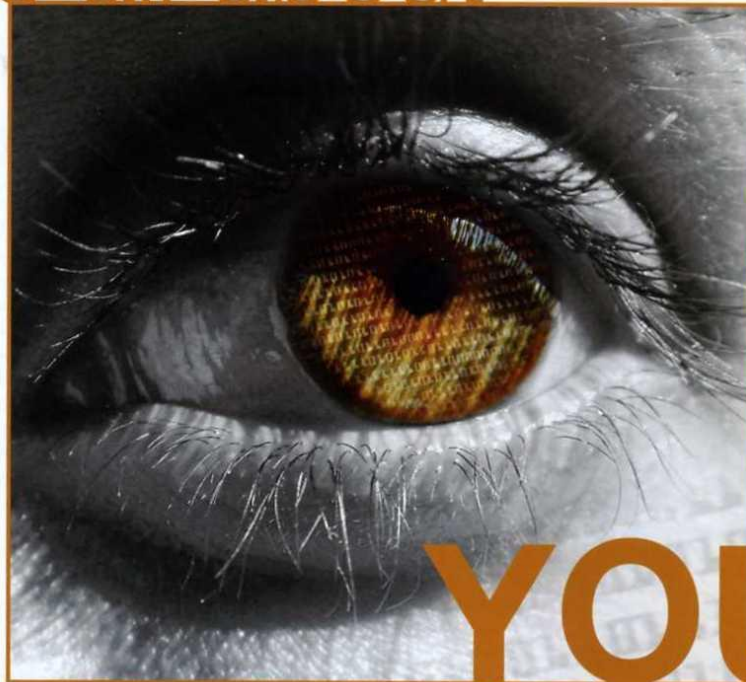


# It's all about



# YOU

The biometrics market is set to rocket as Asia tightens its borders.

**E**nsuring security is tight at border control is more crucial now than it has ever been. With the need for stringent controls between countries, biometrics can increase these efforts threefold by using fingerprints, facial recognition and other sophisticated systems to more accurately identify criminals and terrorists slipping through the net. In fact, the biometric market is expected to grow from US\$116 million in 2000 to approaching US\$2 billion in 2006, and by 2010, the market will have rocketed to more than US\$5 billion worldwide, according to TMC Research. Already in the Asia Pacific, many biometric schemes have been deployed, helping to keep a watchful eye on movements between borders, and stopping undesirables in their tracks.

### Guessing games

In recent times, some of the traditional methods of identification have been rendered useless as criminals

have discovered ever-more ingenious methods of duplicating and forging identity documents. As a result, methods of identification such as fingerprinting, hand printing, face and iris recognition, along with other methods of biometric identification, have really come to the fore. Although some have proven more effective than others, much emphasis has been placed on the potential of these technologies to make it virtually impossible for identity fraud to take place.

One of the biggest problems border control faces is verifying a person's identity and ensuring that an individual really is who they claim to be. "Why is it that when we deal with somebody we can't be confident that they are who they say they are?" asks David McIntosh, Chief Executive Officer, OmniPerception Limited and Chairman of the International Association for Biometrics. "The answer is they might have stolen or forged their passport or ID card. The worst case of security breaches at airports involves staff impersonation. As long as you have a name badge around your neck you can go anywhere. A biometric ensures you are dealing with the correct person."

Although some people have been critical about the "big brother" aspect of biometrics and the potential loss of privacy entailed, the experts argue that surely the benefits of methods that can discourage criminal activity will outweigh any reservations. "When referring to biometrics this can mean anything that can be recognised about you," explains technology and security expert Peter Cochrane. "So, it could be the way you walk, talk, look, even the way you hit buttons on a keypad. If you invest a lot of money into any individual technique then you can achieve a high level of recognition. At many border controls people moving through airports can be identified, scanned and tracked by cameras automatically. These are looking for their heat profiles, the gates they are walking to, and facial features."

Fooling a biometrics system is particularly difficult as people have their own distinctive characteristics and traits, which are almost virtually impossible to replicate.

### Keeping a finger on the pulse

One of the oldest biometrics in use is fingerprinting. This method of identification has been around for over a hundred years but, although effective in the ma-



majority of cases, there are still situations when the technique fails to be of any use – for instance, doctors and those that work on building sites wash their hands constantly so the fingerprint is often weathered away. Another complaint often highlighted by users of biometrics is the waiting time involved at the airport as they queue to get tested.

This is why much hope has been placed on alternative biometric systems, particularly face and iris technology. Iris recognition, for example, which takes advantage of the natural patterns in people's eyes, can be carried out much quicker than fingerprinting. Face recognition is also seen as less threatening than being taken to one side and fingerprinted, even if it is just routine. "Face recognition is the most intuitive because we all recognise each other from our faces," explains McIntosh. "Nobody can complain when our faces are looked at because it is the best way for us to recognise people. It is far more acceptable than fingerprinting or iris recognition."

In the past, face recognition proved tricky as staff needed to be well-trained in using the technology, ensuring that the passenger's face was absolutely square on to the camera – anything less than the perfect portrait would result in inaccuracy. These days there is far more flexibility but, says McIntosh, it shouldn't be relied on as an all-encompassing security solution. "In large populations of millions of people there are quite a lot of people that look similar," he warns. "The way around this is to use very accurate technology, but also to deploy it in a way that recognises that it is not going to give you a hugely scientifically accurate result in millions of cases. It should be pointed out that such technology can only ever be part of the answer. Human vigilance and professionalism are also needed more than ever before."

### Taking the lead

Hong Kong is one region that has actively adopted biometric technologies to improve security at border control. To date, the systems used have been very effective and residents have been supportive of the way they are easy to use. "Facilitation and national security is always at the top of our minds," explains Raymond Wong, Assistant Director, at the Immigration Department of Hong Kong. "In the past, we relied on an immigration officer to do the verification for the initial inspection. Now that we use biometrics it is all very accurate – a machine does the verification process, so it is all automatic."

Residents of Hong Kong can swiftly pass through immigration with their unique SMART cars, which were issued to residents in 2003. These credit card-like documents contain a chip which holds a photograph of the carrier along with a template of their two thumbs. Since 2004, residents have been able to verify their identities at special e-channels or auto-gates at the airport. "In the



David McIntosh

past, we had one immigration officer for each immigration counter. Now, we have one officer overseeing five channels," enthuses Wong. "This makes the whole system easier to use. The citizens in Hong Kong like it because it is simple and protects against piracy. Many movie stars prefer to use the e-channels because they do not have to face the immigration officers and take off their hats and sunglasses. The whole process only takes around 10 seconds."

Hong Kong authorities have also deployed fingerprinting and face recognition to identify drivers at checkpoints between Hong Kong and the Chinese mainland. Drivers are ushered through a height detector and a picture of the number plate is registered. They are then obliged to provide a fingerprint and an image of their face. To address the problems often associated with fingerprinting, the Hong Kong authorities have deployed a few extra precautionary measures. These include using a blower to ensure fingers are dry, so the print doesn't smudge. Also, to address the worries some might have about hygiene, UV light is used to kill any bacteria which might be present on the scanner and antiseptic liquid is also provided.

Wong's only real concern with biometrics is that there is room for improvement with some of the technologies, particularly iris and face recognition. "Iris scanning is a very new technology, therefore I think it is good for a small number of users," he says. "A trained operator is essential. Users must be positioned to face an exact position. They also have to be on the look out for those who might think they can fool the system by using colour contact lenses, for instance, which cover the iris." Again, concerns over the accuracy of facial recognition is reiterated by Wong. However, he adds: "Face recognition is something we should keep a very close eye on. Very soon there will be 3D photography

and the quality of the photo will improve in the next three to five years."

Other hopes to improve accuracy are centred on using two or more biometric elements for improved effectiveness, otherwise known as multi-modal biometric application. In fact the future of biometrics is so promising, the experts confidently predict we could soon be walking quickly through passport control without any contact with human staff, weeding out people with something to hide. "The people that will be slower will be those that have not volunteered their information or there is something dubious about their travel," predicts Cochrane. "For the everyday passenger it is all positive. Within the next decade, you should be able to walk through passport control without seeing any human being. If you don't have the biometric ability it is unlikely you will be travelling in the next 10 to 15 years."

It is a sign of the times that security at borders must be rigorous and all passengers be carefully monitored. Although some dislike the idea that 'big brother' is watching our every move, it is ultimately necessary to ensure that those who threaten our society are stopped before they perpetrate any crimes. It is for this reason that all eyes are on biometrics and the potential protection they may bring. ■

