

Member Interview



Famine and Disaster Relief: The Role of Biometrics

IBIA Interview with David Gerulski Executive Vice President, Integrated Biometrics

Tovah LaDier for IBIA: Welcome back, Dave. It's wonderful to speak with you again and to hear about your major humanitarian project in the Middle East. These important projects do not always receive the media attention they deserve and IBIA appreciates the opportunity to learn about your project and to help educate people about the important humanitarian uses of biometrics.

To get started, please give us some background about Integrated Biometrics, the project, how you got involved and how biometrics figures into famine relief?

David Gerulski for Integrated Biometrics: Integrated Biometrics designs and manufactures FBI-certified fingerprint sensors based on our patented Light-Emitting Sensor film. Our scanners are durable, lightweight, reliable and mobile. They are used globally in a wide array of commercial, government and non-profit applications, including law enforcement, election validation, border management, social services, military operations, homeland security, and national identity.

We're very honored to be involved with this project. As many of your readers will know, Yemen is suffering through what is today the world's greatest humanitarian crisis. That's not an exaggeration. Crises in faraway places often fall off our personal radar – particularly now, when we're all dealing with major disruptions in our own lives. But the scale of what's going on in Yemen is hard to wrap your brain around.

The United Nations has said more than four million people – out of a total population of 30 million - have been forced to flee their homes because of dangers due to revolution, food and water insecurity, and ethnic violence. That's an incredibly destabilizing situation. Imagine if 75 million US citizens were forced to flee due to a disaster or other crisis. That's equal to the populations of California, Texas, and Pennsylvania put together—all leaving their homes at once.

Tovah: I think we've all seen the heartbreaking images of the tragedy in Yemen.

David: Food insecurity is the greatest threat at the moment. UN agencies report that 80 percent of the population – more than 24 million people – are in dire need of humanitarian assistance. Public services have broken down, and only 51 percent of health centers remain fully functional, while medicine and equipment are limited.



David Gerulski is Executive Vice President for Integrated Biometrics (IB) and a champion for the use of IB's patented light emitting sensor (LES) technology in securing the rights of identity for citizens of developing nations. David speaks regularly at biometric industry gatherings and on topics ranging from border security and national ID programs to biometrics in healthcare.

Tovah: So how does a maker of biometric hardware help during a catastrophe like this?

David: IB's involvement really goes back to our long-held commitment to the importance of verifiable identity – the point that the UN and the World Bank talk about, that Joseph Atick has been so focused on in Africa. In what we call the “Western world,” people take the concept of “identity” for granted. We have a birth certificate, a driver's license, are registered to vote, carry a passport or a National Identification card. These are the norm for much of the world. In other places, though, this isn't the case. Systems for recording and tracking identity are either outdated or missing altogether.

Tovah: How does this situation relate to famine relief?

David: For one thing, people don't realize how difficult and inefficient it can be to try to provide supplies and food aid when there's no verifiable identity system in place, particularly with the kind of internal displacement seen in Yemen. Not only do you not know who needs help, but you also don't know where the needy are. And that isn't the only challenge. Relief agencies can lose significant portions of food aid to organized crime, rogue members of the government and military, terrorists, revolutionaries, and others. This kind of misappropriation can result in the loss of much of what other nations and charitable organizations have donated. It's a huge problem. And theft also occurs locally when opportunists “game the system” by falsifying their identity and their need to receive food in order to sell it on the black market.

Tovah: And biometrics was the answer – even in a very troubled place like Yemen?

David: The UN agency in charge understood the only way to deal with the identity question was to resolve it from the ground up. They turned to our partner, Prodigy Systems, a Yemen-based technology solutions provider. The UN wanted to work with a local company because of the extreme conditions on the ground – famine, political instability, sectarian violence. Adnan Al-Harazi, Prodigy's CEO told me that, as Yemeni citizens, the work was particularly important to them.

Tovah: How did Prodigy begin? It seems like a very difficult environment for that kind of project.

David: They were first asked to develop software to register and authenticate each household leader affected by the famine. This turned out to be more than a million people in 80,000 locations across difficult terrain with almost no network infrastructure.

Tovah: How can you build a database across great distances with no infrastructure?

David: The team recognized this would require a truly mobile, biometric enrollment solution, and like most of us, they started with research on the Internet. That's where they discovered IB's unique, “FIVE-0” four-finger slap scanner. It is the smallest mobile 10-fingerprint scanner in the world and requires only a tiny amount of power – running off a mobile phone. No additional special equipment is needed to collect and store the biometric data, so it allowed Prodigy to go anywhere people are in need and securely enroll them. In areas where a cellular signal exists, enrollment information is immediately uploaded to the database. When no signal is available, the record is stored on the mobile phone or tablet until it's within signal range.

Tovah: After enrollment, what is the next step?

David: To receive food, the enrolled head of household must come to the distribution point and be positively identified. This procedure guarantees that aid is provided only to those truly in need, eliminating fraud, theft, double-dipping, and black-market sales.

Tovah: So only the person being biometrically identified can receive food?

David: Exactly. Because of the extreme accuracy that results from ten-finger enrollment on the FIVE-0, only a single finger is needed to accurately match. It not only makes food distribution extremely secure, but it also makes it much faster than any other system.

Tovah: Did the relief agency in Yemen consider the use of contactless biometric identification?

David: It was never proposed, and we think there are several reasons for that. First, the conditions on the ground are extremely challenging. Heat, dirt, dust, and other such factors are very tough on equipment, and the fact that the contractor was going to have to visit 80,000 different locations within the country meant that only a very durable, lightweight, mobile solution could work. You can't control lighting out in the blazing Yemen sun, so optical solutions wouldn't work. The absence of a technological or telecommunications infrastructure limited the range of options – things like power consumption, file size, and so on were also limiting factors. Finally, some of the latest technologies – contactless fingerprinting, for example - are not fully developed enough to gain the FBI or other certifications required for the project.

In a broader sense, fingerprinting remains vital – even preeminent - in several areas and for several reasons. In the world of forensics, there is simply no substitute for the fingerprint. Beyond that, the rising tide of “deepfake” technology poses a very real threat to subvert a number of other identification technologies. Millions of people – and certainly many of your readers - have had their identity stolen by cybercriminals. Deepfakes of faces and voices - with sounds and images stolen from social media – are already being used to create new modes of identity theft. Secure enrollment requires certified, tactile, fingerprinting technology to ensure that the highest quality print can be acquired and stored for later identification. We use a sophisticated combination of hardware and software to absolutely shut down attempts at faking fingerprints. If identification systems don’t include certified fingerprinting technology in the mix, they’re not as bulletproof as they should be.

Tovah: The Yemen project sounds like it has been a very rewarding.

David: Absolutely. In the US and elsewhere, people are sometimes ambivalent about who has access to their personal biometrics. In our traditions, those concerns are absolutely understandable, even when those biometrics systems are used to help make healthcare, law enforcement, border control, and financial institutions demonstrably safer. In cases like Yemen, however, biometrics truly saves lives.

Tovah: After your experience in Yemen, do you think this approach could be a model for humanitarian and relief programs elsewhere in the world?

David: We absolutely believe it can. After becoming involved in the Yemen initiative, I found myself reading about the terrible humanitarian disasters elsewhere in the world and found many are in Africa. You can read summaries on the International Rescue Committee website ([link](#)). The situations begin to sound horribly familiar. Places like Central African Republic, South Sudan, Somalia, and others suffer from similar levels of human displacement, with huge numbers of internal refugees suffering food insecurity and personal danger. Those places also lack both a network infrastructure and any real identification system. Of course, the world’s humanitarian organizations are responding, but without pervasive, permanent identity confirmation, aid programs will always be hampered by the same issues. That’s where biometric identity systems – mobile, highly secure, and highly accurate – can really help.

Tovah: What about contactless fingerprinting in general across the industry?

David: Contactless fingerprinting is still some years away. There are still a number of development challenges to resolve, then there’s the certification process. And in cases like Yemen, issues like dust and dirt, dry, worn fingers, blazing sunshine are all hurdles to overcome. We think it will be some time before contactless is ready to meet these real-world challenges.

Tovah: One other topic I’d like to address. We can’t talk about our industry without talking about the long-term impact of the ongoing pandemic. How has it impacted IB?

David: We haven’t really experienced much negative impact in terms of demand for our core products. We remain the global leader in mobile fingerprint biometrics, and the majority of the world’s large proof-of-identity systems depend on fingerprint biometrics – and will for the foreseeable future. That hasn’t changed. Fingerprint biometrics has long been the foundation for secure identity in the world and will continue to be. We communicate with our customers and partners regularly, giving them direction about proper sanitizing of our scanners. Like any high-use surface you come in contact with during your everyday life, wash or sanitize your hands after contact. Don’t touch your face and nose. But let’s be clear: Tactile fingerprint identity helps secure and feed the world.

Tovah: That’s good to hear. What business challenges have you had to overcome as a result of the pandemic?

David: The impact has largely been logistical for both us and our customers. We’ve experienced minimal manufacturing disruption during the early part of the crisis, though it has created a few challenges in the area of logistics and supply chain. We’ve seen some project delays, as governments and our partners adjust to the social and fiscal impact of the pandemic. That’s to be expected. Things have already started to normalize and 2020 is shaping up to be another strong year for us.

Tovah: David, thank you for making time for this interview.

David: We appreciate the opportunity.