INTEGRATED BIOMETRICS

Identity in a Developing World

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Identity in the Developed World

The concept of identity differs dramatically, depending on where someone lives. In robust, developed economies, paper and digital records are a given. From birth onwards, the question is how to manage that identity to protect privacy and financial security.

At the civil level, identity means government and national ID programs, starting with birth certificates. Other governmental operations include voting rights, taxation and refunds, professional licensing, and pensions. Proof of identity is essential for financial services, credit cards, school identification cards, and more.

> **Identity is critical in the developing world. Without identity, one does not officially exist, which makes it all but impossible to receive aid, pensions, or government/NGO assistance – let alone participate in banking and financial services or travel across borders.**

A digital online presence depends on verified identity. Device, location, and unique encrypted tokens are crucial to connect individuals to each other, to social media, to governmental agencies, and to business entities of any variety.

Even criminal and justice systems assume that everyone has a unique and fixed identity. In digital terms, AFIS-compatible databases from the FBI and international law enforcement agencies verify individuals with criminal records. Other databases list known or suspected terrorists, or possible illegal immigrants.

Jails and penitentiaries might see prisoners as numbers rather than people, but each number is distinct. Without identity, it is impossible to know who has completed their sentence, who is on parole, and who has earned restitution of rights. Nor is it possible to tell that a suspect has prior arrests or convictions, and bears a significant threat should they be released.

This fundamental need for identity cuts through every aspect of society, from multinational corporations to start-up businesses, from religious institutions to military organizations. Society depends on the ability to track an individual based on near-perfect confidence in who they are.

When Identity Does Not Exist

For those of us living in the developed world, the primary concern isn't establishing identity, but managing it. Modern life requires a balance between availability and privacy, between a public persona and data that should remain private. The question isn't who we are, but who has the right to that identity, to the data generated by daily activities, to profit from that data, and to create or destroy any aspect of that information.

The abstractions and challenges of identity have a very different reality for hundreds of millions of people who live in less developed parts of the planet. For these individuals, the lack of a provable identity is a major obstacle to many life benefits that the developed world takes for granted. These hardships are difficult for those on the other side of the divide to understand, but they are crushing and real.

The challenge is how to establish identity for individuals who are difficult to reach — in effect, ensuring that good people receive appropriate aid and services, and that bad people do not receive assistance or cross borders to generate political or military disruption.

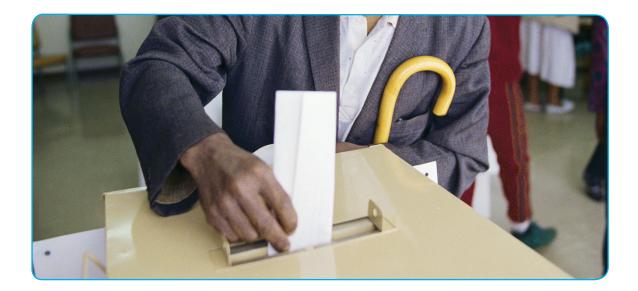Those most affected by a lack of identity tend to live in the following areas:

- Remote regions of countries or countries with limited ability to deliver essential services
- Cities with large, underserved regions of settlement and high levels of poverty, such as shantytowns, illegal townships or favelas
- War zones or failed states lacking civil order
- Refugee camps and other locations with displaced populations
- Aid areas during recovery from natural disasters

In the eyes of governments, these people do not exist. They receive few benefits or aid. Their earnings, when they have any, are not taxed. When serviced by aid organizations, they lack a secure means to transition back to a normal life, since there are no processes or procedures to validate who people are or to track their movement across regional or national borders.

The lack of identity means these individuals cannot fully participate in society. Privileges that they lack but that the developed world takes for granted, include, but are not limited to:

- The right to vote

- The ability to earn or keep a job

- The opportunity to attend school or university

- Travel across city, state, or national borders

- Government benefits

- Police protection

- Government or employer pensions

- Healthcare

- Non-governmental organization (NGO) aid

- Protection against illegal conscription into armies or militias

In short, the lack of identity is a major impediment to human rights, quality of life, and economic development. Conversely, the ability to establish identity delivers immediate tangible results for individuals and for countries seeking to use human capital to maximize growth and economic opportunity. NGOs also benefit, since identity helps establish appropriate levels of service and eliminate fraud.

The Global Benefits of Identity in the Developing World

The challenge is how to establish identity for individuals who are difficult to reach – in effect, ensuring that good people receive appropriate aid and services, and that bad people do not receive assistance or cross borders to generate political or military disruption. Consider Africa. Overall the continent has seen dramatic reductions in poverty and rapid economic development. At the same time, only a relatively small percentage of Africa's population has the type of identity taken for granted in the rest of the world.

Africa's success is despite these obstacles. Given Africa's progress, how much more might be achieved if all its population had access to:

- Basic healthcare support and lifelong health histories

- Passports

- Background checks

- Bank accounts

- Credit or credit cards

- Government or NGO identification cards

- Secure borders

- Reliable banking and other financial services, located near where people work or live

- Greater local economic development

- Reduced incentive to migrate to Europe and the rest of the world

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Similar issues exist across the developing world. Pakistan's "ghost schools," in which hundreds of nonexistent teachers received regular payments, is one example among many. Even in the United States, government and social services officials find it difficult or prohibitively expensive to reach remote areas. Voter registration and other photo identification requirements in these regions force individuals to travel hundreds of miles for enrollment, which risks the loss of a fundamental right due to distance and cost.

The developed world also gains when identity becomes universal, through lower refugee flow, increased trade, greater security, and political stability. These issues are why the International Monetary Fund and World Bank, among other major NGOs, consider identity as crucial for global economic growth. These initiatives establish identity as a fundamental right that, if successful, raises the quality of life for everyone.

A Simple Question of How

How to establish identity in the developing world is not an easy question to answer. The people who need identity most are difficult to reach. For many, food, water, and shelter are more important than public utilities such as electricity, telephones, or internet.

> **The solution comes from highly portable devices that establish identity in the field. In effect, enrollment moves to where the need is most, with verification becoming a fundamental part of daily life.**

They often live far from established infrastructure. The solution comes from highly portable devices that establish identity in the field. In effect, enrollment moves to where the need is most, with verification becoming a fundamental part of daily life.

The ideal enabling technology is a fingerprint scanner. These products are well-established and widely accepted across governments, NGOs, and law enforcement. Fingerprints are unique to every individual, and more intuitive to use than facial, voice, or iris recognition, and much less expensive than DNA testing. Most importantly, fingerprint identification is easy. Place fingers on the scanning surface. Confirm enrollment. Upload the scans to one or more central databases. Rescan when necessary to prove someone is who they say they are.

These devices must meet highly particular sets of criteria for accuracy and usability, such as 10-finger enrollment. They must be small and lightweight so that they can be carried easily to wherever they are needed. They must use little power since they operate where large battery packs are impractical or reliable electric power is unavailable.

Other requirements include rugged designs that deliver results under challenging physical conditions including heat, cold, bright lights, and direct sunlight. These scanners must be low maintenance, with few fragile or moving parts to break, wear out, or need replacement. They should operate without frequent cleaning or disposable elements that require regular resupply. The images generated must match national or regional ID, NGO ID, and AFIS-compatible criminal and anti-terrorist databases.

Technology Has Not Kept Pace with Need

Many 10-finger scanners meet some of the criteria for identity management in the developing world. However, few meet all of the requirements. Size, weight, and ability to operate under extreme conditions remain significant obstacles.

For example, glass- and prism-based systems are insufficiently rugged and reliable for field work. Glass surfaces scratch, prisms break, and backlight assemblies need replacement. Repair facilities do not exist in remote areas, and government and NGO officials in the field rarely have the budget for duplicate units.

These scanners typically deliver poor results in heat, cold, dirt, bright lights, or direct sunlight. They require significant amounts of energy to operate, using separate battery packs for field operations that double the size and weight of the overall kit. Platens need cleaning because of latent prints. Silicon pads that enhance accuracy must be replaced often, limiting the number of people who can be processed within a given time. The result is that "portable" means using a suitcase to reach target populations, which limits use in truly remote, underserved, or underdeveloped areas.

Integrated Biometrics' FIVE-0 – The First Truly Compact, Portable Fingerprint Scanner Built for the Developing World

Integrated Biometrics has taken a different approach, developing the industry's first FAP50, FBI-certified optical biometric fingerprint scanner. This 10-finger unit delivers enrollment and verification in a package that fits in a shirt pocket. As such, it may well be the ideal 10-finger mobile scanner, needing little power to operate and delivering high-quality scans under extreme physical conditions.

FIVE-0 uses the Integrated Biometrics' patented light emitting sensor (LES) technology to build a compact, dependable device. The FAP50 format is the smallest surface area certified by the FBI and NIST for 10-finger enrollment and verification. As a result, FIVE-0 is exceptionally lightweight and requires little power. It delivers exceptional scan quality despite challenging field conditions, such as latent fingerprints, bright lights, or direct sunlight, and is highly resistant to dirt, cold, or heat.

FIVE-0's light emitting sensor uses an electroluminescent polymer to generate an image. This film layer is laminated directly to a thin film transistor (TFT) camera. The result is a slim and lightweight 10-finger scanner that meets the resolution and performance standards mandated for FBI-certified scans – in a package far smaller than what is possible using glass platens, prisms, and backlighting.

Light emitting sensor technology means that FIVE-0 scanners can operate for hours using power provided by a standard smartphone. Its compact, lightweight form factor is easy to transport and easy to use. FIVE-0's unique design places fingers automatically in the optimal position for accurate scanning and automatically rejects common nonconductive spoofing techniques. There are no glass surfaces to scratch or break, and no internal light sources to replace.

FIVE-0 – Identity Management that Goes Where the Need Is

Identity is critical in the developing world. Without identity, one does not officially exist, which makes it all but impossible to receive aid, pensions, or government/NGO assistance – let alone participate in banking and financial services or travel across borders. Biometric identification, especially fingerprint scanning, has the potential to establish the identity management that is essential for improving the quality of life for these underserved populations.

The challenge has come from the lack of a portable scanner that can handle 10-finger enrollment under the extreme physical conditions typically encountered in the developing world. Without a rugged, reliable, low power device that meets stringent international law enforcement standards, government and NGOs lack the ability to extend identity enrollment to areas where it is urgently needed.

Integrated Biometrics' FIVE-0 is the first optical fingerprint scanner that meets these criteria. It is compact, lightweight, and operates where other scanning technologies cannot. It requires little power while delivering scans compatible with widely accepted international law enforcement and anti-terrorist database standards.

The same technology that protects the developed world from criminal behavior can help hundreds of millions of people in other regions live healthier, happier, more productive lives. In turn, the development driven by verifiable identity helps the developed world through increased economic activity around the globe.

All it takes is a 10-finger fingerprint scanner that fits in a shirt pocket. All it takes is Integrated Biometrics' FIVE-0.

About Integrated Biometrics

Integrated Biometrics, LLC designs and manufactures FBI-certified fingerprint sensors for law enforcement, military operations, homeland security, national identity, election validation, social services, and a wide range of commercial applications. The company's patented light emitting sensor technology enables lightweight scanners that outperform traditional prism-based devices in size, power consumption, portability, and reliability. Identity management solutions providers, government agencies, and corporations around the world rely on Integrated Biometrics' products to enroll and verify individual identity quickly and accurately, even in remote locations.

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