Since 2008, the African Network for Drugs and Diagnostics Innovation (ANDI) has become an important part of the health innovation landscape in Africa. With the mission of promoting and sustaining African led health innovation to address the health needs of the poor, ANDI has created global awareness on the needs and opportunities for innovations in Africa, established fora for African healthcare stakeholders (institutions, researchers, donors, policy makers, and entrepreneurs), initiated the recognition of pan-African Centres of Excellence as well as the implementation of several collaborative projects and partnerships across the continent.

As a follow up to our first 5-year Strategic Business Plan developed in 2009, we are pleased to present ANDI’s new 5-year Strategic Plan (SP) (2016 – 2020) for Facilitating Health Innovation in Africa. This new plan re-focuses ANDI’s work more on building partnerships and collaborations across Africa to help develop and bring to market African health innovations. This new strategy comes at a time when the global community has agreed to support and implement a set of sustainable development goals (SDGs) that target developing countries. The work of ANDI is at the forefront of the SDGs and the refocused strategy will help ANDI realize its vision of creating a sustainable platform for health innovation in Africa to address the health challenges of the continent and population in need.

We would like to acknowledge everyone who contributed to the development of this strategy. Special recognition goes to the ANDI Board, Scientific and Technical Advisory Committee (STAC), and the participants of the 5th ANDI Stakeholders meeting held in Nairobi in November 2015 for the critical review of and input to this document. We thank Steve Stavrou for editing and DESIGN PLUS studio for the design, formatting and layout of the document.

Our special gratitude to the European Union (EU), the World Health Organization (WHO), the Special Programme for Research and Training in Tropical Diseases (TDR), the African Development Bank (AfDB), and the United Nations Children Emergency Fund (UNICEF) for their financial and technical support. Financial pledges by the governments of Nigeria and Kenya are highly valued. The support by the Egyptian Government through its Academy for Scientific Research and Technology to implement the capacity building model described in this strategy is gratefully acknowledged. The support of the United Nations Office for Project Services (UNOPS) as the host agency of ANDI is also very much appreciated.
This Strategic Plan (2016 – 2020) refocuses the work of ANDI on the brokerage of partnerships and fostering of collaborations to facilitate the development of and market access to local and life-saving technologies that can transform healthcare delivery in Africa. Such technologies must meet the local needs for ease of use, affordability, accessibility, and quality standards. Ongoing ANDI supported projects, such as the development and evaluation of a medical device suite for maternal and child health, as well as diagnostic kits for neglected diseases, serve as examples of this new focus.

The plan considers, among other things, lessons learned from the implementation of ANDI activities to date, new research and development (R&D) data, African innovation landscape analysis, input from stakeholders, current global and regional thinking on partnerships, and innovation in support of public health and development such as the Sustainable Development Goals (SDGs) and related African Union (AU) strategies, including Agenda 2063.

Specifically, ANDI’s operational activities include:

- The brokerage of partnerships to facilitate the validation, scale up, registration, and market access of technologies and projects.
- Advocacy and networking for the establishment of sustainable mechanisms to support technology development and access in Africa.
- Capacity building and knowledge management.

These activities guided the development of a new fundraising and growth strategy that defines a gradual financial development and resource mobilization scheme to support the work of ANDI. Furthermore, the strategy details project-based grants and a membership-based subscription from stakeholders as sources of funding for ANDI’s operations. The strategy also defines a more sustainable impact or social venture fund that will be managed for growth to support and catalyze technology development and commercialization in Africa. There are early indications that this 3-pronged strategy for financing will result in the modest but steady and sustainable funding stream that ANDI needs for the successful implementation of this strategic plan.

A results framework for monitoring progress in implementation of this plan has been defined and will further guide the development of ANDI’s annual work plans. This will also guide the various governance organs of ANDI to achieve effective and transparent oversight.
1. **Background**

Cognizant of the growing burden of diseases and health conditions that disproportionately affect developing countries, particularly women and children, the World Health Assembly (WHA) adopted the Global Strategy and Plan of Action (GSPOA) on Public Health, Innovation and Intellectual Property in 2008. A key element of this strategy is the formation of innovation networks in developing countries to ensure that existing capabilities are leveraged, identified gaps are filled more effectively, and local priorities are driving the R&D agenda. At around the same time, ANDI was initiated with the goal of supporting R&D and capacity building to address the public health needs of African populations and contribute to economic development of the continent. ANDI has since grown into a pan-African institution whose principal function is to support the progression of local health technologies from the laboratory to the market in a sustainable manner.

In late 2009, ANDI developed its first Five-Year Strategic Business Plan (SBP), which outlined its establishment as well as its mission, operating model, and organizational framework. The plan also documented the rationale for the establishment of ANDI and laid the foundation for what ANDI has achieved to date. Within the framework of the first SBP, ANDI has succeeded in setting up an effective governance mechanism with a core Secretariat to manage its day-to-day operations, and has enhanced its visibility in Africa and globally. ANDI’s establishment was enthusiastically welcomed at regional and global levels. In 2009, through Resolution 62.16, the WHA declared, “ANDI is a key initiative aimed at supporting and promoting African led health product innovation.”

The African Ministerial Conference on Science and Technology (AMCOST), in its deliberations in 2010, welcomed ANDI and its anticipated contribution to science, technology, and innovation in Africa. ANDI has indeed continued to support the implementation of a number of other recent global and regional strategies and declarations on health, innovation, and development.

This new ANDI Strategic Plan (SP) is prompted by a number of interlinked developments that have occurred over the past few years. These drivers include:

- Lessons learned to date following the implementation of the first plan.
- Results of an external review of ANDI in late 2012.
- New global and regional thinking towards health innovation and sustainable development as elaborated by the SDGs, as well as relevant continental strategies such as the AU Agenda 2063.

• A recently completed study by ANDI on the African health innovation landscape.

Building on the foundation laid by the first SBP, ANDI’s current strategy focuses on the prioritization and brokerage of partnerships to support development and access to local technologies, as well as capacity building.

While the first plan broadly outlined major health R&D gaps, needs, and opportunities in the African continent—from basic research to discovery, development to clinical trials, manufacturing to scale up and market access—it did not clearly delineate the priority areas of focus for ANDI. This gave the impression that ANDI was trying to do too much with limited resources. Furthermore, the financial projections made in the original plan turned out to be too ambitious and challenging to realize, as the 2008 financial crisis deepened during subsequent years. These aspects have now been addressed in this new five-year SP.

The steps taken to develop this plan involved preparation of a first draft by the ANDI Secretariat based on the drivers outlined above. The 5th ANDI Scientific and Technical Advisory Committee (STAC) and Board meetings held back to back in November 2015 discussed the draft extensively and provided useful feedback. Subsequently, an advanced draft of the document was presented to the participants of the 5th Stakeholders Meeting that was held that same November in Nairobi, Kenya for discussion and inputs. Stakeholders at that meeting represented various African countries and institutions, international and multilateral organizations, development partners, donors, civil society, and more.

A standalone document titled ANDI Sustainable Fundraising and Growth Strategy was reviewed as part of this strategy and describes the resource mobilization approach outlined in this plan. In subsequent sections, we present key ANDI activities and achievements to date, lessons learned, challenges, and opportunities that have shaped this new strategy. We also highlight ANDI’s open innovation and business model, its value proposition, as well as its comparative advantage in facilitating partnerships to fill the gap in the development and commercialization of life-saving technologies and capacity building in Africa. A detailed set of activities, including an implementation plan, a monitoring and evaluation framework, as well as budgetary and resource mobilization projections over the next five years are also presented.  

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1 Local technologies as used here include those that originate from Africa as well as those from overseas that can be adapted or adopted to meet local needs and sustainably support health care delivery in Africa.
Since its launch as a concept at Abuja in 2008, ANDI has contributed significantly to the innovation space in Africa despite the initial challenges of establishing the organization that it wanted to be. As reported in an external review of ANDI in late 2012,“Despite being seriously under-resourced and understaffed, significant progress has been achieved in the organization and implementation of the ANDI framework. Most of the key performance indicators for both the European Union (EU) project and strategic business plan have been completed or are in progress.” Some of these achievements are summarized below.

**ANDI has created awareness globally on the needs, opportunities, and ongoing innovations in Africa.** Through its extensive landscape analysis, needs assessment, and reports, ANDI has provided evidence and advocated for local innovation in Africa and other parts of the world. These findings are documented in the 2009 ANDI SBP and other publications.1,2 Highlights of a new analysis conducted by ANDI and partners are summarized in Chapter 4 of this plan.

**ANDI has created fora for African and external institutions, researchers, entrepreneurs, donors, and policy makers to share experiences and explore opportunities for partnerships.** Notable examples include the ANDI Stakeholders meetings and the establishment of a network of pan-African Centres of Excellence (CoEs).3,4 Since 2008, as part of its annual stakeholders meetings, ANDI has brought together these stakeholders to network and forge a path for health innovation in Africa. Furthermore, these forums have helped to create awareness about health innovation in Africa, and helped facilitate the establishment of several high profile partnerships, projects, and initiatives. For example, major partnerships have been established among several ANDI CoEs, as well as with other institutions in Africa and overseas, with millions of dollars being raised in support of these partnerships.3,4 Additionally, other important public/private partnerships have been established and are implementing specific activities.

**The initiation of ANDI’s pan-African CoEs, Innovation Awards, and Regional Hubs.** To date, ANDI has recognized 43 pan-African CoEs through a competitive process, and has encouraged them to partner on a number of initiatives.5 These CoEs show the potential of African institutions as an engine for health R&D, technology development, and capacity building.

Furthermore, as part of its stakeholder events, ANDI recognizes CoEs and/or individuals that embody the vision of promoting local technology development and access with the ANDI Innovation Awards. The goal of the awards is to celebrate and inspire innovation in Africa, while at the same time creating awareness about some of the transformative work going on in Africa. At its 2015 Stakeholders event, ANDI recognized one deserving African institution with this award.1,6 With a financial pledge from the Government of Nigeria, ANDI is in the final stages of setting up its Western African hub, and efforts are underway to set up similar hubs in Kenya (for Eastern Africa), South Africa (for Southern Africa), Egypt (for Northern Africa), and Cameroon (for Central Africa). As part of this new strategy, ANDI will work closely with these CoEs and its regional hubs (as they are established) to support project implementation and capacity building.

A number of collaborative projects have also been supported or are being implemented, some of which include:

- **A respirator and a phototherapy machine** - Both life-saving technologies for newborns have been developed by the Queen Elizabeth Hospital in Malawi in collaboration with Rice University.

- **The reformulation of NIPRISAN** for treatment of sickle cell anemia in partnership with the National Institute for Pharmaceutical Research and Development (NIPRD) in Nigeria.

- **The development and scale up of a new diagnostic tool for Schistosomiasis** linked to a unique capacity building program for young African researchers and entrepreneurs in collaboration with the Egyptian Academy of Scientific Research and Technology (ASRT) and the Theodor Bilharz Research Institute (TBRI) in Egypt.

A study jointly implemented by ANDI, the African Development Bank (AfDB) and South Korea’s Science and Technology Policy Institute (STEPi) in 2012/2013 in Nigeria helped to create awareness on the urgent need to support select local manufacturers to meet WHO’s Current Good Manufacturing Practice (cGMP) standards, as well as enhance local entrepreneurial for health technologies. While ANDI is not taking credit for this, it is important to note that about four pharmaceutical companies in Nigeria have received the WHO cGMP certification.7,8

Another study performed through this same partnership in Tanzania highlighted the immediate need to support African National Drug Regulatory Authorities and local manufacturers to comply with Good Manufacturing Practice (cGMP) and Quality Management System (QMS) requirements. Following these surveys, ANDI is finalizing agreements with the AfDB and relevant authorities in the two countries to build capacity towards cGMP and improved regulatory practices among
local manufacturers and relevant authorities. This type of regulatory support will continue under the new strategy. More importantly, not only will this support the development of quality medicines, but it will also support the development of quality medical devices.

Implementation of the WHA Demonstration Project and other new partnerships. Following the WHA resolution 66.22 in 2013, ANDI submitted a proposal for a WHO demonstration project entitled Development for Easy to Use and Affordable Biomarkers as Diagnostics for Types II and III Diseases in collaboration with Chinese partners and relevant ANDI CoEs. The news of this prestigious five-year WHO award being granted to ANDI was received in 2014, and as ANDI finalized this strategic plan, the funding agreement was signed and funds were transferred for the first year of the project in 2016. Through this project, ANDI is facilitating open innovation, technology transfer, and capacity building, as well as South-South and North-South collaborations in support of diagnostics development, production, and access for neglected diseases in Africa. This is another example of the expanding space for ANDI as a platform not only to bring African institutions together in support of local R&D and technology progression, but to also foster South-South and North-South collaborations.

In January 2015, ANDI, in partnership with UNICEF and the World Bank, convened an Experts Consultation Conference in Addis Ababa, gathering over 50 participants representing African and overseas institutions. High impact technologies that could transform healthcare delivery in Africa were prioritized at the conference. In particular, seminal African initiatives on the Ebola virus were presented and discussed. This event further demonstrates ANDI’s convening power on health R&D and technology issues in Africa, and the need to support local technologies. The report of that conference has also played a role in the development of this strategy.

ANDI has contributed to the development of the Pharmaceutical Manufacturing Plan for Africa (PMPA) Business Plan, and is working closely with the African Union Commission (AUC) to assist in operationalizing this and other plans.

Another partnership of significance is one that has been established with Emory University that was launched at the 2015 ANDI stakeholders meeting in Nairobi. With implementation scheduled to start in January 2016, this program will focus on:

- Education, mentorship, and training of African students, researchers, and entrepreneurs on IP management, technology transfer, business development, and entrepreneurship to support the advancement of local African technologies. This will also involve the exchange of students amongst ANDI CoEs and Emory.
- The identification of one or two regional technology hub(s)/incubator(s) from existing CoEs in Africa that can be strengthened to provide technical support for viable pharmaceutical products, including those from African traditional medicines. The technology hub will be equipped to provide business development as well as project, finance, IP, technology transfer, and entrepreneurial support for local projects.

These examples are testimonies to ANDI’s unique and strategic role in supporting the transformation of the health innovation landscape and contributing to the betterment of the health of African populations.
ANDI has experienced several challenges and successes, and as a growing organization has drawn lessons to improve its work. Consequently, ANDI is much stronger today than it was in the past, and this new strategic plan promises to further bolster its work.

### 3.1 Lessons Learned

Some of the lessons learned include the following:

- Many African institutions focus on R&D that can address local health needs but lack sustained support to translate research into policy and health products. Given adequate incentives, African institutions are very keen on working together or partnering on projects that can transform healthcare delivery in Africa.

- Intra-African collaborations or networks are not well articulated, but national clusters are becoming common and most often a foreign institution serves as a bridge between institutions in African countries.

- The perception by many from within and outside of Africa is that ANDI’s vision, mission, and modus operandi are unique and remain more relevant today than ever before.

- African governments need to invest more in health R&D and innovation, and take leadership in addressing the health issues that affect the continent the most.

A report by an external review of ANDI in late 2012 complements and expands on these lessons. According to the report, “The ANDI mission and vision received enthusiastic approval and commendation from stakeholders interviewed. For example, Figure I shows level of satisfaction with the process of selection of CoEs among the respondents who included researchers, policy makers, donors, and health professionals who commended the relevance and timeliness of ANDI for harnessing the competencies of the continent towards priority-driven health agenda-setting, product R&D, and innovation.”

**Figure I:** Level of agreement with selection of CoEs.

The report further states, “The ANDI Strategic Business Plan, drawn up in 2009 by the ANDI Task Force, was seen as having been well planned and innovative, though acknowledged as being ambitious when seen in the context of today’s financial climate. The ANDI vision, operating model, and its niche within the health research and innovation arena are its key unique features and selling points.”

In 2015, the implementation rate of ANDI’s work plan based on funding from the European Union (EU) and WHO was at about 90%, suggesting the significant absorptive and implementation capacity of ANDI. These developments, including the achievements of ANDI to date, prove that ANDI can induce huge impact with a modest but steady funding stream.

### 3.2 Challenges

ANDI has faced several challenges in the course of its operation and transition to Africa. The failure of the initial push to transfer ANDI from WHO in Geneva to the United Nations Economic Commission for Africa (UNECA) in Addis Ababa in 2012 was due to some administrative and human resource challenges. The report of the external review of ANDI in 2012 highlighted those administrative challenges that caused delays in the implementation of ANDI. The good news is that ANDI is now located in Addis Ababa and is hosted by the United Nations Office for Project Services (UNOPS).

Human resource and financial sustainability also remains a challenge and has been the subject of extensive deliberation by the Board of ANDI. Those deliberations and consultations with stakeholders shaped the fundraising and growth strategy of ANDI, which is already being implemented as part of this plan. The strategy considers, among other things, contributions from within Africa as a measure of African ownership of ANDI.

### 3.3 Opportunities

Notwithstanding the challenges described above, we have witnessed some positive progress by African countries in support of ANDI, including but not limited to:

- Commitment from the Government of Nigeria to host the West African hub of ANDI.
- Commitment expressed by the Government of Kenya at the ANDI Stakeholders meeting in 2015 to host the East African Hub of ANDI and to support ANDI financially.
Co-financing by the Egyptian ASRT of a joint project and capacity building program.

Indeed, African governments have to do a lot more in supporting local initiatives.

Some of the opportunities that ANDI can maximize include:

- Increasing interest to support and advance local innovations through regional R&D, manufacturing, and regulatory initiatives.
- Increasing R&D spend in some African countries, including South Africa, Kenya, and others.
- Increasing number of African institutions keen to engage in the implementation of global and regional strategies or resolutions on health R&D and technology development.
- The Post-2015 development agenda and SDGs, as well as relevant regional declarations in Africa such as the AU Agenda 2063.
- Expressed commitments by stakeholders, including African government and development partners, in support of ANDI, and related initiatives such as the GSPQA on public health, innovation and intellectual property and various G8 and regional commitments.
- Over 40 CoEs spread across the continent with potential for collaboration on projects and capacity building.
- Enthusiasm by African researchers, institutions, and CoEs to become more engaged in addressing the needs of the continent.
- Ongoing discussions with the Bill and Melinda Gates Foundation (BMGF) on the establishment of Grand Challenges Africa also presents an opportunity to identify promising early technologies that can be further advanced through the work of ANDI and others.
- The need to validate the regional regulatory harmonization efforts in Africa with projects that emerge from Africa, such as from the work of ANDI and its partners.

While the timeline of ANDI’s first SBP took place during the era of the MDGs, ANDI’s new strategy aligns with the adoption of the new SDGs, particularly Goal 3, which serves to “ensure healthy lives and promote well-being for all ages.” The work of ANDI is at the forefront of the SDGs, which were adopted in September 2015 as part of the 2030 Agenda for Sustainable Development and as the successor to the MDGs. Among the targets towards accomplishing Goal 3 that ANDI have the opportunity to significantly contribute to and support the SDGs through its various projects include but are not limited to:

- Strengthening the capacity of all countries, in particular developing countries, for early warning, risk reduction, and management of national and global health risks.
- Supporting the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all.
- By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births
- By 2030, end the epidemics of AIDS, tuberculosis, malaria, and neglected tropical disease and combat hepatitis, water-borne disease and other communicable disease.
- Substantially increase health financing and the recruitment, development, training and retention of the health workforce in developing countries, especially in least developed countries and small island developing States

ANDI will harness these opportunities through concerted advocacy, partnerships, and collaborations.
Africa has seen some progress in improving its health status as demonstrated by the success registered in countries with the health-related Millennium Development Goals (MDGs), as well as in the awareness that has been created about the urgent need to invest in strong health and innovation systems. However, most of the inherent and transcendent challenges in health product R&D and innovation in Africa that were highlighted in the first ANDI SBP still remain unresolved. These include:

- A significant knowledge gap for diseases disproportionately affecting the African population.
- A low degree of collaboration among African researchers.
- Insufficient investment and ownership of R&D by African countries.
- A lack of mechanisms to translate discoveries and technologies that emerge from African labs into products that will positively impact healthcare delivery on the continent and beyond.

Consistent with these lessons and opportunities, a new unpublished analysis of publication outputs by African scientists and their global peers between 2010 and 2015 shows the following trends for 20 African prevalent diseases and technologies:

- Of some 7.5 billion articles produced from 2010 to today, only about 0.4% include African authors, a demonstration of how Africa is still lagging behind in health research and innovation.
- Only about 0.22% of patents filed globally in 2014 originated from African innovators, suggesting that Africa represents a small subset in terms of innovation and the need to support local innovation.
- A number of African institutions are leaders in their areas of focus, suggesting that scale and technical know-how can be improved if more partnerships are created with established institutions.
- Intra-African networks are not well articulated, but national clusters are commonplace, and most of the time a foreign university serves as a bridge between African countries.

**Figures II and III below illustrate some of the findings for traditional medicine, which is strategically and politically important area of health in Africa, and the rate of patent filings by African researchers for diseases that predominantly affect the African populations, respectively.**

**Figure II: Pattern of collaboration in traditional medicine R&D. Intra-African and Inter-regional collaboration is timid. Cities where most connected institutions are located are shown as top 20 institutions.**

**Figure III: TRADITIONAL MEDICINE
Inter-regional collaboration is timid
Cities of most connected institutions (top 20 Institutions by betweenness or degree)**
The recent Ebola crisis in West Africa highlighted the importance of strong health systems and health research in Africa. In a PloS Blog in December 2014, ANDI called for a strategic roadmap and partnership on tackling the Ebola virus through the development of systematic capabilities, processes, and technologies through North-South and South-South collaborations. The leadership of African biomedical researchers and governments were also emphasized.

Within the challenging environment faced by African R&D efforts, there are some promising opportunities and trends as those that have been discussed in this plan. If properly harnessed, these opportunities could contribute to overcoming the challenges discussed. The ANDI CoE approach is one such model, which has been developed and deployed in the last few years among others targeting issues such as:

- The alignment of African research and traditional knowledge with local health priorities.
- The development of local capacity in research, clinical trials, and manufacturing.
- The creation of a network of collaborating African institutions with capacity to support health innovation.
- Catalyzing the establishment of technology platforms or incubators for local technology advancement.
- Serving as an anchor for South-South and North-South collaborations and technology transfer.

Another promising trend is the increasing spending on R&D by African countries. Kenya, for example, devoted 0.79% of its GDP to R&D in 2010 compared to just 0.36% in 2007. R&D spending is also increasing in Ethiopia, Ghana, Malawi, Mali, Mozambique, and Uganda.

These data support the following:

- The need to invest in the translation of African innovations from bench to market by leveraging existing capacity.
- The concerted focus of ANDI in building partnerships to address the health needs of the African population through intra-African collaboration as well as North-South and South-South collaborations.

Figure III: Patenting trends for key diseases and technologies of interest to Africa. On average, only about 0.2% of patents emerge from Africa.

### Figure III: Patenting trends for key diseases and technologies of interest to Africa

<table>
<thead>
<tr>
<th>Disease/Tech</th>
<th>Number of Patents</th>
<th>% of African Patents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioinformatics</td>
<td>96,664</td>
<td>0.28%</td>
</tr>
<tr>
<td>Malaria</td>
<td>83,916</td>
<td>0.19%</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>76,143</td>
<td>0.17%</td>
</tr>
<tr>
<td>Helminthiasis</td>
<td>75,630</td>
<td>0.16%</td>
</tr>
<tr>
<td>Proteomics</td>
<td>46,585</td>
<td>0.25%</td>
</tr>
<tr>
<td>Chronic Disease</td>
<td>38,509</td>
<td>0.24%</td>
</tr>
<tr>
<td>Vaccines</td>
<td>38,244</td>
<td>0.23%</td>
</tr>
<tr>
<td>Oncology</td>
<td>32,623</td>
<td>0.23%</td>
</tr>
<tr>
<td>Clinical Trials</td>
<td>21,483</td>
<td>0.19%</td>
</tr>
<tr>
<td>Epidemiology</td>
<td>28,307</td>
<td>0.23%</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>22,323</td>
<td>0.30%</td>
</tr>
<tr>
<td>Toxicology</td>
<td>21,090</td>
<td>0.27%</td>
</tr>
<tr>
<td>Bacterial Disease</td>
<td>20,111</td>
<td>0.32%</td>
</tr>
<tr>
<td>Animal Malaria</td>
<td>19,670</td>
<td>0.28%</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>17,912</td>
<td>0.28%</td>
</tr>
<tr>
<td>Parasitology</td>
<td>14,616</td>
<td>0.27%</td>
</tr>
<tr>
<td>Diarrheal Disease</td>
<td>14,418</td>
<td>0.28%</td>
</tr>
<tr>
<td>Pharmacology</td>
<td>8,806</td>
<td>0.23%</td>
</tr>
<tr>
<td>Medicinal Chemistry</td>
<td>6,754</td>
<td>0.27%</td>
</tr>
<tr>
<td>Traditional Medicine</td>
<td>4,837</td>
<td>0.08%</td>
</tr>
</tbody>
</table>

Within the challenging environment faced by African R&D efforts, there are some promising opportunities and trends as those that have been discussed in this plan.
5. Guiding Principles

5.1 Mission and Vision

ANDI’s mission is to promote and sustain African-led health innovation to address the continent’s health needs through the assembly of collaborative networks and the building of capacity to support public health and economic development. The success of this mission will be evaluated using the Expected Outcomes listed in Section 7, as well as the M&E framework in Annex I.

ANDI’s vision is to create a sustainable platform for health innovation in Africa to address the health challenges of the continent and populations in need.

ANDI focuses on addressing Africa’s health needs by harnessing the untapped power of collaboration among African researchers and entrepreneurs, as well as equitable North-South and South-South partnerships.

5.2 Value Proposition

Consistent with lessons learned and market gaps, ANDI focuses on translating local technologies from laboratories to markets. ANDI fills a major void in promoting local collaboration towards health R&D and technology development aimed at solving the basic health challenges of the African continent. An analysis of collaboration patterns of African institutions by ANDI from 2004 – 2009 shows that African institutions are not working together in a concerted way to solve the continent’s health challenges due to a lack of coordination and financing, among other factors. The latest landscape analysis, covering the period from 2010 to 2015, goes further to show that leading African institutions can make a significant impact on health care delivery if they are networked together to solve the health challenges of the continent.

ANDI offers a clear understanding of the medical needs, ongoing health R&D and innovation activities and capabilities, as well as pan-African due diligence on ongoing innovations. Through its various initiatives involving mapping the R&D landscape, pan-African COEs, Innovation Awards, and regional hubs, as well as project identification, fellowships, and training, ANDI could determine R&D programs that could lead to potential products that meet the needs of the African population. ANDI’s pan-African granting experience has allowed ANDI access to and a better understanding of the state of science across over 50 countries. No other organization has this breadth of geographical reach in healthcare science across the entire continent.

It is worth noting here that the African Academy of Sciences (AAS) has recently collaborated with the Wellcome Trust and the New Partnership for African Development (NEPAD) to establish Accelerating Excellence in Science in Africa (AESA) as a platform to support capacity building funding. While ANDI and AAS/AESA both address capacity building and are collaborating and sharing lessons in a complementary and synergistic way, ANDI’s unique role in the brokerage of partnerships for local technology development and market entry stands out. It should also be noted that no single organization in Africa or globally can solve the significant challenges in health R&D, technology development, and access in Africa. However, organizations collectively can make a significant impact.

5.3 Goals & Objectives

The primary goal of this strategic plan is to improve capacity for innovation and health through increased access to health tools. To achieve this goal, ANDI will pursue six main strategic objectives including needs assessment, fostering partnerships, knowledge management, capacity building, and sustainable financing. These goals and objectives are outlined in Table I and expanded upon in Annex I.

<table>
<thead>
<tr>
<th>Table I: ANDI Goals &amp; Strategic Objectives</th>
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<tbody>
<tr>
<td><strong>Goal</strong></td>
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<tr>
<td>Improve capacity for health innovation and increase access to health tools</td>
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5.4 ANDI’s Open Innovation and Business Model

The basic principle for ANDI’s open innovation and business model (Figure IV) lies in the realization that a more integrated and holistic partnership approach that shares lessons across diseases and technology platforms promises to be more successful and impactful in the African context, where resources are very limited. This “African Leap-Frogging Approach” is very much needed. Leap-frogging, the art of accelerating development through innovation and often avoiding expensive and time-consuming developmental stages, is helping Africa compete globally in technology and innovation, particularly with regards to solving challenges such as global health.

The model leverages available local capacity to support local technology development and market entry to improve healthcare delivery in Africa. This means that capacity is built around projects and outcomes, and impacts are measurable. The core function and activities have been updated to reflect lessons learned and the targeted focus of ANDI. Firstly, ANDI will continue to support needs and gap analyses as well as the identification of viable project opportunities. Secondly, ANDI will broker and establish partnerships among local and external partners to support project validation, coordination, and capacity building, as well as transition to scale and market access. These will require catalytic support and partnerships for the establishment of technology transfer, incubators, and/or joint or social venture enterprises to support project progression. Thirdly, ANDI will support advocacy and networking to enhance research output through knowledge exchange and open knowledge platforms. Concerted advocacy efforts that encourage local involvement, funding, and ownership will be an important aspect of this work.

Figure IV: ANDI’s Innovation and Business Model (ANDI) fills a major void in promoting local collaboration towards health R&D and technology development aimed at solving the basic health challenges of the African continent.

5.4.1 Interlinked Technical, Brokerage, and Networking Roles of ANDI

The interlinked technical, brokerage, facilitation, and networking roles of ANDI is part of its unique open innovation model and value proposition. The goal is to support the identification, validation, and scale up of and market access to local technologies, as well as capacity building in a holistic way.

Pathways to the development and commercialization of technologies in developed countries are well established (Figure V). In Africa, government contributions are minimal, and, as described earlier, the involvement of academic and public research centers at national and regional levels is poorly coordinated and funded. The private pharmaceutical sector and other health technology sectors are still in their infancies and marginally involved in R&D.

Figure V: The pathway for technology advancement in developed countries and the scenario in Africa. The proposed scenario in Africa, based on open innovation and collaboration, will maximize North-South, South-South, and intra-African partnerships to advance technologies.

![Diagram of ANDI's Open Innovation and Business Model](image-url)
The need to overcome the current gaps in Africa with the operationalization of different leap-frogging approaches that link to suitable technological platforms, incubators, and innovative enterprises to support lab to market translation of local technologies is urgent.

The same is true for incubators that support the feasibility of local technologies as a catalyst for new business development or spin-offs. Such platforms offer a practical opportunity for researchers to conceptualize problems, develop new approaches, and increase capacity. Some of these platforms are already in place in different ANDI CoEs, and could readily be promoted as a shared resource for other centers across Africa. ANDI will facilitate the identification of suitable Centers (or hubs) for such technology platforms and incubators, with partners in the South and the North. Indeed, such centers can be developed to become self-sustaining by charging a modest fee for service provided to other centers on a cost recovery basis.

As indicated earlier, a collaboration between ANDI and Emory University is piloting this approach. The expected outcomes of this collaboration include:

- Identifying one or two CoEs by 2017 that are properly strengthened with trained human resources to provide services to African institutions.
- Identifying a well-strengthened R&D hub for African traditional medicine or natural products, or a CMC hub.

5.5 ANDI as a Facilitator and Catalyst

This Strategic Plan defines the role of ANDI as a “broker,” “facilitator,” and “catalyst” in advancing local technologies with potential for impact in Africa and other developing countries. To this end, ANDI is focusing on filling a critical gap by driving local innovations out of the so-called “valley of death,” which will lead to eventual commercialization and impact (Figure VI). This will not only have positive impacts on public health, but also on human resource development and job creation - all of which contribute to development.

**Figure VI: Development Pipeline and “valley of death.”**

These are significant gaps and a niche that ANDI is focusing on through partnerships with others. The ANDI-supported 1CPAP (Pumani) for newborns with respiratory distress and phototherapy for children with jaundice, the progression of diagnostic kits to support the control and elimination of Schistosomiasis, the cell-phone based coding system for diagnosis and monitoring of disease, and the formulation of NIPRISAN for sickle cell disease in Africa are such projects which require a truly innovative financing model to further support validation, industry scale up, and market access.
6. Operational Strategies and Plans

Consistent with ANDI’s operational model, specific ANDI activities are aligned with each other. As shown in Figure VII, the needs assessment and prioritization work of ANDI outlines its brokerage and facilitation roles for the validation, scale up, and commercialization of local technologies. In turn, the outcomes of these activities inform the communications, advocacy, resource mobilization, and knowledge management work of ANDI, and vice versa. Inputs from stakeholders have underscored the importance of these linkages. Specific details are provided below.

Figure VII: Interlinked Strategic Activities of ANDI

6.1 Needs Assessment and Prioritization of Technologies

A regular needs assessment will guide the identification and prioritization of technologies that have the potential to progress through the value chain. Prioritization metrics have been developed to guide the selection of technologies that will make the greatest impact on healthcare in Africa. While the technologies and activities of interest will target communicable and non-communicable diseases that are prevalent in Africa, special attention will be given to local technologies that target maternal and child health, emergent infections, medical devices that facilitate screening, monitoring, and diagnosis, and the control and elimination of diseases. Issues of malnutrition, water, and sanitation as they relate to the health of poor populations in Africa and other developing countries have become a new frontier for ANDI. Simple mobile (m/e-) health technologies such as the ANDI facilitated project on use of a cell phone coding system to diagnose infectious diseases are also part of this priority area.

A major prioritization criteria for technologies will include but will not be limited to:

- Local needs and priorities
- Public health significance or impact
- Feasibility in terms of human capital and infrastructure to support project advancement
- Target product profile (especially ease of use in resource poor communities), accessibility, affordability, and quality

This framework will take into account the WHO categorization of diseases into three major types (Types III, II and I) depending on their spread across the industrialized and developing world,24 and the menu of technologies described in the previous paragraph.

Once priority products and projects are identified, they would drive project development plans, solicitation of funding, and partnerships to initiate the product development and commercialization processes.

Key activities under this category include:

- Undertaking needs assessment to determine gaps in health innovation, and the dissemination of results through publications, open knowledge databases, and other modalities.
- Identification and prioritization of viable life-saving and transformative projects and their validation to inform decisions on further investment. ANDI will maintain a database and pipeline of such projects to support partnership development and funding.

These activities will leverage an ongoing landscape and needs assessment by ANDI to support implementation, and will continue from 2016 until 2020.

6.2 Facilitating Technology Validation, Scale Up, and Market Access

ANDI will drive the development of partnerships required for advancing select projects from the database of viable technologies. A portfolio of the projects that have benefited from partnerships and/or funding will be monitored. ANDI’s CoEs, now totaling 43 and specializing in the various parts of the innovation value chain, will support these initiatives and help establish technology platforms and incubators.
Key activities under this category include:

- The brokerage and facilitation of partnerships for the scale up, registration, market entry of, and access to such technologies. This will involve the establishment of partnerships among local and external partners to support project progression and the market entry of technologies.

- Facilitation of technology transfer and the establishment of incubators and/or joint or social venture enterprises to support project progression will play an integral role in these activities.

- The quality control, assurance, and regulatory facilitation of projects.

To be clear, costs associated with technology validation, scale up, manufacture, and market access are significant. The role of ANDI is to facilitate partnerships that will implement and mobilize further resources in support of these activities. ANDI is not a funding agency and should not be viewed as such. Any funding provided by ANDI will be catalytic in nature to help kick-start partnerships and specific activities required to leverage further resources to drive the select projects.

### 6.3 Advocacy, Networking, and Knowledge Management

ANDI will strengthen its advocacy and communications, networking, and knowledge management activities in support of projects, partnerships, and resource mobilization activities during the plan period. Among the key target groups that this initiative will address are African governments, bilateral and multilateral agencies, development partners, foundations, research institutions and academia, academies of sciences, the African diaspora, product development partners, the private sector, and businesses operating inside and outside the African continent.

Key activities under this category include:

- Leveraging projects to support advocacy, networking, and fundraising at the country, regional, and international levels in support of local technology progression.

- Supporting the development of open knowledge databases and platforms.

- Producing, communicating, and presenting evidence to support policy for sustainable innovation.

### 6.3.1 Knowledge Management Platform

The ANDI knowledge database will serve as an open innovation platform to support data management, information exchange, and networking among partners. Content of the platform will include but will not be limited to the following:

- A database of prioritized life-saving local technologies and a portfolio of funded projects.

- A database of capacities for integrated product development, including manufacturing capabilities.

- Standard operating procedures, protocols, open access tools, and links to other relevant databases (e.g., patents, patent pools, etc.).

- Calls for proposals, CoEs, success stories, grand challenges, collaborative opportunities, etc.

- Relevant policies and guidelines.

### 6.4 Capacity Building and Partnership Development

Project-based capacity building and education, as well as partnerships to support implementation, will cut across all ANDI activities.

### 6.5 Mobilizing Human and Financial Resources

None of the activities described in this document would take place without the necessary human and financial resources.

Experiences over the past years show that ANDI can make significant contributions to enhancing health innovation in Africa with a modest but steady funding stream. Therefore, the financing model and budgetary projections made in support of the work of ANDI over the next five years considers these lessons: ANDI’s Fundraising and Growth Strategy expands on financing models that could sustain its work.

Described further in Chapter 8, budgetary projections, as well as two potential financing or resource mobilization pathways, have been presented to support the work of ANDI. These two financing pathways are an integral part of a proposed African Technology Development Fund (ATDF) consisting of:

1. Grant and subscription-based funding for the generation of core and non-core funding to be pooled together as a Trust Fund held by UNOPS on behalf of ANDI.

2. An Impact or Social Venture Fund to be professionally managed for growth and impact.

Efforts to mobilize resources are interlinked with ANDI’s advocacy, communications, and networking strategies and outcomes will be measured by ANDI’s ability to establish a robust and sustainable funding mechanism.
A summary of ANDI activities with timelines is presented in Table II.

### Table II: Timeline for Implementation of Core Activities, 2016-2020

<table>
<thead>
<tr>
<th>Key Strategic Activities</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Needs Assessment and Prioritization of Technologies</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
<tr>
<td>1.1 Announce calls for promising technologies</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
<tr>
<td>1.2 Ongoing needs assessment</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
<tr>
<td>1.3 Develop criteria for selection of priority technologies</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
<tr>
<td>1.4 Select and maintain portfolio of validated and bankable technologies</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
<tr>
<td>1.5 Dissemination of portfolio of viable technologies</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
<tr>
<td>2. Brokerage/Partnership</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
<tr>
<td>2.1 Forge partnerships for the start-up, scaling, and market access of products</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
<tr>
<td>2.2 Develop policies and guidelines for SoPs, IP, terms of collaboration, and material transfer, etc., and avail to partnering institutions</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
<tr>
<td>2.3 Provide oversight and monitor the implementation of funded projects</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
<tr>
<td>2.4 Support quality control and quality assurance of products</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
<tr>
<td>2.5 Undertake assessment of regulatory barriers in Africa, and recommend pathways for regulatory approval</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
<tr>
<td>2.6 Collaborate with RECs, NEPAD, WHO, and national regulatory authorities on product regulation across countries</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
<tr>
<td>3. Advocacy, Networking, and Knowledge Management</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
<tr>
<td>3.1 Implement advocacy and communication strategy</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
<tr>
<td>3.2 Establish and operationalize open knowledge databases</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
<tr>
<td>3.3 Reach out to stakeholders and partners through a variety of outlets</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
<tr>
<td>3.4 Periodically review the global and regional policy environment and initiatives on health innovations to inform ANDI's work</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
<tr>
<td>3.5 Develop films on ANDI's work and disseminate</td>
<td>Q1</td>
<td>Q2</td>
<td>Q3</td>
<td>Q4</td>
<td>Q1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Full-Time Employees</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>14</td>
<td>18</td>
<td>21</td>
<td>21</td>
<td>21</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Average size of portfolio (project(s))</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>
7. Expected Outcomes and Results

By the end of the strategic plan period, ANDI aspires to achieve the following:

a. An innovative financing mechanism based on subscription and/or impact venture fund established to support promising local health technologies of public health importance in Africa, and augment project based financing.

b. Policy change in support of innovation in Africa at country or regional economic communities, or at AU levels.

c. ANDI’s institutional capabilities enhanced to effectively implement the organization’s vision and mission with functional regional hubs in at least three of the five sub-regions of the continent.

d. Two South-South, two South-North, and two triangular partnerships for knowledge and technology transfer will also be achieved.

e. Eight new partnerships developed between public and private sector stakeholders to complement efforts across the value chain.

f. Linked to above, two technology incubators and/or platforms established.

g. Twenty African institutions strengthened as part of ANDI’s capacity building, CoE recognition, and Innovation Award.

h. One hundred African scientists, entrepreneurs, and innovators trained as part of the work of ANDI.

i. A portfolio of ten local technologies identified and publicized.

j. The scale up of and market access to at least two life-saving health technologies including but not limited to the newborn respirator and phototherapy machine being developed in Malawi and the United States, cell phone based diagnostics, and diagnostic tools for Schistosomiasis and Plasmodium vivax malaria through the ANDI support project in Egypt and the ANDI/WHO demonstration project on diagnostics development, manufacture, and access.
The projected average annual budgetary needs for the work of ANDI from grants, core contributions, and impact or venture funds over the next five years are summarized in Figure VIII (blue middle line) and Table III. Please note that this is an average budget projection, and higher and lower budget estimates are based on yearly activities to be undertaken as well as fundraising targets (orange and gray lines respectively, Figure VIII). ANDI plans to mobilize the requisite funding based on the financing pathways described earlier (grants, core funds, and impact or venture funds). The fund based on grant and core contributions is expected to gradually grow from ANDI programme funding of about $2.5M USD in 2015 to $9M USD in average annual funding by 2020. It is expected that financing through grant and subscription-based funds will constitute the main source of funding for ANDI in 2016 and 2017. For the impact or venture funds, the first year (2016) will be used to set up and develop the fund, which is projected to gradually grow from an average value of $2M USD in 2017 to $6.7M USD by 2020. A detailed analysis of funding and resource mobilization projections is presented in ANDI’s Fundraising and Growth Strategy.

**Figure VIII:** Projected Annual Budget (2016 - 2020) from grants, core contributions, and impact or venture fund. Note that the projections are based on a high (orange line), average (blue line), and low (gray line) annual budget for the work of ANDI.

The core activities outlined in this plan are based on the average combined funding streams and projected resource mobilization targets.
Please note that these budget projections may be small compared to what is needed to develop and place a device, drug, or vaccine on the market. Of note here is that the budget projections cover the costs of facilitation and brokerage to implement these activities, but do not cover the actual cost of production, scale up, and commercialization of technologies. Partners including private sector entities, or technology platforms or incubators that have physical infrastructure to implement those activities, would leverage other resources to support project implementation. Any funding provided by ANDI for these activities will be catalytic in nature to support the transition to further financing by the entities doing the work, including through the impact or venture fund. The budget above does not include leverage and in kind contributions from project partners.

Table III. Projected Average Budgetary Needs by Core activities, by year, $M USD

<table>
<thead>
<tr>
<th>Core Activities</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Needs assessment and identification of viable projects</td>
<td>0.2</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
<td>1.4</td>
</tr>
<tr>
<td>Brokerage, facilitations and partnership for validation, scale up</td>
<td>1.4</td>
<td>2.2</td>
<td>3.4</td>
<td>5.6</td>
<td>8.1</td>
<td>20.7</td>
</tr>
<tr>
<td>Advocacy, networking and knowledge management</td>
<td>0.4</td>
<td>0.6</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Capacity building</td>
<td>0.3</td>
<td>0.4</td>
<td>0.5</td>
<td>0.7</td>
<td>0.7</td>
<td>2.6</td>
</tr>
<tr>
<td>Financial development</td>
<td>0</td>
<td>0.1</td>
<td>0.2</td>
<td>0.3</td>
<td>0.4</td>
<td>1</td>
</tr>
<tr>
<td>Secretariat(^{ii})</td>
<td>1.2</td>
<td>1.7</td>
<td>2</td>
<td>2.2</td>
<td>2.2</td>
<td>9.3</td>
</tr>
<tr>
<td>Subtotal</td>
<td>3.5</td>
<td>5.3</td>
<td>7.4</td>
<td>10.1</td>
<td>12.7</td>
<td>39</td>
</tr>
<tr>
<td>Contingency (10%)</td>
<td>0.4</td>
<td>0.5</td>
<td>0.7</td>
<td>1</td>
<td>1.3</td>
<td>3.9</td>
</tr>
<tr>
<td>UNOPS overhead</td>
<td>0.5</td>
<td>0.7</td>
<td>1</td>
<td>1.3</td>
<td>1.7</td>
<td>5.2</td>
</tr>
<tr>
<td>Grand Total</td>
<td>4.4</td>
<td>6.5</td>
<td>9.1</td>
<td>12.4</td>
<td>15.7</td>
<td>48.1</td>
</tr>
</tbody>
</table>

\(^{ii}\) Note that projected budget for Secretariat includes staff salary, building rent and other running costs. While costs for the Secretariat stabilizes at a certain point, the proportion for program costs continues to rise annually.
ANDI’s organizational structure consists of the governing bodies and Secretariat (Figure IX). This structure acknowledges the substantial geographical, cultural, and epidemiological differences within the Continent, as well as the need for robust governance and oversight support structures.

**Figure IX. ANDI Organization Structure**

**9. Organizational Structure and Governance**

**9.1 ANDI Governance**

The Board is the highest governing body that ensures a wider stakeholder representation. It drives strategic design and policy making, which in turn are implemented and operationalized by the Secretariat, namely through the Executive Director. The responsibilities of the Board are three-fold:

1. Determines ANDI’s strategy and priorities.
2. Approves work-plans and budget.
3. Defines the advocacy strategy and supports its implementation by engaging with governments, businesses, and individuals. This activity also involves supporting the Secretariat’s fundraising and advocacy function through the Fundraising Committee.

Following ANDI’s "lessons learned," a Board reform was initiated in 2013 to ensure better response to the need of ANDI (Figure IX). The Board reform resulted in the establishment of a 2-tier structure for the Board that consists of:

1. An operational ANDI Board and its committees that oversee the work of ANDI.
2. An advocacy linked Ministerial or Ambassadorial Patrons that is independent of the Board.

The three committees of the Board include:

1. The Executive Committee of the Board (ECB), which has the responsibility of regularly monitoring the work of the Secretariat and making recommendations to the Board. The ECB also provides policy and operational support to the ANDI Secretariat. The ECB is made up of the Chairperson, Vice Chair, and Executive Director of ANDI.
2. The **Fundraising Committee of the Board (FCB)**, which supports the Board and Secretariat on fundraising in accordance with its terms of reference. Its membership includes the Chair of the Board, Executive Director, and other representatives approved by the Board.

3. The **Scientific and Technical Advisory Committee (STAC)**, which provides independent scientific and technical advice to the Board and the ANDI Executive Director in accordance with its terms of reference. Although STAC is highlighted as a committee of the Board, it should be noted that STAC is an independent body that is composed of independent experts acting on their individual capacity.

The Board reform is already being implemented and a new Chair of the Board was elected at the 5th ANDI Board meeting in November 2015.

### 9.2 ANDI Secretariat

ANDI is a partnership presently hosted by the United Nations Office of Project Services (UNOPS), of which its legal status is derived from. The advantages of having ANDI hosted as part of a UN structure are twofold. First, it leverages the established administrative, legal, and fiduciary structures of the UN, which carry the trust of donors and stakeholders. Second, it saves ANDI time and money that it could otherwise spend in establishing new administrative and fiduciary processes. One criticism for most initiatives hosted within the UN structure is the perceived bureaucracy in the system, which may slow down the implementation of activities. However, the advantages of a UN-hosted organization offset the disadvantages. Having said this, the long-term goal of ANDI is to become a fully independent intergovernmental entity. A fully functional ANDI Secretariat will continue to be lean with a headquarters or central offices and regional hubs in the five regions of Africa (Figure X).

Since the establishment of the ANDI Secretariat at UNOPS, it has been able to operate with a core staff and deliver on key milestones. In recognition of this, and to ensure the efficient performance of the Secretariat, ANDI has developed a staffing plan, which is summarized in the organogram below (Figure X). In addition, ANDI will secure additional staff through the various volunteer and secondment programs from partners and the diaspora, as well as from the UN Volunteers program.

*Figure X: ANDI Secretariat Organogram. Note the lean and relatively flat structure of the ANDI Secretariat.*

Since the establishment of the ANDI Secretariat at UNOPS, it has been able to operate with a core staff and deliver on key milestones.
10. Stakeholders Analyses and Engagement

Consistent with the important role of partnerships in this strategy, continuous stakeholders’ engagement is an integral part of ANDI’s operations. Indeed, ANDI’s constituency is intrinsic to the population it aims to serve, as well as those institutions within the public, private, and philanthropic sectors whose mandate relates to health development with a particular focus on product research, development, and access, as well as capacity building. As alluded to in previous sections, ANDI’s mission would be a success only if these institutions also see ANDI as supporting their own mandate, and join hands towards the common goal of addressing gaps in health technologies for diseases disproportionately affecting the African population. This is consistent with the focus of ANDI on brokering partnerships in support of innovation in Africa.

Table IV summarizes key stakeholders, their likely interest, and how they might support the work of ANDI or how ANDI can contribute to their mission. It should be noted that these analyses are based on lessons drawn from ANDI’s interactions with its partners and the report of earlier external evaluation of ANDI, as well as input provided by stakeholders at the 2015 ANDI Stakeholders Meetings.
Table IV. Key Stakeholders and the Potentials for Alliance with ANDI

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Main Interests</th>
<th>Responsibilities</th>
<th>Expectations / Relations</th>
</tr>
</thead>
</table>
| African Countries and Governments | • Better health for citizens  
• Sustainable access to quality and affordable health technologies  
• Opportunities for human resource development, investment, and job creation  
• Technical support and training | • Issue and implement policies that ensure a favorable environment and coordinated multi-sectoral action for health innovation  
• Allocate resources from national revenues for R&D  
• Country ownership of R&D for health tech development for priority diseases and health problems  
• Incentivize private sector development | • Engage in ANDI governance  
• Joint implementation of projects and capacity building support in countries  
• Financial contribution to the work of ANDI  
• Partnership with ministries of Health, Science Technology, Trade Industries, Finance, Education, etc. |
| Regional and Sub-Regional Entities | • Create fora and opportunities for countries to coordinate efforts and complement each other  
• Bring R&D into the spotlight in regional and sub-regional consultations | • Avenues for commitments by African Heads of States/Governments and Ministers  
• Align ANDI’s efforts, priorities, and modus operandi with regional agenda for cooperation  
• Incentivize private sector development | • Engage in ANDI’s governance  
• Implementation of regional policies and strategies such as PMPA, Agenda 2063, etc.  
• Strengthen regulatory structures  
• Joint implementation & co-funding of projects |
| Research and Development Institutions, Centers of Excellence, Networks and Academia | • Implementation of R&D activities  
• Intellectual property management and partnerships with industries based on equity  
• Networking for capacity building by way of knowledge and technology transfer | • Build consensus among researchers and communities of practice  
• Know-how and technology | • Implement ANDI’s relevant to local needs  
• Training and capacity building  
• Establishment of technology platforms, incubators, etc.  
• Co-funding of projects  
• Development of COEs  
• Enhanced partnership and collaboration  
• Joint implementation and co-financing of projects |
| Development Partners (Bilateral, Multilaterals, and Private Foundations) | • Aligning development support with SDGs, local needs and country ownership  
• Value for money  
• Aid effectiveness | • Technical expertise and know how  
• Collaboration  
• Funding | • Technical support and assistance  
• Alignment of activities with local needs  
• Project funding  
• Financial support for ANDI’s work  
• Co-funding projects |
11. Risks and Risk Management Strategies

ANDI identifies three major risks in the process of translating this strategic plan into actionable measures. These risks are: Financial, Organizational, and Contextual.

Below is a brief description of these risks and what ANDI has done or plans to do to manage and mitigate those risks:

1. **Financial risk** – The potential inability of ANDI to raise the baseline funding required for its survival in the next one to two years is a major consideration. To mitigate this risk, ANDI is already leveraging its significant achievements to support fundraising to implement its new strategy. ANDI will better emphasize its unique value proposition as outlined in this document to donors, including efforts to secure financial commitments from African countries. Any locally raised funds will be leveraged to seek matching funds from development partners and foundations. ANDI will continue to work with its current donors to obtain renewed funding and support, as well as new funding from development partners and Foundations. In parallel, ANDI will pursue the establishment of the proposed subscription-based funding as well as the impact/venture fund. This will be a game changer for technology development and innovation in Africa in general. At the recently concluded 2015 ANDI Stakeholders meeting, the government of Kenya signaled that it would contribute to ANDI’s subscription-based membership fund.

2. **Organizational Risk** - The successful implementation of the proposed plan entails significant scientific, managerial, and administrative capabilities to be available across the ANDI team. Such good talents are not always available, especially in Africa, and tends to be competed for with other organizations. As such, ANDI is upholding its strategy to compensate its associates with appropriate packages. ANDI is also devising a strategy to work with Africans in the Diaspora that are willing to return and work for ANDI. The concept of the secondment of staff to ANDI from stakeholders and partners, including international organizations, development partners, African CoEs, and others, are approaches that ANDI has rolled out as part of this strategy.

3. **Contextual risk** - ANDI is clearly a unique initiative in today’s global and African health R&D and innovation landscape in that it focuses on driving collaboration among different African stakeholders to develop local technologies to support the health needs of the continent. However, some existing organizations could see ANDI as disputing their efforts. ANDI is doing everything possible to clearly communicate the fact that the needs are huge and that no one organization or technology can solve the problem alone. Moreover, ANDI is now emphasizing its unique value proposition by focusing on working in partnership to support local technology development in Africa, as outlined in this strategy. ANDI is also emphasizing the fact that it is focusing on gaps that others are not filling, and on building capacity to sustain innovation in Africa. These facts about ANDI are established in the report of the external review.
12. Monitoring, Evaluation and Reporting

A summary of the results-based monitoring and evaluation framework with clear inputs, outputs, outcomes, and impacts is shown below (Figure XI). Clear indicators will guide the Secretariat in its daily work, as well as support the ANDI Board, STAC, and Stakeholders in their oversight and evaluation of the work of ANDI. A detailed M&E framework table with objectives, output, and outcomes indicators is annexed to this document (Annex I).

**Figure XI:** ANDI M&E framework summarizes the activities (inputs), outputs, outcomes, and impacts of the work of ANDI.
Summary and Conclusions

In conclusion, with strengthened governance, a Secretariat, and refocused activities, ANDI is poised to build on its current successes and make a positive impact in the lives of the poor in Africa. Under this strategy, the core function and activities of ANDI are:

- A needs and gap analysis, as well as the identification of potential transformative and life-saving project opportunities.
- The brokerage of partnerships among local and external partners to support technology validation, scale up, and market access. These will involve the catalytic support and partnerships, technology transfer, incubators and/or joint or social venture enterprises to support project progression and market entry.
- Advocacy and networking to enhance output and outcomes. This will be supported by an open knowledge database and platforms to support enhanced knowledge sharing. Advocacy will support local involvement, funding, and ownership. Project-based capacity building is an integral part of all activities.

A specific set of activities with measurable outcomes and impact indicators, as well as financial projections and assumptions, have been developed to guide implementation of this plan.
Annex I.

AFRICA IS THE FUTURE
Overarching Goal (Impact): Improve capacity for health innovation and increase access to health tools

<table>
<thead>
<tr>
<th>Strategic Objectives</th>
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<th>Critical Assumptions</th>
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<tbody>
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<td><strong>Strategic Objective 1: Needs Assessment and Prioritization of Technologies</strong></td>
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<tr>
<td>1.1 Results of assessment disseminated through publication(s) and other channels</td>
<td>Update evidence for targeted advocacy, communication, and resource mobilisation</td>
<td>Adequate funds will be available to undertake assessment</td>
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<tr>
<td>1.1 Number of viable projects identified</td>
<td>Inform project development plans to kick-start, validate, and scale up promising technologies</td>
<td>Suitable and viable projects are available in African research laboratories</td>
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<td>1.2 Portfolio of at least 10 life-saving technologies</td>
<td>Leverage key results for increased partnership and fundraising</td>
<td>Significant public and private entities and industries are interested in supporting the progression of local technologies</td>
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<td><strong>Strategic Objective 2: Brokering and Partnership Development for Validation, Take-Up &amp; Market Access</strong></td>
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<tr>
<td>1.1 At least 6 partnerships engaged to support or finance validation and scale up of local technologies</td>
<td>Utilize the experience of synergies in development and implementation</td>
<td>There is need to harmonize regulatory protocols and standards across countries</td>
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<td><strong>Expected Outcomes:</strong></td>
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<tr>
<td>1.1 Number of new health technologies validated, scaled up, produced, and registered for market access</td>
<td>Celebrate achievements and recognize institutions for their contributions in product development</td>
<td>There are several number of health products ready for validation and scale up</td>
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<td>1.2 Phototherapy machine for treatment of jaundice in newborns</td>
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<td>1.2 A database of collaborating institutions, ANDI Centers of Excellence, and innovators including those from the African Diaspora</td>
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