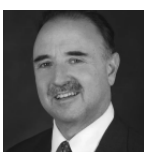


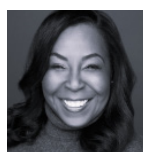


July 2023
Case Study

Measuring the Impact of the AAFC **Equipment “As-A-Service” (EASE®)** Program on Healthcare Provision and Equity in Africa

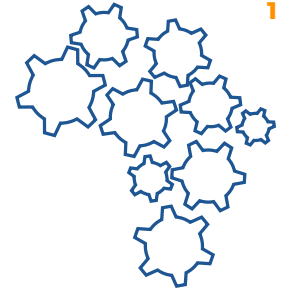


Cary Krosinsky
Co-founder
Sustainable Finance Institute (SFI)
sfini.org



Felicia Collins Ocumarez
General Counsel & Corporate Social Sustainability Officer
African Asset Finance Company
aafc.com

Introduction



1

Access to accurate, non-invasive diagnostic technologies like Magnetic resonance imaging (MRI), Computed Tomography (CT), and X-Ray machines plays a significant role in healthcare provision and equity.

These technologies help physicians accurately diagnose and treat a wide range of conditions, reducing the need for invasive exploratory procedures and making targeted treatments possible.¹

Like many other transformative technologies, access to advanced imaging technology is difficult for many people, but especially for those in **low- and middle-income countries** (LMIC).² In Africa, the primary subject of this case study, the deficit is particularly acute.

Improving access to advanced imaging technologies increases diagnostic accuracy for several medical conditions including, heart disease, strokes, and cancer, allowing patients to receive timely, more targeted treatment. MRI and CT scanners, for example, represent key diagnostic tools for strokes and their availability

can significantly affect the survival and health outcomes of stroke sufferers.³

Conversely, limited access to critical medical technology in under-resourced areas can negatively impact patient outcomes – survival and quality of life. In 2019, the World Health Organization Global Health Observatory recorded strokes as the leading cause of death from non-communicable diseases in Ghana (49.88 deaths per 100,000). Closing this medical technology access gap in underserved regions is therefore imperative to ensure the best healthcare outcomes for those populations. Medical diagnostic equipment is vital for proper diagnosis and treatment.⁴

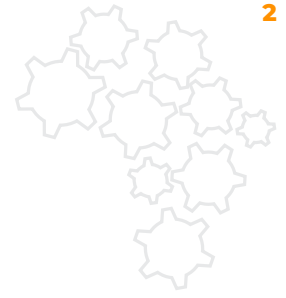
African Asset Finance Company (AAFC) works to address this gap by providing state-of-the-art diagnostic **equipment “as-a-service”** to healthcare organizations (EASE®). **EASE**® reduces the need to invest capital in the purchase of equipment, contributes to the circular economy,

¹ <https://aqmdi.com/11-top-advantages-of-using-advanced-medical-imaging/>

² https://www3.paho.org/hq/index.php?option=com_content&view=article&id=7410:2012-dia-radiografia-dos-tercios-poblacion-mundial-no-tiene-acceso-diagnostico-imagen&Itemid=0&lang=en#gsc.tab=0

³ <https://www.world-stroke.org/world-stroke-day-campaign/why-stroke-matters/learn-about-stroke>

⁴ <https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates/ghe-leading-causes-of-death> Globally 1 in 4 adults over the age of 25 will have a stroke in their lifetime. 12.2 million people worldwide will have their first stroke this year and 6.5 million will die as a result. Over 110 million people in the world have experienced stroke.



and allows customers to focus on the provision of quality health care services instead of concentrating on cost of ownership and initial cash outlay.⁵

With **EASE®**, **AAFC** has provided cost-effective access to the necessary modern medical equipment, enabling healthcare providers to provide a better quality of care for their patients. As of 2023, **AAFC** operates the **EASE® Healthcare** program in **Ghana, Nigeria, and Ethiopia**, with plans to expand operations.

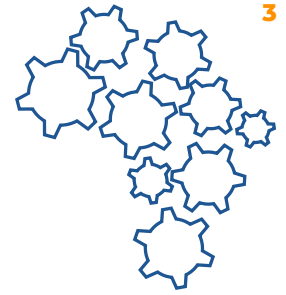
This case study seeks to determine the impact being achieved through the **EASE® Healthcare** program. Increasingly, investors seek to understand the specific net positive benefit that their dollars are achieving. Likewise, we seek to quantify the total number of people positively impacted, regions penetrated, and medical capabilities introduced by the **EASE® Healthcare** program. This then allows others to learn from the specific ways that investment can generate positive impact on the ground where it is needed the most.



⁵ AAFC Launches EASE® Healthcare Program in Ghana With FOCOS Orthopedic Hospital <https://www.businesswire.com/news/home/20230509005757/en/AAFC-Launches-EASE%C2%AE-Healthcare-Program-in-Ghana-With-FOCOS-Orthopedic-Hospital>, EASE® Expands Its Healthcare Program in Africa With Signing of New Customer HTS Diagnostic Centre

<https://www.businesswire.com/news/home/20230612907152/en/EASE%C2%AE-Expands-Its-Healthcare-Program-in-Africa-With-Signing-of-New-Customer-HTS-Diagnostic-Centre>

Methodology



At the most basic level, we measure material impact by calculating:

1. Total material outputs produced by the EASE® Healthcare program
2. Total number of people affected by these outputs
3. The aggregated outcomes of these changes.

In order to understand the full scope of value added through **AAFC's EASE® Healthcare** program, we will first look at the ways their services benefit communities in which **EASE® Healthcare** operates.

In much of Sub-Saharan Africa, imaging equipment is scarce and often outdated. Where modern medical equipment is available, it is usually concentrated in major cities and urban areas, leaving rural and lower resource areas underserved.

Our study identifies impact in two major areas:

- **Public health**
- **Economic development**

Altogether, these can be categorized further into:

- The value of accessibility
- Increased affordability and reduced cost
- Increased medical equipment utilization rates
- Lower mortality rates
- Future expansion of impact to more countries

A balanced scorecard approach to each of these five categories above would be optimal for delivering impact over time, alongside specifically chosen strategies and processes for ongoing improvement. Let's see then if and how each of these five areas can lead to increases in net positive impact.





1. Increased Accessibility

There is potential to improve imaging access in countries where EASE® operates by as much as 5 times, if not more.

Over the next five years, if **EASE®** could expand into around 800 healthcare facilities across 12 countries, and assuming each facility services roughly 10-15 patients daily (per machine), nearly 3 million people will have increased accessibility per annum.

Regarding imaging coverage, countries typically fall into one of five categories: virtually no coverage, poor coverage, adequate coverage, high coverage, and near-universal coverage.⁶

While standards differ depending on the technology (CT, MRI, etc.), African countries are almost universally poorly covered.

There are vast inequalities in imaging coverage across countries and continents. For example, Ghana and Nigeria have an average of 1.09 and 0.86 CT machines per million, respectively, compared to Mexico's 6.69, America's 42, and Japan's 115.⁷

The same is true with MRI machines. Ghana and Nigeria have 0.56 and 0.27 machines per million, placing poorly even compared to other



developing nations.⁸ This places them at poor coverage for both types of machines.

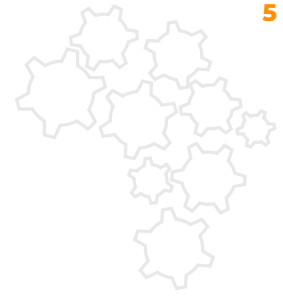
The ultimate goal, therefore, is to help communities and countries ascend this coverage scale through the **EASE® Program**, which can be measured and reported upon to demonstrate actual improvement in impact achieved, so similar rates of accessibility can be achieved.

Many of these services are also limited to large metropolitan areas with high development levels. For many who live in rural areas, the closest imaging clinic may be hours away by car – an additional barrier to access for those who lack means of transportation.

⁶ See Appendix

⁷ <https://www.statista.com/statistics/266539/distribution-of-equipment-for-computer-tomography/>
https://www.theglobaleconomy.com/rankings/computed_tomography_scanners_per_million_people/
<https://pubmed.ncbi.nlm.nih.gov/32057744/>
https://www.researchgate.net/figure/Specific-distribution-of-CT-scanners-across-the-states-and-FCT-in-Nigeria-as-at-March_tbl1_324149416

⁸ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6295297/#cit0001>
<https://data.oecd.org/healthqt/magnetic-resonance-imaging-mri-units.htm>



2. Affordability and Efficiency

Absent a strong public healthcare system, many patients depend on private hospitals and clinics for their healthcare needs. Due to low penetration of pre-paid healthcare and health insurance, many patients must pay out-of-pocket for their healthcare needs, creating yet another barrier to access.

A scarcity of proper personnel, technology and facilities means that the cost of attaining diagnostic care is prohibitive to most. Through the implementation of this program, we hope to increase accessibility, both geographically and financially.

CT and MRI scans in Ghana, Nigeria, and Ethiopia can cost more than \$100 per patient and these costs pose huge financial burdens for large portions of the populations in these countries.



Affordability measures have the potential to provide meaningful care to many who would otherwise have to go without.

In Ghana, Nigeria, and Ethiopia, for example, the percentage of the populations living on less than \$99 monthly is approximately 30%, 77%, and 70%, respectively.⁹

The **EASE® Healthcare** program enables clinics in countries where it operates to access modern diagnostic tools without the need to purchase or leverage traditional, oftentimes more expensive, financing tools.

Also, by increasing the availability of these technologies, greater competition is introduced. In a country like Ethiopia, there is approximately one MRI scanner per 39,000 square miles.¹⁰ In addition to reducing long travel times, increasing access will result in a greater number of players, driving down prices overall.

EASE® Healthcare program also has the potential for maximizing cost efficiency. One study estimates that roughly half of any costs deployed towards quality can be reduced through having robust processes and control, ensuring maturity in people, assets, and systems as well as through cultural development.

Direct costs of poor quality can be reduced in this manner through specific measures, recovering as much as 3 percent of sales.¹¹

⁹ https://databankfiles.worldbank.org/public/ddpext_download/poverty/33EF03BB-9722-4AE2-ABC7-AA2972D68AFE/Archives-2019/Global_POVEQ_NGA.pdf
https://databankfiles.worldbank.org/public/ddpext_download/poverty/33EF03BB-9722-4AE2-ABC7-AA2972D68AFE/Global_POVEQ_ETH.pdf
https://databankfiles.worldbank.org/public/ddpext_download/poverty/33EF03BB-9722-4AE2-ABC7-AA2972D68AFE/Archives-2019/Global_POVEQ_GHA.pdf

¹⁰ <https://www.sciencedirect.com/science/article/abs/pii/S187887502100766X>

¹¹ <https://www.mckinsey.com/industries/life-sciences/our-insights/capturing-the-value-of-good-quality-in-medical-devices>



3. Increased Medical Equipment Utilization¹²

Equipment use rates through implementation of the EASE[®] program has the potential to improve efficiency as much as 3 times, if not more, especially in less developed countries and with maximum effectiveness applied and achieved.

The efficiency of medical equipment is also a critical component in improving access to health-care as it ensures service reliability, equipment longevity and optimal utilization. A major cause for concern for many developing countries is the usability of medical equipment they receive. Much of the equipment these countries receive goes unused.

This happens for various reasons. A 2021 study conducted in public hospitals in the Oromia region of Ethiopia found that out of 192 pieces of equipment, only 58% were used efficiently while the rest were underutilized. The primary reasons for this were poor quality, poor maintenance, and lack of training. Many hospitals in LMICs struggle with access to quality equipment; much of the technology they borrow, purchase, or receive through donation is faulty or broken.

One study indicates that 40% of healthcare equipment in LMICs is out of service, compared to 1% in high-income countries. Equipment also often arrives in a substandard condition with lack of maintenance only exacerbating the issue.

An even more challenging situation can occur when medical equipment is simply donated in the face of a sudden crisis without a clear



implementation and maintenance plan in place. For example, in Haiti in 2010, the earthquake devastated the country in 2010, leaving hundreds of thousands of people injured and in need of medical care. One estimate in the aftermath showed that only 28% of medical equipment was working properly and in use, another 28% was functional but lay idle for other technical reasons, 30% was not working, but was repairable, and 14% was considered beyond repair.¹³

The **EASE[®]** program, includes a full wrap-around service for each piece of equipment provided to its customers. This includes maintenance, repair, replacement of parts, and upgrades. The program also provides recurring training for operators to ensure safe and optimal use of the machines. Providing proper medical device maintenance and repair (including access to parts) increases equipment uptime, maximizes useful life, and enables healthcare providers to serve more patients.

Achieving optimal equipment usage rates through proper management and a process-oriented program can clearly deliver positive net impact improvement, which can be measured and reported rather than the suboptimal scenarios such as those detailed above.¹⁴

¹² <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9968427/>

¹³ <https://iris.paho.org/handle/10665.2/9373>

¹⁴ <https://iris.paho.org/handle/10665.2/9373>



4. Mortality & Productivity

Though complex factors make it difficult to quantify the direct impact of imaging on life expectancy, it remains an important aspect of proper care.

High-quality imaging leads to more accurate diagnoses and more targeted and effective treatments for patients. We project that the **EASE® Healthcare** program will lead to higher lifetime productivity as well as lower patient morbidity. In this case, lifetime productivity is the total potential value that can be created by a single person during their lifetime. The healthier a lifetime a person has, the more productive they will invariably be.

Take cancer diagnosis and treatment, for example. While the cancer incidence rate in Sub-Saharan Africa is less than half of that seen in higher-income countries (128 per 100,000

compared to 295), cancer mortality is more than double those in high income countries. This is due to several factors, with inadequate diagnostic capabilities among them.¹⁵

Recent publications in the *Lancet Oncology Journal* indicate that scaling up imaging capabilities in LMICs could avert around 3% of cancer related deaths in those regions; when combined with scaled-up care and treatment, that number goes up to 13%.

Better access to imaging and diagnostic services can also translate into more appropriate and more effective treatments which can therefore yield further, important positive effects.

It is estimated that scaling up imaging capabilities alone would lead to a productivity return of \$31.30 per \$1 invested in these countries.¹⁶

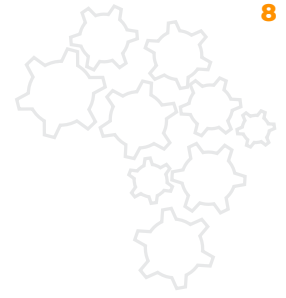
Using these estimates, the \$500m worth of **AAFC** investment projected in the next five years would yield tens of billions of dollars in lifetime productivity gains, helping accelerate economic growth and improving living standards along the way.

The total return on investment for all diseases (not just cancer) is likely many times higher. Increased lifespans, higher quality of life, and less time out of work resulting from better treatment capabilities has the potential to deliver millions of dollars in value to these regions. **EASE®** is the first step in this transformation.



¹⁵ [https://jamanetwork.com/journals/jama/fullarticle/2793442#:~:text=At%20128.2%20per%20100%20000,index%20\(HDI\)%20regions%20globally](https://jamanetwork.com/journals/jama/fullarticle/2793442#:~:text=At%20128.2%20per%20100%20000,index%20(HDI)%20regions%20globally)

¹⁶ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8444235/>



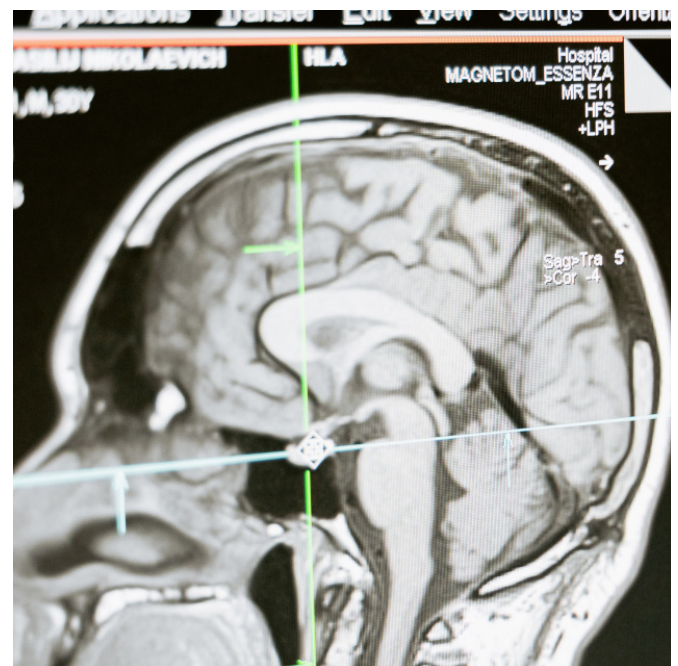
5. Impact of Global Expansion

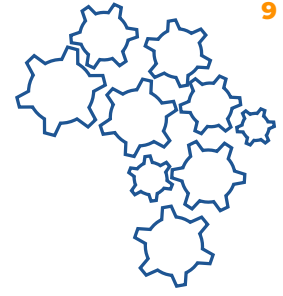
As **EASE**[®] is successfully rolled out to other countries and continents, the net positive impacts achieved in the initial three countries can then potentially be replicated for other populations, especially as sufficient on the ground conditions allow for deployment.

It would, therefore, be useful for the net positive impacts listed above to be measured and reported over time, so investors and other stakeholders can use these reported impact metrics to create momentum for further expansion.

Minimum conditions for operation in regions would also be useful to develop, making it clear there is a direct causal relationship, for example, between good governance and good health outcomes for citizens.

Successful implementation in Ghana, Nigeria and Ethiopia can help demonstrate what is possible in other countries and regions so people in those nations can also benefit.





Limitations & Other Considerations

As with any set of projections, there are several external factors that must also be considered.

First is the effect of culture around the self-reporting of symptoms. Among other reasons, self-reporting of symptoms is low in many of these populations due to poor medical education and low levels of trust in medical institutions.¹⁷

While scaling up imaging is an important step to improving healthcare outcomes in LMICs, its effects are greatest when coupled with an improvement of treatment capabilities. In addition to imaging, many of these countries also lack strong medical infrastructure and accessibility.

Much of the populations in these regions are still geographically and financially restricted from pursuing treatment for many of these conditions and illnesses.

These factors would need to be addressed to realize the full benefits of this program and should be considered in any projections to give a full understanding of the possible net benefit effects.

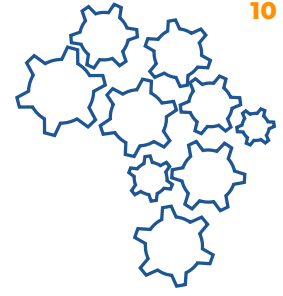
Lastly, measuring impact benefits comes with its own caveats. Different academic studies used by large foundations to advise grantmaking, such as the application of social economics, can and often are used to derive different potential net impact benefit estimates.¹⁸

Furthermore, specific impact data is often not available over multiple points in time, making precise calculations of net positive impact difficult.

What is most important is a sense of the directionality of impact, likely impact benefit outcomes, and an understanding of what specific strategies can lead to better societal outcomes.

¹⁷ <https://www.bu.edu/sph/news/articles/2017/african-parents-underreport-health-symptoms-in-girls/>

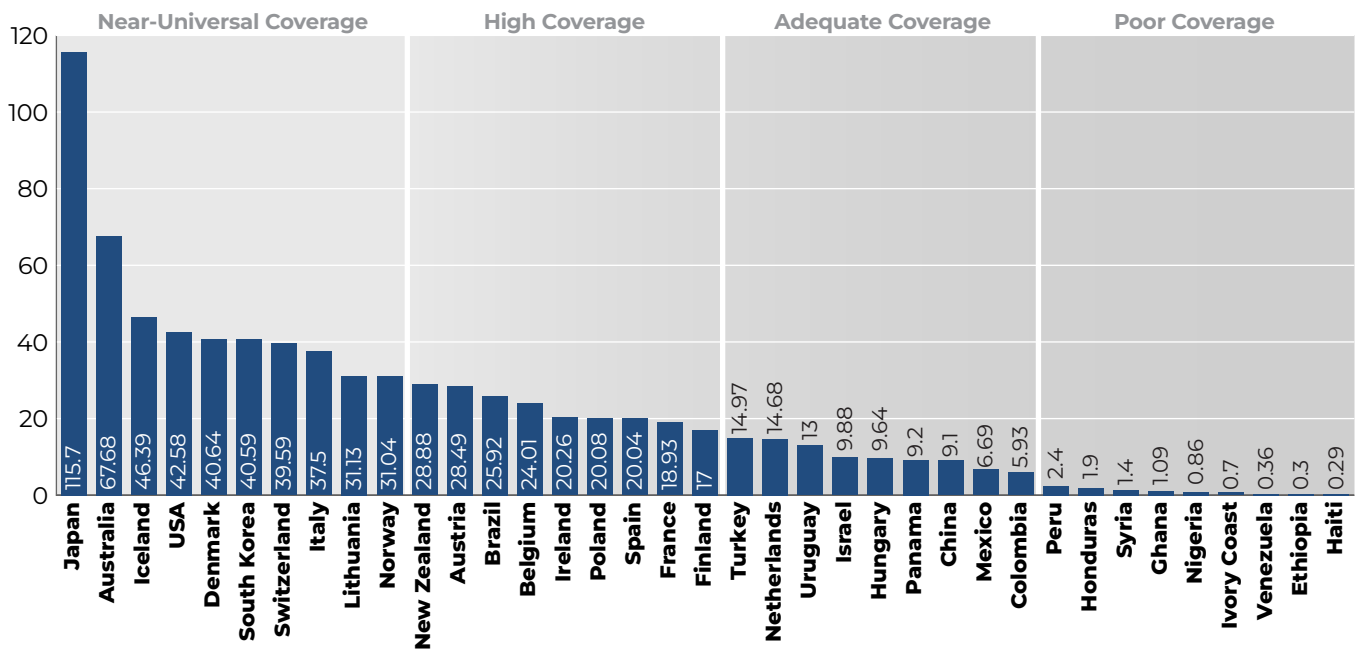
¹⁸ <https://hbr.org/2019/01/calculating-the-value-of-impact-investing>



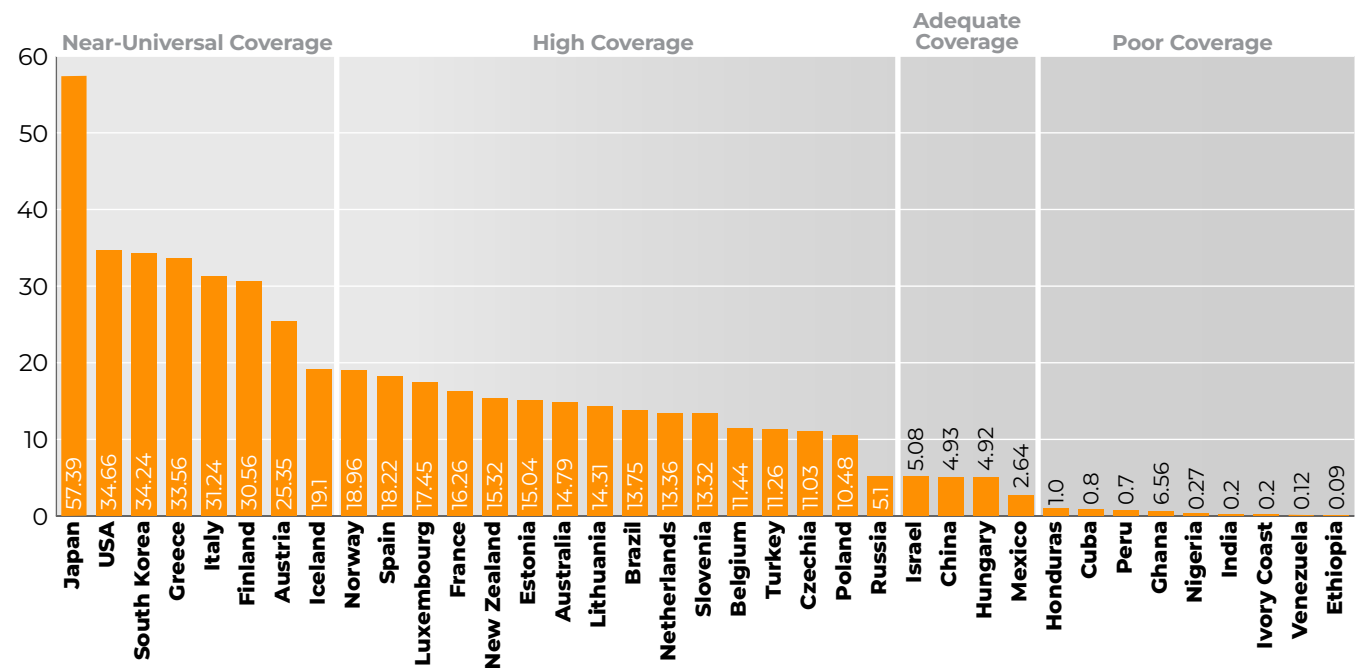
Appendix

Regarding imaging coverage, countries typically fall into one of five categories: virtually no coverage, poor coverage, adequate coverage, high coverage, and near universal coverage.

CT Density (Per Million)



MRI Density (Per Million)





The Sustainable Finance Institute (SFI) creates and delivers cutting edge sustainable finance Certification, Executive Training & Custom Workshops, Special Research and Events.

SFI is the only third-party provider for the World Sustainable Finance Association's (WSFA) "Certified Sustainable Finance Analyst – CSFA™" certificate program.

Combined with industry experience, the CSFA™ programs strive to allow trainees across interested age groups to become fully immersed in the theory and practice of sustainable finance, and emerge as leading practitioners in this rapidly growing field.

NEW YORK, NEW HAVEN, SHANGHAI, LONDON, MONTREAL, MIAMI

<https://sfini.org>

Acknowledgements

The **Sustainable Finance Institute** and **African Asset Finance Company** would like to pay special thanks for the valuable research, writing and technical support of Ofori Ohene as well as the valuable input of Kanyinsola Oyeyinka and Jacob Nielsen during the course of this project.



African Asset Finance Company (AAFC) aims to bridge the gap between capital markets with ample liquidity and emerging markets in need of solutions for equipment, equipment-as-a-service, equipment leasing, asset backed lending, and (clean) energy and infrastructure financing in Africa through AAFC group and portfolio companies, partnerships and investments. AAFC is a privately owned US corporation, with its main office in New York.

We aim to build sustainable and profitable businesses in the equipment-as-a-service, equipment rental and equipment leasing industries and in doing so, we aim to enable long-term, sustainable growth, help accelerate economic activity, create hundreds of thousands of jobs and generate attractive risk-adjusted returns for our investors and lenders.

ACCRA

AAFC EASE Ghana Limited
24 Tumu Avenue
Kanda Estates, Accra
Ghana
<https://ease-gh.com>
+233 20 013 0892

DUBAI

Gate Village 6, Level 1, Unit 06 & 07
Dubai International Financial Center
Dubai, United Arab Emirates
<https://easeglobal.com>
+971 4 220 0016

NEW YORK

African Asset Finance Company Inc.
Carnegie Hall Tower
152 West 57th Street
New York, NY 10019, US
<https://aafc.com>
(212) 827-5787



EASE® Healthcare

Provides organisations with cost-effective access to state-of-the-art equipment on terms that match their circumstances and business needs. Through its unique pay-per-use model, EASE® enables customers to obtain equipment without having to tap into equity or credit, allowing organisations to access the equipment that is critical to the quality of their service and the growth of their activities. EASE® is powered by AAFC.

ADDIS ABABA

Ethio Lease Ethiopian Capital Goods
Finance Business SC
379 Cape Verde Street
Addis Ababa, Ethiopia
<https://ethiolease.com>
+251 116 393 397

LAGOS

AAFC EASE Global Nigeria Limited
84 Raymond Njoku Street
Ikoyi, Lagos
Nigeria
<https://ease-ng.com>
+234 808 839 9085

ROTTERDAM

African Asset Finance Company
Holdings BV
Javastraat 10-III, PO Box 553, 3016 CE
Rotterdam, The Netherlands
<https://easeglobal.com>
+31 10 440 1154