Develop the Developers: A Strategic Priority for Africa

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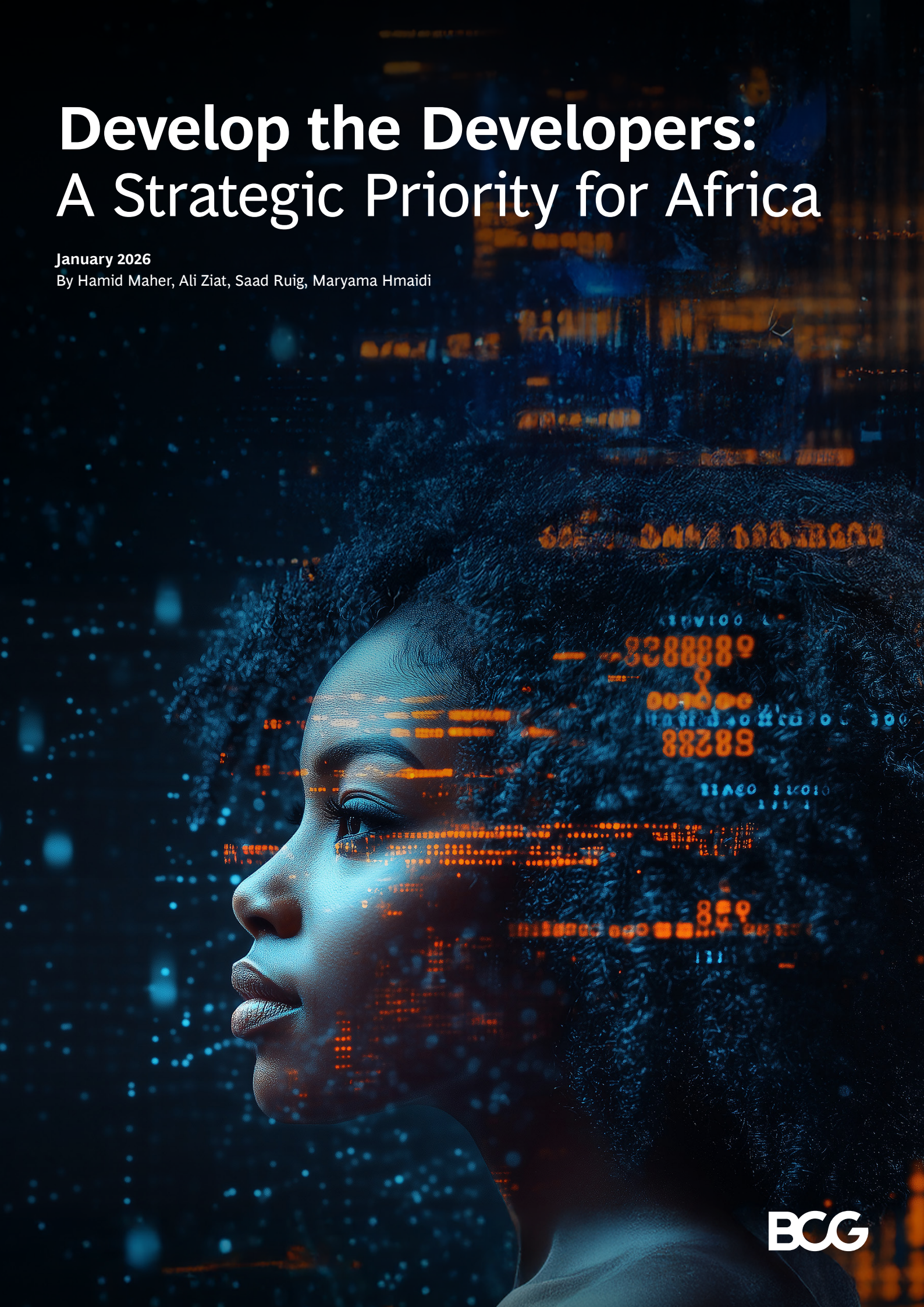

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Foreword

As digital technologies reshape economies and societies at unprecedented speed, software development and artificial intelligence capabilities are emerging as critical determinants of long-term competitiveness. Countries that can build, attract, and retain strong developer communities are better positioned not only to adopt new technologies, but to shape and produce them.

This report seeks to contribute to that discussion by offering a data-driven view of Africa's developer landscape. Its intent is to assess where coding talent is emerging across the continent, how fast it is growing, and what this reveals about countries' readiness to participate in the next phase of the global digital and AI economy.

The analysis is grounded primarily in GitHub usage data, complemented by additional public sources and proprietary scraping techniques to estimate developer presence, activity, and specialization by geography. While no single dataset can capture the full complexity of developer ecosystems, GitHub provides a globally consistent and widely adopted proxy for coding activity, collaboration, and engagement in software creation. In this report, the term "developers" is used in a broad sense to refer to individuals with software development and coding capabilities, rather than only formally employed professional software engineers. The analysis therefore captures students, researchers, and self-taught practitioners who actively engage in software creation, collaboration, or learning, as reflected through their activity on open development platforms.

By combining this data with demographic, education, and research indicators, the report highlights both continental trends and country-level contrasts. It shows that while Africa still lags other regions in absolute developer numbers, it is home to some of the world's fastest-growing developer communities. It also underscores the role of policy choices, education systems, and ecosystem design, rather than population size alone, in shaping digital outcomes.

Ultimately, this study is intended to inform policymakers, educators, investors, and ecosystem builders seeking to understand how Africa can move from consuming digital technologies to producing them. Developing the continent's developers has implications that extend well beyond skills, shaping innovation outcomes and long-term economic performance.

Key Takeaways

1 Software development and AI capabilities are foundational to digital competitiveness, innovation, and may help to underpin countries' **long-term economic growth.**

2 While Africa has the **lowest absolute number of developers** among continents, it is also where the pool of developers is growing the fastest.

3 **North African countries have the highest percentage of developers working on AI-related topics** within Africa, and Morocco stands out for the scale and intensity of its developer community.

4 Vibrant developer communities are associated with **stronger research ecosystems,** innovation pipelines, and technology production capabilities.

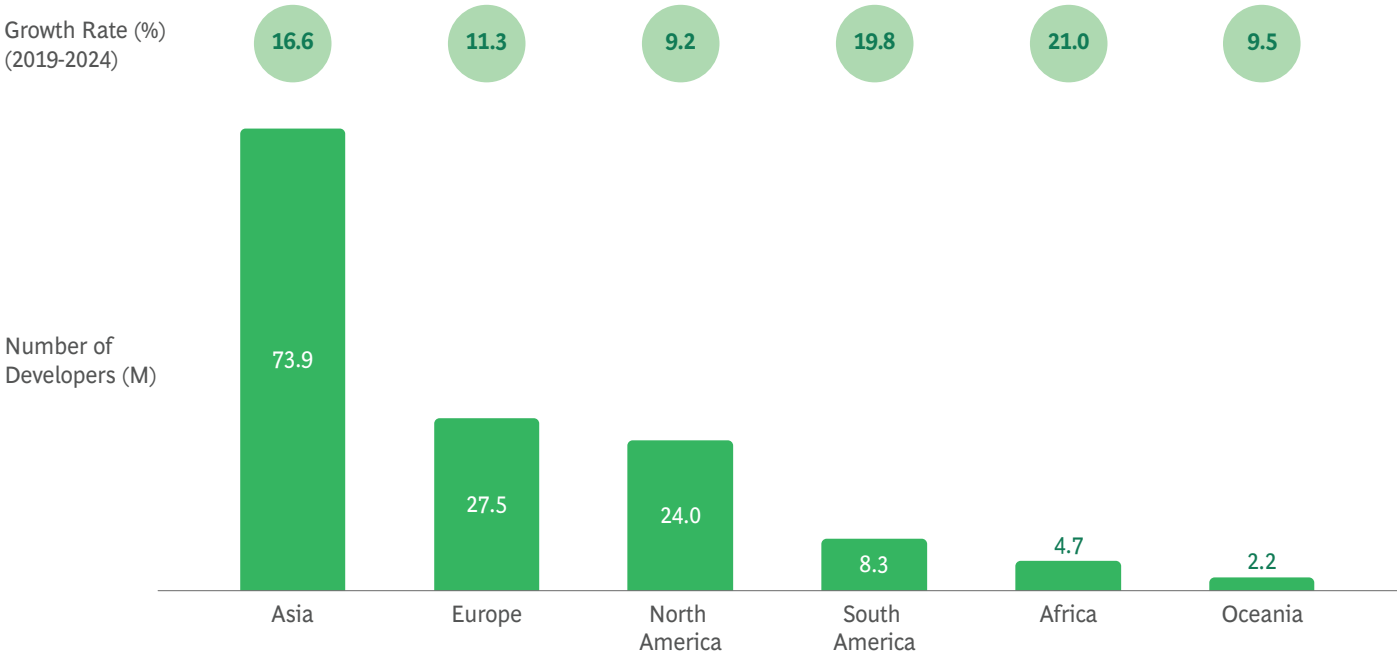
Africa lags but is catching up fast

Software development and AI capabilities are foundational to an economy's digital competitiveness, innovation, and may contribute to long-term economic growth. It's crucial that countries move beyond being simple consumers of technology and instead actively produce it.

In a world where AI is rapidly penetrating every productive activity, from manufacturing to services, the size of developer communities is becoming a leading indicator of a country's ability to produce AI.

EXHIBIT 1

Developer population and growth by continent



Source: BCG analysis, Github data

By 2024, Asia dwarfed all five continents for its absolute number of developers, at 73.9 million (Exhibit 1). Europe and North America had one-third of that figure, at 27.5 million and 24 million respectively. The number of developers in Africa, at 4.7 million, was only just over half the number in South America (8.3 million).

However, Africa stands out as a rising contributor to the global tech talent pool, with a fast-expanding coding culture. Off a low base, Africa's growth rate for developers, at 21% per year between 2019 and 2024, was the strongest of all five continents, while North America showed the lowest growth rate, at 9.2%.

Policy, not population, is key

The significance of the developer community is reflected in the number of developers per 1000 inhabitants - a measure which captures “coding intensity” and interest in software creation relative to population size (Exhibit 2). Globally, the picture varies considerably among countries and regions. Within Africa, the disparities are stark.

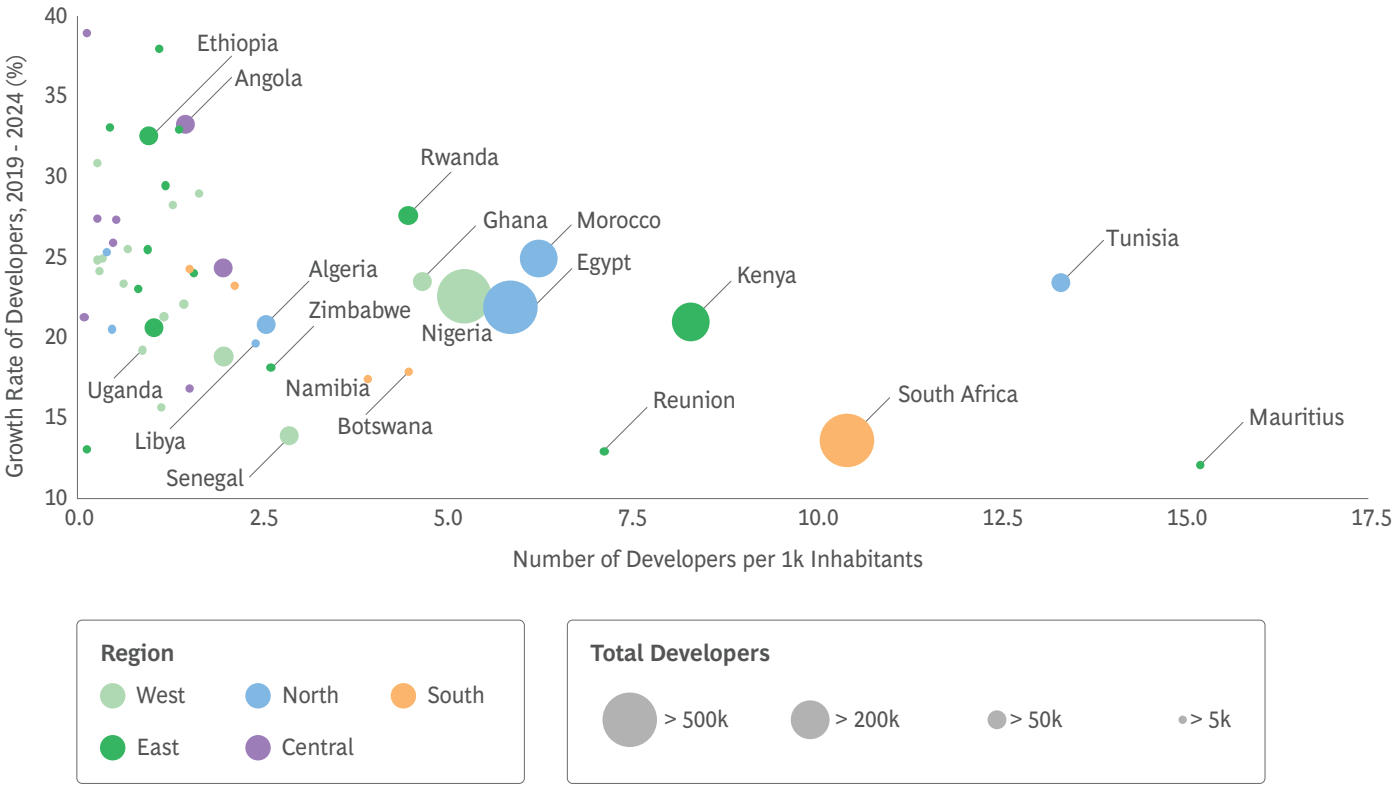
The key reasons for variability between countries is likely to be related to factors such as education systems, digital policies, tech hubs, internet penetration and language. So, for example, Nigeria, which had the biggest population in Africa in 2025 at an estimated 237.5 million, had fewer developers per 1,000 inhabitants than Kenya (population = 57.5 million) or even Reunion (population = 882 205).

While South Africa, Egypt and Nigeria have the greatest absolute numbers of developers, countries like Ethiopia and Angola have grown their developers at the fastest rate between 2019 and 2024, off a very small base.

The countries that stand out as regional technology leaders in both scale and growth are Tunisia, Kenya and Morocco. Morocco is strongly positioned, in terms of both the scale and intensity of its developer community. However, it lags in growing its pool of female developers. By 2024, fewer than 12% of Morocco’s developers were women, which was on a par with Egypt (Exhibit 3). In its percentage of female developers (24%) and steepness of its growth trajectory in this respect, Tunisia has led the continent in the decade from 2015-2024.

EXHIBIT 2

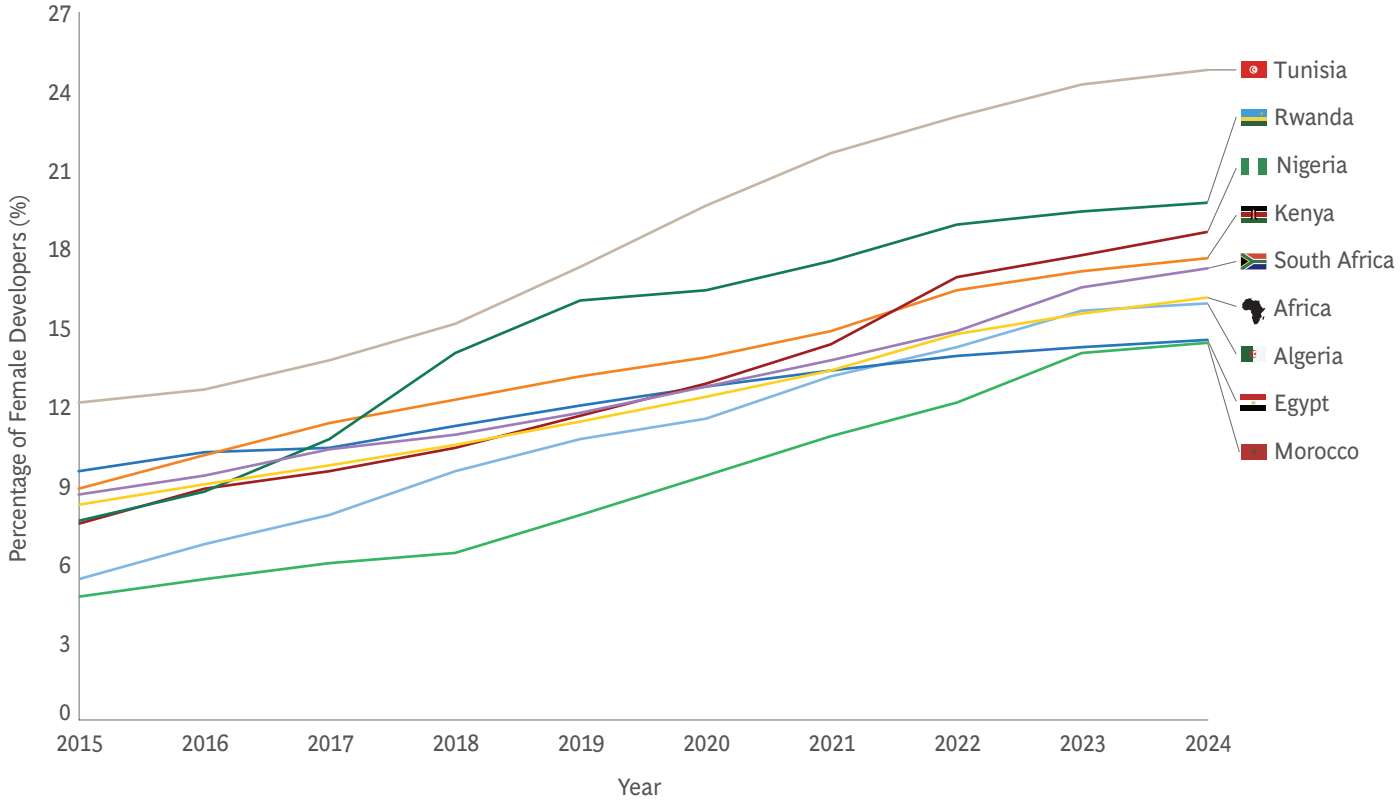
Size and growth of developer communities by country in Africa



Source: BCG analysis, Github data

EXHIBIT 3

Share of female developers by country (2015–2024)



Source: BCG analysis, Github data

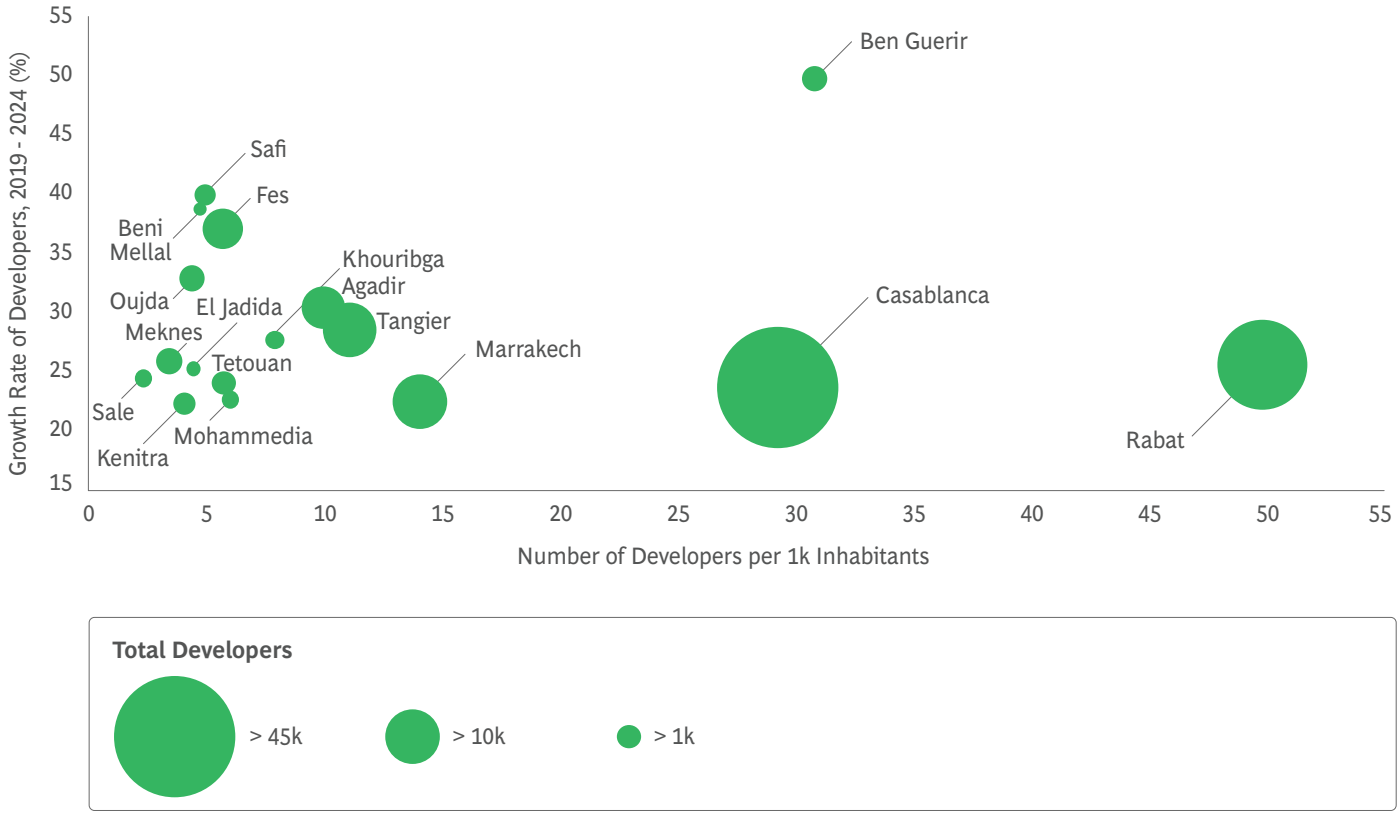
Case study: Morocco

Morocco's stand-out growth in comparison to other developer communities reflects broader government policy towards university, digital strategy and entrepreneurship.

Within Morocco, the absolute number of developers per 1,000 inhabitants and growth in the number of developers varies markedly between small bases in towns such as Fes, Oujda and Agadir, to recognized regional hubs, such as Casablanca, Rabat and Ben Geurir (Exhibit 4).

EXHIBIT 4

Developer scale and growth across Moroccan cities, with Ben Guerir as a distinct outlier



Source: BCG analysis, Github data

Ben Guerir is a fast-emerging tech hub, and is now a major node in Morocco's innovation landscape. Its developer community grew 50 times in just a decade, and it now has one of the highest absolute number of developers in the country.

Morocco's government has underpinned this growth through sustained investment in higher education, digital skills, innovation-led industrial policy and reforms to the university system. In parallel, OCP's long-term commitment to Benguerir, including the creation of Mohammed VI Polytechnic University (UM6P), dedicated research institutes, and start-up support platforms, has anchored a dense talent and innovation ecosystem. Together, public policy alignment and an industrial champion's investment demonstrate how intentional ecosystem design can catalyze rapid developer-community growth.

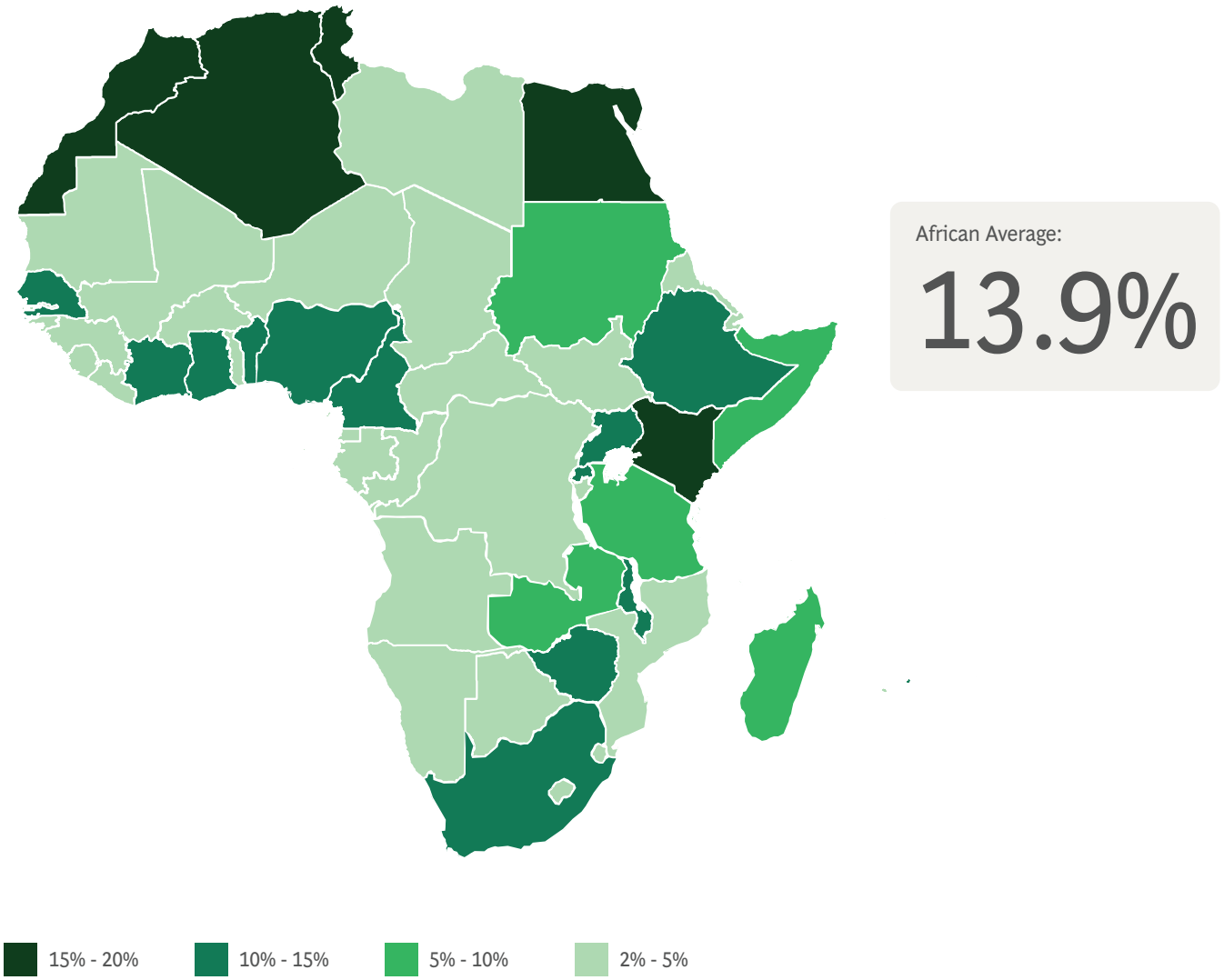
Commanding the AI landscape

AI's frontiers are broadening, and effective deployment of AI in new fields will increasingly differentiate winning businesses and countries. It is not only deployment of AI, but production of AI technologies, that matters.

Most of Africa's developers of AI, Machine Learning (ML) and Data Science (DS) are concentrated in North Africa and Kenya (Exhibit 5). While the average proportion of AI, ML and DS developers per country in Africa is 13.9%, in countries like Algeria, Morocco, Tunisia, Egypt and Kenya, it is between 15% and 20%.

EXHIBIT 5

AI-related developer capabilities across African countries



Source: BCG analysis, Github data

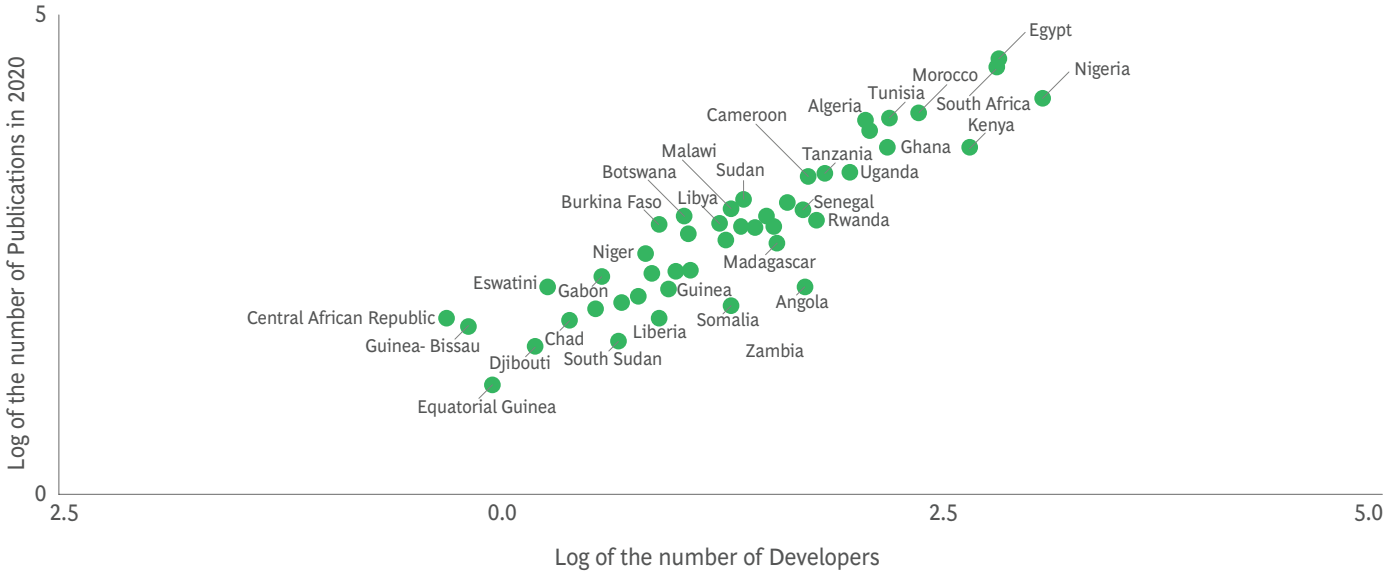
This specialization in AI is the direct result of policies that have focused on strengthening STEM education, improving language skills, and utilizing a deep foundation of university and research infrastructure.

The correlation between the number of developers in a country and the number of scientific publications is clear. As Exhibit 6 shows, the greatest number of scientific publications in 2020 emanated from Morocco and Egypt; the countries with the highest number of developers per 1000 inhabitants.

This matters because vibrant developer communities are associated with stronger research ecosystems, innovation pipelines, and technology production capabilities.

EXHIBIT 6

Developer population and scientific output across countries



Source: BCG analysis, Github data

Conclusion: Developers set off a virtuous cycle

Technology's contribution to facilitating universal access to education, underpinning productivity gains and improving quality of life means that those countries that can "develop the developers"; in other words, build large, AI-literate and coding populations today may be helping to lay the foundation for long-term economic growth.

While causality between strong developer communities and GDP gains is not yet proven, talent development, especially in the skills of the future, has to be a strategic priority for Africa if it is to realise the potential of its vast and youthful population.

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