Chapter 2
The Politics of Postcolonial Technology Entrepreneurship

Kenya is a popular example of *Africa Rising* with its fast-growing sector of technology entrepreneurs, startups, and co-working spaces. The imagery of Africa's so-called 'rising' represents an Afro-optimistic shift in media coverage of African politics and economies, celebrating the continuous growth in the continent's gross domestic product (GDP) (Khan n.d.). Many international and local actors praise the rapidly emerging middle classes, megacities and infrastructure projects, as well as the increased involvement of foreign investors, and diffusion of mobile phones in African countries (Beresford 2016: 1; Breckenridge 2021: 12; Fioramonti 2018: 739; Khan n.d.). Kenya's high-tech scene represents all of the celebrated features of Africa Rising: middle-class engineers who cluster in Nairobi attract investments from international companies and spur the digitalization of the country. In this regard, the Government of the Republic of Kenya (GRoK) considers the emergence of a technology development sector economically valuable and sees technology entrepreneurs and their innovative technologies as the main drivers of a Fourth Industrial Revolution[1] that should bring about national progress.

1 Klaus Schwab, the founder and executive chairperson of the World Economic Forum, was the first to define the Fourth Industrial Revolution. He explains it as processes whereby "[e]ngineers, designers, and architects are combining computational design, additive manufacturing, materials engineering, and synthetic biology to pioneer a symbiosis between microorganisms, our bodies, the products we consume, and even the buildings we inhabit" (Schwab 2016). In essence, the Fourth Industrial Revolution describes a worldwide phenomenon of integrating interconnected and automated digital technologies into manufacturing industries.

This chapter analyzes the visions of an economic upswing and an industrialized and emancipated Kenyan future to understand their impact on the work of Kenyan technology developers and to remind us that language and imaginations are never separable from materiality and affects (see Chapter 1). I argue that technology development in Kenya is a field in which modernist assumptions of economic progress, entrepreneurial selves, and digital technologies join with political aspirations to achieve decolonial emancipation from the global centers of technology and knowledge production. In this regard, I define *postcolonial technology entrepreneurship* as politically inflected neoliberal work which performatively (re-)makes Kenya's positionality in technocapitalism.

The chapter unfolds as follows: first, I demonstrate that the belief in economic development through industrialization and technology has been a persistent part of postcolonial African histories and is still present in Kenya's current manufacturing policies despite the longed-for economic development having often failed to materialize in the past. Based on this historical insight, I claim that the current aim to industrialize Kenya unites capitalist and decolonial thought, just as the country's post-independence industrial policies did; it follows a tech-deterministic teleology of development and the 'socialist' vision to emancipate itself intellectually and economically from colonizing countries. Second, the chapter explores the responsibilization of technology entrepreneurs to achieve the Fourth Industrial Revolution in Kenya and fulfill the Africa Rising promises. Although the belief in the need for entrepreneurship to survive in a capitalist state has propelled entrepreneurship trainings for Kenyan citizens since the 1970s, the Kenyan discourse on entrepreneurship has shifted. As a result, well-educated self-employed technology entrepreneurs who drive a digitally industrialized Kenyan future have replaced the state, male mineworkers, and informalized manufacturers as the principal agents of industrial modernity. By including ethnographic data, I show that current tech entrepreneurs ambivalently unite neoliberal logics of technological progress with decolonial endeavors to create a pan-African identity of tech developers, just as post-independence industrial policies did. I argue that, in Kenya, the *postcolonial technology entrepreneur* strives for Kenya's global repositioning by transforming their society for the better and scrutinizing exploitative (post)colonial structures. Overall, the analyses in this chapter highlight that industrialization, entrepreneurship, development, and other categories of (Eurocentric) modernity are not universal, but context-specific, as Kenyan technoscientific endeavors and futures are embedded

within histories of political African entrepreneurship, colonialism, and its discriminating remnants.

2.1 Kenyan Industrial Policies: Striving for Global Market Integration and Improved Living Standards

> The vision is "to be the leading industrialized nation in Africa with a robust, diversified and globally competitive manufacturing sector". (GRoK 2012: xii)

In Kenya, various policy initiatives such as the National Industrialization Policy 2012–2030, the Kenya Industrial Transformation Programme, and Kenya Vision 2030 have reinforced the interest in the industrialization of the country.[2] Furthermore, two institutions, the Kenya Industrial Training Institute (KITI) and the Kenya Industrial Research and Development Institute (KIRDI), focus on training and research exclusively benefitting industrial sectors. In addition to the manifold policies and initiatives, internationally-funded projects also target the country's industrialization, for example, the US$50 million 2019–2024 Kenya Industry and Entrepreneurship Project (KIEP) implemented by the Ministry of Industry, Trade and Cooperatives and the World Bank.[3]

The visions and missions in these policies mostly refer to the Government of Kenya's Vision 2030. Implemented in 2008, Vision 2030 serves as a blueprint for the country's development, aiming to "transform Kenya into a newly industrializing, middle-income country providing a high quality of life to all its citizens by 2030 in a clean and secure environment" (Vision 2030 Delivery Secretariat n.d.).[4] Kenya is supposed to become "Africa's most competitive economy"

2 Other recent policies targeting Kenya's manufacturing sector are the Export Promotion Zones Act, 1990, the Buy Kenya Build Kenya initiative, the National Trade Policy, the National Export Development and Promotion Strategy, and the Special Economic Zones Act, 2015 (KAM 2018: 30). As these policies address specific sub-sectors of Kenya's industry, they are not included in this chapter's analysis.

3 The Kenya Association of Manufacturers (KAM), in their Manufacturing Priority Agenda 2018, criticized the variety of policies targeting Kenya's industrial development for "creat[ing] confusion instead of clarity in terms of what the focus should be in developing and supporting the manufacturing sector in Kenya", instead advocating for a single harmonized "National Manufacturing Policy" and the establishment of a single institution to coordinate the various mandates (2018: 41, 42).

4 Interestingly, Kenya's 1997–2001 Development Plan had already stated the aim of becoming a newly industrialized country by 2020 (Ikiara et al. 2004: 204).

with a "per capita income ranking among the five highest in Africa" (Kenya Industrial Research and Development Institute [KIRDI] 2006: 7).

Based on these development goals, all of the aforementioned policy initiatives agree that industrialization represents the only way to abolish the high levels of poverty and unemployment and to overcome Kenya's economic dependence on the export of primary (agricultural) commodities (KIRDI 2006: 13; GRoK 2018: 2). Consequently, the proponents of industrialization consider the overall decline of manufacturing sectors in Sub-Saharan Africa and the continuing dominance of low-tech and labor-intensive companies problematic (Taylor 2016: 18). In Kenya, the manufacturing sector's contribution to GDP fell from 9.3% in 2016 to 7.2% in 2021 (KAM 2023). This decline in Kenya's manufacturing and export sector is in stark contrast to the 72% share of the increase in GDP contributed by the service sector (such as mobile communications and financial intermediation) between 2006–2013 (Ramos 2017: 3). Although the growth of services based on technology, especially Information and Communication Technologies (ICTs), is acknowledged as a desirable development, Kenya's policies emphasize that a flourishing manufacturing sector is also necessary for a successful shift from an agro-based to a technology- and knowledge-based economy (KIRDI 2006: 57). Thus, in October 2022, the Kenya Association of Manufacturers (KAM) and the Ministry of Trade, Investment and Industry released the *Kenya Manufacturing 20by30* plan with the aim of increasing the manufacturing sector's contribution to the GDP from 7.2% to 20% by 2030 (KAM 2023; Mwangi 2023).

The government's conviction that only industrialization will make Kenya a middle-income country results from an analysis of the industrial strategies of five so-called 'newly industrialized countries', Hong Kong, Singapore, Taiwan, South Korea, and Thailand (GRoK 2012: 6). The bottom line of that analysis is a general claim stating that:

> the industrial sector can be seen as a key driver for increasing growth rates, generation of sufficient employment opportunities, and fostering Kenya's integration into the global economy. Further, research indicates that most of the rich nations have a thriving industrial sector whereas the poorest countries have agriculture, with very little value addition, as their dominant economic sector. (ibid.)

The government's aim of 'integrating Kenya into the global economy' deserves a closer examination. Being positioned on the periphery of the global tech econ-

omy, Kenya aims at industrialization in order to become an integrated player in this market and to improve the living standards of its citizens.

How exactly does the government want to achieve a national industrialization? The Director General of Kenya Vision 2030 told me in an interview that one of the problems of the manufacturing sector is that:

> after independence the policy on manufacturing focused on import substitution instead of export. Thus, manufacturing companies only target a very small market because they are manufacturing for the local market. They cannot enjoy economies of scale. So that is where we shot ourselves in the foot. We started on the wrong foot and we're still trying to recover from that. Now, in Vision 2030, we identified a need to focus on export. (Interview, April 2017)

Besides the fact that Kenya had already implemented export-orientated policy agendas before Vision 2030's start in 2008 (see below), the current aim of industrialization is supposed to be achieved by increasing local production and exports to regional and global markets (MIED 2015: 5). Kenya's industrialization policies and initiatives highlight that the country is "in a privileged position" (ibid.: 6) to manufacture exportable commodities:

> We are the fifth-largest economy in sub-Saharan Africa; we have a well-educated labour force; our financial services and information technology capabilities are amongst the most developed in the region; and our infrastructure is the most advanced among peers as well (with substantial further investment being planned). We have access to vast agricultural resources and are home to some of the most innovative entrepreneurs globally. (ibid.)

The emphasis on the human capital embodied by technology entrepreneurs is striking. Kenyan entrepreneurs are seen as a guarantor of success in the country's road to industrialization. This is not only claimed by Kenyan policy initiatives: international consultancy firms also advise governments of African countries to establish support structures that will facilitate entrepreneurs' success in the global market (see Section 2.2). As such, tech entrepreneurs are staged as the creators and makers of innovative exportable technologies. They are the agents who will improve the living standards of all Kenyans by positioning the country in the global economy as an industrialized place of high-tech development. The underlying belief in economic progress and society's development through industrialization and technology is presented in detail in the

following. The belief's histories and futures help us to understand that Kenyan policies and the practices of Kenyan tech entrepreneurs are embedded in powerful and persistent imaginaries of technoscientific progress (see Chapters 3, 4, and 5).

The Recurring Attempts at Industrialization in Sub-Saharan Africa's Postcolonial History

Ever since the formal colonization of African countries, if not longer, industrialization and entrepreneurship have been perceived as solutions to structural societal challenges such as poverty. Industrialization, it is claimed, will 'develop' a whole country by creating economic growth, and entrepreneurship will secure an individual's or community's livelihood. The belief that industrialization and technology spur (economic) development repeats itself constantly throughout history. Thus, the following historical synopsis lists various industrialization efforts on the African continent in general, and in Kenya specifically.

During the British colonization of Kenya, industrial development was only furthered if it served the needs of the colonial empire (Swainson 1976: 79). Consequently, industrial sectors in Kenya were kept "complimentary [sic] to rather than competitive with the accumulation process in the Centre economies" (Mkandawire 1988: 10). The colony was treated merely as a source of primary commodities, so that the manufacturing of products for the domestic and global market was repressed (ibid.: 9). Against the backdrop of this industrial suppression, it is no surprise that independence fighters demanded the "right to industrialise" (ibid.: 13). After Kenya gained its independence in 1963, the Ministry of Economic Planning and Development released the Sessional Paper No. 10 of 1965 that laid out a plan to industrialize the country following an *African Socialism* (Speich 2009: 450). This African socialism agenda stands for the state's planning era in postcolonial economic policymaking (Mkandawire 2014: 173). As such, African socialism "combined elements of a free market economy with strong government control and the nationalization of key sectors" (Speich 2009: 457). Consequently, capitalism and socialism were not employed as exclusionary approaches to economy, but as complementary to each other (ibid.: 451).[5] The agenda's socialism drew inspiration

5 Although Kenyan politicians merged capitalist and socialist economic approaches, the country had to position itself on one side in order to gain political and financial sup-

from African societies where social interactions were not structured by the institution of private property but rather were centered around the reciprocal responsibilities within a community (ibid.: 460). Therefore, the aim of industrialization through African socialism was to improve the living conditions of all Kenyans. The capitalist tweak was the conviction of Kenya's government that economic growth was essential for every future welfare program, such as the establishment of equal access to health and educational services (ibid.: 458).

The rapid industrialization after the independence of African states between 1960 and 1970 was challenged by their dependence on technological imports and the lack of foreign investments (Mkandawire 1988: 13ff.). In the case of Kenya, scholars argue that its government's focus on manufacturing products for a limited domestic market caused the manufacturing sector's growth to decline from around 8% in the first decade after independence to less than 5% in the 1980s and 1990s (Ikiara et al. 2004: 211f.). The overall decline of manufacturing throughout African countries caused (international) economists to pivot from heralding the industrialization and modernization of African states in the first half of the 20th century to "rail[ing] against 'protectionism' and 'inefficient' state-subsidized industries and instead, demand[ing] 'free markets' as a panacea for African economic ills" (Ferguson 1999: 238). As a result, the World Bank and the International Monetary Fund called for an end to national development planning in the 1980s (Mkandawire 2014: 178).[6] Together, they advocated for Structural Adjustment Programs (SAPs) that, they claimed, would turn African countries into export-led economies based on agricultural commodities and entrepreneurial efforts (Ferguson 1999: 239; Mkandawire 2014: 178). The pressure exerted on African economies to bend to the neoliberal policies of the SAPs shows the dominant role of international development organizations in Kenya's economic orientation (Ikiara et al. 2004: 210; Mkandawire 2014: 190). This influence became even clearer when "donors froze their quick disbursing aid to Kenya as a result of the slow pace in economic and political

port during the Cold War. Nevertheless, the West and the East did not differ in their 'assistances' to Kenya: both embodied the "unlimited trust in scientific and technical expertise" (Speich 2009: 465).

6 Not only were African governments engulfed in a planning paradigm, international donors and investors also demanded 'plans' in return for material and financial aid (Mkandawire 2014: 174).

reforms" in 1991 (Ikiara et al. 2004: 216) and the economic crises that followed made the country all the more dependent on international aid (ibid.: 210).

Historically, economic policies in postcolonial African countries shifted frequently. The realization that the SAPs and their focus on the export of primary goods were not achieving the desired economic improvements caused economists and World Bank consultants such as Jeffrey Sachs to change their opinion again: Sachs then suggested supporting economies that were fueled by "manufacturing and service exports rather than primary commodity exports" (1997: 22 cited in Ferguson 1999: 239). As such, the aim to industrialize African countries and achieve their utopias of modernity through technology are clearly recurring trends. Despite the fact that various industrial strategies have already failed in the past, the idea that "low-productivity and low-growth economies" can only be transformed "into dynamic and 'modern'" ones (Lall and Wangwea 1997: 70) through industrialization seems doomed to be repeated, each time animated by absolute statements and convincing figures.

Fulfilling Africa's Rising through a Fourth Industrial Revolution

The economic strategies of national planning and structural adjustment programs, and their agendas to substitute imports or facilitate exports, did not achieve the desired outcomes of economic growth and societal change (Mkandawire 2014: 186). In this regard, James Ferguson concludes his book on the Zambian de- and industrialization by writing that:

> [a] return to modernist teleology, a new grand narrative that would trace the hopeful signs of an Africa once more "emerging" out of the gloomy ashes of Africa's "development" disaster is neither plausible nor desirable. The modernization narrative was always a myth, an illusion, often even a lie. We should all learn to do without it. (1999: 248)

However, the rejection of modernization theory that Ferguson wished for did not happen. When writing his book in 1999, he could not have foreseen the current development of digital technologies in numerous African countries, the "increasing attractiveness of African markets to foreign investors; positive and sustained rates of GDP growth, as well as productivity growth; ambitious new infrastructure projects; and the growth of a middle class with considerable consumptive capacity and potential political weight" (Beresford 2016: 1). All of these circumstances are praised in the Africa Rising narrative that rein-

states modernist assumptions about development through (industrial) technology (Aderemi and Agaigbe 2018; Beresford 2016; Fioramonti 2018).

The 'Afro-optimistic' Africa Rising narrative was initiated by *The Economist* newspaper in 2011 when it published an issue with a cover showing a young boy running through a steppe holding a colorful kite in the shape of the African continent. The issue was titled "Africa rising". Following this, other magazines as well as global consultancies also began to write about this fundamental shift in African countries that welcomed investment and the development of (international) businesses (Fioramonti 2018: 739). On a linguistic level, the "connotations of modernity and economic progress" (Nothias 2014: 329) within the Africa Rising narrative are clear:

> '[R]ising' echoes the assessment of economic growth as made clear in the references to 'Africa's economic boom' (*Sunday Times*) and to the 'world's next economic powerhouse' (*TIME*). The 'lion's roar', then, also refers to the 'Asian tigers', a metaphor coined to label Asian countries often hailed as the success story of neoliberalism in the developing world. (ibid.)

As such, the Africa Rising narrative resembles the convictions of the long-criticized modernization theory that claims that the economic "take-off" (Rostow 1990: 36) of a country would only happen once it had replaced "traditional sociopolitical and economic institutions with more Western ones, [and] embrace[d] market economies and democratic rule – in short capitalism" (Aderemi and Agaigbe 2018: 591). In this manner, Kenyan ICT innovations play a major role in the Africa Rising narrative: broadband penetration is heralded as having a direct impact on the growth of GDP (Oloruntimehin cited in Delaney 2018), so that telecommunications (Radelet 2010), technological innovations such as M-Pesa (Aker and Mbiti 2010), and the internet in general are credited with having catapulted Kenya into modernity (Dieterich 2018).

However, the Afro-optimistic narrative and the hype about leapfrogging through mobile technologies (see Chapter 1) have already lost their shine. The narrative's promises have been criticized for remaining mostly unfulfilled because "the mobile revolution has hardly served as a stimulus for broader industrial development and appears to have had little impact on African innovation policy" (Juma 2017). Technology expert Calestous Juma argues that, instead of only creating users of technological services, policy focus should be set on supporting Kenyan producers and their "economic inclusion through local industrial development" (2019: 33). In his opinion:

> leapfrogging industrial development is not an option. … Leapfrogging particular technologies, such as landlines, may in some cases be an option. But industrialization itself, and the innovation and development it generates, cannot be skipped over. (Juma 2017)

The World Bank presents a more differentiated line of argument by emphasizing Kenya's innovative tech scene's potential for supporting industrial growth and competitiveness while, at the same time, noting that much "work remains to be done if the country is to ultimately live up to its moniker of Africa's 'Silicon Savannah'" (Ramos 2017: 4) and that Kenya's technology sector:

> remains largely disconnected from the rest of the economy. Firms in the major employment generating sectors, such as agriculture or industry, have not yet absorbed the benefits from Kenya's growing tech scene, and in turn, the tech firms are not creating solutions that respond to their specific needs. (ibid.)

KIRDI (2006: 20) had already noted in 2006 that 93% of the technologies utilized in Kenya's plants and the overall manufacturing sector were imported compared to only 7% from local sources.[7]

A major criticism of the claim about Africa's rising is that it is mainly based on quantitative criteria such as economic performance as indicated by the continent's GDP and fails to consider social and political structures (Nothias 2014: 335). The narrative is based on Africa's GDP growth of "5.6% between 2002 and 2008, making Africa the second fastest-growing continent in the world" (Taylor 2016: 9). Political economist Ian Taylor claims that "[t]here is little indication to propose that Africa's structural profile is rising or that the continent is going through even the birth-pangs of any structural transformation" (ibid.: 10). He analyzes the growing GDP figures and shows that their increase depicts the export of primary commodities and thus the exact same dynamics that have reproduced poverty since the colonization of African countries (ibid.: 21).[8] Furthermore, he deconstructs the claims about a growing middle class in Africa by showing that the African Development Bank arrived at "this figure

7 Of the imported technologies used in Kenya, 19% come from Germany, 17% from India, 14% from the UK, 8% from Japan, 7% from Italy, 6% from China, and 3% from the USA (KIRDI 2006: 20).

8 I draw on analyses from before the COVID-19 pandemic. During 2020, Africa's GDP fell to -1.8%. However, in 2021 the GDP growth rate rose to 4.8% and in 2022 it was 3.7%.

… by calculating the number of people estimated (using dubious statistics) to have a per capita consumption between $2 and $20" and, as "only 4% of Africans have an income in excess of $10 a day" (ibid.: 16), he refuses to speak of a broad middle class. Overall, the quantified narrative of Africa Rising disguises the issue of poor (informalized) working conditions, the unequal distribution of wealth, and other structural societal inequalities. In this regard, Africa Rising has been termed "a narrative about Africa for sale" (Obeng-Odoom 2015: 247) that is aimed purely at attracting foreign investment.

Digital Industrialization as the 'African' Way to Decolonial Modernity

Despite pointing out the shortcomings of a purely quantitative approach and refuting the possibility of societal betterment through economic progress, critical political economists concur with neoliberal advocates in seeing the solution to Africa's current challenges as, once again, lying in industrialization. They all problematize that African economies are based on primary agricultural production, large informal sectors, and stagnating manufacturing (Juma 2017; Kappel and Müller 2007: 6; Taylor 2016: 18). As such, technological change is still the "central strategy for Africa to address poverty, inequality and unemployment" (Taylor 2016: 20). In this vein, critical scholar Yves Ekoue Amaizo emphasizes the power of technological innovation by referring to "human history" which shows that:

> peoples with more effective technologies quite often dominate economically those with less effective technologies. It is on account of its relative deficiencies in technological knowledge that Africa came to be dominated by Europe from the fifteenth century onwards. (2012: 118)

Nevertheless, he criticizes the fact that research on African economies focuses on economic theories from Western research centers – whether neoliberal or socialist (ibid.: 121). According to him, these theories are usually produced far from the places that directly experience neoliberal capitalism and thus do not include the "unfortunate stochastic details of unemployment, corruption and poor infrastructure" (ibid.: 129). Therefore, Amaizo advocates for an "Africa-centred Pan Africanism" (ibid.: 137), which would invest primarily in

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Between 2023 and 2027, growth is estimated to exceed 4%, compared to the European Union forecast of less than 2% (Statista 2022).

the research and development of technology to gain intellectual and economic autonomy from the "unbroken links that African nations maintain with their ex-metropolises … and an unreflective commitment to Western-engendered development programmes" (ibid.: 134). Amaizo's political objectives bear a similarity to those of Frantz Fanon and other decolonial thinkers.[9] In 1961, Fanon (1961/1966: 82) called for a new start for the independent African nations and advised that their focus on exporting primary goods should be abandoned in favor of technicians, engineers, and mechanics building independent infrastructures to fulfill decolonization.

While the faith in technology's ability to bring about progress is still prevalent in current development paradigms, there has been a noticeable shift regarding the imagined industrial modernity in Kenya. The modern state is not supposed to be based on the mechanization and electrification of (mass) production, but on a Fourth Industrial Revolution that uses digital technologies to ease manufacturing processes. Thus, the industrial future imagined does not follow the European teleology of industrial development as a blueprint. The former Permanent Secretary of the Kenyan Ministry of Information and Technology explained:

> Industrialization must not refer to pollution [like in Europe]. We could leapfrog by not going through coal; we are going through solar systems, we are going through geo-thermal systems. (Interview, April 2017)

The anticipation of the unprecedented Fourth Industrial Revolution reinforces the revolutionary capability of technology (Schiølin 2019: 3), so that the two goals of economic growth and independence from the West become one. Technology actors in Nairobi want to revolutionize their country, not by following the European path of economic development through an industrialization that pollutes the environment, but by finding a unique and sustainable 'African' way to use digital technologies. In this regard, technology that is "low-carbon, resource efficient, climate resilient and socially inclusive" (KIRDI and Kenya Vision 2030 2019: 20) is of great interest in current Kenyan economic policies. Kenya's Vision 2030, for example, is specifically aligned with the *Sustainable*

9 Whereas Fanon (1961/1966) aimed at a liberation from capitalism and its exploitation of labor, Amaizo (2012) calls for a political reorientation toward social welfare states. I discuss the possibility of decolonization within capitalism in more detail in the following chapters.

Development Goals to "promote inclusive and sustainable industrialization and foster innovation" (GRoK 2018: 4). In this manner, industrialization endeavors aim at securing "the future of the manufacturing sector in Kenya [through] green growth practices such [as] efficiency in energy use, industry symbiosis and recycling" (KAM 2018: 42). The basis of this green Fourth Industrial Revolution is proclaimed to be ICTs, which are able to link different economic sectors and digital, biological, and physical technologies with each other (GRoK 2018: 19). Therefore, the Government of Kenya encourages a "strong IT market" as a "critical component of competitiveness in a global market and … [an enabler of] industrial sectors" to allow "Kenyan industry to keep up with the rest of the world" (MIED 2015: 10).

All in all, the belief in economic and societal development through technology underlies Kenya's current manufacturing policies, and postcolonial African economic policies in general. The pursuit of industrialization unites two different ideologies: on the one hand, neoliberal thinkers assert that industrialization can fix the missing economic upswing celebrated in the Africa Rising narrative. On the other, decolonial scholars trust in industrialization to finally emancipate African countries from the West. In Kenya, the alliance of neoliberal and decolonial approaches started with the coalition of capitalist and socialist ideologies in the post-independence era. This ideological union demonstrates that modernization and dependency theories both assume that development happens through technology (Korf and Rothfuß 2016: 169) and that African places' trajectories often do not fit into the dualist theorizations of Western history.

2.2 Staging the Technology Entrepreneur

Kenya's striving for a Fourth Industrial Revolution is not only characterized by the government's support of industries through infrastructure projects such as the establishing of Special Economic Zones, Industrial Parks and Smart Cities, but also by its focus on Micro, Small, and Medium Enterprises (MSMEs) and their entrepreneurs (GRoK 2018: 3; KAM 2018: 41). In fact, current manufacturing policies highlight technology entrepreneurs as the main drivers of Kenya's national progress. As elaborated above, the Kenya Vision 2030 national development plan sees "the existing start up ecosystem in Kenya" (Ministry of Industry, Trade and Cooperatives [MITC] 2018: 8) as a crucial component in achieving the goal of economic development. Also, former US president

Barack Obama, who opened the Global Entrepreneurship Summit in Nairobi, praised Kenyan technology entrepreneurship as "the spark of prosperity" (Obama cited in Shapshak 2015):

> [Y]oung people … are harnessing technology to change the way Africa is doing business. … High-speed broadband and mobile connectivity are on the rise, unleashing the entrepreneurial spirit of even more Kenyans. (ibid.)

To support Kenyan tech entrepreneurs in developing digital technologies, the Kenyan government wants to lower the cost of doing business (GRoK 2018: 50). Nevertheless, technology developers often criticize the state support of entrepreneurs as insufficient (see Chapter 7). Therefore, makerspaces in Nairobi regard it as their job to support developers by providing access to equipment such as digital fabrication tools, offering trainings on how to use their machines, and, in general, lobbying for the use of digital technologies to build hardware. This commitment of hardware makers affects, in turn, the government. After a makerspace's Computerized Numerical Control (CNC) plasma cutter was shown to William Samoei Ruto, the then-Deputy President of Kenya, he tweeted: "We must prioritise technical and vocational training if we are to achieve industrialisation and development" (2017).

Meanwhile, both the state-run training and research institutions for industrial sectors – KITI and KIRDI – are mandated to train people in "technical skills with a strong component of entrepreneurship skills for self-employment" (Kenya Industrial Training Institute [KITI] n.d.) and to complement Kenya's tech hubs and startups by being "world class" public research institutions (GRoK 2018: 51). KIRDI's responsibilities include the support of entrepreneurs by providing technology for industrial development (KIRDI and Kenya Vision 2030 2019: xi), equipment for modern laboratories, and technological incubation for startups and MSMEs (ibid.: 4f.). Also, the Kenya Industry and Entrepreneurship Project (KIEP), which is implemented with the World Bank, "recognizes the centrality of technology and innovation to the development of industry" (Ramos 2017: 3). The project's general aim is to "strengthen the existing start up ecosystem in Kenya" (MITC 2018: 8) by supporting incubators, accelerators, and hubs and by offering "industrial technology bootcamps" and "entrepreneurship/business trainings" to small and medium enterprises (MITC and the World Bank Group n.d.: 4).

Just as the national agenda of industrialization has a long history, the governmental support of entrepreneurship can also be traced back: after indepen-

dence, the government encouraged Kenyans to become entrepreneurs through programs called variably "Africanisation", "Kenyanization" or "Indigenisation" of the manufacturing sector (Ikiara et al. 2004: 209). Entrepreneurship was not only supported for economic reasons in the first decade of independence; it was also seen as a tool to create a unified national vision of progress (Speich 2009: 459). The Kenyan government and international organizations started programs to train Kenyan citizens to become entrepreneurs in the 1970s and 1980s. With the support of the United Nations Development Programme and the International Labour Organization, entrepreneurship courses were implemented in all vocational and technical training facilities (Nafukho and Muiya 2010: 100f.)[10] in which, among other things, the students had to develop a business proposal starting from the moment of their graduation. Acknowledging that the main economic activity in Kenya was (and still is) driven by the 'informal' sector and its small businesses (Elkan 1988: 180),[11] entrepreneurship trainings aimed to "develop positive attitudes among students toward self-employment and self-reliance" (Nafukho and Muiya 2010: 101) and make them aware of the opportunities of working in the informal sector (ibid.: 97). The portrayal of work in the informal sector during entrepreneurship trainings is reminiscent of the various scholars who romanticize informal workers' entrepreneurial spirits (de Soto 1989; Esteva 1992; Lummis 1992; Rahnema and Bawtree 1997) and refute the precarity of informalized work (Ferguson 1999: 12; Nothias 2014: 331).

The belief that industrialization and technology is the best way to spur societal change is historically persistent and African governments continue to declare entrepreneurship to be the main mode of survival in a capitalist market (Chanda 2016: iii). However, I argue that a shift has taken place in the current attempt to industrialize: it is no longer the state which fosters industrialization nor the informal poor who have to undergo entrepreneurial

10 The entrepreneurship trainings took the "Western entrepreneur" as a blueprint; for example, the practices of accounting which is a Western ideal of entrepreneurial rationality and business development (Marris and Somerset 1971: 232). In the meantime, research on entrepreneurship in Africa disproved the negative character traits formerly attributed to entrepreneurs in Africa (Trenk 1991: 512); for example, that a company's success is hindered by the fact that it does not keep accounts (Elkan 1988: 183), that entrepreneurs are illiterate or survivalists (Fayomi et al. 2018: 664), or that they have a "relaxed attitude to labor management" (Elkan 1988: 176).

11 About ten million people were employed in the informalized sector in Kenya in 2012 (Fayomi et al. 2018: 664).

training, but well-educated technology developers who are responsibilized to accomplish Africa's rising by industrializing Kenya. Consequently, the policy focus has shifted away from tabooing or romanticizing the informal sector (Kiggundu 2002: 254) and only supporting the few large corporations in the country towards promoting the growing Kenyan middle class (Dana et al. 2018: 2). Thus, Kenyan entrepreneurs are presented in a new light; they are well-educated and mostly engineering students who cannot find work in the scarce industry jobs available. Therefore, they are being trained to become technology entrepreneurs who combine business thinking and innovative work methods with the efficiency of digital manufacturing tools (KIRDI and Kenya Vision 2030 2019: 17). As a result, technology entrepreneurship has become a more digitalized and technoscientific entrepreneurial activity than has previously been present in Kenya (see Part II). Overall, Kenya's envisioned industrial modernity is no longer a "masculine vision of modernity based on a hard, metallic, masculine industrialism" (Ferguson 1999: 25) with a (male) mineworker as the protagonist. Instead, it stages the technological entrepreneur as the main driver of social change through the innovation of technologies for a Fourth Industrial Revolution.[12]

In the following, I will include ethnographic material to further illuminate the neoliberal responsibilization of citizens aiming to spur industrial growth and societal transformation. In addition, I point to a postcolonial specific in Kenya's ambition of technology development. The country strives for a Fourth Industrial Revolution and its high-tech innovations not only because they promise economic progress, but also because local technology developers seek to disentangle the country from exploitative global structures. As such, I argue that the postcolonial technology entrepreneur merges the capitalist ways of production with the political motivation of decolonial emancipation in their desire to transform Kenyan society for the better, serve community needs through the social impact of technologies, and finally re-make Kenya's postcolonial positionality.

12 Joseph Schumpeter's 1934 definition of an entrepreneur is still cited regularly in the context of technology development in Sub-Saharan Africa as he "attributed the growth of the industrial world to entrepreneurs, the risk takers who introduce innovative products, services and new technology to the economy" (Nafukho and Muiya 2010: 98).

Neoliberal Entrepreneurs…

Research on African entrepreneurship from the 1970s and 1980s claims that successful entrepreneurs are (or have to be) socially excluded – either through being positioned outside a community or through personal feelings of not fitting into society. It is claimed that in socio-cultural contexts where the redistribution of income to family members and other groups is a social duty, those living outside such social arrangements (e.g., a family, village, religious community) have advantages when doing business (Granovetter 1990: 37ff.; Trenk 1991: 509, 512). Consequently, those who are able to remove themselves from the all-encompassing social reciprocity are said to be entrepreneurial because this facilitates their individual accumulation of capital (Elkan 1988: 173f.; Trenk 1991: 508ff.). Additionally, entrepreneurs in Africa were also analyzed as outsiders because, as well as being intelligent, well-traveled, risk-taking, and visionary, they reported feeling rejected. This feeling of rejection was evoked by the fact that in the early postcolonial period, non-Kenyans were given a wide variety of high-status jobs whereas Kenyans were restricted to subordinate job positions (Marris and Somerset 1971: 225). These entrepreneurs were frustrated by "the colonial civilization which dominated [their] childhood, and still informs society with its conception of success; and the administrative and political élite from whom [they are] excluded" (ibid.). Overall, Peter Marris and Anthony Somerset (ibid.: 226) identified "African entrepreneurs" as contradictory beings as they tried to tackle their frustration by following the same (Eurocentric) ideology of modernity that they suffer(ed) from.

Remarkably, these past descriptions of African entrepreneurial outsiders are still popular. Being a *misfit* is the most cited character trait of successful innovators. The tech developers in Kenya are said to be critical of society and described as misfits "who see and do things differently, who challenge the status quo and the power sources that prop it up" (Hersman 2013: 65). In this vein, the "futuristic and sometimes disruptive dream" (Maas et al. 2019: 8) of transforming society for the better is expected to be achieved through the development of new technologies. These transformative visions differentiate the entrepreneurial misfits from the "'necessity entrepreneurs' in the informal sector" (Junne 2018: 118).

Research on the (DIY) making of technologies shows that innovative work as "a proactive response to social and economic change" (Sivek 2011: 203) is a global phenomenon. According to Susan Currie Sivek, who analyzed the discourse created by the most influential magazine on making, *MAKE* Magazine:

> the contemporary maker is elevated to a societally significant problem solver, working on behalf of the nation and world, and within a community of makers, but still an individual who determines his or her own path. (ibid.: 201f.)

In the context of Kenya's entrepreneurial making of technologies, the technology developers/makers who are critical of their lived contexts want to "challenge the status quo" (Hersman 2013: 65) by developing products that alleviate poverty, improve inadequate infrastructures, and address other systemic challenges in Kenya (Madichie et al. 2019: 226; see Part II). Mwai Kibaki, a former Kenyan president, enumerated the character traits necessary for Kenyan entrepreneurs in order to achieve the far-reaching goals included in the Kenya Vision 2030: "sacrifice, hard work, self-discipline and determination" (GRoK 2007: i).

My research partners in Nairobi embody such descriptions of self-reliant and committed entrepreneurs as they task themselves with the duty of creating a technology development sector without any state support. The Kenyan government is argued to be incapable of supporting the tech sector because of its financial restrictions: "Government alone can't fund development" (Interview, former Permanent Secretary of the Ministry of Information and Technology, April 2017). In addition, tech developers claim that the Kenyan government has the 'wrong' approach to new technologies: "Most governments in Africa approach education technology by buying gadgets" instead of "actually produc[ing] better students who have better knowledge, better skills that can ultimately benefit the economies of the African countries" (Interview, hardware company founder, November 2015). Therefore, founders of companies and co-working spaces in Nairobi emphasize their self-reliance in an environment characterized by various challenges, including the lack of state support (see Chapter 6). Even the establishment of the tech scene is said to have happened 'organically' without government support:

> The most beautiful aspect is: it wasn't intentional. That wasn't a university saying, 'I'm going to build an innovation center'. This wasn't the government saying, 'Okay, I'm going to pour money into trying to promote entrepreneurial growth in my country'. No, it was literally five or six technologists sitting around the table asking "What could we do to help each other?" (Interview, hardware company founder, November 2015)

Among technology developers, the former Permanent Secretary of the Ministry of Information and Technology, Bitange Ndemo, is considered an exceptional politician in the Kenyan government. He supported the emerging tech scene by overseeing the arrival of the first undersea glass fiber cable from the United Arab Emirates to Kenya's coast in 2009 and planned to build a smart city outside of Nairobi, called Konza City (which was delayed when the government changed) (Interview, Bitange Ndemo, April 2017). As described above, the government has only recently seen the need to actively support tech entrepreneurs. Since 2019, it has increasingly implemented projects that create synergies between state institutions and the country's tech scene, for example, KIEP, the World Bank project, or the incubation programs for startups offered by the national research institute, KIRDI. However, the crucial investment in startups stems primarily from foreign private investors and international organizations.

Due to this ongoing lack of state support, neoliberal entrepreneurial selves continue to seek their own solutions to the challenges posed by Kenyan tech entrepreneurship, as well as to structural problems within Kenyan society.[13] In this manner, self-dependent entrepreneurs solve their infrastructural challenges by doing extensive research on their own, establishing international networks to gain access to other countries' markets, sharing knowledge with other tech companies, and eventually opening technology hubs and makerspaces that facilitate their businesses (see Chapter 7). Consequently, digital industrialization is driven by (mostly self-employed) entrepreneurs, rather than by the state or factory employees. As such, societal problems and visions are transferred to collective and individual subjects such as entrepreneurs or innovative workplaces (e.g., Lemke 2000: 38). According to Michel Foucault's theorization of neoliberal governmentality, it is not the state or a governor who forces people to act in a specific way, but "it is always a versatile equilibrium, with complementarity and conflicts between techniques which assure coercion and processes through which the self is constructed or modified by [themselves]" (1993: 204). Affects such as the feeling of self-fulfillment make tech entrepreneurs willingly accept their self-dependent and precarious beings (Cockayne 2016: 458). In feeling self-fulfilled when working in an entrepreneurial manner, Kenyan technology developers resemble a textbook

13 Governments and international organizations began to delegate the handling of poverty to citizens in the 1980s and 1990s when a neoliberal paradigm shift took place in African countries (Ochonu 2020).

version of neoliberal selves (Jones and Spicer 2005: 179f.). For them, work is "no longer … the imposition of constraint, order and routine"; they are workers in "search of meaning, responsibility and a sense of personal achievement in life" (Miller and Rose 2008: 194f.).

Kenyan technology entrepreneurs who develop "products that are really making a difference" (Interview, director of user experience at BRCK, November 2015) and aim at accessing the global digital economy (Hersman cited in Delaney 2018) become "entrepreneurial citizens" who are "celebrated in transnational cultures that orient toward Silicon Valley for models of social change" (Irani 2015: 801). The broadening of entrepreneurial goals from commerce to societal change is a global phenomenon (Steyaert and Katz 2004: 181). However, the specifics of social entrepreneurship in postcolonial contexts include the rendering of poverty as entrepreneurial and the individualization of constructing markets and nations (Irani 2019: 4; 14). As such, Irani (ibid.: 1) writes that tech entrepreneurs in the Global South subsume "their community ties, their capacity to labor, even their political hope … into the pursuit of entrepreneurial experiments in development, understood as economic growth and uplift of the poor". Thus, actors as diverse as entrepreneurial technology developers and private investors now enact modernization and development agendas (Ouma et al. 2019: 344f.; Rudnyckyj and Schwittay 2014: 4; see Chapter 6). Although "neoliberalism's individualist bias" can be criticized for moving "explanations for inequality away from structural factors" (McCarrick and Kleine 2019: 111), I show in the following that postcolonial tech entrepreneurs are indeed aware of structural inequality and that they interweave a decolonial agenda into the development of their technologies.

…with a Decolonial Agenda

Although the discourses on (social) entrepreneurship and making have a universal impetus, scholars who theorize entrepreneurial life and the making of technology in postcolonial and resource-constrained contexts highlight the legacies of colonialism and a differing precarity of workers (Avle et al. 2019; Freeman 2014; Irani 2019). According to them, entrepreneurial subjects use digital technologies to tackle challenges that their government neglects, to improve their precarious livelihoods, and to counter global exclusions (Avle et al. 2019: 2). Thus, "the labor of entrepreneurs in resource-constrained communities [is] particularly complex because they are performing this work both to meet survival needs and also to reach for something greater" (ibid.: 16).

Kenyan technology developers work in similar circumstances: the hegemonic assumption of societal progress through industrialization, technology, and entrepreneurship subjectifies them into entrepreneurs who foster a positive impact on society, as any other social entrepreneur worldwide would do. However, working in a context of postcolonial oppression, social entrepreneurs in Kenya always criticize their unjust position in global power structures. In their understanding, the social impact of an innovative technology is twofold; it should not only positively influence the daily lives of its targeted users, but also materialize the critique of structural inequality – such as the continuous dependence on former colonial powers or the lack of governmental support in building infrastructures. Therefore, I argue that postcolonial technology entrepreneurs are not only responsibilized individuals who act out what the state fails to do, but that they also fight against the disadvantages of living in a place peripheral to technocapitalism by (re-)positioning themselves and their countries within global power structures.

In general, the structural disadvantages of living in (post)colonialized countries were analyzed by the dependency school in Latin America in the 1960s (Blaut 1976; Frank 1967). Their center-periphery model criticizes the fact that former colonies function as peripheries and as such, as sales markets for technology made in the countries of colonial power, the so-called centers (e.g., Mavhunga 2017: 4). Dependency scholars acknowledge that a "country's position within the global capitalist economic structure impacts on its abilities to increase wealth" (Hope 2017: n.p.). In the 1970s, the research focus therefore shifted from the characteristics of successful companies and entrepreneurial individuals in African countries to analyzing external factors such as inadequate infrastructures, (international) competition, and the challenges of importing goods, legal insecurity, and corruption (Trenk 1991: 506). For example, Nigerian entrepreneurs producing lumber were long considered inefficient because they were only able to exploit 10%-20% of their sawmills' capacities. Focusing on the infrastructural constraints faced by Nigerian entrepreneurs revealed that "commercial skills are much more a product of circumstance than of innate qualities"; the sawmills in Nigeria were "bought because no smaller ones were available, yet in the full knowledge that the market was not large enough for full capacity utilization" (Elkan 1988: 179).

Researchers and activists deconstructed and disproved the assumption that a certain 'underdevelopment' stems from endogenous factors such as (cultural) character traits. Nevertheless, essentialized dichotomies, for example, modern and emerging countries or Silicon Valley and its blueprints, still define

the daily life of technology developers in Nairobi. As such, emancipation from the colonial continuity of the supremacy of Western knowledge and uneven economic conditions is a central aim of Kenya's tech scene. In this manner, the African *Maker Manifesto*, formulated by the organizers of the Maker Faire Africa, claims:

> 1. We will wait for no one. 2. We will make the things Africa needs. 3. We will see challenges as opportunities to invent, and invention as a means to proving African ingenuity. … 5. We will show the world how sexy African manufacturing can be. … 10. We will remake Africa with our own hands. (Maker Faire Africa 2012: n.p.)

The manifesto statements make it clear that the making of new technology stands for gaining independence from governmental and international support and emancipating the country from the stereotypical image of an impoverished passive Global South which acts only as a recipient of technologies from the Global North. A tech entrepreneur in Ghana emphasizes that technology production in Sub-Saharan Africa represents a denial of passivity:

> [I]t is about Africans taking ownership of the problems of Africa. It's about Africans creating the solutions that help solve and lift the multitudes of Africans who are in poverty out of that. … It's no longer about sitting down and having Westerners come in to the continent to do charity. (Gregory Rockson cited in Avle and Lindtner 2016: 2233)

In Part I, I elaborate in detail how the practices of building technology and telling stories about tech development are used to (try to) turn the dominant innovation discourse upside down and to position Kenya as a place for technology production. Here, I briefly introduce two self-ascriptions of entrepreneurs that deny passivity and dependence; local expertise, and the ability to care for local communities.

In regard to expertise, technology developers refer to the history and daily routine of making and innovating in Kenya to support their claim that they do not have to learn hacking and creative tinkering as in other innovative workplaces globally where industrialization resulted in people losing manual work skills. However, because the "artisanal production such as [the] production

of sufurias,[14] cassava flour, condiments, washing machines, you name it … [,] use traditional non-mechanized processes", they are "not considered when people talk about industrial revolution" (Gachigi interviewed by Omole 2019). Therefore, global discourses on manufacturing and technology production omit the informalized jua kali sector (see Chapter 1). As early as 1938 (/1971), Jomo Kenyatta, the first president of independent Kenya, in an attempt to fight the colonial denial of local expertise, wrote an ethnography of the Kikuyu with the explicit aim of evoking positive identification with Kenyan craft traditions. Nowadays, tech entrepreneurs highlight their skills and knowledge about what is best for one's own context (Cofie n.d.), for example, by branding technologies as 'Made in Africa, for Africa' (see Chapter 6). They use this brand to present on the one hand, their expertise and on the other, the technology that is developed for the local market. This branding recaptures the above-mentioned 'ownership of the problems of Africa' and thus, embodies the endeavor to detach the tech scene from global role models such as Silicon Valley (Cofie 2016).

Besides the emphasis on local expertise, tech developers demonstrate their active role in caring for local communities. The forerunners of the iHub, for example, emphasize how the "African maker ethos" that incorporates a "culture of doing" helped to build a tech community in Kenya (Interview, director of user experience at BRCK, November 2015). According to a user experience designer, "African" entrepreneurs are not just talking, but doing – thus, they are not only documenting the various challenges on the continent, but doing something about them (ibid.). Not even the challenge of entering a "forest without paths" (ibid.) to establish the first technology hub on the African continent could halt Nairobi's techies:

> We don't know much about quitting. And we certainly don't know much about not believing that our vision is not achievable. … If we would think like a Western engineer 'Och, that's too hard. If I don't have this, this and this, I can't solve that problem. Instead, with the African resourcefulness, it's kind of 'Okay, I have one of those and one of those and one of those. Now, how can I put them together to solve my problem?' We see this across the continent: in every village, you can find someone who is using one item which is not originally intended to solve that problem. And I think that kind of innovation is unique. Our culture in Kenya and across the continent of Africa has

14 Kiswahili for 'cooking pot'.

> a huge competitive advantage of resourceful innovation. Innovating from constraints. (Interview, co-founder of BRCK, November 2015)

Similar to the romanticizing narratives about the entrepreneurial spirit of informalized workers, Kenyan actors also praise the challenges of an 'African' context because they make people innovative: "God has been great with Africa because he has given us too many problems. And the moment you solve one, you will succeed" (Interview, former Permanent Secretary of the Ministry of Information and Technology, April 2017). Structural challenges are seen in a positive light, as business opportunities: "harsh and difficult conditions force out-of-the-box thinking" (Narla 2013: n.p.) and "only add fuel to Africa's innovative energy and creativity" (Jackson 2017: n.p.).

The tech community in Nairobi does not just praise the entrepreneurial spirit of precarious people in a neoliberal manner: it appropriates the exoticizing claim of creativity and innovativeness inherent to 'African culture' in order to form a pan-African identity of technology developers that differs from the global innovation scene. They claim that the Kenyan community of technology developers care for each other's well-being and for their broader context. A hardware company founder, for example, describes Nairobi's tech entrepreneurs as a "community of technologists and entrepreneurs that are collectively committed to seeing each other being successful and to seeing our country prosper from the success of these enterprises" (Interview, November 2015). Through sharing knowledge, investors, and publicity, tech developers care for their own work community and their social enterprises care for their context.

The emancipatory move to build a local tech community to free Kenya from exploiting postcolonial structures can be analyzed through the lens of critical making in design theory. Critical making asserts that a built thing empowers through:

> express[ing] the designer's ideological position (empowering oneself); caus[ing] critical reflection in others by raising awareness of or providing new choices to subvert existing structures (empowering others); and attempt[ing] to challenge the social construction of our made environment (empowering making communities). (Grimme et al. 2014: 434)

As the technology made in Nairobi should have a positive effect on various Kenyan contexts and help to overcome the oppressive structures still present,

Kenyan technology developers feel empowered to shift from a passive recipient of technology to "a maker subject position" (ibid.: 435). This is not only an individual feeling of empowerment, but is perceived as empowering the whole country through re-working Kenya's position in the global tech market (see Part II).

However, critical making is most often associated with anti-capitalist ideology (Grimme et al. 2014; Maxigas 2014) and therefore does not satisfactorily explain the driving affects of postcolonial technology entrepreneurship that aims at participating in the global tech market. Instead, historical accounts of entrepreneurs in Africa are more insightful because they emphasize the fact that African entrepreneurship has never been purely profit-driven, but also mandated to address non-profitable concerns. Precolonial entrepreneurship in Africa did not center on profit, but "existed in symbiosis with the demands, responsibilities, and ethics of the wider culture" (Ochonu 2020: n.p.). As such, its social impact was inherent to an entrepreneurial endeavor:

> Profitmaking was coextensive with social obligations. … [T]he idea that individual profitmaking could and should coexist with the provision of societal benefit and that entrepreneurial projects should catalyze society's economic potentials was an unwritten but well understood rule of business. (ibid.)

Against this background, the neoliberal understanding of an entrepreneur (stemming from Western theorizations) that "proclaim[s] the autonomies of … business and political spheres" (Ochonu 2020: n.p.) is unable to grasp entrepreneurial endeavors in African contexts that "are often still about much more than simply money and commodities, and impersonal encounters, and rather entangled into complex webs of interpersonal relationships" (Ouma 2016: n.p.).

I argue that postcolonial technology entrepreneurs in Kenya represent an entrepreneurial self that unites neoliberal logics of technoscientific modernity and decolonial endeavors to create a pan-African identity of technology development. The social impact of their technologies is a heuristic, not a simple business logic (see Chapter 6). As such, the aim of (re-)positioning Kenya in global economies through local technology development merges capitalist ways of production with the political motivation of decolonial emancipation. The fact that the merging of technocapitalist norms with emancipatory ideals is a highly ambivalent enterprise and must be constantly negotiated affectively is one of this book's main arguments (see Part I).

2.3 Conclusion: The Making of Technologies to Industrialize and Decolonize Kenya's Future

This chapter situated Kenyan technology entrepreneurship in histories of industrial policies and entrepreneurship in (post)colonial Africa to emphasize the context-specificity of technoscientific endeavors and futures. It showed that the belief in economic development through industrialization and technology is a recurring phenomenon in history. Although this development has often failed to materialize in the past, for example, during the colonial exploitation of natural resources and numerous subsequent economic paradigms that were (forcefully) implemented in African countries, the goal of industrialization is still popular. The analysis of Kenyan manufacturing policies and projects highlighted the current national aim of becoming an industrialized middle-income country by 2030. Further, it evaluated continuities and changes in industrial utopia, showing that the modernist assumptions regarding technology and progress that underlie the belief in economic growth through industrialization have not changed. Just as Kenya's post-independence industrial policies were characterized by the Eurocentric teleology of development and the parallel 'socialist' wish to emancipate intellectually and economically from colonizing countries, so the current aim to industrialize Kenya also unites capitalist and decolonial thought.

However, I demonstrated that two things have changed in the current industrialization endeavor compared to past ones: the means of production and the propulsive actors. The introduction of digital technologies as means of production in manufacturing industries has encouraged Kenya to aim, not at a Fordist industrialization, but at a Fourth Industrial Revolution. However, the state does not see itself as the driving force in achieving this digital industrialization. Instead, Kenyan policies and the global innovation discourse stages the 'African entrepreneur' in a new guise – well-educated, middle-class Kenyans who should foster the national economy by applying business and technical skills such as coding, digital manufacturing, and product design. Therefore, I argue that technology entrepreneurs are staged to be the makers of an industrialized and innovative Kenyan future that finally fulfills the Africa Rising promises.

Furthermore, this chapter established the characteristics of the *postcolonial technology entrepreneur* embodied by Kenyan tech developers. As responsibilized drivers of Kenya's industrialization, they are embedded in the global innovation paradigm that celebrates technology developers as "savior[s] of broken ed-

ucational systems and economies" (Ames et al. 2018: 16). To alleviate poverty, improve inadequate infrastructures, and address other structural inequalities, Kenyan tech developers delve into the neoliberal endeavor to build social impact technologies without any governmental support. However, postcolonial technology entrepreneurs also embody another characteristic that seems at first sight to contradict the neoliberal principle of sacrifice: they also follow decolonial aspirations. Through the local development of technologies, they fight for the acknowledgment of their expertise and against the stereotype of passive 'Africans' waiting to receive technological solutions from the West. Thus, they strive for an overall emancipation from the supremacy of Western technology and knowledge. Against this backdrop, I argued that the work of developing technology is actually the work of challenging Kenya's peripheral positionality by integrating the country into the global technocapitalism. What seems contradictory at first can be explained by the historical accounts of entrepreneurs in African communities, which highlight that business on the continent has always been politically inflected. I contend that the protagonist of Kenya's digital industrialization is a neoliberal tech entrepreneur with a decolonial agenda.

Overall, this chapter has shown that, due to the historical situatedness of Kenya's tech entrepreneurship, scholars should avoid using the same theoretical interpretations as they would when analyzing the development of technology in post-industrialized contexts. The existence of jua kali, the informalized manufacturing sector, shows that the skills of making things neither represent something new for Kenyan entrepreneurs nor are they equitable with manual skills that have to be re-appropriated from capitalist modes of industrial production. Further, the historical insight that industrial policies and entrepreneurship in Africa were always politically motivated constitutes a complex backdrop for the research outcome that neoliberalism does not stop at industrialization efforts. In this regard, I demonstrated that it is a postcolonial specific, which allows technology entrepreneurs in Kenya to understand their striving for technoscientific modernity as an emancipatory act of gaining independence from Western science and technology (imports). As such, Kenyan visions of the future relate to histories of entrepreneurship in Africa, colonial oppression, and the resulting hegemonic belief in societal development through economic progress.

Many scholars assess the development of technology in African countries as either emancipatory or capitalist. Some celebrate the agency of technology developers in Africa by "strategically deploying *things* (the mobile phone, computer, and internet) to effect their dreams" (Mavhunga 2017: 19) and some crit-

icize the 'Africanization' of technology and its aim of societal development for not thinking "*through* capitalism *beyond* capitalism" (Ouma 2020: n.p.). Unlike these binary assessments, this book aims to highlight the tensions that emerge between neoliberal aspirations, capitalist world markets, and decolonial motivations as well as technology entrepreneurs' handling of these in their daily life. In this regard, I follow a more conciliatory approach by accepting that nowadays, it is "difficult … to imagine ways of expressing care and concern without fostering markets" (Collier et al. 2017: n.p.). In consequence, I understand the entanglement of capitalist and decolonial logics, economy and politics as well as markets and ethics as one whose parts often cannot be separated from one another. The following chapters analyze the affective socio-technical practices of postcolonial technology entrepreneurs to shed light on emancipatory moments and their constraints in a technocapitalist world.