



WHAT IS THE PLACE OF SCIENCE, TECHNOLOGY, AND INNOVATION IN YOUTH EMPLOYMENT IN SENEGAL?

**African Technology Policy Studies Network (ATPS)
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The African Technology Policy Studies Network (ATPS) is a transdisciplinary network of researchers, policymakers, private sector actors and the civil society promoting the generation, dissemination, use and mastery of Science, Technology and Innovations (STI) for African development, environmental sustainability and global inclusion. In collaboration with like-minded institutions, ATPS provides platforms for regional and international research and knowledge sharing in order to build Africa’s capabilities in STI policy research, policymaking and implementation for sustainable development.



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About the Project

This project was launched amid Africa’s burgeoning youth population, offering immense potential for productivity and inclusive economic growth. However, a significant portion of this demographic faces unemployment challenges exacerbated by the COVID-19 pandemic, necessitating sustainable solutions through effective policy interventions and institutional strengthening. Focusing on Ethiopia, Ghana, Kenya, Nigeria, Rwanda, Senegal, Uganda, and Zimbabwe, the initiative reviews Science, Technology, and Innovation (STI) policies to understand the current landscape, identify successes and failures, and provide evidence-based insights for decision-making in critical sectors for youth employment and wealth creation. Aligned with continental strategies such as the Agenda 2063 and initiatives such as the Mastercard Foundation’s Young Africa Works strategy and the Afreximbank’s campaign for young people’s participation in the implementation of the African Continental Free Trade Area (AfCFTA) and youth mainstreaming in policy engagements and cross-regional dialogues among others, the project aims to inform policymaking and foster stronger linkages among stakeholders to address youth unemployment, skills development, and entrepreneurship. Through rigorous research and stakeholder engagements, the project is catalyzing evidence-based policy discussions and contributing to the formulation of effective strategies for job creation and youth empowerment across Africa.

About Africa Technology Policy Studies Network (ATPS)

The African Technology Policy Studies Network (ATPS) is a transdisciplinary network of researchers, policymakers, private sector actors and civil society promoting the generation, dissemination, use and mastery of STI for African development, environmental sustainability and global inclusion. ATPS has over 5,000 members and 3,000 stakeholders in over 51 countries in 5 continents with institutional partnerships worldwide. We implement our programs through members in national chapters established in 30 countries (27 in Africa and 3 Diaspora chapters in Australia, the United States of America, and the United Kingdom). In collaboration with like-minded institutions, ATPS provides platforms for regional and international research and knowledge sharing in order to build Africa's capabilities in STI policy research, policymaking and implementation for sustainable development.

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Key Messages

- The country has not enacted a comprehensive Science, Technology, and Innovation (STI) Policy or ACT despite having a draft and other texts that strongly demonstrate commitment to mainstreaming STI as a key enabler of economic development in Senegal. The lack of this key executive/legislative tool is a challenge to STI implementation in the country and thus affects its contribution to youth employment.
- Senegal's labour market is primarily informal at 84% resulting in poor pay, underemployment, and minimal social safeguards. This has worsened the inclusion gap, as current job creation has not been adequate to absorb internal migrant flows nor the expanding working-age population, which is primarily composed of recent graduates. This means that all policies especially those guiding STI implementation must be realigned to the demands of workers in the informal sector. This involves giving them access to capacity-building opportunities such as training as well as financial services to enable them to fit into the current job markets.
- There have been positive developments in education and training. The expansion of public universities, the establishment of the Virtual University of Senegal (UVS), the ongoing establishment of the knowledge city, with new universities and the ambitious expansion of Technical and Vocational Education and Training (TVET) in the country are all expected to have positive impacts in youth employment and skills development.
- There is a low private sector investment in Senegal. This is despite the tremendous efforts made to provide a conducive environment. For instance, the amount of time to establish a business in Senegal is relatively long and tedious compared to countries with similar levels of economic development. Indeed, the process serves as a

barrier and is extremely challenging to investors unfamiliar with the Senegalese administrative system.

- Senegal is still striving to put in place the infrastructure essential for development. For instance, infrastructure services are frequently found to be of poor quality while also being significantly more expensive. Senegal, for example, has a statewide electrification rate of 45%. This has had a significant impact on the education sector, as well as hampered research and development, limiting opportunities for youth employment and industrialization.

1. Introduction

Senegal's job creation challenge is in many ways typical of the sub-Saharan African (SSA) region. The country has a very young population, with over 80% of its inhabitants being under 35¹. From 1994 through 2021, Senegal's unemployment rate averaged 15.98%, peaking at 26.1% in the second quarter of 2020. The issue of inclusion remains critical, as current job creation has been insufficient in absorbing internal migratory flows or the growing working-age population-especially since employment is mainly informal, resulting in low wages, underemployment, and limited social protections. However, Senegal has been successful in closing the gender gap in employment. The government has stated its goal to foster scientific and technological research and use it as a tool for economic and social development.

National reflection days and many inter-ministerial councils were devoted specifically to discussions on the role of Science Technology, and Innovation (STI) in creating opportunities for young people in Senegal. Despite these ambitions, the Senegalese government has not yet gazetted an STI policy that is in line with international standards and practices (Kahn, 2022). The country's STI policy is nearing completion, and it will ideally resolve the fragmented nature of stakeholders under the leadership of many ministries. The Institute of Food Technology (ITA), for example, is affiliated to the Ministry of Industry, whilst the Senegalese Institute of Agricultural Research (ISRA) and the National Institute of Pedology (INP) are affiliated to the Ministry of Agriculture. The Ministry of Higher Education, Research, and Innovation (MESRI) oversees university research centers. Other non-governmental players are active in the implementation of STI within the current National Innovation System (NIS), giving training and skill development to young people and assisting them in starting businesses.

¹ <https://fundforyouthemployment.nl/call-for-solutions-senegal/#:~:text=In%20Senegal%2C%20the%20high%20unemployment,is%20estimated%20at%20only%2030%2C000.>

2. Why STI is an important enabler of Youth Employment in Senegal

Senegal has been actively participating in the development and adoption of the STI policy of the Economic Community of West African States (ECOPOST) and the ECOWAS Research Policy (ECORP). The country is also an active participant at the continental level, in the African Initiative for STI Indicators (ASTII). The country's economy is dominated by the informal sector, accounting for about 84% of total employment. It is estimated that over 60% of youth and 45% of women are employed in the informal sector (National Institute of Statistics and Demography [INSD] 2020). The informal sector is made up of a wide range of activities, including petty trading, street vending, informal transport, domestic work, and home-based production.

Workers in the informal sector are often self-employed or work for small businesses. They typically have low levels of education and skills, and often face challenges such as low wages, poor working conditions, and lack of access to social protection. Worse still, informal jobs are often insecure and do not provide the same opportunities for skills development as formal jobs. The issue of inclusion remains critical, as current job creation has been insufficient in absorbing internal migratory flows or the growing working-age population—especially since employment is mainly informal, resulting in low wages, underemployment, and limited social protections. Senegal's education system is struggling to meet the needs of its young people. Many schools are overcrowded and poorly equipped. Teachers are often underpaid and undertrained. As a result, many young people do not acquire the skills and knowledge they need to succeed in the labour market. It is at this point that the development of STI has been touted to be the shortest pathway to creating opportunities for the youth and opening up other more productive sectors. For instance, STI development opportunities can open up the digital economy, and improve the innovation ecosystem and entrepreneurship where

young people can gain skills and innovate products and services that would lead to jobs and businesses. E-commerce and mobile money banking can also thrive through embracing STI. The government of Senegal is a major contributor to regional political dynamics and is considered a leader in matters of economic development hence has to lead from the front, especially in ensuring regional support for STI development for youth employment.

3. Methodology

This policy brief was developed from a comprehensive study that delved into STI policies, institutions, stakeholder mapping, and an analysis of youth employment within the realm of technological innovation, skill enhancement, and entrepreneurship development. The study was conducted across seven Sub-Saharan African (SSA) countries, namely Ethiopia, Ghana, Kenya, Nigeria, Rwanda, **Senegal**, and Uganda. The study adopted a mixed-methods approach, which enabled the collection of both qualitative and quantitative data. The data-gathering process commenced with thorough desk studies of existing literature and secondary data. Subsequently, key informant interviews (KIIs) were conducted, involving 20 carefully selected respondents, to obtain primary data that encompassed both qualitative and quantitative aspects. To further enrich the dataset and cross-verify information obtained through other methods, focus group discussions (FGD) were carried out.

The study engaged participants from a diverse range of stakeholder categories, including government officials and policymakers, representatives from the private sector and industry, members of civil society and non-governmental organizations (NGOs), researchers, development partners, and individuals from the media. Special attention was given to ensuring inclusivity and gender balance in the selection of respondents, with a particular focus on representing the voices of youth and other marginalized groups.

4. Major Findings

The key findings of the study in Senegal are presented in the following sections highlighting the light on the place of STI in youth employment in Senegal. The findings presented cover best practices, challenges and opportunities for STI implementation to enhance youth employment.

4.1 STI Policies and Programmes for Youth Employment in Senegal

Some STI policies, strategies and plans across the priority sectors (agriculture, health, education, industry, energy etc.) have been implemented that are geared toward creating job opportunities for the youth in Senegal. The Plan for an Emerging Senegal (PSE) (2015-2035) for instance was launched in 2014 to guide the implementation of coherent economic and social development policies. PSE aims to promote human capital development in order to improve people's living conditions and reduce social inequalities. PSE also focuses on social protection and resilience of the most vulnerable, gender equality, improved disaster and risk prevention, optimal use of natural resources and sustainable development. This plan is clear in its commitment to an inclusive, holistic approach to sustainable development, and identifies meeting basic social needs as a key factor in promoting sustainable human development.

The Senegalese Program for Youth Entrepreneurship (PSEJ) is part of the reform, it aligns the higher education system with the economic need of the PSE. The PSE has had a positive impact on youth employment, with the unemployment rate decreasing from 15.7% in 2014 to 10.8% in 2019 (National Agency of Statistics and Demography, 2019). This could be a result of the robust plan that emphasizes on STI development as a key driver for economic development.

Various programmes have been implemented by the Senegalese government to enhance youth employment through improved

education and skills development. The Program for Improving the Quality, Equity, and Transparency of Education and Training (PAQUET) was launched in 2013 to improve the quality of education and training by enhancing teacher capacity, improving curricula, and introducing innovative teaching methods. The program sought to promote equity by expanding access to quality education for all students, including girls, rural populations, and students with disabilities. STI has enhanced training and skilling of the youth by increasing access to educational materials and introducing online/virtual classes as well as other effective training methodologies for youth who are inaccessible using traditional teaching methods due to lack of or inadequate infrastructure especially in the rural areas. While the program requires sustained commitment, funding, and implementation, it has the potential to transform the education and training sectors, unlocking the potential of the country's youth and contributing to its long-term development goals.

The Accelerated Growth Strategy (SCA) is a significant initiative that is aimed at achieving high and sustainable economic growth rates. The strategy seeks to create opportunities for economic growth and employment for the country's youth. The SCA seeks to address youth unemployment challenges by promoting entrepreneurship, supporting the development of SMEs, and creating an enabling environment for business growth. The SCA has implemented several initiatives, including the establishment of the National Agency for the Promotion of Youth Employment (ANPEJ), which promotes youth employment through the provision of financial and technical support to young entrepreneurs. Additionally, the SCA has introduced several reforms to simplify administrative procedures, reduce red tape, and improve the business environment.

The National Program for Entrepreneurship and Employment of Young People (PNEEJ) was launched in 2014, to annually create 100,000 jobs by 2023, with a focus on youth employment. The program has several components, including vocational training, entrepreneurship

support, access to finance, and support for micro and small enterprises. According to the Ministry of Youth, Employment and the Promotion of Civic Virtue, the program has created over 70,000 jobs as of 2021².

Youth STI Entrepreneurship Support Program (WESSIP) which is run by the Senegalese Ministry of Employment and Professional Training provides training and skills development opportunities to youth who are interested in starting or growing STI businesses. WESSIP has already supported over 1,000 youth, and it is estimated that it has created over 500 jobs (World Bank 2019; 2020). Young people have lauded the impact of WESSIP, for instance:

- *A young woman named Aminata started a business using recycled materials to make jewellery and other handicrafts. After participating in WESSIP, she was able to expand her business and hire two employees.*
- *A young man Amadou started a business providing ICT services to businesses and individuals. After participating in WESSIP, he was able to secure a contract with a local government agency to provide IT support. A young woman Fatoumata started a business growing and selling organic vegetables. After participating in WESSIP, she was able to get her produce certified as organic and sell it to a local supermarket (World Bank 2019; 2020).*

The government of Senegal has also launched a program called the “Informal Sector Innovation Fund³” to provide financial support to informal businesses that are using STI to improve their operations. The program has already supported over 100 businesses, and it is estimated that it has created over 1,000 jobs.

The Senegal Digital Strategy (SDS) of 2013 sought to transform the country into a digital hub in West Africa by developing the digital economy and promoting innovation and entrepreneurship. The

² Ministry of Youth, Employment and the Promotion of Civic Virtue. (2021). PNEEJ: 70,000 jobs created in 7 years.

³ https://www.ilo.org/empent/areas/ef/WCMS_849817/lang--en/index.htm

strategy has several components, including the development of digital infrastructure, support for the development of digital skills, and the promotion of digital entrepreneurship. The SDS has had a positive impact on youth employment, with the digital economy growing at an annual rate of 12.5% and creating new job opportunities in sectors such as e-commerce, fintech, and digital marketing. The digital economy has also created new job opportunities for young people in Senegal, with the number of tech startups increasing from 70 in 2016 to over 200 in 2020, according to the Senegal Digital Forum⁴. Also, the Senegal Startup Act of 2019 creates a favourable environment for startups by providing tax incentives, access to finance, and support for research and development. The law has created a framework for the development of a vibrant startup ecosystem and has attracted foreign investment in the country's tech sector. Some of the key policies, programmes and strategies, their roles and impacts on skills development, youth employment and entrepreneurship are summarised in Table 1.

4.2 STI Institutional Framework for Youth Employment in Senegal

MESRI has created a specific directorate to lead on STI efforts as a result of organizational and institutional reforms. In the absence of a defined STI strategy, higher education changes are driven by the PSE, and STI activities are executed through R&D with MESRI's as the executing body. The introduction of a new framework law under the 11 Presidential Decisions has broadened the purview of the Ministry of Higher Education to encompass innovation and responsibilities for two new missions: university contributions to community services and graduates' access to employment (MESRI, 2019). The Ministry, now known as the Ministry of Higher Education, Research, and Innovation (MESRI), is in charge of implementing reforms and overseeing STI activities in Senegal. Its responsibilities especially include higher education, research and innovation, and student social and welfare issues. MESRI has also endorsed many texts for reform implementation. Internal MESRI modifications resulted in the

⁴ <https://talent2africa.com/senegal-innovative-tech-projects/>

formation of the General Directorate for Research and Innovation (DGRI) to implement research and innovation policies. Its role also includes ensuring the coordination and harmonisation of related activities and resource pooling. It is also responsible for strengthening the different components of the national research system to enable synergies, promoting the diffusion of research results and their valorisation, implementing a funding system for research activities and diversification of funding sources, and developing a scientific and technical culture (Pointel et al, 2020).

While MESRI has overall responsibility for leading STI developments, research activities are fragmented between institutions under the supervision of different ministries. For example, the ITA comes under the responsibility of the Ministry of Industry, while the ISRA is attached to the Ministry of Agriculture. Other institutions outside government are also playing significant roles as mandated in the STI implementation within the Senegalese NIS, such as the provision of research infrastructure, equipment, funds, and mentorship among others, thereby contributing to skills development, youth employment and entrepreneurship. Table 2 provides key institutions that have contributed to youth employment and entrepreneurship, and their roles and impact in Senegal.

4.3 Challenges and Opportunities for Youth Employment in Senegal

The lack of a dedicated STI policy is still a major stumbling block in STI development and as such has negative consequences on technological innovation, skills development, job creation and entrepreneurship. Despite institutional and organisational changes within MESRI, implementing the Presidential Decisions towards research and innovation, progress towards a fully-fledged STI policy framework has been slower than expected. There is a fragmentation of actors and weak coordination in the NIS which has ultimately led to poor coordination in supporting youth employment. Governance of STI and actors remains a challenge.

Although MESRI has improved some of its governance capacities in the field of research with new texts for executions in the STI field and policy documents, as outlined in its Sectoral Development Policy Letter (LPSD (MESRI, 2019), there is also need to gather and coordinate the range of actors involved in STI sector. Research and innovation, and associated funding streams, are dispersed and fragmented with multiplication and superposition of priorities; leading to lack of visibility and synergies between actors (Cissé et al, 2019) thus exacerbating youth unemployment in the country. There have been prior attempts to improve coordination in the past, but these attempts have been carried out at thematic levels with specific topics rather than addressing governance across the STI field. Related to this is the lack of vitality and political visibility of the body governing scientific and technical policy. No inter-ministerial (or presidential) councils on research, absence of a policy for funding ongoing relevant research, and lack of coordination due to the partitioning of ministerial supervisory bodies.

Little attention is paid to STI during budgetary discussions, hence the extremely small proportion of the overall budget earmarked for public investment in research or for youth employment, leading to a lack of human, financial and material resources (underequipped laboratories and workshops). For instance, Senegal's gross domestic expenditure on research and development (GERD) as a percentage of GDP was 0.25% in 2018 and 0.26% in 2019 (UNESCO, 2021). Worse still, is the fact that there are declarations that are made at a high level, which are in line with national policies, but no follow-up on the ground. Even if resources are agreed upon, they do not trickle down to the institutional level.

Various statistical studies by the National Agency for Statistics and Demography (ANSD) have shown that the proportion of informal economic units is close to 97% and that 96.4% of the active population is in the informal sector, including the rural world⁵.

⁵ Integrated national strategy for formalization of the informal economy (SNIFEI) and action plan operational sector transformation informal (PAOTSI) SNIFEI 2022 -2026

This sector faces many obstacles, particularly administrative, fiscal, social, financial, organizational and managerial. It is also marked by a strong deficit in terms of decent work. This shows the extent of the challenge posed by the formalization of all the economic activities carried out, particularly in view of their heterogeneity and diversity. Shortages of R&D structures, entities, and activities within businesses, particularly those in the private sector, have curtailed the prospects available to young people. The majority of these companies are, in fact, subsidiaries of other parent companies that only use the “technological packages” given by the subsidiaries. So far, R&D spending has not provided the essential boost to the economy. One reason for this is a lack of applied research and the valorisation of research findings. Similarly, the procedures put in place to enable interaction between research and innovation actors have produced limited results thus far. However, there have been efforts geared to formalise informal businesses. For instance, the ILO is providing support to business development structures in Senegal to facilitate the transition to formality through the training programme “Formalize Your Business” (FYB)⁶.

The objective of the FYB training is to strengthen the portfolio of services of support structures for small and medium enterprises, through the training of trainers from organisations such as the Agency for the Development and Support of Small and Medium Enterprises (ADEPME), the Chamber of Commerce, Industry and Agriculture of Dakar (CCIAD), the Centre de Gestion Agréé du Sénégal (CGA), the Agence Nationale pour la Promotion de l’emploi des jeunes (ANPEJ), the Conseil des Entreprises du Sénégal (CDES) and the Union Nationale des Commerçants et Industriels (UNACOIS).

Despite the progress that has been made to narrow gender gaps, more needs to be done as part of institutional reform processes and political decisions to have positive influence on the opportunities available for youth, particularly young women. Gender considerations

⁶ https://www.ilo.org/emment/areas/ef/WCMS_849824/lang--en/index.htm

are required while promoting STI through an inclusive approach, as girls and women are under-represented in the STI profession. This entails raising awareness - prior to university, from a young age, and throughout secondary school - that there are opportunities for women in the STI sector. Inadequacy of skills and education among Senegalese youth is also a big concern. Most young people lack the necessary skills and education to participate in the formal economy.

This is due to the limited availability of quality education and training programs, particularly in rural areas. As a result, many young people are unable to access high-paying jobs or create viable businesses, limiting their ability to contribute to the country's economic growth. The government has tried to address this issue by increasing investments in education and developing additional TVETs.

4.4 Best Practices and Impact on Youth Employment in Senegal

The creation of the DGRI has resulted in greater stability and improved governance of STI. The DGRI is in charge of coordinating and harmonizing research and innovation initiatives, as well as pooling resources. This has resulted in the strengthening of links between the various components of the national research system which leads to technological innovation that is leading to job creation in Senegal. Also important is the establishment of ANPEJ, which has had a significant impact on the country's youth employment landscape. Since its creation in 2009, ANPEJ has worked tirelessly to address the issue of youth unemployment by implementing a variety of programs and initiatives aimed at creating opportunities for young people. One of the main impacts has been its ability to increase the number of job opportunities available to young people in Senegal. Through its various programs, ANPEJ has been able to create over 70,000 jobs for young people since its inception in 2010. It has promoted entrepreneurship by providing support to over 12,000 young entrepreneurs, helping them to start and grow their businesses. Setting up a National Council for Coordination and Development of Intellectual Property (NCDCIP)

and a National Committee on Geographical Indications (NCGI) are very bold steps taken by Senegal. It is the first African country that adopted and submitted in 2011 a National Plan for the Development of Intellectual Property (NPDIP). This is laying up a good foundation for implementing IPR in the country. Young people can take advantage of this policy to protect their innovations and commercialise them without fear.

Senegal's participation in the Science Granting Council Initiative (SGCI) over the last few years, has helped in strengthening its capacities for STI policy implementation. These have included training sessions and capacity building in surveys and STI indicators, and interactions and engagement with its peers within regional platforms. The embeddedness of the Science Granting Council (SGC) within MESRI ensures that individuals can participate in training activities, depending on the topics being covered. This has greatly improved the funding of research in the country and ultimately created more job opportunities for the youth and vulnerable and marginalised groups.

The reforms in the education sector have increased inclusive access to higher education. Measures have been introduced to promote the development of digital activities and enhance distance learning. One notable effort is the opportunity provided by the Virtual University of Senegal (UVS). There has been a significant increase in students' participation in online courses for higher education, quickly catching up with traditional physical structures. This led to a significant increase in the number of students from 2000 in 2014 to almost 30,000 in 2019.

According to a 2022 study by the International Labour Organization (ILO), the UVS has contributed to youth employment in Senegal in a number of ways. The UVS provides young people with access to quality education and training, which is essential for finding and keeping a job. It offers flexible learning options that make it possible

for young people to study while working or caring for dependents. UVS has also partnered with the private sector to provide students with internships and job placement opportunities. The promotion of distance learning is also supported by the creation of open digital spaces (ENOs) throughout the country, providing physical facilities with internet connections that enable interactions between students and teaching staff and secure spaces for exams. A Development Plan for Higher Education and Research (PDESR) was designed to support reform implementation with the government committed to investing more than \$600 million. The government is currently building a Knowledge City in which there are plans to establish a science and technology research complex. While not yet operational, the Cite du Savoir (Knowledge City) plan includes laboratories, spaces for shared working and equipment, including a molecular genetics platform as part of the City of Knowledge (MESRI, 2019). The platform will offer Masters and Doctoral-level training in strategic scientific fields, knowledge exchanges, training, and acquisition of material towards a vegetal biotechnology platform that will be hosted at ISTA (MESRI, 2019).

Senegal's policy and strategy environment is favourable for economic and social development, and the country has a vibrant corporate sector. It also possesses a strong entrepreneurial spirit, as seen by high levels of innovation in the digital economy. Building on the government's PSE, which outlines the country's vision until 2035. The government is partnering with various stakeholders such as international development partners, CSOs and private sector/Foundations in various initiatives. For instance, the Mastercard Foundation has made an initial USD 200 million⁷, five-year commitment focusing on small business growth, productivity improvements in the agriculture value chain, and improvements in education and training in Senegal.

⁷ <https://mastercardfdn.org/our-work-in-senegal/>

Table 1: A summary of key STI Policies, their roles and impact on skills development and youth employment in Senegal

STI Policies and Programmes	Roles in skills development and youth employment	Impact on skills development and youth employment	Remarks
<p>The Plan for an Emerging Senegal (PSE) (2015-2035)</p>	<p>Provides a comprehensive framework for long-term development; attract foreign investment by creating an enabling environment for business and promoting key sectors; investments in infrastructure. Creation of jobs by promoting entrepreneurship, developing human capital, and investing in infrastructure.</p>	<p>In 2020, the government announced that PSE had created over 500,000 jobs since its launch. -In 2019, the poverty rate was estimated to be around 32%, down from 46% in 2011. -GDP has grown steadily, with an average annual growth rate of 6.5% between 2015 and 2019.</p>	<p>-The government needs to explore innovative financing mechanisms and attract foreign direct investment. -Invest in building institutional capacity and governance structures. -Implementing policies that promote inclusive growth and address the root causes of inequality.</p>
<p>The Accelerated Growth Strategy (SCA)</p>	<p>Stimulate economic growth by promoting investment in key sectors such as agriculture, fisheries, and energy.</p>	<p>-Created jobs by promoting entrepreneurship, improving the business environment, and investing in infrastructure. -Reduced poverty by promoting inclusive growth, improving access to basic services such as health and education, and targeting vulnerable populations.</p>	<p>Mobilizing resources from both domestic and external sources is essential. Investing in building institutional capacity and governance structures is critical and so is establishing effective coordination mechanisms and ensuring stakeholder buy-in.</p>

<p>The Senegalese Program for Youth Entrepreneurship (PSEJ)</p>	<ul style="list-style-type: none"> -To promote youth entrepreneurship by providing training, mentoring, and access to finance. -To create jobs by supporting the development of small and medium-sized enterprises (SMEs) owned by young people. -Stimulate economic growth -Enhance gender equality 	<p>-PSEJ has had a positive social impact by empowering young people, created jobs and promoting inclusion. Between 2014 and 2018, the program helped create over 15,000 jobs in various sectors, including agriculture, ICT, and handicrafts. By the end of 2020, the program had provided over \$9 million in loans to over 5,000 young entrepreneurs.</p>	<p>Develop innovative financing mechanisms to support young entrepreneurs and provide comprehensive training and mentorship programs to help young people acquire skills and knowledge. Explore opportunities to expand access to markets, both domestic and international, for SMEs owned by young people.</p>
<p>National Program for Entrepreneurship and Employment of Young People (PNEEJ) of 2014</p>	<p>Provides young people with the necessary skills, knowledge, and resources to create and run successful businesses. The program aimed to achieve this by providing technical assistance, training, mentoring, and financial support to young entrepreneurs.</p>	<p>Has improved access to digital technology, with the number of internet users increasing from 13% in 2012 to 24% in 2018 and led to the creation of several digital startups, contributing to the growth of the digital economy. Has also improved governance and public services through online platforms for citizen engagement and the digitization of public records.</p>	<p>Additional funding to support the growing demand for entrepreneurship support and training is required. The program should focus on providing more practical training and mentorship to young entrepreneurs by working closely with the private sector to create more employment opportunities for young people.</p>

<p>Senegal Digital Strategy (SDS) of 2016</p>	<p>Promoting digital inclusion and literacy to improve public services through digital technology. Creates an enabling environment for the digital economy by providing incentives for private sector investment in the ICT sector and promoting entrepreneurship and innovation in the digital space.</p>	<p>-Has led to an increase in internet access in Senegal. As of 2021, over 40% of the population had access to the Internet, compared to just 6% in 2011. Created jobs in the tech industry. In 2019, the tech industry employed over 8,000 people</p>	<p>Need to invest in digital infrastructure and prioritize digital literacy programs to improve the adoption and use of digital technology among the general population.</p>
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Table 2: Summary of key institutions, their roles and impact on youth employment in Senegal

STI Institutions		Impacts on skills development and youth employment	
STI Institutions Roles in skills development and youth employment			
Government: Ministries, Agencies and Departments (MDAs)			
Ministry for Higher Education, Research and Innovation (MESRI)	Preparation and implementation of higher education and scientific research policies.	The gross enrolment ratio (GER) in tertiary education increased from 6% in 2000 to 13% in 2019. Improved quality of higher education through various initiatives, including the establishment of quality assurance agencies and the introduction of accreditation processes leading to a more competitive and effective higher education system in the country.	
National Agency for Research and Innovation (ANRIT)	Responsible for promoting and supporting research and innovation activities in the country.	ANRIT has played a key role in promoting scientific research in Senegal, resulting in increased research output. ANRIT provides funding for research projects in various fields, including health, agriculture, energy, and information technology. In 2021, ANRIT allocated more than 2 billion CFA francs (US\$3.6 million) for research projects.	
National Agency for the Promotion of Youth Employment (ANPEJ)	Responsible for promoting employment opportunities for young people in the country.		The agency has created more than 50,000 jobs for young people since its creation in 2009. ANPEJ provides funding and support for young entrepreneurs to start and grow their businesses. In 2021, ANPEJ allocated more than 10 billion CFA francs (US\$18 million) to support young entrepreneurs.

<p>Agency for Development and Supervision of Small and Medium Enterprises (ADEPME)</p>	<p>Responsible for promoting and supporting the development of small and medium enterprises (SMEs) in Senegal. It provides support to SMEs in areas such as financing, marketing, and technology transfer, helping to promote the growth and competitiveness of these companies and to support the development of new technologies and products.</p>	<p>ADEPME provides a range of support services to SMEs in Senegal, including business development training, access to finance, and market information. In 2020, ADEPME supported more than 8,000 SMEs. Facilitated access to finance for SMEs through partnerships with financial institutions and the provision of loan guarantees.</p>
<p>Private Sector</p>		
<p>Chamber of Commerce, Industry and Crafts (CCIA)</p>	<p>Represents the interests of businesses in Senegal. Helps to build collaboration between businesses, governments, and other stakeholders.</p>	<p>CCIA promotes trade and investment by facilitating business matchmaking, organizing trade fairs and exhibitions, and providing market information to businesses. In 2020, CCIA organized several trade fairs and exhibitions, including the International Fair of Dakar (FIDAK), which attracted over 400 exhibitors from more than 20 countries.</p>
<p>Club of Investors of Senegal (CIS)</p>	<p>Brings together businesses, investors, and entrepreneurs to promote investment and economic development in Senegal.</p>	<p>CIS promotes investment in Senegal by providing a platform for investors to network, share information, and explore investment opportunities. In 2021, CIS organized several investment forums and workshops, including the Senegal Investment Forum, which attracted over 200 investors from more than 20 countries. CIS was awarded the “Investment Promotion Award” in 2021 by the African Investment Forum in recognition of its contribution to investment promotion in Africa.</p>

Civil Society Organizations (CSO's)/ Non-Governmental Organisation (NGOs)		
Point Senegal Foundation (TPS)	TPS is a non-profit organization that aims to promote trade and investment in Senegal.	TPS trained over 1,500 young people in areas such as entrepreneurship, digital skills, and vocational training and supported the creation of more than 300 new jobs through its entrepreneurship program in 2020.
Innovation, Environment and Development in Africa (IED)	Knowledge management, documentation and popularization at other scales and advocacy with policymakers.	IED trained over 1,000 young people in areas such as renewable energy, waste management, and sustainable agriculture and created over 200 jobs in 2020.

5. Conclusion

The Senegalese government recognizes the important role played by STI in its economic development, as well as its contribution towards increasing employment opportunities for the youth and entrepreneurship. It is therefore making efforts to promote STI as a means of driving economic growth and development in the country. One key area it is focusing on is the development of the technology sector, particularly in the areas of ICT and renewable energy. The government has implemented policies and programs to encourage the growth of technology-based businesses, such as through the establishment of technology parks and incubation centres. It has also invested in building the necessary infrastructure and human capital to support the growth of the technology sector, specifically in terms of expanding access to the internet and mobile telephony and promoting capacity building through vocational and technical training programs, as well as higher education in fields related to the STI sector. Despite all these efforts, there are still major challenges in policy and institutional set-up that need to be tackled to have higher impacts on skills development, youth employment and entrepreneurship.

6. Policy Recommendations

To enhance skills development, youth employment and entrepreneurship in Senegal, the following recommendations are proffered:

Recommendation 1: Finalize the STI Policy and ensure it provides a clear pathway for the creation of jobs for the youth and other marginalised groups: Defining a legal framework for STI policy and raising the status of researchers to create job opportunities and entrepreneurship is paramount. Given the importance of STI in Senegal, it is only logical that an STI policy and strategy be enacted quickly to ensure the STI sector supports the generation of decent and quality jobs for Senegalese youth. This Policy framework should outline the government's priorities for STI and provide a roadmap for achieving these priorities. This will give the impetus required for all actors to play their roles better for the benefit of all priority sectors in the country. As it is now, actors have been given a free role that is not regulated leading to fragmentation, inefficiency and duplication of roles. The frameworks should provide for the protection of intellectual property rights, the regulation of research ethics, and the promotion of technology transfer and commercialization. Also, it is critical to ensure that the status of researchers is raised to help attract and retain top talents in Senegal. This can be achieved through measures such as providing better salaries, funding for research, and opportunities for career advancement.

Recommendation 2: Boost the technical and managerial capacities of small and medium-sized businesses and small-scale industries: Concerted efforts are needed from the government, private sector, and other stakeholders to support the growth and development of SMEs and small-scale industries in Senegal. SMEs and small-scale industries need to be equipped with the skills and knowledge required to run their businesses successfully. This can be achieved

through organizing training and workshops on various topics such as business management, financial planning, marketing, and sales.

Recommendation 3: The government should put in place tax, legal and financial incentives for businesses that invest in STI and make use of their outputs to create more opportunities: The current legal and regulatory framework is not friendly for investors in Senegal, and this is ruining the opportunities created for the youth. An enabling environment that fosters entrepreneurship and innovation can also help SMEs and small-scale industries to thrive. This includes creating policies that encourage entrepreneurship and support the growth of small businesses. Despite some recent improvements, the Senegalese regulatory framework still poses big challenges for private enterprises, especially exporting firms. For instance, the amount of time to establish a business in Senegal is relatively long and tedious compared to countries with similar levels of economic development. The government can encourage the adoption of technology by providing incentives, such as tax breaks or subsidies, for businesses that invest in technology. The agro-processing sector, which encompasses sub-sectors like food and beverages, also holds large potential for growth under the new African Continental Free Trade Area (AfCFTA) and thus is a great opportunity for creating jobs for the youth and boosting exports.

Recommendation 4: Encouraging close collaboration between businesses and universities/research centres by developing shared governance with strong public-private partnerships, taking account of intellectual property protection: Collaborating with other businesses and organizations can help access new markets and resources. The government can facilitate partnerships between businesses and provide support for initiatives that bring together different actors in the ecosystem. Businesses and universities/research centres can collaborate on joint R&D projects to develop innovative products, services, and solutions. The government can provide funding and incentives for these projects and facilitate

partnerships between businesses and universities/research centres. Shared governance structures can help to ensure that the interests of both businesses and universities/research centres are represented in joint projects. This can involve the creation of joint committees or boards to oversee projects and make decisions. Intellectual property protection is also critical to ensuring that businesses and universities/research centres benefit from their innovations. The government can promote intellectual property protection by creating laws and regulations that protect intellectual property rights and by providing support for patenting and licensing.

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