for the six *Chinese overseas economic and trade cooperation zones in countries including Zambia, Mauritius, Nigeria, Egypt and Ethiopia*. Some zones have witnessed progress in attracting investment, with businesses moving in and production projects getting started” (emphasis added).¹⁶ Given the strategic role of SEZs in China, the expectations of the Chinese leadership were much higher than the reality. The purpose of this joint programme was to support Africa’s industrialization and promote outward Chinese investment as part of the broader “Go Global” strategy, with the benefit of policy learning on the development of SEZs. Yet, the readiness of African governments to tap this unique opportunity to develop productive capacity and learn from experiences in industrialization policy was lagging.

Mixed outcomes and unevenness

By 2019, the seven industrial hubs had attracted 271 firms with an investment outlay of more than \$3.1 billion, which generated over 40,000 jobs and contributed to the promotion of exports. The developers had invested about \$1 billion in the seven industrial hubs on almost 3,000 hectares of land (table 3). The performance of these industrial hubs was uneven, and their outcomes mixed. Ethiopia’s Eastern Industrial Zone (EIZ) faced considerable obstacles, notably securing the land and sufficient electricity supply, which delayed the project and forced the private developer to invest in an electricity substation. Nonetheless, the EIZ recorded impressive performance in employment creation, accounting for about 50 per cent of the total employment generated by all these hubs. The Jen Fei generated little economic impact, and the performance was far below the expectation of the Mauritian Government. The performance of the Lekki Free Zone in Nigeria was inadequate, and the project faced delays caused by the diverse nature of the ownership and the lack of political commitment by the government, which resulted in a long delay in the provision of infrastructure for gas energy. The investors included public and private enterprises, and, in most of the projects mentioned above, joint ownership was established, further complicating the ownership structure and joint decisions.

¹⁶ Forum on China and Africa Cooperation, “Implementation of the Follow-up Actions of the Beijing Summit of the Forum on China-Africa Cooperation”, 10 November 2009, www.focac.org/eng/zywx_1/zywj/200911/t20091117_8079757.htm.

Table 3. Summary profile of China–Africa economic and trade cooperation zones (2000 to 2019)

Zone	Year	Ownership	Invested (\$ million)		Phase 1 (land, ha)	Operational firms		Employment	
			Planned	Actual		No.	Investment \$ million	Expatriates	Local
1 Egypt Suez	2000	Joint China–Egypt	280	149	334	70	1 000	1 600	3 500
2 Zambia Lusaka and Chambishi	2004	Joint China–Zambia	410	197	1 719	36	1 500	1 372	7 973
3 Nigeria Lekki	2007	Joint China–Nigeria	392	205	109	51	150	300	1 000
4 Nigeria Ogun–Guangdong	2009	Joint China–Nigeria	220	180	250	30	n/a	200	5 000
5 Mauritius Jin Fei	2009	Chinese	60	50	211	28	n/a	n/a	2 500
6 Ethiopia Eastern Industrial Zone	2010	Chinese private	101	180	233	56	450	1 000	21 143
Total			1 463	961	2 856	271	3 100	4 472	41 116

Source: Oqubay and Kefale (2020, pp. 908–909); Xiaoyang (2020, pp. 953–966).

Productive spillovers and constraints

The development of the Chinese ETCDZs has generated multiple positive results. First and foremost, the development of these industrial hubs induced Chinese and other foreign firms to consider investing in developing industrial hubs and induced both government and public-private joint firms to consider the prospect. Furthermore, establishing these industrial hubs motivated Chinese investors to invest in manufacturing, which would not have been possible through other mechanisms. The Chinese developers coordinated their efforts with the respective provincial governments, industrial associations and social networks to attract investors. The most significant outcome thus was encouraging manufacturing investment of (but not limited to) Chinese origin, which would not have been possible without the ETCDZs. After the 2010s, Chinese investors targeted Southeast Asia, as it is close to their home base, and information on Africa was inadequate. Yet the erosion of international competitiveness in the labour-intensive and light manufacturing sector in China caused by higher domestic labour costs has boosted interest in many African countries.

In addition, the ETCDZs have induced new developers to invest in industrial hubs. For instance, the Hua Jian Group, the world's largest shoe manufacturer, has initiated a new industrial hub in Ethiopia, located in the suburbs of Addis Ababa. George Shoe, a private investor from Guangdong Province, built an industrial park in the town of Mojo, followed by other Chinese industrial parks in Arerti and Dire Dawa. Following investment in the new Djibouti–Addis Ababa railway infrastructure, a new initiative has been discussed to develop an economic corridor with industrial hubs concentrated along the corridor, bringing the opportunity for new synergies and positive spillovers,¹⁷ Although the travel restrictions arising from the COVID-19 pandemic and the recent political instability in the country have slowed the momentum of investment.

Second, the outcomes highlight the divergence of the genesis and experiences of developing these industrial hubs and of their performance. These industrial hubs, such as the Suez ETCDZ in Egypt and the EIZ in Ethiopia, have contributed to both countries' industrialization processes.¹⁸ The EIZ, one of the two largest industrial hubs in Africa, has attracted investment by many Asian and European investors amounting to approximately \$900 million, created employment and generated foreign exchange from exports and import-substitution manufacturing activities. In contrast, the Jen Fei ETCDZ in Mauritius has demonstrated ineffective performance, not meeting the expected economic transformation and

¹⁷ The project for the Hunan-Adama Machinery Industrial Park was financed by Exim Bank of China in 2019.

¹⁸ See Giannecchini and Taylor (2018).

industrialization outcomes. The Lekki Free Trade Zone and the Ogun-Quandong ETCDZ in Nigeria are examples of zones whose implementation was full of obstacles and delays, and whose outcomes were inadequate.

It is worth noting that performance was uneven for multiple reasons. First and foremost was the lack of a strategic approach. Many of the host governments lacked the necessary political commitment to put industrialization and economic diversification at the heart of their development strategies. They were not proactive in providing the required direction and were not responsive enough to address the enormous challenges effectively. Industrial development required pursuing a new development path and heightened political commitment.

Third, most host governments lacked an *industrial policy framework* to ensure synergy and complete alignment with the strategic sectors and firms targeted, even those that had shown readiness to attract investment. Host governments' industrial development strategies that are deficient in prioritizing the manufacturing and export sectors have been a significant factor, resulting in poor outcomes and slowing the industrialization process, as evident in Nigeria and at various levels in the other countries. Inadequate comprehension of the industrialization process and the vitality of industrial hubs as incubators of industrialization has compounded the lack of political commitment and active industrial policy. In addition, the weak synergy with infrastructure development has aggravated the difficulty. The governments did not put in place the various legislative and regulatory frameworks required to enable smooth implementation and transparency.

Fourth, the *lack of government institutional coordination* was a significant failure that undermined the development of industrial hubs and related initiatives. Industrial development projects require coordination among the various regulatory and support agencies of the central government, and among central, provincial and local governments. The lack of government coordination further aggravated the difficulties of ensuring the success of the new policy initiatives. In most cases, the host governments failed to provide the required infrastructure, such as energy and water, which are prerequisites.

Fifth, the ownership structure of the new industrial hubs was too complicated and contributed to project delays and standstills, as evident on all sides: firms, host governments and common platforms. In the Jen Fei ETCDZ in Mauritius and the Ogun projects in Nigeria, internal crises at the developers necessitated changes in ownership, delaying the projects and adding uncertainties. Some firms were new to the host country and lacked the required experience, whether internationally or in Africa, where more obstacles are likely. In the EIZ, ownership by an investor from Jiangsu Province with some experience of working in Ethiopia helped avoid delays and risks. In most cases, joint ownership between Chinese firms and host governments caused further delays and confusion of responsibilities,

complicated by government changes in some instances. The Lekki Free Zone is an example: the consortium comprised Chinese investors (with the China Civil Engineering Construction Corporation as lead partner) and both the Nigerian national government and the Lagos city government as co-investors. Expectations and interests diverged, working relations were uneasy and investors had to cope with challenges alone.

Implications for policy learning

A key lesson was that development paths and industrialization are specific and are neither uniform nor standard prescriptions. Similarly, the legislative or policy aspects of the Chinese experience cannot be replicated without adapting to local conditions, which can be achieved only through intense learning approaches and experiments. The host governments' readiness to learn from Chinese experience and experienced Chinese firms was inadequate. The Chinese Association of Development Zones, a leading consultant, was commissioned to establish a national network in the Ethiopian context. However, the outcome fell short of expectations, as there was a significant lag in adapting to the particular context (Xiaoyang, 2020, p. 964).

A significant benefit has been the inspiration for intensive policy learning, to pursue industrialization and explore better ways of developing industrial hubs to create synergies to advance industrialization. The scope of policy learning differed among African governments. For instance, in Ethiopia the Government's learning combined the search for international experience in six countries representing failures and successes with learning by piloting, as well as a phased approach to deepen the practice.

Industrial hubs did not succeed before the 2000s, except for the Mauritian EPZs. Nonetheless, some African countries have benefited from study tours and training programmes organized by the MOFCOM, and many governments have hired specialist firms and experts to develop industrial parks. On the diverse nature of the legislative framework in many countries, Kidane and Fikre (2020, p. 981) highlight a similar observation:

These countries' experiences confirm that hubs are indeed unique creations of localised rules [...] as the Chinese experience demonstrates. The development of industrial hubs is a long and evolutionary process of infrastructure development, policy formation and reformation, urban-industry links, and the integration of hubs within the surrounding city planning [which] has transformed the economic and social fabrics of China in a way that is unique to that country and is unlikely to be replicated elsewhere on the scale, and subtlety observed there.¹⁹

5. Morocco's strategy on industrial hubs: the Tanger Med Complex

We are launching one of the largest economic projects in the history of our country. This is the new Tanger Med port that we consider as the core of a large port, logistics, industrial, commercial and touristic complex.

(King Mohammed VI, February 2003)

Morocco's journey in developing industrial hubs is another striking example of the State's development role in promoting industrialization, pursuing an industrial policy and using a unique approach to developing industrial hubs. The quotation from the launch of the Tanger Med Complex Hub in 2003 embodies the vision that powered the development. The Tanger Med Complex was one of the most significant economic policies that positioned Morocco to emerge as one of Africa's leading industrial hubs and promote its export sector. It won the Global Free Zones of the Year 2020 award from the *Financial Times*. As noted in *FDI Intelligence*: "This is the first time an African zone ranks that high in the ranking, which is a testament to the tremendous rise of the network of zones developed by operator Tanger Med around Tanger Med port of the Gibraltar Strait, one of Africa's busiest".²⁰

Morocco is a lower-middle-income country currently facing youth unemployment and economic diversification challenges. In the medium and long term, it faces an uphill struggle from the "middle-income trap" (Agénor and El Aynaoui, 2015; El Mokri, 2016). Morocco's industrial policy before 2000 followed an import-substitution strategy in the 1960s and 1970s; and privatization and trade liberalization in the 1980s and 1990s (Hahn and Auktor, 2018). Since 2000, Morocco has pursued a more proactive industrial policy focused on export orientation, economic diversification and employment creation, implemented through five- and 10-year industrial development strategies, namely the Plan Emergence (2005 to 2009), the National Pact for Industrial Development (2009 to 2014), and the Plan for Industrial Acceleration (2014 to 2020). The depth and quality of industrial policy have constantly improved and adapted to evolving external and domestic environments.

The most significant accomplishment behind this story was Morocco's industrial drive, spearheaded by the Government's grand vision and industrial policy. The Tanger Med Complex, whose construction was initiated in 2003 and completed in 2009, is the leading contributor to export and industrial capacity in the country.

¹⁹ Kidane and Fikre (2020, p. 982) further highlight that "[i]ndustrial hubs are created and operationalized by law. Industrial hub law is thus a convenient conglomeration of rules modifying existing domestic and international rules on trade, investment, corporation, tax, labour, environment, intellectual property and related areas of law".

²⁰ *FDI Intelligence*, "FDI's Global Free Zones of the Year 2020 – the Winners", 15 October 2020.

In 2019, the automotive industry alone exported products worth \$10.5 billion, accounting for a quarter of total exports and overtaking the country's revenue from phosphates. Morocco vies with South Africa as the largest automaker in Africa (Hatim, 2020). Morocco's exports diversified into strategic industrial sectors and have generated significant numbers of productive jobs (Auktor, 2022; Vedie 2020).²¹

The pursuit of industrial policy directing export-led industrialization

The pursuit of the vision and development of the Tanger Med Complex and Morocco's industrial policy exhibited multiple features. From the outset, the Government's commitment to industrialization and the development of export-led manufacturing was evident.

First, the industrial policy built on the country's comparative advantages – its proximity to Europe as a primary market for its industries, given the 14 km distance from the coast of Spain. Cheaper wages than in Europe was a significant attraction and a comparative advantage for foreign investment in manufacturing from Europe, Asia and the United States.²²

Second, Morocco developed an export sector strategically driven to build international competitiveness by expanding industrial sectors and building world-class logistics and port services offering short transit times. Again, the Tanger Med Complex was built on the unique advantage of its location at the intersection of the Atlantic Ocean, Europe and the Mediterranean Sea and a reach extending far beyond the Indian Ocean. The Government's pursuit of the export sector involved enacting proactive export-promotion policies and concluding free trade agreements with European countries, as well as the United States, Turkey, the United Arab Emirates and others.

Third, Morocco has targeted strategic priority industries: the automotive, aeronautics, electronics, pharmaceutical, food and agribusiness, leather and textile industries (El Mokri, 2016; Hahn and Auktor, 2018). These six industries enabled Morocco to benefit from employment creation, export generation and development of domestic linkages and domestic capabilities. The Government has attracted leading manufacturers and service providers to the Tanger Med Complex. It succeeded in attracting leading automotive manufacturers, pioneered by Renault-Nissan at Tanger (Melloussa) and then by PSA (Stellantis) at Kenitra.²³

²¹ *Business Focus Magazine*, "Tanger Med Industrial Platform ranks second special economic zone in the world", 19 October 2020; Tanger Med, Key Figures 2021, www.tmpa.ma/wp-content/uploads/2020/02/Fiche-Clef-TANGER-MED-VENG-2021.pdf.

²² Over 100,000 ships per year transit through the Strait of Gibraltar, one of the world's leading trade routes.

²³ Renault became a majority shareholder in SOMACA, an automotive assembly plant founded by the Moroccan Government in 1959. For an in-depth discussion, see Auktor (2022), Hahn and Auktor (2017) and Vedie (2020).

Similarly, the leading manufacturers and suppliers in the aeronautics industry invested in specialized industrial hubs (Auktor, 2022; Jaidi and Msadfa, 2017; Valladao, 2020). Unlike the labour-intensive textile and leather industries, these sectors were new and driven by FDI.

The Tanger Med Complex has an industrial hub comprising six industrial parks built on 2,000 hectares of land that focus on the targeted industries. Government policy has targeted specific industries and focused on building an industrial ecosystem for each, hosting over 1,100 firms participating in various levels of the supply chain and integrating tiers 1, 2 and 3 (sub-suppliers and sub-sub-suppliers). This has enabled Morocco to strengthen local content – in some industries, by up to 60 per cent. The head of the Moroccan Investment Development Agency (Agence Marocaine de Développement des Investissements) highlights: “Being competitive in the auto sector is not just about the cost of labour It is about having a network of suppliers around, who can support the first-tier auto-part suppliers and car manufacturers”.²⁴ Building an industrial ecosystem favourable for fostering domestic linkages and upgrading local content remains the biggest challenge for Morocco.

Fourth, the development of Tanger Med as a logistics hub has been a critical strategy to improve export competitiveness and develop the manufacturing capability of Morocco. The dedicated logistics parks of one million square metres of warehousing have attracted international logistics and trading firms (DHL, Adidas, Decathlon and others) to establish a global and regional distribution hub. The ongoing expansion of rail transport and connectivity in Morocco’s hinterland will improve the competitiveness of supply chains. The port hub was expanded in two phases to support industrial manufacturers and sea vessels. It now has three ports built on 1,000 hectares, catering for transshipment services to more than 180 ports worldwide, making it the largest port facility in both Africa and the Mediterranean.²⁵

The Tanger Med Industrial Hub (Tanger Med Zones) is considered a world-class industrial hub because of its unique features, scale and performance. It is the Government’s flagship project, with complex and distinctively African characteristics. The project, championed and led by King Mohammed VI, has played a critical role in the emergence of Morocco as the continent’s manufacturing and port powerhouse.

²⁴ *The Africa Report*, “Morocco: yes, we plan”, 21 April 2020.

²⁵ In 2019, of the complex’s nine million-container capacity, Europe and Africa accounted for 35 per cent each, while Asia and transatlantic countries accounted for 18 and 11 per cent respectively.

Complementary roles for the State and the private sector

The development of the Tanger Med Complex illustrates the developmental role of a State with a grand vision and strategy. The State initiated an ambitious grand vision and mobilized the private sector around this vision. The vision was not limited to economic policies but had socioeconomic and political aims to transform the Northern Morocco region. Tanger Med I was implemented in phases from 2003 to 2008, and Tanger Med II was launched in 2009.

The Government used an innovative financial scheme leveraging its own seed money, private-sector financial sources and concessional finance from the European Investment Bank. It allocated \$3.9 billion, added to the private sector's \$6.4 billion.²⁶

A public institution, the Tanger Med Special Authority, was founded by the Government in February 2003 to implement and coordinate this vast and complex project. It was led by a supervisory board and an executive board with members from various ministries. King Mohammed VI championed the grand vision and enabled timely decisions to address the binding constraints and coordination challenges inherent in such projects.

European manufacturers who invested in the Tanger Med Complex concur that the Government's strong support has been a critical factor for its success, as underlined by an automotive manufacturer executive: "The state is extremely demanding but extremely supportive" (Pilling, 2021).

The key feature of the Tanger Med Complex is that it integrates multiple aims into a single, complex project to maximize opportunities for synergy and complementarities. It included developing an industrial complex of six industrial parks targeted at six strategic export-oriented sectors; integrating three world-class port hubs situated on the Strait of Gibraltar, connecting Europe, Africa and the Atlantic Ocean; and building an international commercial and logistics hub to complement the ports hubs and industrial hubs. The city of Tanger, located 40 km from the port complex, has applied urban development policies that assisted it in emerging as a renowned metropolitan urban hub. To maximize positive spillovers, the urban development plans have been integrated with inland infrastructure development. The implementation of this megadevelopment, supported by a plan with a comprehensive and long-term perspective, is among the rare success stories in the continent.

²⁶ Tanger Med, Key Figures 2021, www.tmpa.ma/wp-content/uploads/2020/02/Fiche-Clef-TANGER-MED-VEENG-2021.pdf.

Morocco has focused on building dynamic comparative advantages or competitive advantages by maximizing domestic linkages, leveraging returns to scale, carefully selecting industries that will allow it to build industrial capacity and constantly upgrade, and building a world-class industrial ecosystem. The industrial cities have been developed in a compact space in the Tanger–Casablanca–Rabat corridor, facilitating agglomeration economies and logistics. The integration of active industrial policy with urban policy and other economic policies has enabled sustained growth and economic transformation. The city of Tanger expanded while adhering to city plans and housing development programmes, contributing to the “Cities without Slums” programme. Defining a grand vision and successfully implementing it has provided both policy capability and the learning necessary to initiate similar development projects.

The Government expanded the number of technical schools and technological universities, which are essential for industrial upgrading in collaboration with the private sector. A symbolic milestone that will be critical for the next phase was establishing the King Mohammed VI Polytechnic University, which focuses on technology and engineering and has research capabilities based on the MIT and Stanford model. If this approach is pursued consistently and linked with building innovation hubs as part of the national innovation system, Morocco could deepen its productive capacity and accelerate its technological catch-up in a rapidly changing and competitive environment. Nonetheless, it will have to stand the test of time, especially as the middle-income trap will become Morocco’s primary challenge in the coming decade, and few have addressed this puzzle.

In conclusion, Morocco’s industrial policy pursued a systematic and targeted approach in the 2010s by targeting export-oriented and dynamic industries (notably automotive and aeronautics), enabling productive capacity-building while supporting the food, textile and leather industries to create jobs and promote upgrading. Investment attraction targeted lead firms and original equipment manufacturers, offering much broader values beyond labour cost advantage, primarily through building a skilled workforce, developing industrial ecosystems, embedding more local suppliers and implementing world-class logistics. The fusion and synergy between industrial hubs and the broader industrial policy instruments are evident (Ali and Msadfa, 2016). The industrial hubs offer industrial ecosystems through their integrated industrial platforms and specialized industrial parks, which have facilitated the microtargeting of specialized subsectors, offering the required infrastructure and one-stop service and enabling greater embeddedness through expanding the number of tier 2 and tier 3 suppliers. The lead role of the State and cooperation with the private sector (sector-specific industrial associations) have deepened productive partnerships. Between 2000 and 2019, Morocco became the leading manufacturing hub in the African region. Its automotive output increased from 17,000 vehicles in 2000 to 500,000 vehicles in 2019, with significant local value addition. These vehicles were primarily for the export market.

6. Ethiopia's experiment with industrial hubs

Unlike many African countries that have had industrial hubs for more extended periods,²⁷ Ethiopia is a newcomer to hub development, which is still a work in progress. Since 2013 it has pursued an unusual approach in developing industrial hubs due to multiple factors. First, despite its comprehensiveness, the country's industrial development strategy of 2003 failed to underline its policy approach to industrial hubs explicitly, and there was a clear void in the strategy. Oqubay (2015, pp. 283–284) highlights that “industrial clustering and industrial parks have played an insignificant role till now but could play a much more significant future role in overall industrial development strategy. However, there are still some issues which the government will need to address, such as the tension between industrial clustering and agglomeration and the political commitment to spreading resources and opportunities across federal regions”. Given the Government's focus on attracting massive manufacturing investment, the industrial hubs agenda became a prominent policy concern, and the Government conducted a comprehensive study in 2013 and 2014.²⁸

The new approach clearly defined that these industrial parks would be primarily specialized or sector-focused; eco-industrial parks would adhere strictly to environmental sustainability, incorporate international practices, ensure execution excellence and provide one-stop government services within the industrial park. In April 2015, the House of Representatives endorsed the Industrial Park Proclamation (No. 886/2015), which clearly defines the rationale for and objectives of establishing industrial hubs in Ethiopia, along with the legislative requirements related to their development and operation, and the related regulations. Institutional changes included the reestablishment of the Ethiopian Investment Commission and the establishment of a new Ethiopian Investment Board, chaired by the Prime Minister and composed of representatives from key ministries, to make policy decisions related to investment and industrial parks. A new parastatal organization, the Industrial Parks Development Corporation, was established to design the national industrial parks network plan, develop government industrial parks, be a custodian of the industrial land bank and provide support to private developers, including the provision of land and off-site infrastructure.²⁹

²⁷ Examples are Liberia, Mauritius and Senegal in the 1970s, and Kenya, Nigeria, Uganda and the United Republic of Tanzania in the 1980s and 1990s.

²⁸ The Government's approach combined targeted learning from Singapore, the Republic of Korea, Viet Nam, China, Mauritius and Nigeria. Various consultations and discussions with international consultants were conducted in 2014, including with the Chinese Association of Development Zones, the World Bank and other specialists.

²⁹ See FDRE (2011 and 2015).

Special incentives were granted to motivate developers and firms to locate industrial parks outside Addis Ababa. Given the requirements of manufacturing exporters, the labour law was revised based on the consideration of the requirements of the export sector. The Ethiopian Government decided to use Hawassa Industrial Park – a specialized apparel and textile hub – as a pilot to test the new approach of building a new generation of industrial hubs and maximize learning from practice, which was essential, given the new policy's complexity. Reviews to extract and document lessons enabled lessons to be learned. A phased approach to execution was pursued, despite the temptation to do otherwise, and this facilitated learning and the quality of execution (table 4). In the pilot Hawassa Industrial Park, the dialogue between government agencies and investors proved the most effective contribution, while the newly established investor association facilitated dialogue. The Government used multiple sources of financing to develop industrial hubs.³⁰ Its key strategy included attracting private developers to build the industrial park by providing zero income tax and duty-free privileges for up to 15 years, transferring land at a modest cost and supporting off-site infrastructure. Private developers have shown significant interest, and seven industrial parks are under development.³¹

Ethiopia has practised active industrial policies to accelerate industrialization, particularly after 2002, and the apparel and textile industry has been one of the strategic priorities (Oqubay, 2015, 2019a and 2019b).³² The country's experience with industrial hubs has been over a shorter period, and it is too early to draw conclusions (Lin et al., 2019). Yet, within a short period (2015 to 2021), Ethiopia has built more than 20 industrial parks containing two million square metres of factory buildings, creating more than 100,000 direct manufacturing jobs and more than 150,000 indirect jobs, and generating \$1 billion since 2016.³³ The biggest rewards have been accumulating experience and management skills, and building the institutions. The development of industrial parks takes a short time – mostly one to two years – and investors have shown interest in investing in them.

³⁰ These included the treasury, which funded a few industrial hubs, such as the Semera, Bahirdar and Jima Industrial Parks. The Government used the Eurobond of \$700 million to develop sizeable export-oriented industrial parks such as Hawassa, Adama, Dire Dawa, Combolcha and Mekelle. Concessional loans from the World Bank, amounting to \$350 million, were used to develop the Bole Lemi II Textile Hub and Kilinto Pharmaceutical Hub. Concessional loans were secured from China Exim Bank to build the Hunan–Adama Equipment Hub.

³¹ These are the Eastern Industrial Zone in Dukem, George Shoe City in Modjo, Hua Jian City in Addis Ababa, the Building Materials Hub in Arerti, CCECC Dire Dawa Industrial Park in Diredawa, and DBL Industrial Park and Velocity Industrial Park in Mekelle.

³² See Whitfield and Zalk (2020).

³³ Twenty-four industrial parks were either operational or under construction, comprising 13 industrial parks by the federal government, four by regional governments, and seven by private developers. Table 4 does not include newly planned projects.

Table 4. Ethiopia's national industrial parks network, by type of developer

	Name	Location	Year	Land (ha)	Status of park
Federal government					
1	Bole Lemi I Industrial Park	Addis Ababa	2014	172	Operational
2	Hawassa Industrial Park	SNNP	2015	300	Operational
3	Mekele Industrial Park	Tigray	2016	1 000	Operational
4	Kombolcha Industrial Park	Amhara	2017	700	Operational
5	Dire Dawa Industrial Park	Eastern	2017	4 118	Construction completed
6	Adama Industrial Park	Oromia	2017	365	Operational
7	Bole Lemi II Industrial Park	Addis Ababa	2017	181	Construction completed
8	Kilinto Pharma Hub	Addis Ababa	2017	279	Construction completed
9	Jimma Industrial Park	Oromia	2017	1 000	Construction completed
10	Bahir Dar Industrial Park	Amhara	2017	2 000	Under construction
11	Debre Birhan Industrial Park	Amhara	2017	1 100	Construction completed
12	Semera Industrial Park	Afar	2019	400	Under construction
13	ICT Park	Addis Ababa	2016	100	Operational
Regional governments					
14	Bure Agro-Park	Amhara	2017	155	Under construction
15	Yirgalem Agro-Park	SNNP	2017	109	Under construction
16	Baeker Agro-Park	Tigray	2017	151	Under construction
17	Bulbula Agro-Park	Oromia	2017	263	Under construction
Private developers					
18	Eastern Industrial Zone	Oromia	2008	1 167	Operational
19	George Shoe City	Oromia	2016	76	Operational
20	Huajian Industrial City	Oromia	2016	138	Operational
21	CCCC Arerti Industrial Park	Amhara	2016	1 000	Under construction
22	CCECC Dire Dawa Industrial Park	Eastern	2015	1 000	Under construction
23	Vogue/Velocity Industrial Park	Tigray	2017	177	Phase I operational
24	DBL Industrial Park	Tigray	2017	78	Phase I operational

Source: IPDC-EIC (2019).

Summary insights

From a policy learning perspective, the experience of Ethiopia provides implications for policymaking. First, the country's motivation came from the conviction that there was a gap in the industrial development strategy, which did not provide policy directives to direct industrial hubs. As the evidence shows, developing industrial hubs was guided by pursuit of hubs as an integral element of the broader industrial policy framework. Hence, developing specialized industrial parks, ensuring a commitment to environmental sustainability and building executive excellence became the strategic thrust. The strategic approach ensured that industrial hubs attracted targeted productive investment and provided a thriving industrial ecosystem. Yet, efforts to develop the synergy of industrial hubs with the country's infrastructure, urban development, and university and technical education systems were inadequate.

Second, the approach included institutionalization through relevant legislation, regulatory regimes, policy instruments and changes in institutional structure – maximizing coherence and coordination and efforts to reduce fragmentation and rigidity. Although the laws have been comprehensive and fit for purpose, coordination among intergovernmental agencies has been a critical challenge, given that approximately 50 agencies are directly and indirectly involved. The operation and management of industrial parks remain a significant challenge, with evident capability constraints.

Third, learning from international experience was targeted and intense, and combined a diverse array of experiences. While emulating others is vital, learning by doing is even more crucial. In Ethiopia, learning was promoted through experiments, piloting and phased development approaches, combined with systematic learning of lessons from practical experiences in the country (Oqubay and Kefale, 2020; UNCTAD, 2021b). Significant disruptions that slowed momentum and deterred investors were the political instability from 2016 to 2021 and the civil war in northern Ethiopia from 2019 to 2021.

Fourth, the strategic approach necessitated pragmatic and systematic decisions in response to the complex process and new obstacles. During the COVID-19 crisis, industrial parks focused on repurposing production capacity for manufacture of personal protective equipment and introducing prevention and protection measures to support the developing industrial workforce and enhance productive capacity.

Fifth, the State's role and a consistently high level of political commitment are crucial to the success of industrial hubs. The outcomes would have been different if government commitment had been inadequate. In a nutshell, the development of industrial hubs is neither a short-term fix nor a magic bullet. It requires much thinking and debate, adherence to the development strategy, pursuit of an industrial policy framework, synergy with other key policies, and durable coordination within government bodies, and between government and the private sector and education institutions.

7. Discussion and conclusion

Despite the growing interest in industrial hubs and industrialization in Africa in recent years, the literature on African industrial hubs has been inadequate, with limited policy perspectives. This paper has reviewed experiences of African industrial hubs over five decades (1970 to 2020), presenting critical insights from each case study. The paper has focused on three objectives and relied on a methodology combining the existing literature and primary research. The evidence shows that the diversity of African experiences, along with the uneven and mixed outcomes of policies, are critical conduits of policy learning, and highlights that a strategic approach within industrial policy frameworks is essential for developing synergies that advance industrialization.³⁴ Table 5 presents a summary of comparative case studies.

The cases illustrate that diversity and heterogeneity are essential features of African industrial hubs, varied in their distinct contexts, policy focus, industrial structure of the sector and global value chains (Gereffi, 2018; Gereffi and Wu, 2020; UNCTAD, 2013 and 2020b). Diversity has critical implications for both research and policymaking, showing the importance of understanding the domestic situation, the dynamics of specific sectors, the political economies and international environments. This has further immense implications for research and policymaking, underscoring that local context and the specific environment matter and that a prescriptive “one-size-fits-all” approach is unlikely to work. It shows the significant gap in research that focuses on specific countries and individual industrial hubs to enable better understanding of dynamics of hubs, and the importance of extensive research to fill gaps in the empirical evidence.

The empirical evidence shows that industrial hubs are dynamic and continuously shaped by policy dynamics and by domestic and external environments. It also shows that mixed and uneven policy outcomes are a critical opportunity for policy learning and valuable research outputs. Failures are also prevalent among successful experiences, and positive lessons can be drawn from mistakes and failed outcomes. The case studies show the most frequent weaknesses and failures of African industrial hubs and the positive lessons and possible recommendations at the strategic, sectoral and national levels, and from the design and execution of hubs. Extensive research by UNCTAD (2019, 2021a, 2021b and 2021c) and the global research output in *The Oxford Handbook of Industrial Hubs and Economic Development* (Oqubay and Lin, 2020) provide important insights.

Unlike the standard portrayal of Africa’s industrial hubs as failures, this paper shows that central features are unevenness and mixed outcomes, evident in

³⁴ See Amsden (1989); Oqubay (2020a and 2020b).

different stages of development and in different sectors. Governments had to find new solutions to complex challenges and test policies in practice, highlighting the importance of policy learning. The cases show that governments have made an effort to learn from successful experiences elsewhere and have introduced projects and policies to experiment with collective learning, and varying efforts to build a partnership with the private sector that allows such learning. Weaknesses and gaps are evident at the strategic and implementation levels, and both dimensions are rooted in government policies and policymaking.

The cases demonstrate that industrial hubs are not an end in themselves. However, they could energize industrialization and promote industrial transformation, which requires a strategic approach aligned with industrial policy frameworks. This necessitates that the State play a developmental role and engage in productive dialogue with the private sector. The dedication of political leadership to industrialization and policies on industrial hubs is a key factor for success.

The critical weaknesses and challenges are that industrialization is not at the core of many African countries' development strategy, coupled with weak political commitments by governments. There is a lack of coherent industrial policies (in terms of sectoral focus and support instruments), a lack of comprehensive policy or strategy on industrial hubs, an inadequate focus on specialized (sector) hubs and domestic linkages, and an inadequate understanding of the industrial ecosystem and industrial upgrading. At the implementation level, there is incorrect selection of locations, based on political rather than productive criteria, as well as political economy obstacles of land supply, inadequate provision of infrastructure, a lack of diversified and innovative financing, and weak operation and management of industrial hubs (UNCTAD, 2021b). Environmental sustainability and carbon neutrality continue to be marginal. Many policymakers continue to assume industrial hubs are miracle bullets and to follow a one-size-fits-all approach.

The focus in the literature on the strategic approach to industrial hubs and their positioning within the industrial policy framework have been inadequate. This paper highlights that industrial hubs should foster structural transformation and technological catch-up, which would necessitate an active industrial policy framework and a developmental role of the state (Lee, 2019; Oqubay and Ohno, 2019). A strategic approach should develop synergies to advance industrialization while continuously adapting to emerging trends, such as shifts in global value chains, environmental sustainability and climate collapse, the COVID-19 crisis and its aftermath and recovery, and technological advancements and digital technologies.³⁵

³⁵ See Mathews (2015 and 2020) on green transformation.

Industrial hubs need to continuously adapt to emerging trends, domestic reality and their life cycle. The COVID-19 crisis, global value chains, digitization (and Industry 4.0) have significant implications for industrial hub policies (UNCTAD, 2013 and 2020b). Climate change and environmental sustainability shape the strategic approach to industrial hubs; however, the effect of these emerging trends is not uniform, and they have diverse policy implications.

The African Continental Free Trade Area offers a significant opportunity for larger economies of scale and the specialization of African industrial hubs, along with significant implications for Africa's industrialization and more significant market opportunities (UNCTAD, 2021a, 2021b and 2021c). Industrialization in Africa requires an industrial ecosystem, which calls for developing a new generation of industrial hubs that comprise specialized sectors or productive activities, are sustainable and focus on excellent execution. Industrial hubs developed within national boundaries will be dominant, although locations will adapt to economic corridors and connectivity through cross-border infrastructure. Investment flows and cross-border labour mobility will increase. More importantly, the free trade area can attract massive productive investment to Africa and play a catalytic role in economic diversification and industrialization.

This paper has presented empirical evidence and contributed to filling the gap in the literature, and shown prospects for future research in three areas. Research is required to understand the dynamics and underlying drivers of industrial hubs and the synergy between industrial policy frameworks and the development of industrial ecosystems in the context of diverse sectors and high-productivity activities. Research is also required on emerging trends and how they affect and interact with industrial hubs. Finally, a systematic database on industrial hubs needs to be compiled, and comprehensive lessons and policy learning extracted from it.

Table 5. Comparative perspective on African industrial hubs (1970 to 2020)

Policy description	Mauritius 1970–2020	ETCDZs 2001–2020	Tanger Med Complex 2001–2020	Ethiopia 2011–2020
(1) Industrial policy	<ul style="list-style-type: none"> • Active industrial policy: Export-led industrialization • Fiscal, customs, exports • One-stop, high coordination 	<ul style="list-style-type: none"> • Diverse experience and weak strategic approach • Inconsistent incentives • Weak coordination 	<ul style="list-style-type: none"> • Active industrial policy: Export-led industrialization • Fiscal and export supports • Effective coordination 	<ul style="list-style-type: none"> • Active industrial policy: Export-led manufacturing • Fiscal and export supports • Modest coordination
(2) Economic diversification/industrial upgrading	<ul style="list-style-type: none"> • Successful diversification • From mono-crop to light manufacturing – textiles • To services (ICT, international finance, logistics) 	<ul style="list-style-type: none"> • Inadequate diversification • Mixed outcomes – moderate to inadequate 	<ul style="list-style-type: none"> • Effective diversification • Diverse light and medium manufacturing • Services hub – port, logistics 	<ul style="list-style-type: none"> • Inadequate diversification • Light manufacturing • Agriculture linkage
(3) Drivers of comparative advantage	<ul style="list-style-type: none"> • Labour • Preferential market access • Government support 	<ul style="list-style-type: none"> • Varies among countries • Labour, market access, natural resources 	<ul style="list-style-type: none"> • Proximity to EU market • Labour cost and skill • Gibraltar Strait location • Government commitment 	<ul style="list-style-type: none"> • Labour and energy cost • Preferential market access • Government support
(4) Industrial ecosystem	<ul style="list-style-type: none"> • Specialized hubs EPZ/Cyber City/finance/logistics • Moderate scale • Entire island, high density • Government and private 	<ul style="list-style-type: none"> • Generic • Large scale • Diverse locations – thin, weak infrastructure provision • Government-private 	<ul style="list-style-type: none"> • Specialized hubs • Enormous scale • Northern Morocco/coastal • Government-private 	<ul style="list-style-type: none"> • Specialized hubs • Medium to large scale • Diverse locations • Government-private

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Table 5. Comparative perspective on African industrial hubs (1970 to 2020) (Concluded)

Policy description	Mauritius	ETCZs	Tanger Med Complex	Ethiopia
(5) Performance <ul style="list-style-type: none"> • Manufacturing capacity • Exports • Technological capability/linkages 	<ul style="list-style-type: none"> • High manufacturing • High exports • Inadequate technological capability 	Diverse outcomes <ul style="list-style-type: none"> • Inadequate-moderate manufacturing • Inadequate-moderate exports • Inadequate technological capability/linkages 	Excellent outcome <ul style="list-style-type: none"> • High manufacturing • High exports • Moderate technological capability/linkages 	Work in progress <ul style="list-style-type: none"> • Modest manufacturing • Limited exports • Inadequate technological capability/linkages
(6) Policy learning <ul style="list-style-type: none"> • Learning from international experience • Experimental and phased approach 	Effective learning <ul style="list-style-type: none"> • Intense and targeted learning • Phased approach 	Diverse and mixed learning <ul style="list-style-type: none"> • Inadequate and passive learning • No systematic approach 	Effective learning <ul style="list-style-type: none"> • Moderate – private learning • Phased approach 	Systematic learning <ul style="list-style-type: none"> • Targeted and intense learning • Pioneering and phased
(7) Role of state <ul style="list-style-type: none"> • Political commitment • Strategic role • Government-industry dialogue 	<ul style="list-style-type: none"> • Strong political commitment • Effective strategic role • Exemplary dialogue 	Variations <ul style="list-style-type: none"> • Low political commitment • Ineffective strategic role • Weak dialogue 	<ul style="list-style-type: none"> • Strong political commitment • Effective strategic role • Effective dialogue 	<ul style="list-style-type: none"> • Strong political commitment • Effective strategic role • Effective dialogue

Source: Author's compilation and analysis.

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