

CITIZEN IDENTIFICATION: CONCEPTS, PRINCIPLES AND OPINIONS – THE CASE OF MOZAMBIQUE

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ABSTRACT

Citizen identification system in a digital economy context is fundamental for the citizen but also for the State in its role as a public service provider. Even for the legal system, since justice cannot be enforced in the absence of accurate identification of the players, under the risk of punishing the innocent and glorifying the criminals. Therefore, indubitable identity is also a social justice element (Hoover, 1972).

A variety of identification methods have been developed, throughout the years, to ensure indubitable identity. The use of biometrics has been effective and, with technological development, many innovative technologies have been used, such as smart cards that allow the portability of biometric information as part of Citizen Identification.

The Mozambican citizen identification system (ID System) is evolving. In the context of several strategic reforms of the public sector in Mozambique, particularly e-governance, many initiatives were carried out to enhance the identification system. However, there are still challenges concerning interoperability, process alignment and the boosting of Information and Communication Technologies (ICT) potential.

At the end of this paper, conclusions and recommendations focused on the rationalization, process alignment and enhancement of the ID System are presented, through the development of an Institutional and Logic Model of the Mozambican citizen Identification system, to ensure that the Information System concept (processes, people, and technology) is rationalized, according to the work systems theory (Alter, 2013).

KEYWORDS

Citizen Identification, Interoperability, E-Governance

1. INTRODUCTION

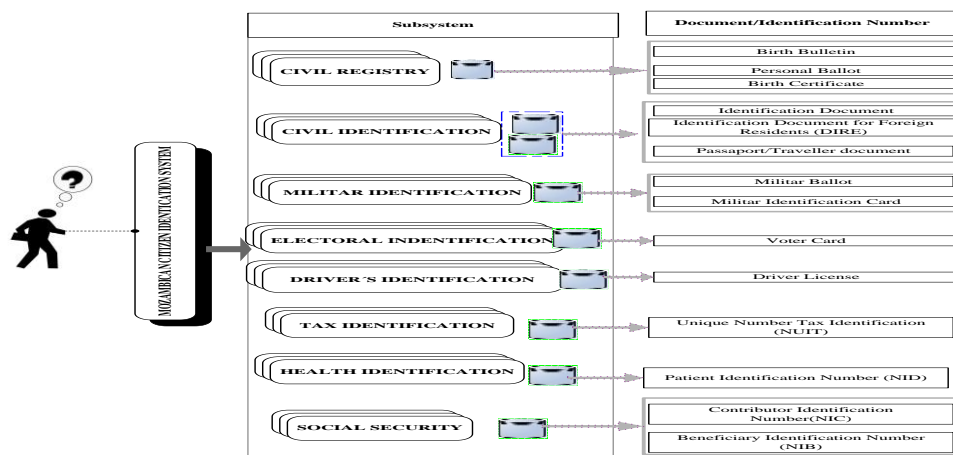


Figure 1. Macro vision of the Mozambican citizen identification system

Identification is the action and effect of identifying or being identified, and it is related to identity, which is a set of unique features of a person compared to others. Identity is the knowledge that a human being has regarding itself (dos Santos, 2013).

The human concern to identify people in a unique and distinguished way (indubitable, individual or distinct identity) dates back to years before Christ (BC). For instance, several methods to identify people have been developed (de Araújo & Pasquali, 2004).

Figure 1 illustrates the Mozambican citizen Identification system, which comprises various subsystems, in which each has its process and database, to produce its respective documents in an isolated way, in a sort of “Island” systems or Information Systems silos (Amaral, 2021).

It is worth highlighting that the objective of this article is focused on the citizen identification system, which is a responsibility of the state to create and/or maintain as part of its obligations towards the Citizen and vice-versa.

In the context of an Electronic Governance (e-governance) strategy, the Mozambican government has been taking actions towards the implementation of a citizen identification model rooted in ICTs potentialities, among which, the following are distinguished: (1) creation of a multi-sectorial team, that developed the concept of Unique Citizen Number Identification Card (NUIC, in Portuguese acronyms); (2) introduction of new documents formats (ID, DIRE and passport/travel document), based on biometric elements (Decretos 11,12 e 13/2008, de 4 de Abril); (3) revision of the Civil Registry Code (Lei 12/2018, de 4 de Dezembro), adopting the NUIC principle in the Civil Registry process, among others.

Taking into account the current Mozambican ID system and considering ICTs potential, it is worth performing a study about the Mozambican citizen identification model that will respond to challenges like security, privacy and availability of citizen identification data in all its life cycle. As portrayed in Figure 2, this life cycle starts at birth (materialized in legal affairs, through Birth Registration).

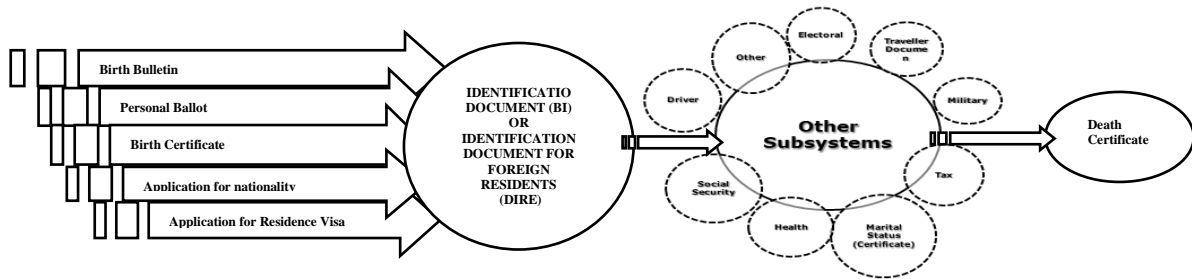


Figure 2. Simplified vision of the citizen life cycle under the identification point of view

2. THE CONCEPT OF CITIZEN AND ITS IDENTIFICATION

For a better framework of the subject of study, Mozambican citizen identification system, and to understand the philosophical foundations of the topic, it is essential to perform a bibliographic review of the concepts.

2.1 Citizen Concept

A key feature of a rule or law is its subjection to legal norms, since that is where the boundaries that determine the actions of its players - the government and the governed (the citizen) - are established through a set of rights and obligations, agreed as citizenship.

The citizenship concept dates back to Classical Antiquity. The French Revolution, in 1789, rose the awareness of citizenship with the proclamation of the "Droit de L'Homme et du Citoyen" (The Declaration of the Human Rights and of the Citizen), which, in general, advocated the effective participation of an individual in each community, according to the duties and obligations established and to be observed by all members of that community (Palazzo, 2021).

From that assumption, many states incorporated in their constitution and/or ordinary laws a variety of definitions alongside, for example: (a) In terms of the Portuguese Constitution (Constituição Da República, 1976) all citizens are entitled to the rights and subject to duties assigned in the Constitution; (b) According to Melo (1998; p.78)¹, it was verified that there was an evolutionary expansion of the citizenship concept, which

¹ In Dos Santos (2013)

was extended to civil, political and social rights, and more recently, duties regarding collective interests; (c) According to the Constitution of the Federal Republic of Brazil, (Constituição Federal, 2016) men and women have equal rights and duties in constitutional terms; (d) In terms of the Constitution of the Republic of Mozambique (Constituição da Republica, 2004), men and women are equal under the law in all scopes of political, economic, social, and cultural life.

Therefore, according to the constitution, a citizen can be defined by a set of rights and duties that enable them to participate in political and economic activities (Furtado, 2010).

For the identification system, according to our proposal, the citizen can be defined under two perspectives, namely, (1) citizen as a natural simple and pure person, and (2) citizen as a natural complex person, whereby:

(a) A Citizen as a natural simple and pure person, reflects the individual as a simple person of legal relations. In this perspective, the citizen engages in social legal relations from its birth registration, where he or she is assigned citizenship and visibility before the legal system of a given country, reflecting its initial stage of life, gifted by rights, but exempted from exercising them directly and personally.

(b) A Citizen as a natural complex person reflects his/her interaction with the complex legal environment. In this perspective, the citizen is empowered to exercise directly and personally, its rights and duties, contemplating several qualities acquired from its participation in multiple processes of life, namely: (1) health care user; (2) taxpayer; (3) voter; (4) driver; (5) social security system contributor or beneficiary; among others.

2.2 Citizen Identification

Establishing the identity of an indisputable person was a matter of concern of various generations in humanity. Identification is the action and effect of identifying or identify better. It is the action of recognizing someone as their own.

For Federico Olóriz Aguilera (1855-1912)², “identification is the most frequent and elementary act of a social life”. It makes use of all senses, vision, smell, hearing, tact, and taste to identify people and things. However, when there is a need for accurate identification, to “praise” or “accuse” someone, it is important to have an indisputable identification, which characterizes the difference from another similar person. A variety of methods were developed and adopted by different countries to promote indisputable identification along the development of humanity (de Araújo & Pasquali, 2004), namely:

- (a) Name is the oldest method used by human beings to recognize their peers and things that surround them.
- (b) Ferret, a method based on the use of an iron tool, warmed out to tag criminals, slaves and animals.
- (c) Mutilation is a method that consists in amputating parts of the body.
- (d) Tattoos are a method that consists of tattooing the internal part of the right forearm with letters or number.
- (e) Photography, the photographic method is used to complement other methods, such as the name.
- (f) Part of the body, identification system based on measures of the exterior part of the ear canal, using an instrument called “otometer”.
- (g) Dental Arch is a method used to identify people that committed civil and criminal activities
- (h) Anthropometry, based on the principle that the human skeleton does not change after 21 years, collected various processes and created a data basis with measures of different parts of the human body to compare with those from criminal cases reported at the time.
- (i) Papilloscopy, commonly designated "fingerprints" or currently treated by biometry, consists of differentiating people, based on biophysical characteristics that do not change with time and that do not replicate in other human beings.

The use of some of these methods was limited due to their fragility or unhuman character, but also because they are difficult to file and search. Initially, identification aimed to determine ownership of animals, slaves, and personal objects. Over time, the priority was to prove the identification of harmful people in society, and, with the evolution and modernization of humanity, each person must carry responsive identification (timely, security and availability) and Current challenges demand identification systems with specific characteristics, namely, security and privacy of citizen's data to face cyber-crimes.

² In Dos Santos, (2013)

Considering the need to exchange information there is also a requirement for a key (the Unique Citizen Identification Number) associated with biometric elements, as well as the use of data storage technology, commonly known as "chip", standardized by the International Standard Organization (ISOxxxx).

3. THE CURRENT MOZAMBICAN IDENTIFICATION SYSTEM - STATE OF ART

After this brief contextualization, in the current section, we describe the current Mozambican Citizen Identification System, obeying the two perspectives of the definition of Citizen (according to our proposal):

3.1 The Citizen Identification: Citizen as a Natural Simple and Pure Person

The citizen identification in this perspective is expressed by birth registration and civil identification.

(a) Civil Registry, s subsystems that keeps birth registration information. The documents of this subsystem are (1) Birth bulletin; (2) Personal Ballot; (3) birth certificate.

(b) Civil Identification, a subsystem that keeps the database about the identification of nationals or naturalized citizens (that acquire Mozambican nationality) or those who required residence visas. The resulting documents from this subsystem are: (1) Identification Document (ID); (2) Identification Document for Foreign Residents (DIRE); (3) Passport/Traveler Document.

3.2 The Citizen Identification: Citizen as a Natural Complex Person

Table 1. Macro vision of the attributes of several Mozambican identification subsystems

#	Document (Subsystem)	Attributes																						
		Name ³	Father	Mother	Residential Address	Professional Address	Document Number ⁴	Birth Day	Marital status	Place of Birth	Tel	Fax	Email	Biometry	Nationality	Sex	Height	Expiry Date	Issuing Entity	Issuing Date	Place of Issue	Profession	Signature	photography
1.	Birth bulletin	•	•	•	•	•	•	•	X	•	X	X	X	•	•	X	X	•	•	•	•	X	X	X
2.	Personal Ballot	•	•	•	•	•	•	•	X	•	X	X	X	•	•	X	X	•	•	•	•	X	X	X
3.	Birth certificate	•	•	•	•	•	•	•	•	•	•	•	X	•	•	X	X	•	•	•	•	•	X	X
4.	Identification Document	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
5.	Identification Document for Foreign Residents (DIRE)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	X	•	•	•	•	•	•	•
6.	Passport/Traveler Document	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	X	•	•	•	•	•	•	•
7.	Military Identification	•	•	•	•	•	•	•	•	•	•	•	•	X	•	•	•	•	•	•	•	•	•	•
8.	Electoral Identification	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	X	•	•	•	•	•	•	•
9.	Drivers' Identification	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	X	•	•	•	•	•	•	•
10.	Tax Identification	•	•	•	•	•	•	•	•	•	•	•	•	X	•	•	X	•	•	•	•	•	X	X
11.	Health Identification	•	•	•	•	•	•	•	•	•	•	•	•	X	•	•	X	•	•	•	•	•	X	X
12.	Social Security Identification	•	•	•	•	•	•	•	•	•	•	•	•	X	•	•	X	•	•	•	•	•	•	•

³ The name structure and other elements are not standardized (for example, in some cases names and surnames are an unique name, in other cases the given names and surnames are different attributes).

⁴ The structure of the document number is not uniform in deferments subsystems

The citizen identification in this perspective is expressed in the diverse subsystems, namely: (a) Health Identification maintains the citizen database that goes through the public hospital, assigning them the Patient Identification Number (NID) to access the clinical file; (b) Tax identification keeps citizens' databases and entities in compliance with tax obligations. The essence of the subsystem is the assignment of the Unique Number Tax Identification (NUIT); (c) Military Identification keeps database from national citizens above 18 years of age, eligible for military service. The documents required are (1) Military Ballot and (2) Military Identification Card; (d) Electoral Identification keeps a database from citizens with electoral capacity and the document used is the voter card; (e) Drivers' Identification keeps a database from citizens enabled to drive motor vehicles and the document used is the driver's license; and (f) Social Security Identification, database from (contributors and beneficiaries) of the social security, resulting in the creation of two identifiers, namely: (1) Contributor Identification Number and (2) Beneficiary Identification Number.

Each of the identification subsystems holds its own attribute set. In Table 1, there is a macro vision of the attributes of the different subsystems of the Mozambican citizen identification.

4. ANALYSIS OF THE MOZAMBIKAN CITIZEN IDENTIFICATION SYSTEM

ICT in an age of the knowledge economy, where the differentiating factor is digitalization, accurate identification of the citizen is crucial.

The trend of the citizen identification systems is based on the smart card technology, which allows the portability of relevant information of an indubitable identity, which carries, at least: (1) Unique Citizen Identification Number; (2) Database about the citizen registry; (3) Identification document based on a smart card; (4) Essential data visible in the identification document (photography, name (s), birth date and others; (5) Biometric data, digital signature and other information usually stored in the database and/or in chips, visible only with an appropriate reader; among others.

For Mozambican citizens, the birth registry is mandatory and free of charge in the first 180 days of the citizens' life (Lei 12/2018, de 4 de Dezembro, 2018). However, many children, in rural areas, are not registered at birth for several reasons, emphasis on the following: (1) parents' unawareness about the importance of the registry, they do so, when there is a demand, for instance, when a child is about to enroll in the first year of school; (2) in some cases, naming a child is preceded by traditional rituals, that in most cases delay the child registration.

As shown in Figure 1, each institution manages its processes, from the collection, storage, and citizens' database, spends vast resources (human, material and financial) maintaining common citizen's data, disregarding standard principles and/or interoperability procedures, resulting in the duplication of records in several subsystems, therefore, identification of the citizen becomes complex and generates huge waste.

In general, exchange of information between ID subsystems is done manually, making it difficult and complex to develop new public and private services.

Currently, the citizen acts as the interoperability enabler between different subsystems, by providing information about changes in its registry along its life cycle and lack of interoperability demands that the citizens go to countless Government Institutions to request several identification documents, contributing to high levels of bureaucracy and higher costs for both the citizen and the state.

Most of the documents within the identification systems do not have a unique and common citizen identifier. Most recently, the inclusion of the ID number in passports and driver license was ordered. Thus, it is necessary to extend this procedure to all subsystems; the challenge is that the majority of the subsystems do not have biometric data, putting at stake the principle of indubitable identity.

Given the situation, the development of studies about the Mozambican citizen identification system is crucial.

5. CONCLUSIONS, RECOMMENDATIONS AND PROPOSALS FOR FUTURE DEVELOPMENTS

According to Figure 2, from the citizen's identification perspective, the life cycle begins in the Civil Registry (materialized by Birth Registry) subsystem, and ends in the same subsystem, through the issue of a death

certificate. Therefore, the Civil Registry subsystem is the foundation of all identity systems that is why all efforts toward modernization must ensure an accurate interconnection between this and other systems.

The Mozambican citizen identification system portrays problems in two dimensions: (1) remarkably high and avoidable costs to the citizen; (2) it does not allow for responsive (safe, timely and available) information regarding citizen identification to help the state in its diverse administrative actions, including those that are harmful to government sustainability, namely, corruption, organized crime, and counter-terrorism.

Recalling Table 1 and making an attribute analysis, we verify that some subsystem documents like, for example, the Civil Registry contains redundant information. Therefore, we recommend binding it in one, the Birth Certificate, with updated information, and automatically eliminate the rest (Birth Bulletin and Personal Ballot, as illustrated in Figure 3.) An enhanced study may determine the rationalization of other subsystems.

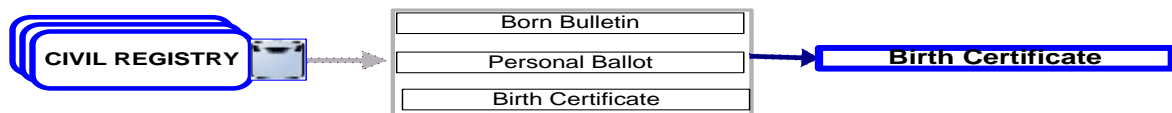


Figure 3. Rationalization of the Civil Registry subsystem

The Work System Theory (WST) demands interoperable information systems, which is absent from the Mozambican citizen identification system, making it dysfunctional, in a sense that it will not produce the results for which it was conceived efficiently (Alter, 2013).

Taking into account the above description, a study about the citizen identification systems, developed in these two views, is recommended, namely:

(a) The development of an interoperable Citizen Identification Conceptual Model to guarantee efficiency in the delivery of services in the public sector.

(b) The creation of an institutional base for the management, maintenance and techno-legal control of the citizen identification system in a holistic vision and with a sustainable architecture (planned; developed; implemented and maintained).

A concept study in the proposed view becomes important because a citizen identification system, founded in a modern and contemporary architecture that responds to current and next generations' challenges, will contribute to an efficient function of the public administration, as well as the democratization of the country and justice (Hoover, 1972).

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