

STRATEGIC PLAN **FONSTI** 2021-2025



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Preface

MESSAGE FROM THE GENERAL SECRETARY



Created by Order No. 2018-593 of 27 June 2018, the Science, Technology and Innovation Fund (FONSTI) is an illustration of the State's desire to put science and innovation at the service of the structural transformation of the Ivorian economy and society.

FONSTI is a support fund whose mission is to contribute to the regular, adapted and sustainable financing of research and innovation. It aims to become the main instrument for financing and promoting research and innovation for the sustainable development of Côte d'Ivoire.

Aware of the important role that the Fund will have to play in a very dynamic and diverse ecosystem and with a view to integrating its interventions into a coherent context, the General Secretariat undertook the formulation of this 2021 - 2025 strategic plan. The strategic reflection process was participatory. All the stakeholders in the national research and innovation ecosystem were invited to take part in the reflection and formulation of FONSTI's strategic ambition, which is to be an instrument for financing research and innovation that is accessible to all. This participatory approach has made it possible to build a strategic plan that integrates the needs of stakeholders in the planning of the Fund's interventions. This is an opportunity for the General Secretariat to express its warm thanks to Professor Adama DIAWARA, Minister of Higher Education and Scientific Research, to Professor Marcel TANNER, President of the Swiss Academies of Sciences and Arts, to the Board of Directors and the Scientific Council of FONSTI, to the technical and financial partners and to all the actors of the research and innovation ecosystem for their strong involvement in the formulation of this strategic plan.

I would like to remind all FONSTI's partners that the successful implementation of this strategic plan and the achievement of the objectives formulated in it depend strongly on their involvement. I hope that they will take ownership of this strategic plan so that FONSTI contributes to making Côte d'Ivoire a prosperous country whose economy is based on Knowledge and Innovation.

Dr SANGARÉ Yaya

Secretary General of the Fund for Science,
Technology and Innovation (FONSTI)

Acronyms and Abbreviations

AAPG	Call for generic proposals
ACBF	African Capacity Building Foundation
AEJ	Youth Employment Agency
AFD	French Development Agency
ANR	National Research Agency
ARA	African Rethink Awards
ARCEP	Regulatory Authority for Electronic Communications, Posts and Press Distribution
ARIPO	African Regional Intellectual Property Organization
BMBF	German Federal Ministry of Education and Research
CCI	Chamber of Commerce and Industry
CES	French Scientific Assessment Committees
CGECI	General Confederation of Enterprises of Côte d'Ivoire
CISP	Challenge for International Scientific Partnerships
CNRS	National Center for Scientific Research
COMREFAS	Consortium for the Management of Basic and Applied Research in Sub-Saharan Africa
CRSTE	Parliamentary Committee on Research, Science, Technology and the Environment
CSRS	Swiss Centre for Scientific Research
C-TAP	Technology Access Group against COVID-19
DDC	Swiss Agency for Development and Cooperation
DFG	German Research Foundation
DGA	Division of Grants and Agreements de la National Science Foundation
DGRIT	Directorate-General for Research and Technological Innovation
DIRD	Domestic Research and Development Expenditure
EPS	Entrepreneurial Solutions Partners
ESRC	British Council for Social Economic Research
FARI	Research and Innovation Support Fund
FICAD	Funding Innovative Capacity Building Initiatives
FIRCA	Interprofessional Fund for Research and Agricultural Council
FISDES	Ivorian-Swiss Fund for Economic and Social Development
FNS	Swiss National Fund
FONARI	Research and Innovation Support Fund
FONSTI	Science, Technology and Innovation Fund
GEPRIS	German Project Information System (GPIS)
IA	Artificial Intelligence (AI)
IFR	International Federation of Robotics
IPCI	Pasteur Institute of Côte d'Ivoire
IoT	Internet of Things
ISTCI	Higher Institute of Technology of Ivory Coast
ITT	Ivorian Institute of Technology
JCJC	Young Researchers
JSPS	Japan Society for the Promotion of Science
LAB	Land of African Business
LANADA	National Laboratory for Development Support
LERI	Swiss Federal Law on the Promotion of Research and Innovation

M.E.S.R.I	French Ministry of Higher Education, Research and Innovation
MESRS	Ministry of Higher Education and Scientific Research
MIR	CGECI Innovation and Research Marketplace
MIT	Massachusetts Institute of Technology
MOST	Chinese Ministry of Science and Technology
MPEER	Ministry of Petroleum, Energy and Renewable Energies
NEPAD	New Partnership for Africa's Development
NSF	National Science Foundation
NSFC	National Natural Sciences Foundation of China
OAPI	African Intellectual Property Organization
OCDE	Organisation for Economic Co-operation and Development
ODD	Sustainable Development Goals
OEB	European Patent Office (EPC)
OMD	Millennium Development Goals
ONG	Non-Governmental Organization
ONU	United Nations (UN)
OPAPI	Pan African Intellectual Property Organization
PASRES	Strategic Support Programme for Scientific Research
PIA	French investment programmes for the future
PIB	Gross Domestic Product (GDP)
PME	Small and Medium Enterprises
PND	National Development Plan (NDP)
PNUD	United Nations Development Programme
PRC	Collaborative Research Project between public entities in a national context
PRCE	Collaborative Research Project between public and private entities that may have an opening towards the business world
PRCI	Collaborative Research Project between public entities in a bilateral International Context
PS Gouv	Government Social Programme
R&D	Research & Development
RCC	Liability, Credit and Contribution
R-D	Research and Development
RUSTA	Network of Universities of Science and Technology in sub-Saharan Africa
SCJ	Science Council of Japan
SEFRI	State Secretariat for Education, Research and Innovation of the Swiss Confederation
SER	State Secretariat for Education and Research of the Swiss Confederation
SGCI	Science Granting Council Initiative
SSHRC	Social Sciences and Humanities Research Council of Canada
STEM	Science, Technology, Engineering and Mathematics - Science, Technologie, Ingénierie et Mathématiques
SWOT	Strengths, Weaknesses, Opportunities, Threats - Forces, Faiblesses, Opportunités, Menaces
TPE	Very Small Enterprises
UA	African Union (AU)
UNESCO	United Nations Educational, Scientific and Cultural Organisation
USAID	US Agency for International Development
USTCI	University of Science and Technology of Côte d'Ivoire
VITIB	Information Technology and Biotechnology Village in Côte d'Ivoire
ZBTIC	Free Zone of Biotechnology, Information and Communication Technologies

GENERAL PRESENTATION

Created by Order No. 2018 - 593 of 27 June 2018, the Science, Technology and Innovation Fund (**FONSTI**) is intended to finance high-quality scientific research and technological innovation programmes and projects likely to have a beneficial impact on the socio-economic and cultural development of Côte d'Ivoire. Its missions are to :

- Fund national research programmes and scientific and technological research projects through the allocation of resources to researchers,
- Contribute to the scientific and economic valorisation of research results,
- Provide support to research structures for the rehabilitation of stations and laboratories, the acquisition of research equipment and access to scientific information,
- Disseminate scientific and technological information,
- Protect research achievements through intellectual property,
- Build the capacity of researchers and supporting their mobility,
- Develop entrepreneurship in higher education and research institutions,
- Encourage and promote international cooperation in scientific research,
- Carry out and participate in any action or project directly or indirectly related to the development and/or promotion of scientific and technological research in Côte d'Ivoire.

Following the example of developed countries such as Switzerland, South Korea, China, etc., the government of Côte d'Ivoire wants to make research and innovation the spearhead of its sustainable development. FONSTI should serve as an effective financing tool to translate this desire into performance. It is in this context that the fund has embarked on a process of drawing up its Strategic Plan, which will serve as a compass for its actions over the period 2021 - 2025.

EXECUTIVE SUMMARY

Strategic directions and objectives for the period 2021-2025

The vision of FONSTI is to become the « **main instrument for financing and promoting research and innovation for the sustainable development of Côte d'Ivoire** ».

To achieve this, the Strategic Plan 2021 - 2025 is structured in four (4) axes



Strategic axis 1

Build a sustainable funding mechanism for research and innovation in Côte d'Ivoire

Strategic Axis 1 has four (4) strategic objectives.

Strategic objectives :

- Increase the contribution of the private sector to the funding of scientific research and innovation
- Mobilise resources for the funding of National Research Programmes
- Improve the competitiveness of scientific and technological research teams to enable them to participate in international calls for projects
- Increase the contribution of technical and financial partners (TFPs) to the funding of research and innovation in Côte d'Ivoire

Strategic axis 2

Participate in capacity building of research and innovation structures in Côte d'Ivoire

Strategic Axis 2 has five (5) strategic objectives.

Strategic objectives :

- Facilitate access to and control of state-of-the-art equipment for national research structures
- Strengthen the technical facilities of national scientific and technological research laboratories and structures
- Contribute to the maintenance of the technical facilities of the research structures
- Develop capacity building programmes for researchers on scientific topics (project and patent writing, scientific publication writing, etc.)
- Promote the development of capacity building programmes for researchers on entrepreneurial issues

Strategic axis 3

Contribute to the scientific and economic valorisation of research results and innovative projects in Côte d'Ivoire

Strategic Axis 3 has seven (7) strategic objectives.

Strategic objectives :

- Strengthen the framework for dialogue between the private sector and the national research and innovation system
- Promote the development of public-private partnerships in the financing of priority and emergency programmes
- Encourage partnerships between entrepreneurial support structures (accelerators, incubators, etc.) and research and innovation structures
- Contribute to the increase in the number of patents and scientific publications in Côte d'Ivoire
- Set up a financing mechanism adapted to entrepreneurship and innovation
- Increase the rate of creation of innovative companies based on research results
- Implement initiatives to encourage community innovation and development in grassroots communities

Strategic axis 4

Ensure the operational excellence of FONSTI and encourage international cooperation in research and innovation

Strategic Axis 4 has four (4) strategic objectives.

Strategic objectives :

- Manage FONSTI according to international standards
- Ensure quality monitoring and evaluation of FONSTI-funded projects
- Integrate FONSTI into the major research and innovation funding networks
- Facilitate international exchanges (inviting local researchers to internships, conferences, collaborative projects)

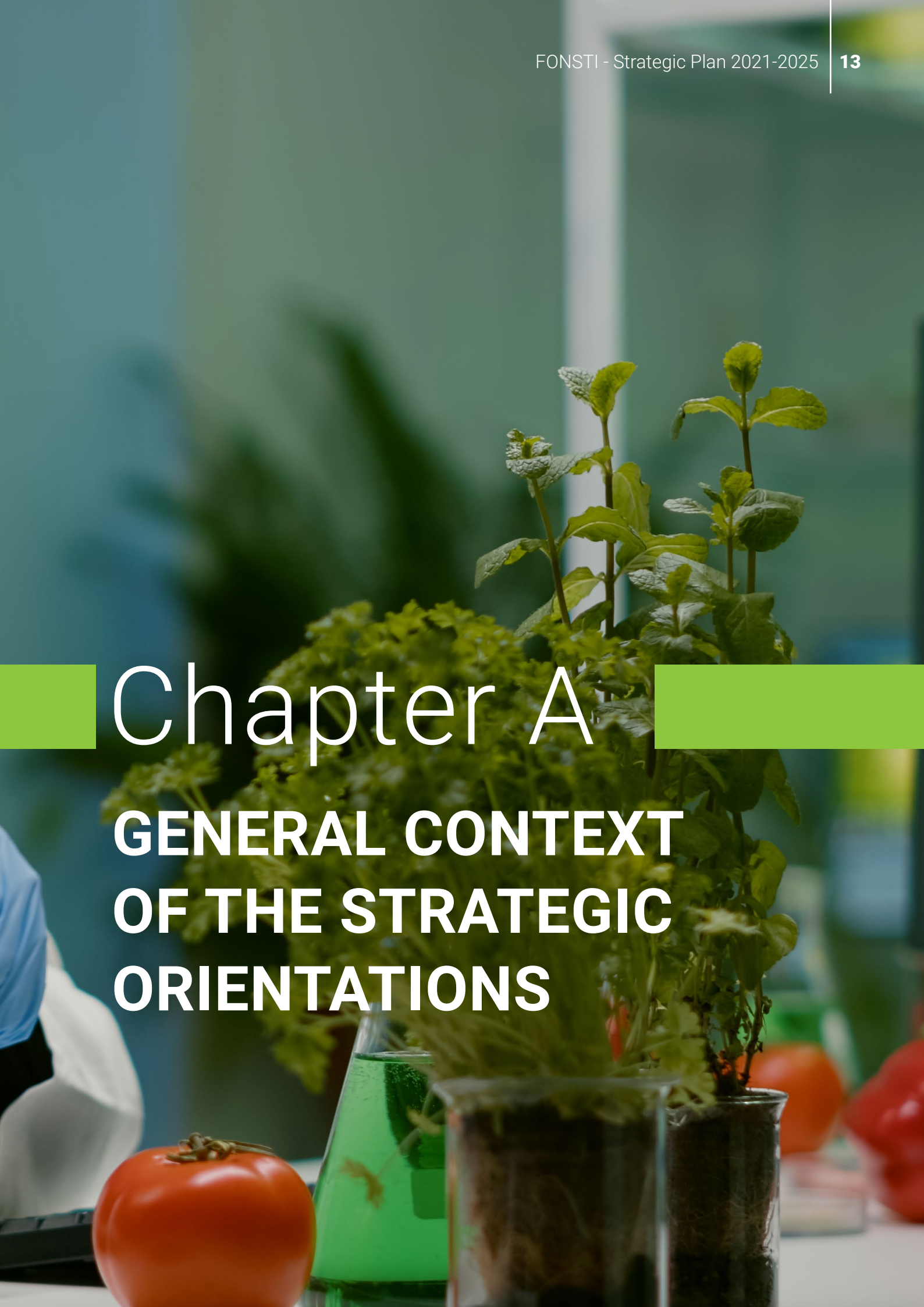
Several lessons can be drawn from the internal and external diagnostics :

 Strengths	 Weaknesses
<ul style="list-style-type: none"> ■ An operation that will be based on solid assets due to the takeover of certain PASRES activities (project funding, human resources, etc.) ■ An organisational structure that covers aspects of the business such as project management, valorisation and innovation ■ A contribution of FONSTI to socio-economic development through the financing of projects responding to the needs of the population (thematic session) ■ A diversity of fields/sectors covered by FONSTI funding (human sciences, public health, environment and biodiversity, agriculture and food security, etc.) ■ Integration of FONSTI into various international initiatives for the development of science such as the Science Granting Council Initiative (SGCI) and the GRC (Global Research Council) ■ The use of innovative channels to increase the visibility of FONSTI activities (social networks, webinars, YouTube, etc.) 	<ul style="list-style-type: none"> ■ Due to the recent start of FONSTI's activities, some key positions in the organisational chart remain unfilled (e.g. the Valorisation and Innovation Department) ■ Some of the staff (new recruits) do not have solid experience in the operation of funding organisations and in the financing aspects of innovation projects
 Opportunities	 Threats
<ul style="list-style-type: none"> ■ Centres and institutes with solid experience in the field of scientific research (the Swiss Centre has 70 years of experience in 2021, the CNRA and LANADA have more than 20 years of experience and the IPCI has more than 48 years of experience) ■ Institutional attachment of research centres and institutes that promotes alignment between national research programmes and government priorities ■ The existence of support structures for entrepreneurs that could provide support in terms of accommodation, training, advice and financing during the early stages of the life of startups (VITIB, Dream Factory, ORANGE FAB Côte d'Ivoire, INCUBIVOIR, etc.) ■ A willingness of the State to promote entrepreneurship through the creation of the CI-PME Agency and certain initiatives such as the INITIATIVE project of the Chamber of Commerce and Industry of Côte d'Ivoire ■ Increased international cooperation and scientific activity ■ A desire to pool resources (equipment) to compensate for the weakness of the technical platform of laboratories and research centres ■ The creation of doctoral schools that will promote the decompartmentalisation of research and encourage the formation of multidisciplinary teams ■ Tax and customs advantages to stimulate the promotion of scientific and technological research activities (case of the customs and tax advantages linked to the free zone for biotechnologies) ■ A great interest of the public authorities in the economic valorisation of the results of research projects in Côte d'Ivoire 	<ul style="list-style-type: none"> ■ A weakness in the synergy of actions between research centres and institutes in Côte d'Ivoire ■ The non-existence of a scientific research observatory that would enable the maintenance of a database of research projects, research centres, researchers and the different themes covered by their expertise ■ Collaboration between the private sector and the scientific community still in its infancy and weak ■ The deterioration of the economic situation (slowdown of activities due to the health crisis linked to Covid-19) ■ A dependence on annual state subsidies ■ An energy crisis that could have a negative impact on the operation of research centres and companies



Chapter A

GENERAL CONTEXT OF THE STRATEGIC ORIENTATIONS



1.

Creation of PASRES (PASRES to FONSTI)

Given that the richest countries invest the most in research and development, the African continent decided to invest in research and development (R&D) some 40 years ago. Indeed, one of the recommendations of the 1980 Lagos Plan of Action was that African countries should invest 1% of their GDP in research by 2018.

Côte d'Ivoire, which had a scientific research system strongly oriented towards agricultural research, enriched the ecosystem with the establishment of the FIRCA in 2002. In the same vein, the Ivorian government, which is committed to establishing scientific research as a vector for economic, social and cultural development, created the **Strategic Support Programme for Scientific Research (PASRES)** in 2007 in partnership with Switzerland.

The strategic objectives of PASRES are **the reduction of extreme poverty and hunger, the improvement of human health and the protection of the environment and the sustainable management of natural resources**. Its specific objectives are: **to increase the number of doctoral research students, to increase post-doctoral work ensuring the promotion of young researchers and lecturers, to strengthen the capacities of research structures through multi-**

faceted support, to strengthen training activities and South/South and North/South exchanges and to create a National Fund for Science, Technology and Innovation (FONSTI).

It is therefore planned that PASRES will eventually be absorbed by FONSTI. Thus, the FONSTI, in addition to taking over the financing of the scientific research component, will evolve along new lines, namely entrepreneurship, valorisation, innovation and technology.

This broadening of FONSTI's scope of action opens the door to a new, diversified ecosystem, made up of both public and private actors who are carrying out initiatives to develop, promote and popularise entrepreneurship, technology and innovation. It is therefore essential for FONSTI to understand its ecosystem, to grasp the challenges emanating from this ecosystem, to appropriate the visions and perspectives of the actors in this ecosystem, in order to capitalise on the existing knowledge and resources, on the possible synergies and on the initiatives underway.



2.

Situational analysis of scientific research, entrepreneurship and innovation in Côte d'Ivoire

2.1. Research and innovation ecosystem in Côte d'Ivoire

In order to ensure the development of the national research system, the Ivorian government has set up various funds to finance research. **FIRCA** (Fonds Interprofessionnel pour la Recherche et le Conseil Agricole) is a funding body for programmes to provide agricultural services in all sectors of plant, forest, and animal production. There is also **FONARI** (Fonds d'Appui à la Recherche et à l'Innovation), which became operational on 29 December 2016 as a prelude to the establishment of FONSTI. FONARI comprises 3 programmes: **the Special Prize of the President of the Republic endowed with CFAF 80 million, the Support Fund for the Promotion of Women Teachers and Researchers endowed with CFAF 120 million and the Support Fund for Research and Innovation (FARI) of CFAF 250 million.** FONSTI is in line with these initiatives through the financing of scientific research and innovation programmes and projects.

There are other initiatives in Côte d'Ivoire to encourage research:

The **United Nations Development Programme (UNDP) Accelerator Laboratories**, which enable the establishment of a network of laboratories with

a view to fostering an innovative and integrated approach to the search for solutions, as well as promoting a culture of innovation and more inclusive and participatory development;

The **Prize for Excellence in Ivorian Scientific Research**, which rewards teachers and researchers and enables the promotion of scientific research;

The **Innovation and Research Market (MIR) of the Confédération Générale des Entreprises de Côte d'Ivoire (CGECI)**, which helps to promote research and innovation among Ivorian companies, to set up a framework for expressing the needs of companies in terms of research and innovation, and to support companies and researchers in the promotion and development of their research products.

The **Ministry of Higher Education and Scientific Research** in charge of the recruitment of teacher-researchers and researchers and the reinforcement of the capacities of teachers-researchers, researchers, and administrative and technical staff by the implementation of a policy of continuous training, in relation with the human resources services of the structures under supervision.

The strengths and weaknesses of the national research and innovation system

The main lessons to be learned from the inventory of the research and innovation ecosystem are set out in the table below. These elements will be used in the construction of the strengths, weaknesses, opportunities and threats matrix. The SWOT matrix summarises the main data that will be used to define the strategic ambition.

 Strengths	 Weaknesses
<ul style="list-style-type: none"> <li data-bbox="215 595 580 913"> <p>■ Research centres and institutes with solid experience : The national research system consists of actors with solid experience and scientific knowledge on which the country could build to support sustainable development. For example, CNRA and LANADA have more than 20 years of experience and IPCI has more than 48 years of experience.</p> <li data-bbox="215 927 580 1126"> <p>■ The diversity of themes covered by scientific research actors : The diversity of themes covered by the national research centres and institutes is an asset for the integrated and harmonious development of Côte d'Ivoire.</p> 	<ul style="list-style-type: none"> <li data-bbox="625 595 1374 853"> <p>■ The tools of the legal and regulatory framework seem to be limited to intellectual property and the tax regime to encourage research, development and technological innovation : The current legal framework for research is driven by the Intellectual Protection Act and the provisions of the Tax Schedule. On the tax side, the schedule provides a special regime for companies investing in research, development and technological innovation activities. Research does not yet have a formalised and popularised national policy and strategy to guide and better coordinate the efforts of the players in the ecosystem</p> <li data-bbox="625 866 1374 949"> <p>■ Research funding is insufficient : Research funding is globally insufficient. In Côte d'Ivoire, less than 1% of GDP (0.35%) is devoted to research activities.</p> <li data-bbox="625 963 1374 1137"> <p>■ The technical platform of laboratories and research centres needs to be strengthened in terms of equipment : One of the biggest challenges for researchers in Côte d'Ivoire is the availability of research equipment. Equipment is generally acquired through donor-funded project interventions. However, the lack of funds for their maintenance accelerates their deterioration.</p> <li data-bbox="625 1151 1374 1413"> <p>■ Lack of synergies between research centres and institutes : The scientific research system is rich in actors. However, the synergies between them are still perfectible. The initiative of the Ministry of Higher Education and Scientific Research concerning the reorganisation of research into poles of competence should increase synergies between scientific research centres and institutes. Indeed, these poles are supported by national research programmes. They are transversal and they pool the skills of various actors as well as community resources (e.g. the operational calculation centre, the national analysis centre, the research observatory, etc.)</p> <li data-bbox="625 1426 1374 1601"> <p>■ The lack of a database of research projects : Scientific research in Côte d'Ivoire suffers from a lack of management of the knowledge obtained over the years. Indeed, the actors (research and innovation structures) do not have a database allowing them to record the results of research and innovation projects, to share scientific knowledge and many other data that can improve the effectiveness of research and innovation in Côte d'Ivoire</p> <li data-bbox="625 1615 1374 1789"> <p>■ Low economic valorisation of research and innovation results : The economic valorisation of research and innovation results remains a major challenge. Indeed, financial and entrepreneurial shortcomings considerably limit the capacity of researchers to valorise research and innovation results. Moreover, collaborative initiatives with the private sector remain rather timid.</p>

2.2. Entrepreneurship in Côte d'Ivoire¹

The government is increasingly involved in promoting entrepreneurship. The Ministry of National Entrepreneurship, Handicrafts and SME Promotion is responsible for promoting SMEs (Small and Medium Enterprises) and entrepreneurship, especially among young people. It is also responsible for implementing and monitoring government policies aimed at improving the competitiveness and efficiency of SMEs and promoting entrepreneurship.

In addition, other initiatives and reforms have been taken to promote this activity :



Agence Côte d'Ivoire SME : The Agence Côte d'Ivoire SME is an SME promotion agency whose vision is to strengthen the competitiveness of SMEs and create sustainable jobs, especially for young people and women. Its creation reflects the government's desire to promote entrepreneurship and innovation while fighting unemployment



Agence Emploi Jeunes : The Agence Emploi Jeunes (AEJ) is a project financing programme launched in 2015 by the Ministry of Youth Promotion and Employment, whose overall objective is to contribute to the fight against youth unemployment and promote their empowerment. The AEJ supports young people wishing to create their micro-enterprises or income-generating activities



CCI-Côte d'Ivoire : The CCI-Côte d'Ivoire has an "Entrepreneurship" tab on its website where it is possible to find advice on how to start a business, news on women's entrepreneurship, the possibility of being accompanied in the creation of a business through a programme of activities and awareness-raising, etc.

Still with a view to promoting entrepreneurship, the government has acquired new partners. Indeed, the United States announced, in early February 2018, the birth of a partnership with the Ivorian private sector for the promotion of entrepreneurship in Côte d'Ivoire. **The American Agency for International Development (USAID)** signed, on February 7, 2018, a partnership with the company Entrepreneurial Solutions Partners (ESP) for the promotion of small and medium-sized enterprises (SMEs) in Côte d'Ivoire. This partnership aims to revolutionise entrepreneurship by creating a generation of young and female leaders. For this three-year programme, USAID has allocated more than CFAF 360 million, to which ESP has contributed approximately CFAF 427 million.



On the other hand, there are structures that specialise in supporting young entrepreneurs. **Barabey Côte d'Ivoire** is a school enabling young entrepreneurs to acquire entrepreneurial skills. This training centre, created in 2012, supports its members in setting up profitable, sustainable businesses capable of providing decent jobs. Another example of a support structure is the pan-African company Blue Bag, located in Abidjan and specialised in entrepreneurial engineering. It offers startups, established entrepreneurs, investors and entrepreneurship actors in Africa services with a unique added value.

In conclusion, entrepreneurship has developed enormously in Côte d'Ivoire in recent years. However, despite the government's efforts to encourage it and the few support structures that have been set up, the financing available remains insufficient. In addition to financial means, young entrepreneurs also need to be accompanied in the creation of their businesses. Above all, they need to strengthen their entrepreneurial skills.

¹ Sources : Plan National de Développement 2016-2020 ; sites internet de l'AEJ et de la CCI-Côte d'Ivoire ; Communiqué de presse de l'Ambassade des États-Unis en Côte d'Ivoire ; sites internet de Barabey Côte d'Ivoire et de Blue Bag.

Les forces et faiblesses de l'entrepreneuriat en Côte d'Ivoire

Les principales leçons à retenir à la suite de l'état des lieux de l'entrepreneuriat en Côte d'Ivoire sont consignées dans le tableau ci-dessous. Ces éléments serviront dans la construction de la matrice des forces, faiblesses, opportunités et menaces. La matrice FFOM synthétise les principales données qui serviront à la définition de l'ambition stratégique.

 Strengths	 Weaknesses
<ul style="list-style-type: none"> <li data-bbox="217 656 783 882">■ The existence of many actors in charge of promoting entrepreneurship : The entrepreneurship ecosystem in Côte d'Ivoire has been enriched over the years with the introduction of key players such as the CI-PME agency and the launch of various initiatives. This dynamic will encourage the emergence of entrepreneurs who will be able to effectively address the problems linked to unemployment <li data-bbox="217 898 783 1099">■ The existence of support structures for entrepreneurs : The national system for promoting entrepreneurship is made up of support structures for entrepreneurs. These structures provide support in terms of accommodation, training, advice and financing during the early stages of the life of startups (VITIB, Dream Factory, Orange Fab Côte d'Ivoire, Incub'Ivoir, etc.). 	<ul style="list-style-type: none"> <li data-bbox="831 656 1382 882">■ The still informal nature of the SME fabric in Côte d'Ivoire : The fabric of Ivorian SMEs is still very much marked by the informal nature of entrepreneurs' initiatives. However, the efforts of certain actors, including the CI-PME agency, contribute to a better awareness of entrepreneurs in the modernisation and migration of their companies towards the formal sector.

2.3. Innovation and technology in Côte d'Ivoire²

On the 2019 Global Innovation Index, Côte d'Ivoire only ranks 103rd (out of 129 countries). This performance nevertheless represents a significant improvement on 2018 when it ranked 123rd out of a total of 126 countries. There is little visibility on the real impact of innovation activities in Côte d'Ivoire. It is to give impetus to this field that Côte d'Ivoire has set up the FONSTI, which is intended to become, among other things, an effective tool for financing and promoting innovation.

Several initiatives to stimulate innovation are thus being implemented. In September 2019, the city of Abidjan hosted the **African Innovation Week**, which was organised in three major stages, including, the African Business Intelligence Conference, the official launch in Africa of the FRANCO-FIL platform and the African Rethink Awards (ARA), which aim to support African startups selected by the LAB (Land of African Business) in their development. In December of the same year, the Ministry of Petroleum, Energy and Renewable Energies (MPEER) launched the first edition of the **Innovation Awards**, aimed at encouraging and supporting technological innovation in the Hydrocarbons and Energy sectors. The winners in each category will be awarded the sum of 10 million CFA francs and support from the Ministry for the implementation of their projects. A third initiative is to be noted in 2020. Indeed, the CGECI (Confédération Générale des Entreprises de Côte d'Ivoire) has launched, in partnership with PASRES, the first edition of the **Innovation and Research Market**. The aim of this is to "*arouse the interest of Ivorian companies in research and innovation, provide a framework for expressing the needs of companies in terms of research and innovation, support companies and researchers in the promotion and development of the products of their research*".

The State's willingness to invest in entrepreneurship and innovation is probably best reflected in the creation of the **Agence Côte d'Ivoire SME**. The Agency's 2019-2022 strategic plan helps to implement the Government's policy on SME promotion (NDP, PS Gouv, Phoenix Programme). To carry out its missions, the Agency manages various structures:

- Dream Factory, a public innovation hub which is a business incubator
- The SME Service Desk which provides assistance, information, guidance, etc.
- PME BI, the Business Intelligence Center for SMEs

In short, these various initiatives indicate a growing awareness of the importance and potential of innovation in Côte d'Ivoire. Indeed, as a vector of growth, it leads to the creation of businesses and ultimately contributes to national economic development.

With regard to technology, the World Bank's February 2018 report on Côte d'Ivoire highlights the technological gap in the Ivorian economy as the main obstacle to its march towards emergence. The private sector could be more efficient and competitive. In 2018³, only 3% of companies were using imported technology licences, compared to more than 15% in the rest of Africa. In its 2019⁴ report, the World Bank advocates using technology to modernise the transport network.

Some structures are working to train tomorrow's elite in technology. This is the case of the **Institut Ivoirien de Technologie (ITT)**, whose ambition is to "contribute to the development of Africa through the establishment of a bilingual (French-English) institute of higher education dedicated to information and communication technologies, biotechnologies and business management". It draws its model from the Massachusetts Institute of Technology (**MIT**). The institute is located in the heart of the Biotechnology and Information and Communication Technology Free Zone (**BICFTZ**) managed by VITIB. There are other universities offering courses in the field of technology such as the Institut Supérieur de Technologie de Côte d'Ivoire (**ISTCI**) or the University of Science and Technology of Côte d'Ivoire (**USTCI**), which are also part of the **Network of Universities of Science and Technology of sub-Saharan African countries (RUSTA)**. RUSTA, created in 2009, has a research centre common to all its member institutions: the Consortium for the Management of Fundamental and Applied Research in Sub-Saharan Africa (**COMREFAS**).

² Source : Sites internet du CGECI ; du prix de l'innovation du MPEER

³ Source : Rapport de la Banque Mondiale sur la situation économique en Côte d'Ivoire 2018

⁴ Source : Rapport de la Banque Mondiale sur la situation économique en Côte d'Ivoire 2019

In 2020, the telecom company Huawei launched the 3rd edition of the "Seeds for the future"⁵ programme, which aims to train young students (selected through a competition in the country's leading schools and universities) in digital transformation. The beneficiaries of the programme, in addition to being immersed in the digital economy, have the opportunity to discover the Chinese language and culture. More and more incubators, accelerators, co-working spaces, and other innovation hubs are being

established in the Ivorian landscape in particular and in Africa in general.

Correlation between R&D expenditure and the level of development of countries

The table⁶ below shows the five (5) countries that spend the most on R&D as a percentage of their GDP.

« DIRD: Domestic R&D expenditure »

		GERD as a share of GDP	% financing -Companies	% financing -Government	% financing -Universities	% financing - Private non-profit
1	South Korea	4,3%	78,22%	11,21%	9,05%	1,52%
2	Japan	3,4%	77,76%	8,33%	12,58%	1,34%
3	Finland	3,2%	67,71%	8,65%	22,87%	0,77%
4	Switzerland	3,2%	71,53%	1,01%	29,95%	1,70%
5	Austria	3,1%	71,28%	4,55%	23,69%	0,47%

Observations

Analysis of the distribution of research and development funding in the top 5 R&D spending countries as a percentage of GDP shows a diverse contribution from both the private and public sectors.

Companies are the biggest contributors in terms of funding with a minimum share of 67%.

Apart from the case of South Korea and Japan, universities contribute about one third of research and development funding.

Governments inject at least 1% of their GDP into research and development funding.

Conclusion

Positioning scientific research and innovation at the heart of the country's socio-economic development implies the participation of the private and public sectors in the funding of projects. Furthermore, in terms of contribution, it should be noted that the government's contribution efforts must be improved. These factors represent as many challenges that the Ivorian Government will have to take up through the actions of FONSTI.



Source : Statista, Institut de statistique de l'UNESCO

⁵ Source : « Côte d'Ivoire – Cameroun : Huawei ratisse large via son programme « Seeds for the future 2020 » », Digital Business Africa, 11 septembre 2020

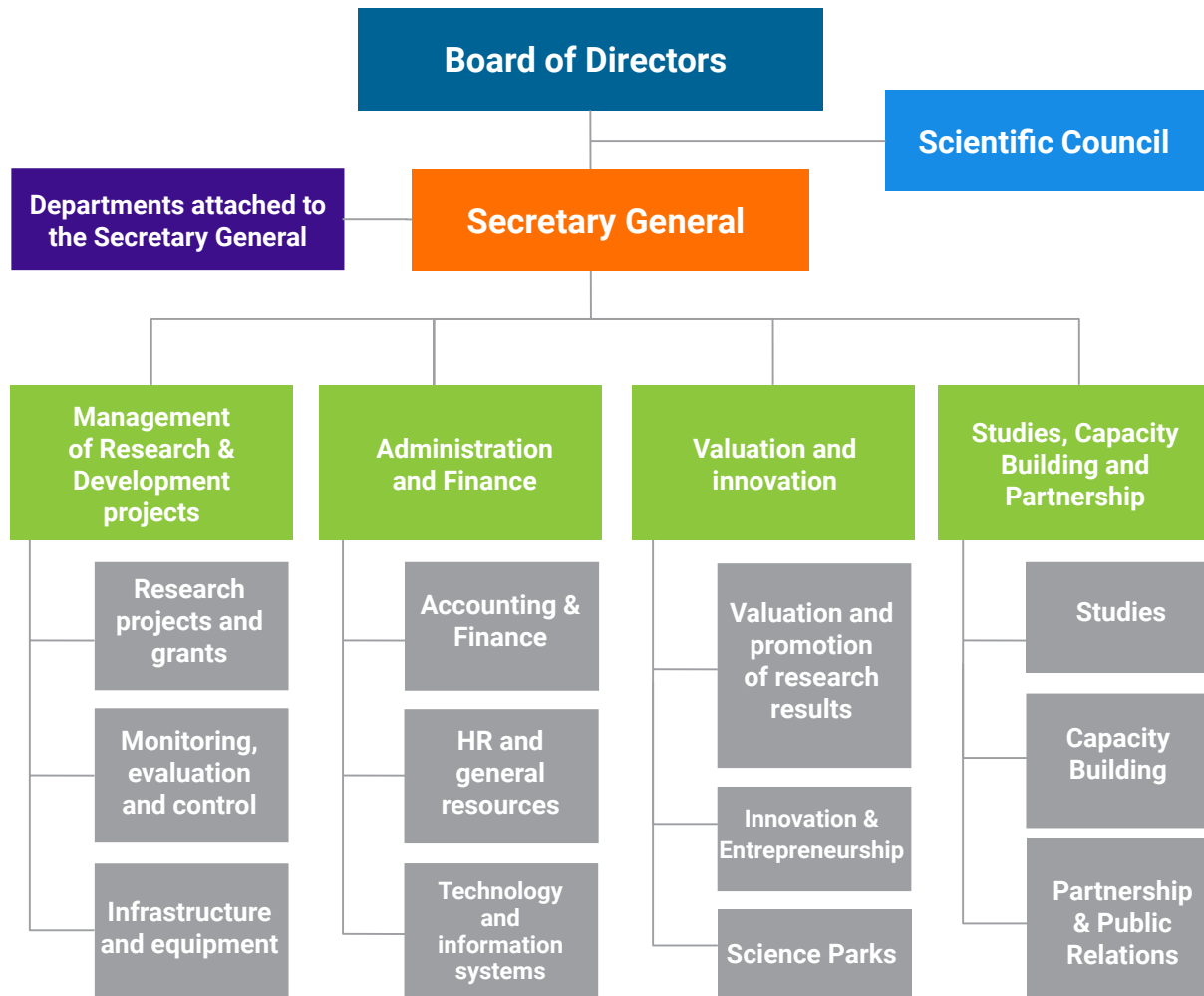
⁶ Source : Institut de statistique de l'UNESCO

The strengths and weaknesses of innovation and technology

The main lessons to be learned from the innovation and technology stocktaking exercise are set out in the table below. These elements will be used in the construction of the strengths, weaknesses, opportunities and threats matrix. The SWOT matrix summarises the main data that will be used to define the strategic ambition.

 Strengths	 Weaknesses
<ul style="list-style-type: none"> ■ The will of the State to boost innovation and technology activities: The State contributes through various initiatives such as the African Innovation Week and the MPEER Innovation Prize, but also through the creation of structures dedicated to the promotion of innovation (Innovation and Research Market, Côte d'Ivoire SME Agency, ZBTIC free zone). ■ Advantages linked to the presence of certain actors: The VITIB offers customs and tax advantages linked to the free zone to the structures established there. ■ Tax benefits for companies doing R&D: Article 5 of the tax schedule provides for a special regime for companies investing in research and development and technological innovation activities. ■ Youth Training in Science and Technology: The Institut National Polytechnique Houphouët-Boigny (INP-HB) wishes to contribute to the development of Côte d'Ivoire through technology-based higher education. Other private structures are also working to train the elite of tomorrow. 	<ul style="list-style-type: none"> ■ National investment in R&D still insufficient: National investment in research and development is still below the threshold set by the Lagos Plan (0.35% of GDP against a funding target of 1%). This low proportion of investment slows down research and innovation activities. ■ Difficult access to finance: There is a lack of financial aid structures to support the first steps of innovators, particularly in financing the pre-commercialisation phase ■ The lack of visibility of structures evolving in innovation and technology: there is no known database of structures promoting and supporting innovation and technology. ■ Obsolescence of infrastructure and equipment: The lack of funding means that researchers are often forced to work with obsolete equipment. ■ The high cost of obtaining patents: The costs of obtaining patents are high for many researchers. The risk of research results not being protected is high.

2.4. FONSTI internal diagnosis



Bodies

The governance structure of FONSTI is based on three (3) bodies, namely **the Board of Directors, the Scientific Council and the General Secretariat.**

The Board of Directors defines the general policy of FONSTI and determines in particular the orientations, the financing and the evaluation of the programmes. It is assisted in its tasks by a Scientific Council which formulates opinions and makes recommendations on the quality of the projects to be financed by FONSTI. These two bodies are made up of research and higher education institutions, learned societies, research funding bodies and institutions working to promote and enhance technological innovation. These councils include representatives of the private sector. Indeed, the economic valorisation of the results of research projects remains a challenge that FONSTI will have to face. It is therefore very important to involve the private sector in order to create this bridge of communication and popularisation of research products in the economic fabric.

In addition, the General Secretariat, which is responsible for implementing FONSTI's general

policy, is supported by professional departments that address the challenges encountered in the research world. The Research and Development Project Management Department includes services in charge of monitoring and evaluation and infrastructure and equipment. The organisational chart includes a Valorisation department which will address the issues of popularising research products in the Ivorian economy.

Call for projects

FONSTI launches two regular calls for projects per year, one of which targets a well-defined theme. This mode of operation makes it possible to address national development priorities through a thematic session, but also to allow the submission of innovative projects in the framework of free sessions.

The two calls for projects launched in 2020 resulted in the selection of 15 winners with a total funding of approximately 310 million CFA francs.

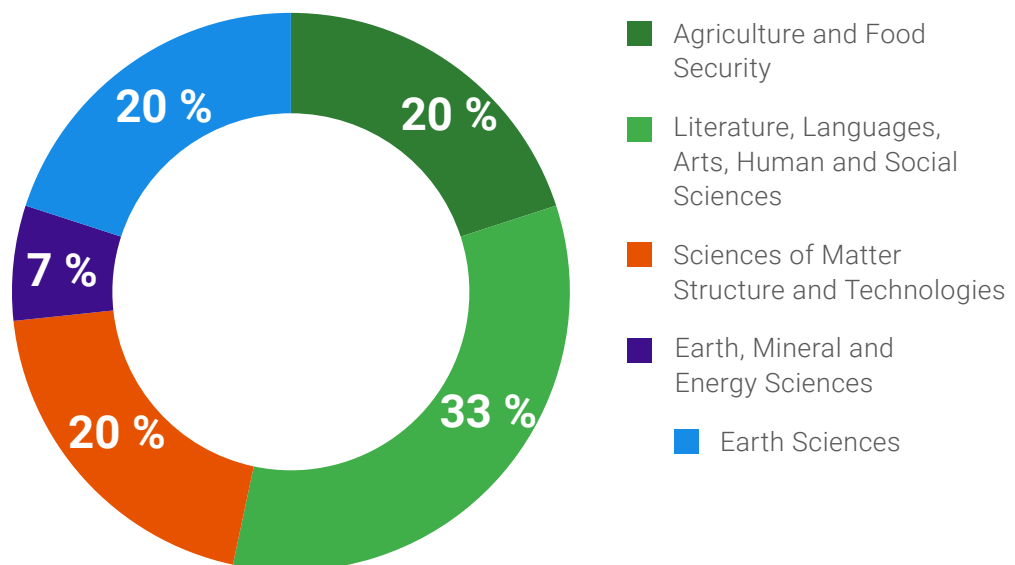



Figure 1 : Distribution of winners by scientific field (FONSTI 2020)

Economic model

KEY PARTNERS	KEY ACTIVITIES (THE EXPERTISES)	VALUE PROPOSITION	CUSTOMER RELATIONS	CUSTOMER SEGMENTS
<ul style="list-style-type: none"> ■ The Ministry of Higher Education and Scientific Research ■ National and international research centres and institutes ■ Learned societies ■ Development partners (Switzerland, the World Bank, USAID, etc.) ■ Agency for the promotion of entrepreneurship and innovation (CI-PME, CCI Côte d'Ivoire, etc.) ■ Ministry of Economy and Finance ■ Private sector (CGECI, FIPME...) ■ Development partners (ADB, EU, AFD, World Bank...) 	<p>FONSTI's main activities are</p> <ul style="list-style-type: none"> ■ The funding of national programmes, research projects, human and material capacity building and any other action in the framework of the promotion of research ■ Monitoring and evaluation of research and development projects ■ Financing of initiatives for the economic and scientific valorisation of research and innovation results ■ Promoting entrepreneurial culture in higher education and research ■ Capacity building 	<p>The financing of scientific research and technological innovation projects likely to have a beneficial impact on the socio-economic and cultural development of the Ivory Coast</p> <p>Availability of several funding windows including :</p> <ul style="list-style-type: none"> ■ Basic research ■ Applied research ■ Infrastructure and equipment ■ Innovation and entrepreneurship <p>2 application sessions with one thematic session and one open session</p>	<ul style="list-style-type: none"> ■ Monitoring and evaluation during the project ■ Recalibration of the financial offers of the projects selected in the framework of the calls for applications ■ Support for innovative project leaders 	<ul style="list-style-type: none"> ■ Researchers and teacher-researchers ■ Scientific research and innovation structures ■ Universities ■ Entrepreneurs ■ Innovators ■ Inventors ■ Secteurs privés
	<p>KEY RESOURCES</p> <ul style="list-style-type: none"> ■ Contribution of PASRES ■ State subsidy ■ Contribution from aid agencies for development and promotion of research 		<p>CHANNELS</p> <ul style="list-style-type: none"> ■ Call for projects ■ Webinars ■ Print, audio-visual and online media ■ Social networks 	
<p>COST STRUCTURE</p> <p>The most important FONSTI expenses in 2020 :</p> <ul style="list-style-type: none"> ■ Programme budget: 69%. ■ Operating budget: 23% ■ Investment budget: 8% 			<p>INCOME FLOWS</p> <p>The main sources of income are :</p> <ul style="list-style-type: none"> ■ Contribution by PASRES ■ Subsidies from the State of Côte d'Ivoire 	

Strengths and weaknesses of FONSTI

The main lessons to be learned from the FONSTI flash analysis are set out in the table below. It is important to note that the fund is in its start-up phase. These elements will be used in the construction of the strengths, weaknesses, opportunities and threats matrix. The SWOT matrix summarises the main data that will be used to define the strategic ambition.

 Strengths	 Weaknesses
<ul style="list-style-type: none"> ■ An operation that will be based on solid assets due to the takeover of certain PASRES activities (project funding, human resources, etc.) ■ An organisational structure that covers aspects of the business such as project management, valorisation and innovation ■ A contribution of FONSTI to socio-economic development through the financing of projects responding to the needs of the population (thematic session) ■ A diversity of fields/sectors covered by FONSTI funding (human sciences, public health, environment and biodiversity, agriculture and food security, etc.) ■ Integration of FONSTI into various international initiatives for the development of science such as the SGCI (Science Granting Council Initiative) and the GRC (Global Research Council) ■ The use of innovative channels to increase the visibility of FONSTI activities (social networks, webinars, YouTube, etc.) 	<ul style="list-style-type: none"> ■ Due to the recent start of FONSTI's activities, some key positions in the organisation chart remain unfilled (e.g. the Valorisation and Innovation Department). ■ Some of the staff (new recruits) do not have solid experience in the operation of funding organisations and in the financing aspects of innovation and technology projects






2.5. Benchmark

In the framework of the elaboration of this benchmark, eight (8) funding structures were identified in collaboration with the FONSTI General Secretariat :

Name of the organisation	Countries
Fonds National Suisse de Recherche Scientifique (FNS) Innosuisse	Switzerland 
Agence Nationale de la Recherche (ANR)	France 
Deutsche Forschungsgemeinschaft* (DFG)	Germany 
Funding Innovative Capacity Building Initiatives (FICAD)	African Union 
National Science Foundation (NSF)	United States 
National Natural Sciences Foundation of China (NSFC)	China 
Japan Society for the Promotion of Science (JSPS)	Japan 







*« Fondation allemande pour la recherche »

In identifying good practices, several aspects were considered.





Aspect		Good practices	Added value
Targets and funding areas		Collaboration in the intermediate areas between research and innovation: the SNSF is in partnership with Innosuisse to fund research and innovation projects	Promoting research and innovation
		Youth-oriented capacity building actions with a focus on the development and training of young researchers	Synergy and optimisation of research results through knowledge sharing
		A focus on innovative projects: FICAD aims to facilitate the effective achievement of continental development priorities, support countries, build capacity and leverage the knowledge and learning of the private sector and civil society to achieve tangible and sustainable development. Thus, it supports innovative and catalytic projects (pilot projects or ideas to be extended)	Financing of projects with a high socio-economic impact Contribution to the country's development priorities
		A wide range of beneficiaries to ensure socio-economic impact: NSF targets and supports leading American pioneers (scientists, engineers, educators and students) around the world but also entrepreneurs	Youth capacity building and contribution to economic development through entrepreneurship
		A set of coherent programmes: NSFC offers a variety of programmes relating to the promotion of research, the fostering of talent and the building of infrastructure for basic research	Increased and more visible contribution of the Fund to the socio-economic development of the country through the financing of various beneficiaries

Aspects		Good practices	Added value
Instruments de financement		<p>(FNS) A categorisation of financing instruments : FNS has divided its funding instruments into five (5) funding categories: Projects, Careers, Programmes, Infrastructure and Science Communication</p> <p>(Innosuisse) An incentive for innovation projects promoted by economic partners : Innosuisse contributes to innovation projects (with or without a development partner) and provides cheques for preliminary studies</p>	<p>Better control of allocated funds</p> <p>Wider coverage of the headings funded in the context of the implementation of research and innovation projects</p>
		<p>Various financing instruments : ANR has various funding instruments at its disposal, depending on whether it is a question of urgent needs, generic projects, specific programmes, etc.</p>	<p>More comprehensive consideration of the needs of research projects and programmes for greater efficiency</p>
		<p>Instruments for individuals and institutions : DFG offers several project financing instruments, classified in categories, for individuals and institutions (e.g. themes, forum, infrastructure)</p>	<p>Synergy in funding efforts for innovation projects</p>
		<p>A variety of tools to encourage research : NSF funds research and education through grants, contracts and cooperative agreements</p>	<p>A sustainable funding mechanism through the availability of a variety of funding instruments</p>
		<p>A wide range of programmes : Ex : "key projects" program, young talents program, international programs, intended for major research infrastructures</p>	<p>Increased and more visible contribution of the Fund to the socio-economic development of the country through the financing of various beneficiaries</p>




Aspects		Good practices	Added value
International partnerships and collaborations		(FNS) National and international collaboration: FNS maintains close contacts with national and international partners in the framework of research initiatives and programmes. The aim of this initiative is to facilitate the work of scientists across borders and to contribute to the international development of research	
		(Innosuisse) Close cooperation with national partners: Innosuisse collaborates with : FNS to combine efforts to promote innovation and scientific research The State Secretariat for Education, Research and Innovation (SEFRI)	
		A partnership with public, private or institutional actors for generic projects or specific programmes in which the ANR proposes funding and co-financing	Facilitation of international cooperation and collaboration through the establishment of various partnerships
		A permanent openness to international collaboration: All DFG funding programmes are open to international project collaboration. The DFG maintains various partnerships, including : The ANR, the UK Social Economic Research Council (ESRC) and the Social Sciences and Humanities Research Council of Canada (SSHRC) in the context of social science research The Australian Science Fund and the SNSF in the mutual opening of funding programmes to simplify the implementation of cross-border research projects	Strengthening relations with structures involved in research and innovation Positioning Côte d'Ivoire on the international research scene/ Participation in international research development Opening up science/updating and sharing knowledge Access to scientific expertise not available at national level
		A wide range of partnerships: NSFC has set up an International Exchange and Cooperation Programme which includes several categories including : Joint research projects (joint research activities conducted by Chinese scientists and their foreign counterparts) International academic conferences held in China A joint fund between the NSFC and the Hong Kong Research Grants Council, etc. In addition, China has developed many international partnerships : 94 cooperation agreements or memoranda of understanding 49 partner countries and regions	Facilitation of international exchanges (inviting local researchers to internships, conferences, collaborative projects, etc.) More extensive use of research results Capitalisation and knowledge transfer Increasing sources of funding for research and innovation
		A promotion of international scientific exchanges: To this end, the JSPS has set up a wide range of international collaboration programmes. These include the following programmes : - Promotion of international joint research formation of international research support networks - International training opportunities for young researchers - Invitation of researchers from other countries	

Aspects		Good practices	Added value
Selection process		(FNS) Submission of projects online via the mySNF platform, which allows interaction between applicants, reviewers, re-research institutions and the SNSF secretariat	Time saving
		(Innosuisse) Online submission of the contribution application on the Innosuisse website	Mitigating the risk of losing records
		Online submission of projects on the ANR website	Electronic archiving and availability of process data
		ISO 9001 certification of its project selection process: The ANR's rigorous selection process is based on peer review and mobilises two types of independent actors: the scientific evaluation committees (CES) and the experts, French or foreign specialists in the field concerned by the project, called upon by the ANR on the proposal of the committee members	Facilitating the establishment of a national database of research projects
		ISO 9001 certification of its project selection process: The ANR's rigorous selection process is based on peer review and mobilises two types of independent actors: the scientific evaluation committees (CES) and the experts, French or foreign specialists in the field concerned by the project, called upon by the ANR on the proposal of the committee members	Better selection of projects through a professional evaluation system and peer review
		A rigorous selection process based on merit: It is considered the gold standard of scientific review. It considers two (2) main criteria: intellectual merit and extent of overall impacts/impacts	Consideration of the overall impacts of the proposed projects

Aspects		Good practices	Added value
Cooperation with the state		A mandate to deliver government programmes: The ANR has been the State's operator for the management of future investment programmes (PIA 1, 2 and 3) in the field of higher education and research since 2010	Positioning FONSTI as a key player in the government's development strategy
		Consideration of the national research policy: JSPS contributes to the realisation of the government's strategy for the globalisation of Japanese universities through a specific programme	Positioning Ivorian universities as models in research/ Strengthening research activity in universities

Aspects		Good practices	Added value
Database and archives		(Innosuisse) An inventory of all innovation projects: All projects supported by Innosuisse and other public organisations are available via its ARAMIS database	Time saving
		A description of each project funded by the ANR is available in its database	Mitigation of the risk of losing records through electronic archiving and availability of data from the process
		A summary description of the projects funded: Each project funded by the DFG can be accessed on the DFG website via GEPRIS (German Project Information System))	Facilitate the establishment of a national database of research projects
		Access to a database and archive that presents several summaries of different research projects in different categories each year.	

Aspects		Good practices	Added value
Research promotion		A link between the public and private sectors: The DFG supports the sharing of scientific findings with the private sector and institutions such as museums, music academies, hospitals and public-private partnerships	Increased contribution of research results to the economic fabric
		Provision of research and training facilities: They help researchers make the transition from basic science and engineering discoveries to the marketplace	Increased contribution of research results to the economic fabric
		<p>Collaboration between universities and business/industry: the JSPS has set up various programmes to achieve this. These are the:</p> <p>Science Dialogue Programme, which aims to stimulate young students' interest in research through lectures on research work in Japanese high schools.</p> <p>University-Industry Research and Cooperation Programme which aims to promote university-industry cooperation (there are university-industry cooperative research committees) and links in areas of science that can have a positive impact on society</p>	<p>Access to research results for the non-scientific community</p> <p>Facilitation of exchanges between the scientific community and companies</p> <p>Increasing interest in research</p> <p>Private sector contribution to research programmes (funding, knowledge sharing, etc.)</p>
		<p>Awards given to the best researchers: Prizes are awarded to promote research:</p> <p>The most important is the Gottfried Wilhelm Leibniz Prize, which aims to improve the conditions of the best researchers.</p> <p>The Heinz Maier-Leibnitz Prize is specifically designed to reward young researchers and support them in their careers.</p> <p>Other prizes are awarded in specific disciplines</p> <p>With regard to international cooperation, the DFG awards two prizes: the Eugen and Ilse Seibold Prize for cooperation between Germany and Japan and the Copernicus Prize for cooperation between Germany and Poland</p>	<p>Valorisation of research work</p> <p>Promoting and increasing interest in research</p> <p>Promoting international cooperation</p>
Research valorization		Intellectual property protection: NSF has clauses in its terms and conditions governing the ownership of inventions resulting from NSF-funded research	Better selection of projects through a system for assessing the impact of proposed projects
		An assessment of the added value that the project brings to society: The ANR measures the impact of the projects it funds. Its database contains a description and evaluation of the benefits of research for society (economic, health, environmental, cultural, etc.).	

Aspects		Good practices	Added value
Encouraging entrepreneurship		<p>Funding for entrepreneurship training : In 2016, NSF awarded five (5) grants to teach entrepreneurship and support research and innovation in regional hubs across the U.S. through its Innovation Corps (I-Corps) program</p>	<p>Reducing the unemployment rate through business creation</p> <p>Youth empowerment</p>
		<p>(Innosuisse) Actions to encourage business creation : Incentive instruments include the encouragement of science-based entrepreneurship, including the creation and development of companies whose activities are based on science</p>	<p>Youth capacity building and contribution to economic development through entrepreneurship</p>
Taking minorities into account		<p>Special programmes for minorities : NSF has special programs to accommodate minorities (minority programs and grants (women, disabled, Black Americans, Hispanics, Asians, Native Americans)) to try to increase their participation in science</p>	<p>Inclusive approach to outreach and increased public interest in research</p>

3.

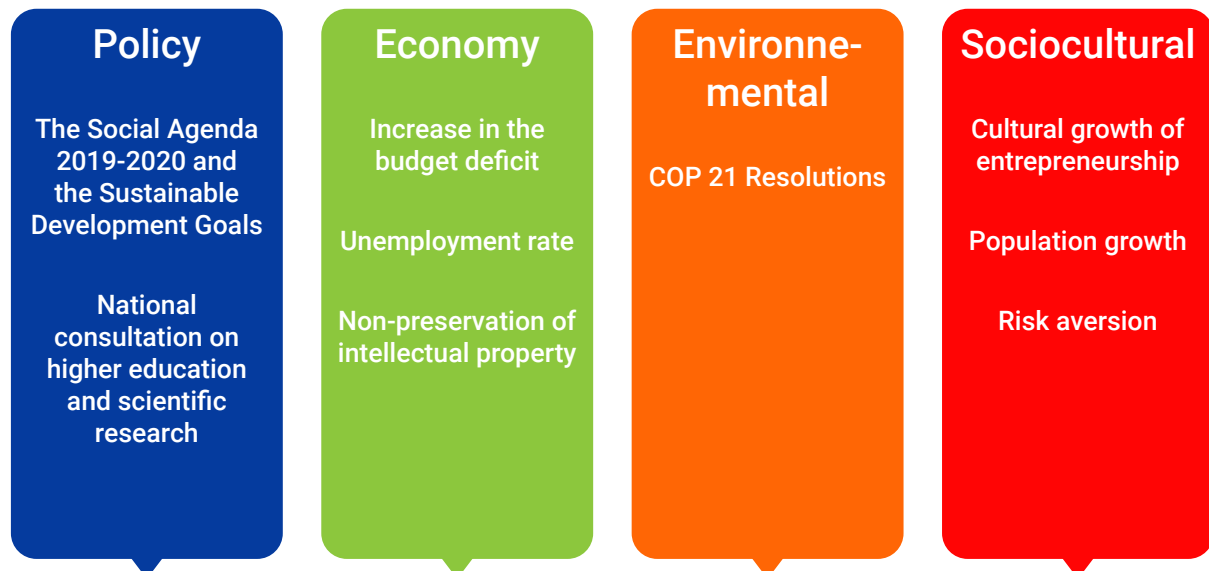
Main challenges of the 2021-2025 strategic plan

For its first Strategic Plan, FONSTI has many challenges to meet. The choice of projects to be financed, the reinforcement of the achievements and the development of research in Côte d'Ivoire, its insertion in the diversified ecosystem of research and innovation, the creation of links between the scientific world and the private sector (economic

valorisation) and the popularisation of research among the general public are all challenges that the fund will have to face. In addition to these challenges, certain factors inherent to the environment of FONSTI could also impact its operation. These factors emanating from its external environment are analysed in sections 3.1 and 3.2.

3.1. PESTEL

The diagnosis of FONSTI's external environment was carried out using the PESTEL tool and the main points addressed by theme are as follows :



3.1.1. Political factors

SP Gov 2019-2020 and the Sustainable Development

Goals: At the halfway point of the 2016-2020 NDP, the Government has realised the need to modify the approach to implementing the social component of the NDP for greater impact. The Government's social action is structured around six (6) axes, the overall result of which is "growth that generates social well-being with an accessible, efficient and quality public service". Moreover, as Côte d'Ivoire is a member of the United Nations, the government has therefore signed up to the Sustainable Development Goals (SDGs) for the period 2015-2030.

These government guidelines will have an impact on the themes of the research projects financed by FONSTI.

Impact

- The SP Gov, as well as the SDGs, influence the choice of themes for FONSTI funded projects

National consultation on higher education and scientific research

: With a view to making higher education and research important levers for the economic and social development of nations, a national consultation was organised in 2019. After a reflection focused on the following pillars: (i) access to higher education; (ii) quality and relevance of higher education; (iii) effective governance; (iv) academic life and social affairs; (v) research, sustainable development and innovation; (vi) sustainable and equitable funding of higher education and scientific research; and (vii) legal affairs and cooperation. Recommendations to serve as a framework for a national strategy for higher education and quality research, consistent with the real needs of Ivorian society, were adopted by the participants.

Impacts

- Coherence between companies' needs and research programmes
- Strengthening the governance framework of the research ecosystem
- Increased visibility of FONSTI actions

3.1.2. Economic factors

Increase in the budget deficit : The covid-19 has led to a slowdown in economic activities and a sharp drop in Côte d'Ivoire's GDP from 6.9% in 2019 to 2.7% in

2020. This decline will have a negative impact on the level of state budgetary revenue. This situation, which is a corollary of the slowdown in economic activity, could have an impact on the budgetary allocations intended for the FONSTI.

Impacts

- Reduction of the funds reserved for FONSTI (annual grants)
- Slowing down of research programmes

Unemployment rate : Reducing the unemployment rate remains a priority for the State of Côte d'Ivoire. Entrepreneurship thus appears as a strategic lever for job creation.

Impacts

- Increase in potential FONSTI beneficiaries
- Increasing interest in entrepreneurship
- Increased need to valorise research results in order to create jobs

Intellectual Property not preserved : The Ivorian population, including its scientific community, is not sufficiently aware of the importance of intellectual property and its tangible and intangible heritage. Some researchers and innovators are held back by the cost of obtaining a patent.

Impacts

- Risk of financial loss due to non-economic valorisation of research results
- Increased awareness of the Fund on the importance of intellectual property
- Importance of support for obtaining patents or accompaniment in this process

Cultural growth in entrepreneurship : A wave of young businesses and entrepreneurs is emerging in Côte d'Ivoire. In addition, the state and the private sector are resolutely committed to supporting young entrepreneurs in various ways. Private initiatives such as those of the Janine Kacou Diagou Foundation and the INITIATIVE project of the Côte d'Ivoire Chamber of Commerce and Industry offer funding to help young entrepreneurs realise their innovative ideas.

Impacts

- Increase in the funding range
- Possibility of partnership with existing structures and initiatives

3.1.3. Environmental factors

COP 21 Resolutions : The COP 21 resolutions applying to all signatory countries, including Côte d'Ivoire, made it possible to conclude an agreement committing 195 States. This agreement concerns the reduction of greenhouse gas emissions in order to stabilise global warming due to human activities. This agreement has led to discussions on the diversification of energy production sources and the increased use of renewable energies.

The impact of these new initiatives is the introduction of policies and strategies to reduce the use of fossil fuels in energy production.

Impact

- Increase in applications for financing of renewable energy projects

3.1.4. Socio-cultural factors

Cultural growth in entrepreneurship : A wave of young businesses and entrepreneurs is emerging in Côte d'Ivoire. In addition, the state and the private sector are resolutely committed to supporting young entrepreneurs in various ways. Private initiatives such as those of the Janine Kacou Diagou Foundation and the INITIATIVE project of the Côte d'Ivoire Chamber of Commerce and Industry offer funding to help young entrepreneurs realise their innovative ideas.

Impacts

- Increase in applications to FONSTI for project funding
- Possibility of partnership with existing structures and initiatives

Population growth : Côte d'Ivoire's population growth rate has been increasing over the years (2.33% in 2010 to 2.55% in 2018). This sustained growth creates challenges at several levels.

The first is the food security of the population. Indeed, Côte d'Ivoire has an economic model based

on agriculture, whose productivity is declining. Cocoa and cashew nut production fell from 24% to 4% and from 9% to 7% from 2017 to 2018. Average yields are quite low and the product offer is not sufficiently diversified (in 2017, yams, manioc, palm oil, rice and cocoa accounted for 80% of agricultural production).

The second challenge is to cope with a housing shortage. Indeed, 1 in 2 inhabitants live in cities (INS 2014) and only 38.3% of the population lives in decent housing (INS 2017). In 2019, the housing deficit was estimated at more than 600 000, including 200 000 in Abidjan.

Finally, the increase in agricultural production and climate change is leading to the destruction of part of Côte d'Ivoire's natural capital. There is also the drying up of the land, which has an impact on agricultural yields, as well as the drying up of watercourses, which makes access to water difficult.

Impact

- FONSTI's calls for projects should propose themes that aim to find solutions to these current problems (housing, food security, etc.).

Risk aversion : The Ivorian education system and mores encourage the young graduate to find a job at the end of his or her studies. The emphasis is on a traditional career that guarantees financial stability and security, as entrepreneurship offers no guarantees. Young people are not necessarily encouraged to take such risks and are not taught to develop the entrepreneurial spirit and skills to start their own business.

It is also this risk aversion which means that the socio-economic environment does not encourage entrepreneurs.

Impact

- Change of opinion on entrepreneurship as a result of FONSTI promotional activities

3.2. Breaking elements

The disruptive elements represent the different points that have or will profoundly change research, innovation and even the traditional economy. Three primary disruptive forces are generally identified :

- Technology
- Globalization
- Demography

3.2.1. Technological breakthroughs

Le cloud computing⁷

Cloud computing is the use of remote computer servers over a network, usually the internet, to store and/or operate data. It is becoming more and more common in the business world. The main advantages of cloud computing are flexibility, increased production and lower costs.

Some figures

219.5 billion \$
of turnover in 2016

+6.9 % per year
This is the increase in investment
forecast from 2020 to 2023 by the IDC

90.9 billion \$
Amount of investments in 2023
according to IDC

The main players in cloud computing today are Amazon via Amazon Web Services (AWS), Microsoft, Salesforce, Oracle and SAP.

The Internet of Things⁸

The Internet of Things (IoT) is a promising new technology area. It refers to a network of physical devices connected to the internet that are able to sense and interact with the external environment. Interest in this technology has increased recently. 1200 billion dollars of spending on IoT is expected by 2022.

Its applications are numerous (connected watches, connected bracelets, connected security systems, sensors for tracking goods, smart cities, etc.). Many sectors of activity can benefit from it, including production, the automotive sector, transport and logistics, retail, the public sector, health, etc.

IoT is a disruptive technology that is changing the way people live today. Applicable to several sectors of activity, the IoT could facilitate the delivery of quality public service and make economic development a reality for all.



One example of the use of IoT in the public sector, specifically in core sectors such as water and electricity, is the collection of data to warn their users of large-scale outages or even shorter cuts in water, electricity or sanitation services. In addition, IoT applications can collect data about the extent of an outage, and deploy resources to help utilities recover more quickly from failures.

⁷ Sources : site internet zdnet.fr, site internet de futura-sciences.com, site internet de silicon.fr, base de données de EY

⁸ Sources : L'intelligence artificielle bouleverse la recherche scientifique, Olivier Roland (2018), site internet LesEchos, site internet Microsoft.fr, base de données EY, PND 2016-2020, Comment les nations investissent dans la recherche en robotique, Mourad Krim

Artificial intelligence ⁹

Artificial intelligence (AI) is a technology that involves a machine imitating human intelligence. Like human intelligence, it is about perceiving, deducing information, learning and using new knowledge to make decisions. It is therefore becoming a crucial issue for research and in other fields such as robotics.

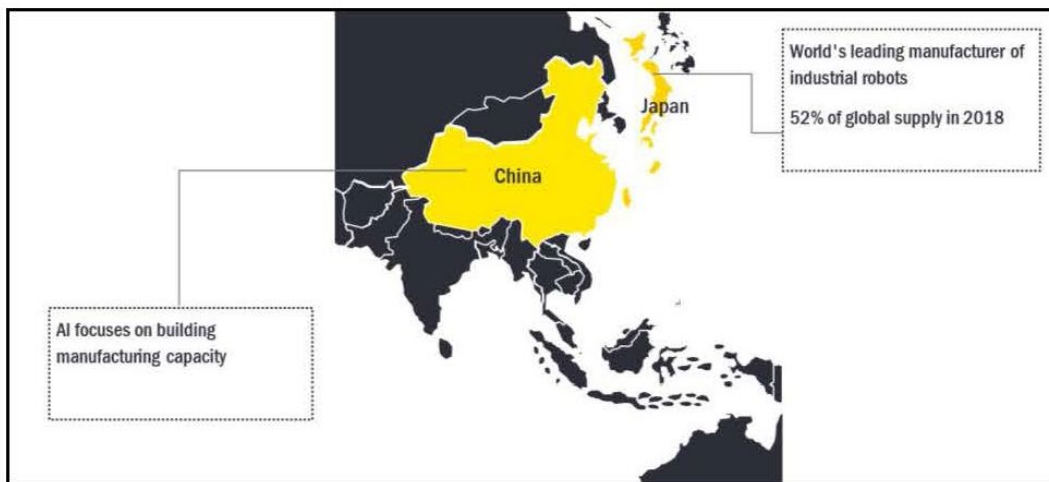
 Advantages	 Limits
<ul style="list-style-type: none"> ■ Continuous machine learning ■ Automation of tasks ■ Speed of processing beyond human capacity ■ Improvement and acceleration of research 	<ul style="list-style-type: none"> ■ High cost of investment in AI ■ Few laboratories have the financial capacity to purchase robots

Some trends

<p>11,1 mds \$</p> <p>▶ that's the size of the potential AI market in 2024 according to analyst firm Tractica</p>	<p>+40%</p> <p>▶ Of increase in global productivity through AI by 2035 according to a 2014 Accenture study</p>
<p>75%</p> <p>▶ of companies will integrate AI into customer-facing technologies and processes by 2022</p>	<p>+141%</p> <p>▶ of increase in investments in AI between 2016 and 2017</p>

⁹ Sources : L'intelligence artificielle bouleverse la recherche scientifique, Olivier Roland (2018), site internet LesEchos, site internet Microsoft.fr, base de données EY, PND 2016-2020, Comment les nations investissent dans la recherche en robotique, Mourad Krim

Research and development of new robotic technologies has intensified. The covid-19 crisis has highlighted the important contribution of robots to industry and society, according to IFR, the International Federation of Robotics.



Robotics and AI are technologies of the future. From a technological point of view, Côte d'Ivoire has some catching up to do. One of the roles of FONSTI will be to finance technological projects but also to encourage the economic valorisation of innovative ideas.



The 5G¹⁰

This evolving technology will foster the development of innovative services in many areas such as health, work (with teleworking), artificial intelligence, education, security, etc.

In addition, it could enable the development of 3D or holographic image synthesis or the all-internet. The same would be true for certain

sectors such as industrial automation and telemedicine, which would benefit from this advance.

Globally, technology deployment tests have intensified in 2019. Some countries have already launched 5G deployment. These include Belgium, the US (in 2020), South Korea which is the most advanced country (launch in 2019) with over 5 million 5G users in 2020.

 Advantages	 Limits
<ul style="list-style-type: none"> ■ A more reliable and responsive network; ■ Improved data rates to meet the growing demand for data from electronic devices; ■ Better connection of smartphones and communicating objects. 	<ul style="list-style-type: none"> ■ Little is known about the health effects or environmental impact of 5G, which consumes more energy and requires larger sites for deployment ; ■ Weak interest from individuals (profit too light, poor coverage, etc.).

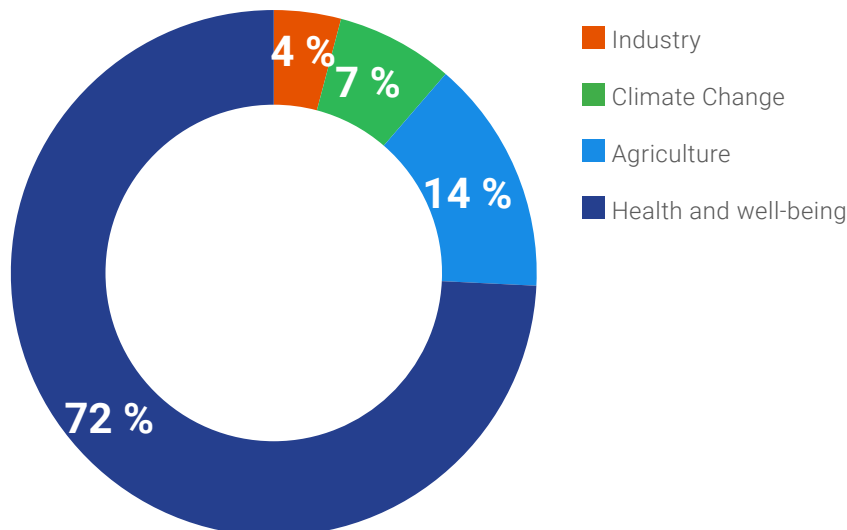
The microbiome¹¹

In the next decade, it can be expected that the exploitation of the capabilities of the microbiome (set of micro-organisms) will become an important tool for providing solutions to sustainable development issues and in various sectors. Microbes produce secondary metabolites that are used for the production of antibiotics, bioherbicides, enzymes, etc. The emergence of synthetic biology is changing this situation and releasing the biochemical potential of the microbiome, which was previously limited by genetic engineering. Its exploitation is proving useful in several fields.

- Health** microbiome-based therapies could prevent certain diseases linked to dysfunctions in an individual's natural microbiome
- Agriculture** micro-organisms can release enzymes that facilitate phosphorus uptake in the field
- Covid-19** RNA tests detect COVID-19 sequences on objects

Investment in microbiome start-ups has grown from \$0.6 billion in 2010 to \$1.6 billion in 2019.

Microbiome patent applications 2009-2018



¹⁰ Sources : Le Monde, site internet de l'Arcep
¹¹ Source : Grandes tendances de 2020, Analyses EY

Synthetic biology ¹²

Synthetic biology is an interdisciplinary science that uses engineering techniques to design and develop cell functions. In other words, it is genetic innovation. This ability to read and rewrite DNA will have a major impact in many sectors (health, food, the fight against climate change, etc.).

Some facts about synthetic biology :

- China, Singapore and the UK have made synthetic biology a national priority
- Synthetic biology opens the way to tailor-made genetic therapies for chronic diseases
- It helps to improve the performance of agriculture
- Investment in synthetic biology start-ups has quadrupled in 10 years and reached \$4.4bn in 2019

Challenges for FONSTI : FONSTI could play a catalytic role in facilitating the introduction of new technologies into the habits of the population and businesses. Training in the use of these technologies as well as the reinforcement of the technical platform of the laboratories with advanced technological equipment are all initiatives to be considered by the fund.

3.2.2 Breaking elements due to globalisation

Increased international cooperation and scientific activity

Globalisation allows scientific knowledge to be shared. Thus, international cooperation and knowledge sharing have increased considerably and the current health situation (the COVID-19 pandemic) illustrates this phenomenon perfectly.

Intensification of international cooperation due to the COVID-19 pandemic¹³

Since the beginning of the spread of COVID-19, international scientific partnerships have multiplied to study the virus and develop effective solutions. There are many scientific initiatives in this direction, including :

C-TAP (Technology Access Panel against COVID-19), supported by 30 countries and multiple international institutions and partners. It aims to make available tests, treatments and other health technologies used in the fight against the disease.

CISP (Challenge for International Scientific Partnerships), which as leader of the American Academy of Arts and Sciences initiative, has called for continued and additional collaboration between the United States and international scientific partners at this critical time.

Increased involvement of other national bodies¹⁴

Many scientific research funding bodies have increased their funding activities in response to the health situation.

Indeed, numerous calls for projects have been launched to increase knowledge of the coronavirus, its mode of propagation, its mutations, in order to find ways to defeat it. National research programmes on COVID-19 have also been created. Examples:

The SNSF launched a special call for projects on coronavirus and allocated CHF 10 million to 36 projects

It also opened the call for proposals for the National Research Programme NRP 78 "COVID-19" with a budget of CHF 18 million shared between 28 projects

The ANR has launched several calls for projects such as RA-COVID-19 to support the teams working on COVID-19.

Increased publication of preprints¹⁵

Preprints in scientific publishing are versions of a scientific article that precede its acceptance by the editorial board of a scientific journal.

It also increases the sharing of scientific knowledge and understanding.

NB: Preprints are part of the Open Science movement, which seeks to make scientific research and the data it produces accessible to everyone at all levels of society. They also make it possible to increase the sharing of scientific knowledge :

¹² Sources : Le Monde, site internet de l'Arcep

¹³ Source : site internet de l'American Academy of Arts and Science

¹⁴ Sources : sites internet du FNS, de l'ANR, de la DFG, de la NSFC, de la JSPS

¹⁵ Source : site de l'OMS, New York Times

 Advantages	 Limits
Rapid dissemination of research results to a wider audience, especially in the current rapidly spreading pandemic	Risk of errors or misinformation as published results are not verified or validated beforehand

Some facts :



The Sustainable Development Goals



- Member States that have agreed to them have agreed to address challenges related to poverty, inequality, climate, environmental degradation, prosperity, peace and justice.
- Thus, the SDGs will influence the sectoral and governmental orientations and, in turn, the projects financed by FONSTI.
- The 17 SDGs¹⁶ cover three (3) dimensions: **economic growth, social inclusion and environmental protection.**

Structures evolving in the technology ecosystem, example of VITIB



- In the field of technology, FONSTI has a number of potential partners who can support its activities. The Village des Technologies de l'Information et de la Biotechnologie en Côte d'Ivoire (VITIB, free zone), a promotion and exploitation company, is a good example.

An environment conducive to partnerships and networking

The Mahatma Gandhi Technology Park at VITIB is home to a large number of high-tech companies such as Orange Côte d'Ivoire, Afric Power, EVOTECH

...

A partnership with VITIB would allow FONSTI winners to benefit from the experience and knowledge of the companies already established there. From this collaboration, they could expect: important networking, collaborative partnerships, potential buyers, financial partners or investors, etc.

Resources that facilitate production

At VITIB, innovators and researchers could have at their disposal resources that will facilitate the production of results or innovation :

- The village is located on more than 200 ha with a pleasant working environment that respects environmental standards. It has a good and economical production infrastructure and a particularly attractive legislative and regulatory framework.
- Research laboratories are located on the site
- L The park is also positioned as a training centre; it offers its tenants training in languages, biotechnology and ICT, etc. Tax and customs advantages
- The VITIB is a free zone that offers various tax and customs advantages:
- 0% tax for the first five (5) years, then 1% tax from the 6th year onwards, with the possibility of a tax reduction for recruiting nationals
- 0% taxes on the consumption of production factors (water, electricity, petroleum products (fuel and lubricants)
- 0% import and export duties and taxes

As a result, the production costs of the companies that set up there will be reduced and their products will be able to stand up to any competition.

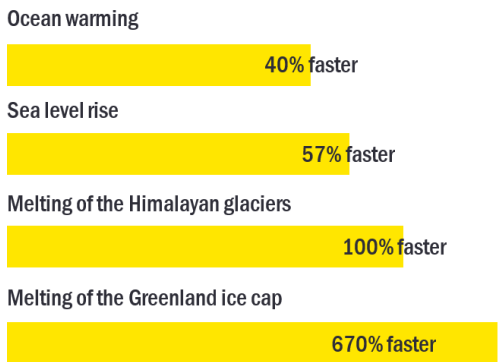
¹⁶ Source : site internet de l'ONU
¹⁷ Source : site internet du VITIB

Challenges for FONSTI : FONSTI will have to integrate the notions of cooperation and partnership into its operational approach. The intensification of cooperation as a result of the health crisis offers prospects for exchanges and sharing of knowledge with developed countries in terms of financing and valorisation of research and innovation results. In addition, the presence of key local players.

3.2.3 Demographic/ environmental disruptions

Climate change

The planet is facing many climate changes due to population growth, pollution, carbon-intensive technologies and other factors. Climate-induced earth changes are happening faster than expected :



At the local level, land degradation affects agricultural productivity. In addition, pollution is particularly marked in Abidjan, impacting the health and quality of life of the population. Finally, deforestation has increased in

recent years, further deteriorating the ecosystem.

Climate disruption exacerbates social challenges and depletes existing resources :

Inequality	Food insecurity	Urbanisation
80 million jobs	500 million people live in desertified areas	300 million people expected to live in coastal flood zones by 2050

Source: Major trends in 2020, EY Analysis

In order to support sustainable development, companies must now measure and limit the environmental impacts of their activities. As a fund for research, innovation and technology, FONSTI will have to take into account the environmental impact of the projects it finances.

In addition, the search for solutions to the consequences of climate change is a necessary theme to address, particularly with regard to food security and the preservation of our forests.

The rise of generation Z¹⁸

Gen Z (10-24 years)	Gen X (40-54 years)	Baby-boomers (55-74 years)
1.8 bn	1.4 bn	1.2 bn
1.7 bn	1.3 bn	0,3
Millennial (25-39 ans)	New Gen (Up to 9 years)	Mufflers (+75 years)

Generation Z was born entirely in the Internet age and finds commonalities in digital

+96% Smartphone ownership	+7 Social network accounts	2,9h Daily on social networks
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Source : Distribution of generations and age groups, EY

Generation Z (Gen Z) is the largest in history, representing 24% of the global population. Its distribution varies by country (for example, India accounts for 27% of Gen Z, the largest proportion). The majority of Gen Z reside in developing countries and are characterised

by rapid growth, wealth accumulation and increased consumption (in contrast to developed countries which experience slower growth and consumption). As a result, they favour professional development and have a **strong taste for entrepreneurship**.

Gen Z are particularly active in global sustainability and are interested in issues of climate change, pollution, etc. Half of Gen Z live in countries that are highly vulnerable to climate change. These are issues that are central to their interests, which will enable them to propose solutions.

Challenges for FONSTI: Gen Z are immersed in digital. The best means of communication to reach them and motivate them to research, entrepreneurship and innovation are therefore digital (websites and social networks).

3.3. SWOT matrix

Several lessons can be drawn from the internal and external diagnosis. These lessons can be grouped into strengths, weaknesses, threats and opportunities, presented below in the SWOT matrix :

 Strengths	 Weaknesses
<ul style="list-style-type: none"> ■ An operation that will be based on solid assets due to the takeover of certain PASRES activities (project financing, human resources, etc.) ■ An organisational structure that covers business aspects such as project management, valorisation and innovation ■ A contribution of FONSTI to socio-economic development through the financing of projects responding to the needs of the population (thematic session) ■ A diversity of fields/sectors covered by FONSTI funding (human sciences, public health, environment and biodiversity, agriculture and food security, etc.) ■ Integration of FONSTI into various international initiatives for the development of science such as the SGCI (Science Granting Council Initiative) and the GRC (Global Research Council) ■ The use of innovative channels to increase the visibility of FONSTI activities (social networks, webinars, YouTube, etc.) 	<ul style="list-style-type: none"> ■ Due to the recent start of FONSTI's activities, some key positions in the organisation chart remain unfilled (e.g. the Valorisation and Innovation Department) ■ Some of the staff (new recruits) do not have solid experience in the operation of funding organisations and in the financing aspects of innovation projects
 Opportunities	 Threats
<ul style="list-style-type: none"> ■ Centres and institutes with solid experience in the field of scientific research (the Swiss Centre has 70 years of experience in 2021, the CNRA and LANADA have more than 20 years of experience and the IPCI has more than 48 years of experience) ■ Institutional attachment of research centres and institutes that promotes alignment between national research programmes and government priorities ■ The existence of support structures for entrepreneurs that could provide support in terms of accommodation, training, advice and financing during the early stages of the life of startups (VITIB, Dream Factory, ORANGE FAB Côte d'Ivoire, INCUBIVOIR, etc.) ■ A desire on the part of the State to promote entrepreneurship through the creation of the CI-PME Agency and certain initiatives such as the INITIATIVE project of the Chamber of Commerce and Industry of Côte d'Ivoire ■ Increased international cooperation and scientific activity ■ A desire to pool resources (equipment) to compensate for the weakness of the technical platform of laboratories and research centres ■ The creation of doctoral schools that will promote the decompartmentalisation of research and encourage the formation of multidisciplinary teams ■ Tax and customs advantages to stimulate the promotion of scientific and technological research activities (case of the customs and tax advantages linked to the free zone for biotechnologies) ■ A great interest of the public authorities in the economic valorisation of the results of research projects in Côte d'Ivoire 	<ul style="list-style-type: none"> ■ A weakness in the synergy of actions between research centres and institutes in Côte d'Ivoire ■ The non-existence of a scientific research observatory that would enable the maintenance of a database of research projects, research centres, researchers and the different themes covered by their expertise ■ Collaboration between the private sector and the scientific community still in its infancy and weak ■ The deterioration of the economic situation (slowdown of activities due to the health crisis) ■ A dependence on annual state subsidies ■ An energy crisis that could have a negative impact on the operation of research centres and companies

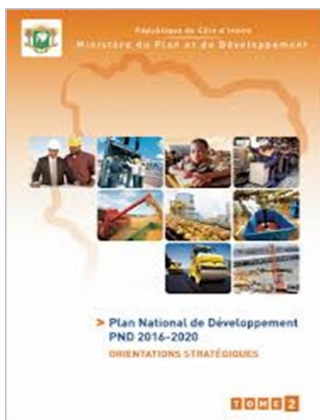


Chapter B

CONTENTS OF THE STRATEGIC PLAN

4. Strategic Plan Issues

Issues¹⁹



The research and innovation guidelines of the 2016-2020 NDP are essentially contained in axis 3 "Accelerating the structural transformation of the economy through industrialisation" and aim to :

- Governance of the research and development sector adapted to the country's ambitions
- Optimisation of search capabilities
- Strengthening scientific cooperation (South-South and North-South) in the technological, agricultural and industrial fields
- Promotion of innovation and technology transfer

FONSTI thus holds a strategic place in the realisation of the 2016-2020 NDP's research orientations. It represents, in fact, the concretisation of an objective of the NDP 2016-2020 aimed at creating the national fund for scientific research and technological innovation. Through its attributions, it will allow the reinforcement of financing instruments by covering a wider perimeter than that of PASRES.

Aware of the challenges and expectations of the ecosystem, FONSTI has embarked on the drafting of its strategic plan, which will serve as a compass for its action in the context of funding scientific research, technology and innovation over the next five (5) years. The strategic plan will have to respond to major challenges inherent to the functioning of FONSTI.

The positioning of FONSTI : FONSTI is part of a dynamic environment and intervenes on a fairly broad perimeter. It is essential for the fund to clarify the mode of collaboration with the actors of the ecosystem, to define the fields/sectors of intervention to be prioritised in order to fully play its role as an instrument for financing scientific research, innovation and technology for the sustainable development of Côte d'Ivoire.

FONSTI's added value : Scientific research suffers from a number of problems, including funding, equipment and the valorisation of research results. FONSTI should contribute to raising the profile of research by focusing on the economic valorisation of research and innovation project results.

5.

Governing principles

The guiding principles selected to serve as a standard for the implementation of the Strategic Plan 2021-2025 are :

SUBSIDIARITY

The principle of subsidiarity, that FONSTI should rely on national and/or regional structures that can deal more effectively with certain issues.

PARTNERSHIP

The principle of partnership aimed at seeking complementarities and synergies with national, regional and international bodies involved in scientific research and innovation.

ACCOUNTABILITY

The principle of accountability, which reflects the commitment to report to stakeholders on the use of the resources they have helped to mobilise for programme funding.

GENDER

Gender, that FONSTI funding activities should contribute to achieving gender equity.

SUSTAINABILITY

The sustainability and scope of the projects, which means that each of the actions and projects financed by FONSTI must respect environmental and social measures and contribute, in a concrete way, to the socio-economic and cultural development of the country.

COOPERATION

The principle of international cooperation, which reflects the need for the research community in Côte d'Ivoire to open up internationally in order to benefit from mutual learning for sustainable change.

6. Strategic directions and objectives for the period

6.1. Planning scheme

Vision	This is the overall picture that the fund wishes to present to itself at the end of a predefined period. It will be used as a basis for guiding the actions of FONSTI over the next five (5) years
Axes	These are the guidelines for moving forward on the path to achieving the vision
Objectives	These are the desired and expected outcomes for each initiative
Actions	It will be derived from each objective of the actions. In terms of financing, the achievement of the objectives will require financing instruments

“Main instrument for financing and promoting research and innovation for sustainable development in Côte d'Ivoire.”

6.2. Defining the ambition

Strategic planning is a process aimed at establishing priorities, allocating resources and determining priority projects in order to achieve a common vision.

The elaboration of the Strategic Plan is a transversal project, it concerns the entity intrinsically and considers its external environment.

- The context and perspectives;
- An internal and external diagnosis;
- Ambition;
- The formulation of strategic orientations;
- The description of the major worksites;
- Financial implication.

A strategic plan must be both ambitious and realistic; it is the foundation of all the organisation's policies and actions. On the basis of the findings of the inventory, the Ministry's guidelines and the expectations of the stakeholders in the ecosystem, FONSTI has the following vision :

Rappel des missions du FONSTI²⁰

	Fields	Missions
Services offered	Scientific research	Fund national research programs as well as scientific and technological research projects by allocating resources to researchers Contribute to the scientific and economic valorisation of research results
	Innovation	Provide support to research structures for the rehabilitation of stations and laboratories, the acquisition of research equipment and access to scientific information
	Technological development	Disseminating scientific and technological information Protecting research achievements through intellectual property Building the capacity of researchers and supporting their mobility Developing entrepreneurship in higher education and research institutions Encourage and promote international cooperation in scientific research Carry out and participate in any action or project directly or indirectly related to the development and/or promotion of scientific and technological research in Côte d'Ivoire

²⁰ Source : Ordonnance portant création, organisation et fonctionnement du FONSTI

6.3. Strategic directions and objectives for the period 2021-2025

The vision of FONSTI is to become the "main instrument for financing and promoting research and innovation for the sustainable development of Côte d'Ivoire ».

To achieve this, the Strategic Plan 2021 - 2025 is composed of four (4) strategic axes :

STRATEGIC AXIS 1

Building a sustainable funding mechanism for research and innovation

STRATEGIC AXIS 2

Participate in capacity building of research and innovation structures

STRATEGIC AXIS 3

Contribute to the scientific and economic valorisation of research results and innovative projects in Côte d'Ivoire

STRATEGIC AXIS 4

Ensure the operational excellence of FONSTI and encourage international cooperation in research and innovation

Strategic axis 1

Build a sustainable funding mechanism for research and innovation

Strategic axis 1 has four (4) strategic objectives :

Strategic objectives :

- Increase the contribution of the private sector to the financing of scientific research and innovation
- Mobilise resources for the funding of National Research Programmes
- Improve the competitiveness of scientific and technological research teams to enable them to participate in international calls for projects
- Increase the contribution of technical and financial partners (TFPs) to the funding of research and innovation in Côte d'Ivoire

Strategic axis 2

Participate in capacity building of research and innovation structures

Strategic axis 2 has five (5) strategic objectives :

Strategic objectives :

- Facilitate access to and control of state-of-the-art equipment for national research structures
- Strengthen the technical facilities of national scientific and technological research laboratories and structures
- Contribute to the maintenance of the technical facilities of the research structures
- Develop capacity building programmes for researchers on scientific topics (project and patent writing, scientific publication writing, etc.)
- Promote the development of capacity building programmes for researchers on entrepreneurial issues

Strategic axis 3

Contribute to the scientific and economic valorisation of research results and innovative projects in Côte d'Ivoire

Strategic axis 3 has seven (7) strategic objectives :

Strategic objectives :

- Consolidate the consultation framework between the private sector and the national research and innovation system
- Promote the development of public-private partnerships within the framework of the financing of priority and emergency programs
- Promote partnerships between entrepreneurship support structures (accelerators, incubators, etc.) and research and innovation structures
- Contribute to increasing the number of patents and scientific publications in Côte d'Ivoire
- Establish a financing mechanism adapted to entrepreneurship and innovation
- Increase the rate of creation of innovative companies based on research results
- Implement initiatives to encourage innovation and community development within grassroots communities

Strategic axis 4

Ensure the operational excellence of FONSTI and encourage international cooperation in research and innovation

Strategic axis 2 has four (4) strategic objectives :

Strategic objectives

- Manage FONSTI according to international standards
- Ensure quality monitoring and evaluation of projects funded by FONSTI
- Integrate FONSTI into major research and innovation funding networks
- Facilitate international exchanges (inviting local researchers to internships, conferences, collaborative projects)

6.4. Overview of the strategic plan

Strategic axis 1: Build a sustainable funding mechanism for research and innovation

Strategic vision		Operational plan					Responsibles	Partners	
Objectives for 2025	Actions	2021	2022	2023	2024	2025			
1.1	Increase the contribution of the private sector to the financing of scientific research and innovation	Carry out communication actions on FONSTI towards the private sector						Secretariat General	Private Sector
		Carry out a study to establish the state of play of the private sector's contribution to the financing of research and innovation						Secretariat General	Consultant
		Involve the private sector in identifying the themes of the calls for projects						Secretariat General	Private Sector
		Encourage the private sector to initiate sponsorship of calls for projects						Secretariat General	Private Sector
		Communicate on tax incentives for companies that contribute to the financing of research and innovation						Secretariat General	Private Sector
		Advocate to the State to put in place parafiscal measures to finance research and innovation in Côte d'Ivoire						Secretariat General	MESRS/MEF/ Private Sector
		Contribute to the establishment of a legislative and regulatory framework favourable to the funding of research and innovation						Secretariat General	MESRS/MEF/ Private Sector
1.2	Mobilise resources for the funding of National Research Programmes	Develop and update the mapping of research and innovation funding institutions						Secretariat General	Technical and financial partners
		Ensure information monitoring						Secretariat General	Technical and financial partners
		Develop a FONSTI promotion and advocacy strategy paper						Secretariat General	Scientific Council
		Conduct B2B approaches to organisations, foundations and other structures to mobilise financial resources for research and innovation programmes in Côte d'Ivoire						Secretariat General	MESRS
		Organise an annual international fair to promote research and innovation						Secretariat General	MESRS, innovators, inventors, PTF, SGCI...
		Participate in calls for projects to mobilise additional resources						Secretariat General	SGCI, GRC, BELMONT FORUM
1.3	Improve the competitiveness of scientific and technological research teams to enable them to participate in international calls for projects	Identify and disseminate international calls for projects						Secretariat General	SGCI, GRC, BELMONT FORUM
		Identify the needs of research teams involved in international calls for projects						Secretariat General	Research and innovation centres and institutes
		Identify opportunities and contribute to the co-funding of research projects with existing national and international funds						Secretariat General	Scientific Council/
1.4	Increase the contribution of technical and financial partners (TFPs) to the financing of research and innovation in Côte d'Ivoire	Organise annual strategic seminars with all TFPs for sustainable funding of research and innovation						Administration	PTF (Banque Mondiale, BAD, AFD, PNUD, UE, UNESCO, etc.)
		Draw up the follow-up report on the recommendations and commitments of the TFPs						Secretariat General	TFPs (World Bank, ADB, AFD, UNDP, EU, UNESCO, etc.)

Strategic axis 2 : Participate in capacity building of research and innovation structures

Strategic vision		Operational plan					Responsibles	Partners	
Objectives for 2025	Actions	2021	2022	2023	2024	2025			
2.1	Facilitate access to and control of state-of-the-art equipment for national research structures	Identify and develop a catalogue of state-of-the-art equipment						Secretariat General	Research and innovation centres and institutes
		Develop partnerships with international research centres to train local researchers in their use						Secretariat General	MESRS, TFP
		Organise capacity building sessions on the use of state-of-the-art equipment for the benefit of researchers						Secretariat General	Research and innovation centres and institutes
		Support initiatives to participate in projects including obtaining state-of-the-art equipment						Secretariat General	MESRS, PTF, Belmont Forum, Ministry of Economy and Finance (MEF)
2.2	Contribute to the strengthening of the technical platform of national scientific and technological research laboratories and structures	Carry out an inventory of the technical facilities of national scientific and technological research laboratories and structures						Secretariat General	Consultant
		Assist national research structures in developing a plan to strengthen the technical platform						Secretariat General	Consultant
		Carry out at least two calls for projects for the construction of infrastructure and the acquisition of equipment						Secretariat General	Technical and financial partners
2.3	Contribute to the maintenance of the technical facilities of the research structures	Assist national research structures in developing a preventive maintenance plan						Secretariat General	Consultant and technical and financial partners
		Develop a funding programme for the preventive maintenance of equipment in national research structures						Secretariat General	Consultant and technical and financial partners /MESRS
2.4	Develop capacity building programmes for researchers on scientific topics (project and patent writing, scientific publication writing, etc.)	Take stock of the capacity building needs of researchers						Secretariat General	Consultant
		Develop annual capacity building programmes						Secretariat General	Consultant
		Initiate a mentoring system that will connect senior and junior researchers						Secretariat General	Universities and research centres
2.5	Promote the development of capacity building programmes for researchers on entrepreneurial issues	Take stock of the capacity building needs of researchers						Secretariat General	Entrepreneurship support structure
		Develop annual capacity building programmes						Secretariat General	Entrepreneurship support structure
		Organise capacity building sessions/ activities for incubators						Secretariat General	Technical and financial partners

Strategic axis 3 : Contribute to the scientific and economic valorisation of research results and innovative projects in Côte d'Ivoire

Strategic vision		Operational plan					Responsibles	Partners	
Objectives for 2025	Actions	2021	2022	2023	2024	2025			
3.1	Consolidate the consultation framework between the private sector and the national research and innovation system	Identify existing consultation frameworks and participate in their facilitation						Secretariat General	MESRS / Private Sector
		Update the directory of national scientific and technological research and innovation structures						Secretariat General	MESRS
		Initiate exchange meetings between sectoral business groupings and the corresponding national scientific and technological research and innovation structures						Secretariat General	MESRS / Private Sector
		Initiate and formalise company residency programmes for the benefit of researchers in private companies						Secretariat General	Joint Commission
		Create a web portal to popularise research and innovation projects						Secretariat General	
3.2	Promote the development of public-private partnerships in the financing of priority and emergency programmes	Communicate on priority emergency programs through private sector collaboration platforms and national research structures						Secretariat General	National Research Structures/ CGECI
		Assist in setting up collaborative projects between the private sector and national research structures (legal, financial, etc.)						Secretariat General	Technical and financial partners
		Contribute to the co-financing of the public sector share in public-private partnerships						Secretariat General	Private Sector
		Initiate reflection on the formalisation of partnerships through agreements between private companies and national research structures						Secretariat General	MESRS / Private Sector
3.3	Encourage partnerships between entrepreneurial support structures (accelerators, incubators, etc.) and research and innovation structures	Draw up a directory of entrepreneurial support structures						Secretariat General	Entrepreneurship support structure
		Formalise the partnership with support structures through agreements						Secretariat General	Entrepreneurship support structure
		Initiate and animate a consultation framework between SAEs and research and innovation structures						Secretariat General	Entrepreneurship support structure
3.4	Contribute to the increase in the number of patents and quality scientific publications in Côte d'Ivoire	Develop a note on standards and qualification criteria for quality scientific publications						Secretariat General	Scientific Council/ Administration
		Collect publications from FONSTI-funded projects on an annual basis						Secretariat General	PASRES
		Support local researchers to publish in foreign impact journals						Secretariat General	Scientific Council/ Administration
		Create a scientific journal dedicated to scientific communication within FONSTI						Secretariat General	Scientific Council/ Administration
		Carry out at least two calls for proposals for the funding of basic research projects						Secretariat General	Scientific Council/ Administration
		Provide grants to researchers for patenting and scientific publications						Secretariat General	Scientific Council/ Administration
		Organise awareness-raising sessions on the importance of patenting and the procedures for obtaining it						Secretariat General	OIPI, OAPI, OMPI, CAMES
		Assist in the intellectual protection of research and innovation results						Secretariat General	OIPI, OAPI, OMPI, CAMES

3.5	Set up a financing mechanism adapted to entrepreneurship and innovation	Taking stock of financing needs in the context of entrepreneurship and innovation				Secretariat General	Technical and financial partners
		Guide and support innovative project leaders towards entrepreneurship financing players				Secretariat General	Technical and financial partners
		Develop partnerships with entrepreneurship funding schemes				Secretariat General	Incubators
3.6	Increase the rate of creation of innovative companies based on research results	Organise biannual sessions to analyse the sustainability of business creation projects				Secretariat General	Agence CI PME / FNS/ Innosuisse
		Support incubation programmes for innovative projects and start-ups				Secretariat General	Agence CI PME / FNS / Innosuisse / CEPICI
		Assist in the creation of companies derived from the economic valuation of research and innovation results (Start-up)				Secretariat General	Agence CI PME / FNS/ Innosuisse
		Carry out at least two calls for projects per year for the funding of applied research projects				Secretariat General	Scientific Council/ Administration
		Carry out at least two calls for projects per year under the Innovation and Entrepreneurship Window				Secretariat General	Scientific Council/ Administration
3.7	Implement initiatives to encourage community innovation and development in grassroots communities	Participate in awareness-raising actions on innovation with grassroots communities				Secretariat General	Technical and financial partners
		Participate in capacity building initiatives on innovation with grassroots communities				Secretariat General	Technical and financial partners
		Promote community development and innovation by funding community initiatives				Secretariat General	Technical and financial partners

Strategic axis 4 : Ensure the operational excellence of FONSTI and encourage international cooperation in research and innovation

Objectives for 2025	Actions	2021	2022	2023	2024	2025	Responsibles	Partners
4.1 Manage FONSTI according to international standards	Have a strategic plan that meets international standards that guides and frames the activities of FONSTI						Secretariat General	Consultant
	Have a manual of administrative, accounting and financial procedures in accordance with international standards and audit annually (by an international firm) the management of the FONSTI						Secretariat General	Consultant
	Develop a project call management manual in line with GRC and ICMS principles						Secretariat General	Consultant/PASRES
	Develop transparent and objective processes for evaluating research and innovation projects in line with ICMS and CRM principles						Secretariat General	Scientific Council/Administration
	Establish transparent, quick and easy to control (by the laureates) processes for allocating resources to FONSTI beneficiaries						Secretariat General	PASRES / FNS
	Develop policy documents on gender, conflict of interest and fraud						Secretariat General	Consultant / PASRES
4.2 Ensure quality monitoring and evaluation of FONSTI-funded projects	Define indicators and develop a scorecard for monitoring the performance of FONSTI-funded projects						Secretariat General	Consultant / PASRES
	Draw up an annual plan for monitoring missions						Secretariat General	PASRES, FNS
4.3 Integrate FONSTI into the major research and innovation funding networks	Map major donor networks at national and international levels						Secretariat General	PASRES, FNS
	Conduct an inventory of requirements and ensuring compliance for FONSTI membership						Secretariat General	PASRES
4.4 Facilitate international exchanges (inviting local researchers to internships, conferences, collaborative projects)	Collect and analyse sponsorship requests from researchers for international events, internships, collaborative projects						Secretariat General	PASRES
	Provide financial support to researchers for participation in international events						Secretariat General	Scientific Council/Administration



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