

Identity – Africa – Biometrics

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ABSTRACT: There is currently a digital revolution ongoing across the globe that cannot be missed. It appears that it is bringing the newest solutions and answers to all latest requirements and expectations that seemed to be out of the reach for many decades. However, it is not only technology that is needed these days, but also societies are seeking credible tools and acceptable option implemented in order to provide an individual a state approved identity with access to legitimate services. Although each of us is subjected to rights and duties based on identity given from the very beginning of our lives, some may not have a chance to present a proof of this identity due to geographic, cultural or social issues. Various organizations both commercial and international, including state ones and NGOs, are concerned of a significant high rate of loss of opportunities by some due to lack of basic identification document, whether it is an old fashioned one or a digital ID.

This paper brings some current activities and events for discussion in regards to response to deficiency in terms of equipping citizens of African countries with the latest type of identification document, which contains of access to multiple services. Moreover, while reading the study, it may be noticed the level of devotion and engagement by actors, which includes seeking and employing the best know-how practice and digital biometric traits. Thanks to such approach, some African countries may be already ahead of so-called “western developed economies”. However, digital biometrization of individuals could be a response to modern challenges on one side, and to crisis management and natural disasters on the other.

The paper briefly describes the problem of identification with use of digital biometric features in Africa, and it rather invites others to carry out an independent research, as well encourage to discussion on advantages and disadvantages for using biometrics in the process of identification.

KEYWORDS: Biometrics, identity, Africa, ID4A, digitalization, identification

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Introduction

■ **In the era of relatively free access to scientific publications and resources published and available on the Internet, we could assume that biometrics is already “discovered land” for a potential user of this medium. Certainly in general, the biometric technology have become popular enough to that extend, that we are aware of its existence at least. Biometric passports have become the most common in use (photo no. 1), but there are also other daily use items utilizing this technology, such as mobile phones or portable computers which are equipped with biometric sensors that recognize biometric features such as fingerprints, facial images or human voices. Human traits characterized by durability, immutability and uniqueness may serve various purposes, from activating a specific electronic device, through physical access to the workplace, up to facilitating freedom of movement inclusive crossing state borders or operating IT systems. Without a doubt, biometrics is a revolutionary, groundbreaking, modern, but also expensive technology¹. Is it therefore also an exclusive solution, available only to modern and profitable world economies or international organizations? Does the expected high expenditure on the implementation of biometric solutions, maintenance and development of biometrics exclude certain poorer countries from the group of the most technologically advanced in this area? Can African countries be deprived of access to the latest technologies?**

One could try to cite and bring more examples here that would indicate that the African continent does not have economic or technological potential. These countries emerge from the colonial times with difficulty for a long time. Also, according to

general perception of others, most of African countries continued being a logistical base of their former protectors – colonizers. With a few exceptions, most of them have been convinced to be a state for exploitation of deposits and natural resources as well as production, on behalf and for the needs of the post-colonial powers, further, with a minimum of none of benefit to a providing state and its indigenous inhabitants. At first glance, Africa as a continent is associated with poverty (chart No. 1), pandemics (yellow fever in Nigeria in 2017, polio virus in Somalia in 2018, cholera epidemic in Cameroon in 2018 and in Nigeria in 2021, Ebola in DR Congo in 2021)², natural disasters, armed conflicts, terrorism³, genocide, etc. All from these obviously took place within African continent in the recent past and is still happening today. However, we must also remember that such events occur all over the globe, and affect in certain degrees other continents, alliances and states.

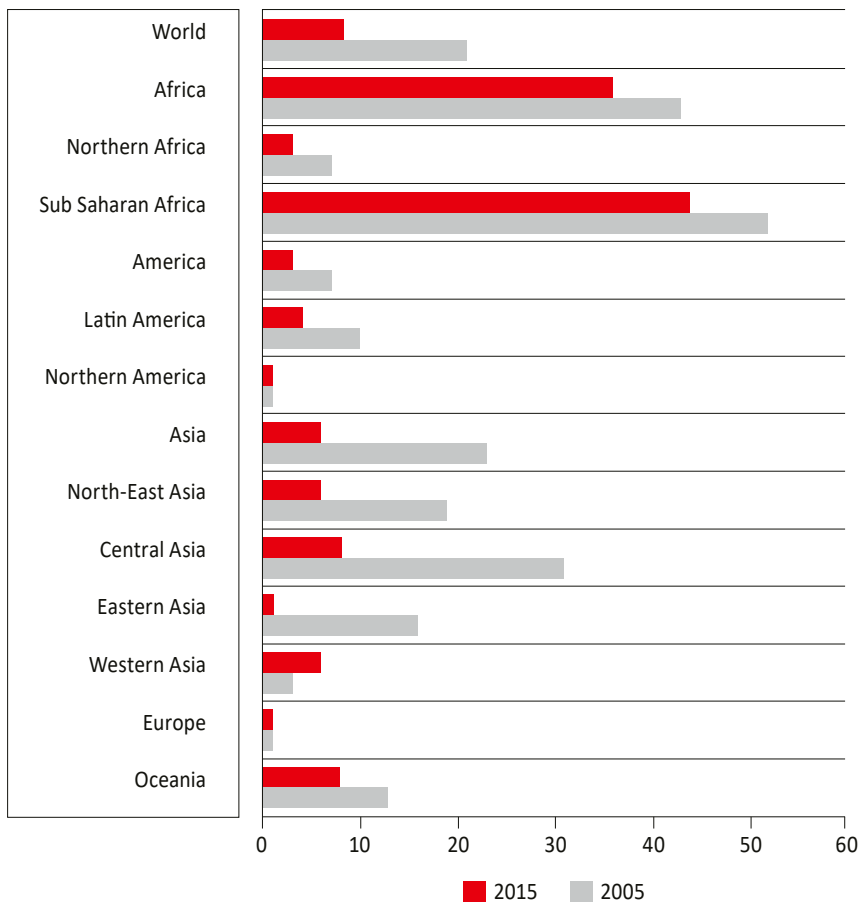
Biometrics is obviously also a synonym for identity, and often a guarantor of inalienable basic human rights. The progressive phenomenon of digitization of every piece of human’s life forces us to accept both the advantages and disadvantages of innovative offers and solutions. It seems that “analog identity”, i.e. the use of traditional identity documents and registration systems, will soon be completely forgotten in favor of digital applications. As the example of the African continent shows right now, the opportunities in this area are enormous and social benefits seem to be guaranteed.

The definition of “identity” seems to be unthreatened. Replacing analog tools with digital ones will mainly result in adapting record systems to the newest expectations and requirements. The new standard is intended to be broadly approved and lead to improve the quality of life and access to services offered by various entities to

¹ In the context of this paper, we are considering not a single access system using devices for recognizing biometric features, but a national citizen identification system, which, in addition to the function of registering citizens based on their biometric features, will also allow the use of other services guaranteed by the state. Example costs are presented later in the material. For example, the budget of the World Bank program called *West Africa Unique Identification for Regional Integration and Inclusion*, taking into account the use of biometric solutions in West African countries, was estimated at approximately USD 122 million. Retrieved from <https://projects.worldbank.org/en/projects-operations/project-detail/P161329>.

² United Nations Office for the Coordination of Humanitarian Affairs, informing humanitarian service – the portal presents current and historical data on various types of disasters – earthquakes, floods, droughts, epidemics, ecological disasters, etc. Retrieved from <https://reliefweb.int/disasters>.

³ According to data from *Africa Terrorism Bulletin*, published by the *African Center for The Study and Research on Terrorism*, in December 2020, 150 acts of terrorism and extremism were recorded in Africa, including 21 cases of kidnapping. Retrieved from <https://caert.org.dz/Medi-review/Terrorism-bulletin/BULLETIN-Dec-2020.pdf>.

Chart 1. Poverty rate according to the international poverty line (%)

Source: Główny Urząd Statystyczny, 2020⁴.

users. However, it should be remembered that African countries, although ambitious, have numerous experiences with external interference, when the right to build their own identity or national identity was taken away in the past. Can biometric technology, despite its capabilities, also lead to another loss of identity or secondary enslavement?

Biometrics

Defining biometrics should not pose much of a problem anymore to none of us. Despite the passage of time and the development of science and accompanying changes, the modern definition in the field of person identification remains unchanged and

clear, regardless of its author. Simply put, this concept comes from the Greek language, from “bios” – life, and “metron” – measure. Therefore, biometrics is a science dealing with the recognition of any living organisms, in our case it is the human kind, based on their measurable characteristics (Hołyst, 2018). In addition to that, Keith Breckenridge (2016) make a point that the modern idea of biometric identification refers to the automated process of recognizing people based on precise measurements of body parts (Breckenridge, 2016). However, these features must meet certain criteria, allowing a person to be truly recognized and identified without any errors and further consequences. We are talking about individual features,

⁴ “Since 2005, the extent of extreme poverty around the world has halved, but poverty is still one of the biggest social and economic problems. Currently, 8% of the population, i.e. 633 million people, live below the international poverty line, having at their disposal at most USD 1.90 a day. Over 50% of the poorest people live in Sub-Saharan Africa. The number of people living in extreme poverty has decreased in almost all regions of the world, although to uneven degrees. The greatest progress in eliminating deep poverty has been made by Asian countries, where the share of the extremely poor population has more than tripled in ten years – to 6% in 2015. A significant decline in the poverty rate was also recorded in Sub-Saharan Africa, but still 44% of the population there lives below the international level. poverty line”. Retrieved from <https://raportsdg.stat.gov.pl/2020/cel1.html>.

as the *World Bank*, the *United Nations* and its subordinated agencies: UNICEF⁵, UNHCR⁶, as well as some academic projects or non-governmental organizations were involved worldwide, e.g. *Identification for Africa* (ID4Africa).

An extremely important role in this field on this continent is played by the World Bank, which launched a broad initiative addressed to all potential beneficiaries, entitled: *ID4D – Identification for Development*, including to countries on the African continent in 2014 (The World Bank, 2021).

An additional significant contribution to the entire process of digitizing life in countries of the African continent is by the *ID4Africa Organization*, which annually attracts the attention of new countries and skillfully involves them in activities for the development of biometrics on this continent. In less than 7 years since its establishment in 2014, *ID4A* has “persuaded” almost all countries on that continent to at least participate in the annual conference or delegate senior officials to coordinate cooperation in the implementation of modern biometric identity document solutions.

However, as we learn from various publicly available studies, more international entities are involved in this process or the initiative is taken over by existing or emerging offices of a given African country. The idea of moving away from traditional registers and identity documents in favor of modern documents containing biometric data is certainly an organizational challenge, carrying both benefits and potential risks. The specificity of Africa is also important, resulting from its cultural, ethnic and social diversity, as well as the history of individual countries.

It is hard to disagree with Marielle Debos (2021), who, using the example of Chad and her research, indicates the following factors influencing the desire to introduce biometric technology in Africa:

- the modern obsession with quantitative measurement and verification,
- new policy on security and surveillance in public space as a consequence of the “9/11” terrorist attack,

- European Union anti-immigration policy,
- a promising investment and sales market for new technology, as well as defining and establishing identity as a priority for the sustainable development of the United Nations program (Debos, 2021, p. 65–75).

In 2015, countries associated with the United Nations adopted *the 2030 Program for Sustainable Development*, which in its preamble assumes taking actions for people, the planet and prosperity. This document describes the main assumptions of the program and the observations made on which the program is based. Its components include 17 objectives and 169 tasks resulting from these goals. How does this relate to biometric features? From the perspective of the considerations here in this study about identification, identity, personal documents “armed” with human biometric features, the objective number 16.9 deserves its special attention, i.e. “*by 2030, provide all (people) with formal/legal confirmation of identity, including birth registration*” (UN Resolution 70/1..., n.d.).

The World Bank took up the challenge by establishing its own initiative called *ID4D – ID for Development*, the aim of which is, among other things, to support countries in their efforts to achieve the above-mentioned goal no. 16.9. Moreover, *ID4D* has set itself the task of sharing subject matter experts’ knowledge with all interested parties to help better understand the benefits of implementing digital identification systems. Then, the aim of this project is to create the ability to use the benefits that digital identification can provide, including access to various services and the exercise of civil rights (The World Bank Group’s..., 2021). In today’s reality, on the one hand, it sounds like a natural course of action, a result for ongoing progress, within technological or even cultural changes. However, when look at it from the perspective of countries of the African continent, one cannot be sure that this is the case.

⁵ The United Nations International Children’s Emergency Fund (UNICEF) was established in 1946, in the aftermath of World War II. Our mandate was clear: to help children and young people whose lives and futures were at risk – no matter what role their country had played in the war. UNICEF works with the United Nations and its agencies to make sure that children are on the global agenda. UNICEF strikes a balance between thorough research and practical solutions for children. Retrieved from <https://www.unicef.org/history>.

⁶ Initially, UNHCR, the UN Refugee Agency, was established by the United Nations General Assembly in 1950 in the aftermath of the Second World War to help the millions of Europeans who had fled or lost their homes. We were given three years to complete this work, and then disband. Retrieved from <https://www.unhcr.org/history-unhcr>.

Design research/scientific entitled “The Social Life of Identity Papers in Africa” (PIAF)⁷

The title project led by Séverine Awenengo Dalberto & Richard Banégas with the support of *French National Research Agency* with the participation of *Institut de Mondes Africanis* and *the Center for International Studies*, examines the connections or relations of legal aspects of identification and citizenship in Africa with the diffusion of biometric technology, in the period from post-war times to the present (SciencesPo, 2018). Some readers may wonder why the project, which is essentially French, does not consider the colonial or post-colonial period. It would certainly be interesting to conduct research from this period. The starting point for this research is the observation that the communities of many African countries are experiencing various types of crises. According to the authors, these are mainly a crisis of identity and national belonging, and the lack of appropriate identification/identity documents raises doubts as to the provision of basic human rights to citizens. Another issue is the lack of infrastructure and a system that would support citizens in the process of applying for various documents confirming identity of an individual and events from a citizen's life (birth, death, etc.) which would be officially supporting the issuing of such identity documents. A certain atmosphere in this field, which in many countries on this continent deviates from generally accepted standards, has been developed and maintained for years, sometimes with the use of force, other times for completely trivial reasons. Against this background, widespread conflicts arose in the past, and some of them can even be interpreted as “identity wars” (Côte d’Ivoire) (Banegas & Awenengo-Dalberto, 2018).

According to researchers from this project, the accelerated “biometricization” of societies opens the way to the growing securitization of rights, i.e. redefining citizens' rights by granting rights and access to services to those who obtain the equivalent of a modern identity document. It also creates new tensions around censuses and the issuance of legal titles and other permits. The project therefore examines the observable correlation between identification dispositive and

political violence. However, it does not limit itself to conflict situations: on the contrary, it intends to compare the use of documents in crisis situations and routine circumstances in order to analyze citizens' ordinary relations with the public sphere. The aim is to examine civic practices in action and the diffusion of bureaucratic rationality in societies that are averse to it. The end state result of this research is a broad scientific study entitled: *Identification and citizenship in Africa. Biometrics, the documentary state and bureaucratic writing of the self*, edited by Severine Awenengo-Dalberto and Richard Banegas. A series of articles by various authors – scientists researching the problem, presenting us with a wide range of issues, both thematically and geographically.

The program is based on a comparative approach including research conducted in several countries in sub-Saharan Africa: South Africa, Burkina Faso, Cameroon, Côte d’Ivoire, Kenya, Mali, Mauritania, Nigeria, Uganda, Rwanda, Senegal and Chad.

A reader may get the impression that the authors and participants of the project are skeptical about the idea of a mass operation of identifying and consolidating identity. It draws the attention of all involved to the possibility of another crisis, this time caused by an attempt to force citizens of individual countries to submit to the new order. This is important because the process of identifying citizens and issuing them new biometric identity documents may be in contradiction with beliefs, principles and customs. The drive to succeed in this area gives the impression that the action is motivated by the desire to achieve commercial or economic success.

West Africa Unique Identification for Regional Integration and Inclusion (WURI)⁸

WURI is a program in which Côte d’Ivoire and Guinea have partnered with ECOWAS (Commission of the Economic Community of West African States) to build a digital common identification system, financed by the World Bank through its *Identity for Development initiative*. This project consists of 3 components:

⁷ SciencesPo, Centre for International Studies (2018). Retrieved from <https://www.sciencespo.fr/cei/en/content/lavie-sociale-et-politique-des-papiers-d-identification-en-afrique-piaf.html>.

⁸ The World Bank, n.d.

- 1) strengthening the legal and institutional framework of the project, including financing the project preparation, development and implementation of legal and organizational assumptions necessary to create the structure of a solid identification system,
- 2) creation of a robust identification system to support the construction of this system based on biometric data associated with the identification/identity document. These data are to be in accordance with international quality standards,
- 3) easier access to services through fID, provision of services at the regional and international level.

The main goal of this project is to increase the number of citizens of Côte d'Ivoire and Guinea equipped with identity documents that will enable them to access the benefits and services currently offered.

For this purpose, the national office of Côte d'Ivoire, *Office National d'Identification Côte d'Ivoire*, and from 2019 – *Office National de l'Etat Civil et de l'Identification – Côte d'Ivoire* (Office National de l'Etat Civil et de l'identification, 2021), but also the Prime Minister's office and the Economic Commission of West African States (ECOWAS). Indicators for the implementation of project objectives were also used:

- Legal soundness: Development of a fundamental identification system enabling the creation of a legal and institutional framework consistent with regional standards and international good practices.
- Development of an fID system⁹ generating UNI¹⁰, in line with international practices;
- National or regional functional public and private services linked to the core ID system;
- Number of direct project beneficiaries who received UNI (including women),

none of the mentioned indicators have been achieved so far. The next deadline for implementing the above was set for July 3, 2023.

The benefits that would flow from introducing a single identification system using basic biometric technology include easier development by promoting regional integration, security, social protection of beneficiaries of this assistance, financial inclusion, poverty reduction and corruption, health insurance and the provision of health

services, and acting as a springboard for integrated digital economy in West Africa (Nwanta, 2020). The second phase of the project covers other countries on the continent: Benin, Burkina Faso, Togo and Niger.

Photo 3. Official of the *Office National de l'Etat Civil et de l'Identification* of Côte d'Ivoire takes a photo of a woman for a biometric ID document



Source: public domain.

On April 23–26, 2019, the Commission of the Economic Community of West African States (ECOWAS), as part of the ECOWAS-European Union project “Supporting the Free Movement of Persons and Migration (FMM) in West Africa”, conducted a campaign for the ECOWAS National Biometric Identity Card (ENBIC) and the fight against human trafficking. The entire action was carried out by representatives of *The Free Movement and Humanitarian Directorate ECOWAS Commission*, with the support of *The International Organization for Migration (IOM)*, *the Nigerian Immigration Service (NIS)* and *the National Agency for the Prohibition of Trafficking in Persons (NAPTIP)*. The aim of the campaign in Nigeria, Benin and Togo was to engage key stakeholders, such as transporting companies and law enforcement agencies responsible for border management, in order to sensitize them to the ENBIC charter in combating human trafficking and strengthening the security architecture and data management at ECOWAS borders. The use of ENBIC, intended to improve the free movement of people, goods and services, has been adopted as a valid travel document in the ECOWAS region, Ghana, Senegal and Guinea-Bissau (The Commission of the Economic..., 2019).

⁹ Foundational ID – performs the basic identification function.

¹⁰ Unique Identification Number – individual number identification.

ID for Africa (ID4Africa)

ID4Africa (ID for Africa, 2019) comes to the fore. The activities of this organization are focused on building the well-being of African countries based on the so-called *identity* ecosystem, i.e. the use of identity to support the social and economic development of one's country. The creators of this idea assumed that the accelerating economic growth of African countries and all the resulting benefits are not evenly distributed among citizens. Therefore, defining identity and sanctioning it in individual national systems – in digital identity ecosystems – will allow citizens to have fair access to services provided by governments and other benefits generated by them. Not without significance for this initiative and organization is the fact that currently representatives of 48 countries on this continent, in the rank of senior government officials, officially coordinate between *ID4Africa* and entities in their country that are responsible for taking identity management activities (ID for Africa, 2019). Moreover, *the Board of Advisors* operating within this organization is also supported by representatives of other organizations and international entities such as: UNICEF, UNHCR, UNSD (ID for Africa, 2019; UNSD, n.d.).

ID4Africa was established in 2014 in the *Non-government format organization* (NGO) to assist African countries in creating and developing a robust and responsible identity ecosystem for development and humanitarian aid. This movement is driven by the need to implement the slogan of “*identity for all*”, not only in the legal dimension but also in the practical dimension, necessary to effectively provide citizens with access to the services offered. By 2021, ID4A has organized and conducted 5 international conferences devoted to the issues of digital identity development on the African continent, which have enjoyed increasing recognition and support for the idea year by year.

ID4A seems to be an effective and solid organization that has also proven to be credible and attractive to the recipients of its activities. The current president is its founder, which can be

considered an argument in favor of ID4A. Another thing is consistency and continuous development, which allowed to invite numerous speakers, also from outside Africa¹¹. Thanks to such promotion and its undeniable effects, biometric technology has a chance of success.

Biometrics at UNHCR¹²

The activities of UNHCR are also important for the popularization of biometrics. As we can read from the materials published on the official websites of this agenda, a new biometric system, *Biometrics Identity Management System (BIMS)*, was introduced in 2013 and during its pilot use in Malawi, data was collected from 17,000 people, including: residents of the Dzaleka refugee camp. It should be remembered that UNHCR's activities are not of a commercial nature, therefore the effort undertaken and continuing to this day is of great importance for the development of this field (United Nations High Commissioner..., n.d.). On the other hand, it would not be possible without commercial operators and technology suppliers. In this case, the task of preparing both software and devices fell to a global company, which was to prepare for the assigned task in just 6 weeks, meeting the expectations set by UNHCR. Then, the pilot program for registering residents of the refugee camp was implemented, and in just 4 weeks, 17,000 were collected and uploaded mentioned biometric samples into that system. The system recorded basic identification features, i.e. fingerprint, iris image, face photo. Unusual working conditions such as dust and high temperatures, were also supposed to allow checking the equipment, which was operated without constant power supply or Internet access to databases frequently. In Thailand, 120,000 biometric data were collected and introduced into the system within 3 months, and in Chad biometric data were collected at a rate of 2.5 thousand daily (Accenture Company, n.d.). The government of Malawi may have followed the above and with the help of USAID (United States Agency..., n.d.), UK Aid¹³, Irish Aid¹⁴, the European Union

¹¹ For example, Mr. Piotr Machado, representative of Polish Security Printing Works.

¹² Accenture Company, n.d.

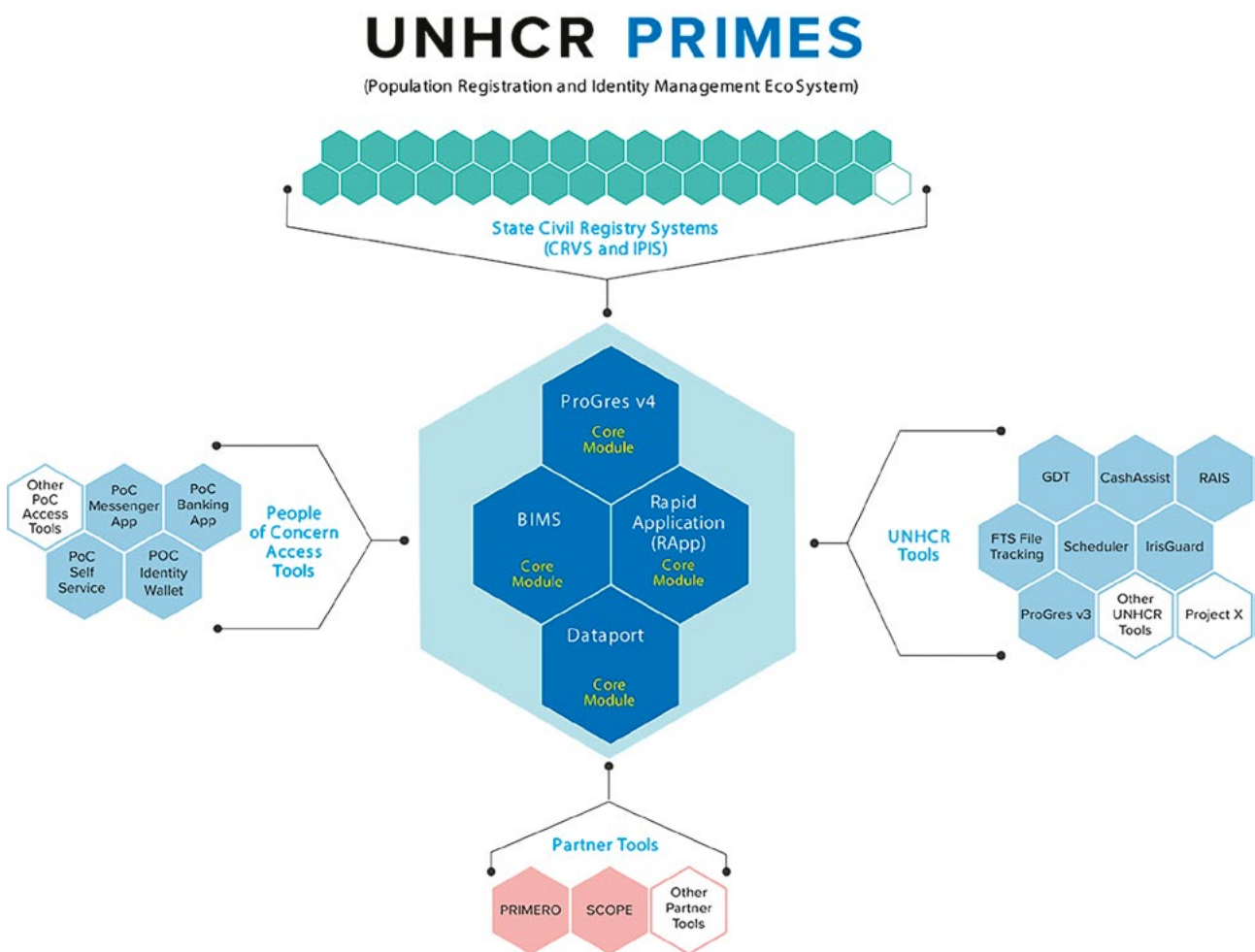
¹³ UK Aid Direct is the Foreign, Commonwealth & Development Office's main centrally managed funding mechanism for small and medium sized civil society organisations, based in the UK and overseas, who are working to achieve the Global Goals. Formerly known as the Global Poverty Action Fund (GPAF), the fund was relaunched in 2014 as UK Aid Direct. Since 2010, the FCDO awarded 374 grants to 265 organisations delivering across 46 countries (this includes Small Charities Challenge Fund grants). Retrieved from <https://www.gov.uk/international-development-funding/uk-aid-direct>.

¹⁴ Irish Aid (Irish: *Cúnamh Éireann*) is the Government of Ireland's official international development aid programme. Irish Aid is managed by the Development Co-Operation and Africa Division (DCAD) of the Department of Foreign

and the Government of Norway, UNDP¹⁵, Malawi attempted to prepare a register of births and deaths, assuming that it would be possible to collect the biometric data of 9 million citizens within a year. As it turned out, within 180 days the biometric team obtained the necessary traits data from 9.1 million citizens of the country, thus creating the first biometric system in Malawi. In addition to the typical card identification data, they were enriched with applets that enabled air travel

within the country, a card entitling the user to use the national health service or to register in the next elections. The last option was used by 8 million citizens in the 2019 elections. The undoubted success of the national system¹⁶ allowed other sectors to become also interested. Every registered holder of a biometric identity document in Malawi is also a potential taxpayer, thanks to which banks and other offices can conduct safe operations and, for example, disputes over ownership rights or the use

Picture no. 2. Population registration and identity management ecosystem created for UNHCR



Source: The Population Registration and Identity Management Eco-System – PRIMES.

Affairs (DFA). The Irish Government allocated €870 million to official development assistance (ODA) in 2019, mainly focused on overseas aid to reduce poverty and hunger, and to improve education, healthcare and governance in Africa, Asia, the Middle East and Latin America. The Irish Aid program is an integral part of Ireland’s foreign policy. Retrieved from https://en.wikipedia.org/wiki/Irish_Aid.

¹⁵ United Nations Development Programme, UNDP is based on the merging of the United Nations Expanded Programme of Technical Assistance, created in 1949, and the United Nations Special Fund, established in 1958. UNDP, as we know it now, was established in 1966 by the General Assembly of the United Nations. Retrieved from <https://www.undp.org/about-us>.

¹⁶ National Registration and Identification System.

of postal services can be easily resolved (Hersey, 2020).

During UNHCR's activities, all persons, including children, are subject to photography and registration for record-keeping purposes. Where possible, biometric data such as fingerprints and iris images are collected as part of initial or further registration. According to UNHCR, this will also contribute to maintaining family unity, prevent and identify human trafficking and other irregularities, such as surrogacy, false families, and multiple registration. It must be admitted that it would be extremely difficult for anyone else to carry out such a process. UNHCR currently has the appropriate authority, universal acceptance and international position, which allows it to conduct activities in a specific country towards citizens of third countries – refugees or citizens forced to migrate. This is certainly not intended to exclude these people, but the effectiveness of UNHCR allows the authorities of countries indirectly participating in this process to make key decisions, as a result of which these people receive temporary care and legal protection.

PRIMES is a platform for all tools and applications for registering and managing data of persons registered under UNHCR projects and operations. This solution includes tools such as:

1. proGres – is a corporate, centralized, online software for managing all data of people collected in UNHCR activities.
2. BIMS – *Biometrics Identity Management System* – biometric identity management system. This system is currently the main system used by UNHCR. It was first launched in 2015. The functionality of this system allows it to be used in any environmental or infrastructural conditions or regardless of access to the Internet. Recording a person in the system requires taking prints of all fingers and an image of both pupils.
3. GDT – *Global Distribution List* – a global distribution tool, was launched as a companion application to BIMS in 2015 and successfully supports food and service distribution operations where biometric identification is used. Certainly, the efficient system accelerated the distribution process and also allowed for statistical recognition of the results of UNHCR's work, including the possibility of “filtering” the beneficiaries

or the products themselves. GDT functionality also shortens work time, can manage several distribution lists, and, above all, limits the use of traditional paper lists to a minimum.

4. RAP – *Rapid Application* – is an application for mobile devices and laptops that allows you to quickly enter data related to a specific identity offline and, consequently, can be correlated with other services and applications of the PRIMES system.
5. IrisGuard – UNHCR's other primary biometric tool that collects two iris scans and a facial photo of each person. The system was initially introduced in Jordan to support the situation in Syria and has since expanded to the entire Middle East subregion. Although first used in the context of administering cash aid to refugee beneficiaries, *IrisGuard* demonstrated a technical framework, known as *EyeCloud*, that enables humanitarian organizations as well as financial service providers to verify identity and qualify for aid using their irises. In consultation with WFP¹⁷, devices using this biometric feature have been introduced in camp supermarkets to provide access to food aid without the need for vouchers, cards or PIN codes. *EyeCloud* was then expanded to provide financial resources to the refugee community directly through Cairo Amman Bank's ATM network. *EyeCloud* is also used by IOM to verify identity when processing a resettlement interview. The *IrisGuard* solution has therefore become an integral part of stakeholder identity management, as well as an effective mechanism for providing assistance in operations in the Middle East.
6. RAIS – *Refugee Assistance Information System*, is an online aid management platform used by UNHCR, partners and donors primarily in the MENA region¹⁸ to ensure effective aid tracking, coordination and increased accountability. Application PRIMES is prepared to integrate the others that may be created in the future. They are designed to work offline, online and within the GSM environments and will interoperate with IT systems used by governments and partner organizations such as WFP (SCOPE) and UNICEF (Primer). New PRIMES applications in the future will aim to promote direct access of interested

¹⁷ The World Food Programme (WFP) is an international organization within the United Nations that provides food assistance worldwide. It is the world's largest humanitarian organization and the leading provider of school meals. Founded in 1961, WFP is headquartered in Rome and has offices in 80 countries. As of 2021, it supported over 128 million people across more than 120 countries and territories. Retrieved from https://en.wikipedia.org/wiki/World_Food_Programme.

¹⁸ Middle East North Africa.

people (e.g. access to personal data, authorization accounts, identity wallet) (United Nations High Commissioner..., n.d.).

Biometrics implementation by countries

In the previous section, I presented selected organizations and initiatives that take part in, or often set directions for, and activate government institutions and administration in the process of implementing biometric solutions. It is not certain whether individual African countries independently sought to introduce modern biometric solutions on a large scale, or whether they were inspired by organizations out of a desire for mutual profit and in search of sales markets for new products, in this case the technology in question¹⁹.

What is this assumption come from? Existing trends in the development of fields such as IT or biometrics are the result of civilization development and the diversification of needs and solutions – from analog to digital. While the so-called highly developed countries have been using biometric solutions for years, and the popularity of this field or the demand for tools is not decreasing. But it must be remembered that saturation of one market after a certain period of time may reduce the profitability of the offered product. Therefore, through international initiatives or using NGOs, companies and corporations can multiply their income, e.g. by continuing their distribution on markets in African countries. Distribution does not necessarily mean that the next market, in this case African, will receive the supplier's latest offer (Speed, 2020).

Table No. 1. List of countries introducing digital solutions using biometric features.

Country	System name	Project partner	Number of citizens remaining to be registered in the systems
Algeria	Biometric national identity card (CNIBE)	<u>Gemalto</u> (e- passport)	4.73 million
Cameroon	Carte Nationale d'Identité (CNI)	<u>GenKey</u> and <u>Veridos</u> (elections), <u>Gemalto</u> (identity card – ID)	10.23 million
DRC	Voter ID Card	<u>Neurotechnology</u> and <u>Gemalto</u> (elections)	33.36 million
Cote d'Ivoire	Carte Nationale d'Identite (NNI)/ Certificate of Nationality	– <u>Morpho</u> (elections), <u>Zetes</u> (health insurance), <u>Gemalto</u> (e-passport), IDEMIA (AFIS)	10.11 million
Gabon	e-ID/National Biometric Identification System	<u>Gemalto</u> (CRVS, visa and border control)	0.67 million
Kenya	Huduma Namba –	<u>IDEMIA</u> (Huduma namba)	8.96 million
Malawi	National ID Card	<u>Laxton</u> (national records system)	4.06 million
Mali	NINA / Number d'Identification National	<u>Oberthur Technologies</u> (e- passport)	4.25 million
Morocco	NIEC / National Identification Card	<u>Gemalto</u> (e-passport)	9.57 million
Mozambique	Bilhete de identidade (Identity Card)	<u>Laxton</u> (elections)	12/05
Nigeria	NIN	<u>Papersoft</u> and <u>Integrated Biometrics</u> (Financial Inclusion), <u>SmilePass</u> (health insurance), <u>IDEMIA</u> (NIMC/NIN ABIS)	140.47

¹⁹ I deliberately used the phrase “contemporary” because, in fact, biometrics has a very long history and has been used successfully in the past, both to identify people and to describe plants and animals. It should be remembered that biometrics as a term comes from the field of biology and was previously widely used there.

Country	System name	Project partner	Number of citizens remaining to be registered in the systems
Senegal	National ID Card	IRIS Corporation (card identity – ID), Zetes and Lumidigm (visas)	4.61
Uganda	National ID Card	Gemalto (border control), Veridos (identity card – ID), Smartmatic (elections)	21/79
Zimbabwe	National Registration Card	Laxton (elections)	7/03

Source: World Bank, statistics from 2018, in: Burt, 2019.

Nevertheless, the used term biometrics in Africa should be associated mainly with the desire to equip citizens of specific countries with modern identity documents containing basic biometric features. Nowadays, digital data recording allows to store specific and required information on any medium without any major problems. Therefore, it has become a natural need and expectation to develop identity documents in such a way that they are compatible with as many digital services as possible, both commercial and those supported or provided by the state. It is worth to remember that such “multi-purpose” ID cards were introduced for use in Estonia, but their main advantage was not the recorded biometric characteristics of the owner. On the contrary, the citizen did not provide this data, and yet an ID card could be used, for example, to start a business, check banking transactions, as a virtual ticket or to view health history (Commission European Union, 2016). Hence, the question arises whether biometric features are the only and exclusive guarantee of ensuring the effective functioning of society in the modern world. The Estonian example shows that this is not necessarily the case, as these features can be replaced by an individual, unique digital code assigned to a specific person, which allows for the authorization of undertaken activities. However, biometric features are still perceived as difficult or even impossible to forge, which gives them an advantage over other solutions in terms of credibility.

Over the last quarter of a century, subsequent African countries have also developed national citizen identification systems/databases. The table presented below shows the appetite of the countries mentioned to introduce biometrics. At the same time, we can observe several companies that have dominated undertaken projects. There is also a certain concern that the idea of unifying national

systems into one continental or several smaller regional systems, and achieving functionality regardless of the place of operation, may be pushed into the background. The projects themselves can be developed for years and evolve depending on the geopolitical situation in the region and requirements for the time.

Summary

Biometric technology has been introduced massively in African countries, when it comes to the commercial offers of companies professionally providing this type of solutions (*Biometricupdate.com provides...*, n.d.). An obvious conclusion also comes to mind that an equally important issue for governments representing their citizens or African countries is the unification of identity documents or their functionality in an area larger than just one country, which are to guarantee:

- access to social services and other services guaranteed by the authorities,
- access to commercial services,
- ensuring fundamental rights and freedoms, in particular defining and constituting the identity of every African person.

The assumptions seem to be as noble as its goals, although when we look at who is leading the way in promoting the implementation of these solutions, we will hardly find African companies or corporations there. Moreover, one may get the impression that all biometrics are focused on creating a digital identity, but there are no other applications or solutions on a larger scale yet. Every innovative offer or novel idea carries the risk of failure. This time is no different, because the African “market”, or more precisely its complexity in many respects, may, in parallel with the benefits, generate specific risks if appropriate solutions and approaches are not used.

Citizens' biometric data are therefore intended to individualize the identity document and thus protect the document against unauthorized use and access to services. Please remember that in every process related to the production of every ID, at every stage, there is a human being. Unfortunately, the weakness of this "element" requires appropriate training, but also criminal sanctions, to create and consolidate a certain human awareness.

Taking into account the significant number of participants in the entire project in the individual countries involved, the following risks should be expected:

1. Entering new but false identities or using old ones that have not yet appeared in the system. Individual countries immersed in armed conflicts, crises, including natural ones, which did not use and did not rely to a significant extent on identity documents, may now be struggling with the problem of using a false identity that cannot be verified. It is possible that the identity may be somehow re-created – using the personal data of the deceased person.
2. Management of the system by private companies – the accusation may mainly concern the lack of sovereignty of the state, which hands over the data of its citizens to another commercial entity, in most cases foreign. From the perspective of the state's internal security, this is an undesirable action, and control or supervision of such an entity is difficult. Undoubtedly, citizens' data are exposed to leaks, trade for political or commercial purposes, or other types of manipulation.
3. Fraud when choosing a company and conducting elections – in particular, this applies to the use of biometrics during elections at various levels. Then the credibility of both the system and the authorities remains low, and the so-called susceptibility to pathological behavior, or to put it bluntly, election fraud, may be significant.
4. Monitoring society for the benefit of the authorities is another objection to the excessive or too broad use of biometrics. There is a fear that citizens' biometric features will be used contrary to their original purpose, i.e. not to build a uniform society with equal access rights to various services guaranteed by the government, but to supervise and control citizens' behavior. The government of Zimbabwe has signed an agreement with *Cloud Walk Technology* to provide mass facial recognition software. This is accompanied by the fear of abuse of power to surveil citizens, on the one hand, and of using the Zimbabwean

society as "laboratory mice" to develop its product, which has so far been used mainly against the native society (Hawkins, 2018).

5. Deepening social and racial divisions, e.g. by defining specific ethnic groups in the system. This should be understood as the risk of conflict occurring in the event of the need to indicate affiliation to an ethnic group from among those available in the registration process. Hypothetically, this may result from the government doctrine of a given country, according to which specific ethnic or tribal groups are not respected by the current government. But also the negative attitude of certain social groups towards records in a system they do not understand. This may result in simultaneous exclusion from access to government and commercial services and websites, because biometrically authenticated African identity documents are intended to allow functioning outside the scope of services offered by the state – mobile telephony, commercial banking services, etc.

Therefore, individual countries are motivated to implement biometric solutions and population records not only at the stage of issuing an identity document to each adult applicant. In order to reduce the risks and dangers indicated above, some countries are also trying to improve other population registration systems by including the use of biometric features in this process, e.g. a mandatory birth register – to protect them against sale, smuggling or identity trading in the case of unreported deaths. Children (Hersey, 2021) or registration of veterans – rebels (*DR Congo: Biometrics...*, 2008).

Another necessary solution in the future may also be the registration of deceased persons, both identified and unknown, to prevent abuse (Weiss, 2021). Paradoxically, in rare cases in South Africa, the next of kin did not attempt to confirm the death of a family member due to the lack of financial resources necessary to cover the burial costs. Current solutions are still based on classic visual inspection and identification of the deceased based on his/her special signs, as well as using fingerprints or DNA (Molelekwa, 2021).

On the one hand, the use of biometric data seems to be crucial and inevitable in moving towards a better tomorrow for many countries. On the other hand, there is a fear of abuse of position and use of biometric data contrary to the declared purpose, e.g. when organizing elections (Debos, 2021) or monitoring citizens' activity (Hawkins, 2018). Further doubts arise when we realize how complex Africa is, but also its individual countries.

Ethnic, cultural and linguistic diversity, but also the desire for profit and the fear of losing power, may lead to the exclusion of not only the individual, isolation and social divisions, as has happened many times in the past.

The above article does not fully exhaust the issue related to the use of biometric technology in Africa, and the examples presented in it only indicate the potential benefits and risks associated with the implementation of the solutions mentioned.

Photo No. 4. Invitation to participate in the census of Côte d'Ivoire

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