Technological Innovation and COVID-19: Lessons for the AfCFTA

By:

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Introduction

What type of technologies is Africa looking at which are helpful and appropriate for the region and how can Africa design effective systems that would be fit for the purpose? This blog seeks to address these questions taking examples from current practice on the African continent and lessons from COVID-19. Halting the rapid transmission of COVID-19 and reversing the trend of consequential global distress is a global concern and goal. As the WHO has rightly pointed out, this goal is only achievable when everyone, everywhere can access the health technologies they need for COVID-19 detection, prevention, treatment and response. This highlights the importance of international cooperation and solidarity for restoring global health security, now and for the future.

Overcoming COVID-19 will require breakthroughs in technological innovation and collaboration. So, it is understandable that launching of the Solidarity Call

was viewed by some people as globalizing the fight against the COVID-19 pandemic. On Friday 29 May 2020, the World Health Organization (WHO) launched its much-anticipated, Solidarity Call to Action for equitable global access to COVID-19 health technologies through sharing of knowledge, intellectual property and data. As the name suggests, the Solidarity Call invites holders of knowledge, intellectual property or data to existing or new therapeutics, diagnostics and vaccines to voluntarily license such rights on a non-exclusive and global basis to the Medicines Patent Pool or any other mechanism and/or voluntary non-enforcement of intellectual property rights during the COVID-19 pandemic, in order to facilitate the wide-scale production, distribution, sale and use of such health technologies throughout the world. The actions under the Call are for the period of COVID-19 and thus temporary. But it would seem that not all modalities of collaboration on technological innovation will be aligned with the WHO or global formulae. Some stakeholders like the pharmaceutical industry are not ready to make any binding commitments and have been clear in expressing disagreement with the WHO's approach and concept of solidarity. While they are willing to contribute to finding an antidote to COVID-19, they are not ready to embrace a formula that requires sharing of technologies, especially intellectual property.

There seems to be an acceptance that technological solutions for Africa have to be based on what the West has decided, in this case IP can only be used as a way of exceptions of limitations provided under international instruments for example, the TRIPS Agreement. But what happens if the owners of technology do not want to or are not able to share it? It might mean that Africa would have to find its own technology solutions to its health problems. UNCTAD has outlined a formula that might work for local production of COVID-19 medical products, but this piece addresses the contribution of the African Continental Free Trade Area (AfCFTA) negotiators, who may not limit themselves to local production of pharmaceuticals in their deliberations and conclusion.

Finding regional technology solutions to regional health problems

The response to the Solidarity Call by industry highlights one of the several times Pharma has disagreed with global approaches to technology sharing in the field of access to health products. Disagreements are a part of healthy independence. Can Africa and many other developing countries exercise

independence as well to find solutions that are suitable to their local needs? Innovation has not died in Africa, save that it may not be defined or understood the same way as in the West.

The starting point for Africa's independence might be phase 2 of negotiations of the AfCFTA. The AfCFTA was created by the African Continental Free Trade Agreement among 54 of the 55 African Union nations. As of 1 June 2020, there were 30 signatories to the Agreement. The AfCFTA is the largest in the world in terms of the number of participating countries since the formation of the World Trade Organization. This number is too big to be ignored. The main objectives of the AfCFTA are to create a continental market for goods and services, with free movement of people and capital, and pave the way for creating a Customs Union. It will also grow intra-African trade through better harmonization and coordination of trade liberalization across the continent. It is hard to separate trade from intellectual property and technology, so it is important to understand how the latter can be harnessed to address health problems on the continent.

Phase 2 of the AfCFTA negotiations cover regulatory trade issues in investment, intellectual property rights, competition policy and probably e-Commerce, with the draft legal text expected in January 2021. This law-making exercise presents an opportunity to craft laws that serve the health needs of Africa beyond COVID-19. Understandably, the current global focus is on COVID-19 and finding a vaccine. But other health challenges still remain, including access to health technologies for other diseases like HIV/AIDS, tuberculosis, or neglected tropical diseases which are prevalent in Africa. Whenever COVID-19 ends, the world will probably operate under the mode of regional supply chains. This stresses the importance of finding regional technology solutions to regional health challenges. Negotiators of intellectual property rights in the second phase of the AfCFTA may wish to consider regional circumstances and be careful not to focus on harmonization of international standards instead. There are innovations on the continent that need to be supported and developed so as to respond to local health needs. The following case studies illustrate this point.

Two examples of how IP is handled in technology development in the EAC

a. Innovation at CENIT@EA: IP in a complex partnership

The Centre of Excellence for ICT in East Africa (CENIT@EA) is a regional innovation hub offering skills for digital transformation in East Africa. It works in close collaboration with the private sector for the development of digital skills in the East African Community (EAC) and aims at fostering innovation and entrepreneurship. It offers the master's programme in Embedded and Mobile Systems (EMoS) and provides scholarships to support students of the programme. Hosted at the Nelson Mandela African Institution of Science and Technology in Arusha, Tanzania, CENIT@EA provides students with, among other things, entrepreneurship skills (CENIT@EA brochure).

CENIT@EA was initiated by the German Federal Ministry for Economic Cooperation and Development (BMZ) and the East African Community (EAC) to support East African universities to provide the technical skills that meet the needs of the private sector, public sector and civil society stakeholders in the region's digital transformation. The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) implements the project on behalf of BMZ in cooperation with the Inter-University Council of East Africa (IUCEA), the German Academic Exchange Service (DAAD) and an academic consortium including the host university of CENIT@EA, the Nelson Mandela African Institution of Science and Technology (NM-AIST), the University of Oldenburg, the University of Dar es Salaam, the University of Technology and Arts in Byumba, the University of Applied Sciences Mannheim and University of Applied Sciences HTW Berlin, and the German Aerospace Center (DLR), (brochure p.4). This stresses the importance of partnerships between centres of excellence, private sector and governments. The innovation that takes place in this complex partnership raises questions about the management of intellectual property.

The IP resulting from innovations by the students is usually shared between them and with the university and/or the respective professor who supervised them. However, every case will be subject to an individual discussion with the NM-AIST that oversees all activities related to IP and doesn't go to entrepreneurs or funders of the project.

b. Drowsiness Detectors: Technology, Open Innovation and Intellectual Property

- *Example from Makerere University*

Drowsiness is a major cause of accidents in Uganda, and for many long-distance drivers on the African continent. Some students of Computer Sciences, from the School of Computing and Informatics Technology, Makerere University in Uganda invented a Drowsiness Detection Mechanism. The main goal of the " Wake Me App" innovation is to avoid accidents derived from fatigue by using an alarm system to keep drivers focused on the road. The invention is timely for the EAC as cross-border trade also involves long distance driving, especially by trucks. Negative health occurrences like drowsiness, can lead to heavy trade costs. At the time of writing (6 August 2020), it was not possible to establish how the intellectual property relating to this technology is addressed. It is hoped that IP will be addressed in a way that enhances African development. There is need to device IP management in a way that encourages technological innovation but suits the health needs of Africa.

Another example below might provide some insights on using IP for development of Regional Economic Communities like the EAC and how this could act as a pointer for negotiations of the second phase of the AfCFTA on IP.

- *Open innovation: Drowsiness Detector by CENIT@EA students*

Three students from CENIT@EA, with the help of three advisors from GIZ, are also working on producing a Drowsiness Detector. This technology project is funded by the GIZ Innovation Fund, which is an *Intrapreneurship* Fund. As a requirement for the Msc EMoS, students develop a group project that provides a solution for challenges faced by industries of the EAC. In this case, students developed a concept and a prototype for a Drowsiness Detection system for drivers using artificial intelligence technology. This idea was submitted to the GIZ *Intrapreneurship* Fund and won the first place. Therefore, the team joined the GIZ Innovation Fund Accelerator where they are now given professional coaching for half a year and funding to develop a Minimum Viable Product and pitch it to the GIZ Management Board at the end of this year. If the Drowsiness Detector is then chosen as one of the two winning teams, the team will receive further methodological support and a budget to implement and roll out the innovation.

According to its general Terms and Conditions, the GIZ manages the IP in the projects. This means that if the external party (in this case the students from CENIT@EA) contributes to the co-creation process of a project, the ownership rights for the newly created work must be transferred to GIZ where possible or published under a Creative Common License. The GIZ needs to hold the rights to the developed solutions in order to make their implementation in GIZ projects possible. If the transfer of the ownership rights is not possible, there is the possibility for a special written agreement. The rights of use are held by all participants, which is recorded in writing at the beginning of the Accelerator Programme in the form of a Non-Disclosure Agreement (NDA). In accordance with the nine Principles for Digital Development Cooperation or Digital Principles endorsed by GIZ, the GIZ encourages the teams which they fund and their partners to license the results of their work under Creative Commons licenses wherever possible. The logic being this supports scaling of the solution through continuous development or unrestricted use by other parties. In an attempt to ensure that its programs maximize their resources, the GIZ encourages open innovation — through open standards, open data and open source technologies.

Owning to the limited capacity to own various functioning innovation facilities, such as pharmaceutical industries, which can produce quality, efficacious and affordable medical equipment, it makes sense to have facilities whose use can be adapted to current needs. For example, a pharmaceutical industry that manufactures Hepatitis C medicines could be converted to produce another medicine when there is no need for Hep C. This will require flexibility in ownership of IP in the technology employed. This is why open source technologies, such as in the preceding example, is pertinent for the continent.

Conclusion

The WHO calls on governments and other research and development funders to take action to promote innovation, remove barriers, and facilitate open sharing of knowledge, intellectual property and data necessary for COVID-19 detection, prevention, treatment and response, including through national legal and policy measures, and international collaboration on regulatory practices, to ensure availability, affordability and assured-quality of the concerned products. While several African countries may not have capacity to innovate, they can,

individually or in collaboration among themselves on the continent, promote innovation. To ensure that innovative capacity is developed on the continent, it is pertinent to promote regional innovation. As a starting point, negotiators of the AfCFTA may consider including in the text appropriate provisions that will allow the collaboration and nurturing of innovative capacity in Africa. Open innovation is an approach that meets the needs of Africa and is worth considering.

At the moment, a lot of effort is on finding a medical solution for COVID-19, and understandably so. But tomorrow's needs may differ from today's. There is need to build preparedness. The Science, Technology and Innovation Strategy for Africa 2024 (STISA 2024) stressed the need for technology preparedness. In relation to IP, open innovation might be a starting point for preparedness.

The examples from the EAC provide glimpses of how to harness divergent developments in Regional Economic Communities in Africa to provide a holistic technological framework that would be beneficial to Africa as a whole.

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