

YEAR 23 MARCH 2020/ISSUE 83

INFOSECURA

INTERGRAF
CURRENCY + IDENTITY

24-26/03/2021

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A magazine for the security printing industry worldwide, published four times a year by Intergraf in Brussels and mailed to named members of the security printing community, such as security printers, their suppliers, banknote issuing, government and postal authorities as well as police forces in more than 150 countries.

INTERGRAF

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The symbolism of cash and ID documents



In this issue of InfoSecura there are some subjects that come back over and over again. In the banknote sector it is central bank digital currency, disappearing ATMs and the uncertainty about a - perhaps coming, perhaps not - cashless society. In the ID area it is the idea of belonging.

The idea for an economy to go cashless is not a very recent phenomenon. The subject entered public discussion when the US economist Prof. Kenneth Rogoff published his book "The curse of cash" in 2016, in which he claimed that the world is awash in cash and most of it is used to finance tax evasion, corruption, terrorism, the drug trade, human trafficking, and the rest of a massive global underground economy. Paper money also cripples monetary policy by making it impossible for central banks to lower interest rates significantly below zero, he wrote. Much of the former argument has been debunked several times but nevertheless cash is retreating in several counties. It seems that using cashless payment methods is simply more convenient for most people. But aside from purely practical considerations, e.g. not having a bank account, etc. why do so many people still insist on cash? Here, emotional reasons may play a role: you can see and feel cash, you know how much of it you have and how much you have spent... The currently extremely low interest rate in the western world plays into this emotional response. One does not lose anything when keeping cash under the mattress and in some countries one even avoids negative interest. And the idea of having something 'for a rainy day' does not come with a digital wallet very well. It is simply too fluid.

There are many central banks that are now looking seriously at CBDC, trying to evaluate the potential risks and advantages. None of them has any direct experience of a cashless society. The effects of any large economy going cashless could change the world. But central banks cannot only look at the 'macro-effect'. Going cashless will affect millions of people very deeply, in developed economies and even more so in developing ones. The first central banker to decide to stop printing money has to be very brave indeed, but a large helping of ruthlessness is needed as well.

As our story on the reappearance of the blue UK passport shows, in the identity sector, the emotional component seems even stronger. Throughout the Brexit period, the UK government played on the symbolic role of a different passport colour as a sign of independence. That the argument was hollow, as Britain could have kept its old passport colour while being in the EU and that it never lost its 'independence' is immaterial, it worked. The tragic fate of the millions of people who are denied citizenship in the country of their birth carries of course much more weight than the colour of a passport (Are you one of them or one of us?, page 13). Moreover, it can only be solved by turning 'them' into 'us'. Today, millions of people around the world are denied a nationality. As a result, they often aren't allowed to go to school, see a doctor, get a job, open a bank account, buy a house or even get married, the UN Refugee Agency UNHCR notes. The agency is determined to end statelessness by 2024. Good ID documents 'from cradle to grave' will help.

The Editor



Whenever colleagues in 'our industry' talked about attending "Security Printers, Banknotes + Security", or even three years before the last event, about what was the most interesting presentation at "Security Printers International Conference and Exhibition" or even before that one, about who was there at the "Intergraf International Security Printers Conference", they hardly ever used these carefully crafted names for the meeting. They mostly and simply said: I went to Intergraf and it was very good or there I met ..., whether the name Intergraf was part of the official title or not. Because the name may have had changed, the aim, purpose and effect of the conference had not.

At the last meeting of the Committee of Experts, which is responsible for the content of the conference, it was decided to rename the event again to align it more fully with what the participants are actually calling it and have been calling it over the years. From now on the conference and exhibition will be called 'Intergraf Currency+Identity' and the name of the website that lists all the important information in the run-up to the event has been changed to www.intergrafconference.com. Apart from that the Intergraf conference and exhibition remains what it has always been; a focal point for the companies that produce banknotes and ID documents, their suppliers and their customers, be they governments, issuing authorities or law enforcement authorities.

AN UNCHANGED FOCUS

Since 1976, Intergraf has had one mission: To provide an independent platform for the global security printing community. A space to connect, exchange knowledge, and tackle the most pressing issues in the world of currency and identity. Technology has transformed that world over the past decade. New solutions, new topics and new challenges have emerged. As the landscape of the industry evolved, we broadened our horizons. Our scope expanded to create the event that you need, with the neutrality and objectivity you have come to expect from us. Today we are proud to share our new identity. Intergraf Currency+Identity

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Call for papers

Keen to share your know-how, insight and innovation with currency and identity experts around the world? Please submit your paper proposal by 04/05/2020 on www.intergrafconference.com

Proposals will be reviewed by Intergraf's Committee of Experts. Papers must not have been previously presented or scheduled for presentation at any other conference.

Selected speakers will be requested to submit their biography, photograph, abstract and presentation ahead of the event, and to authorise their publication in printed and electronic form. Intergraf reserves the right to withdraw confirmed speakers who ignore these requirements from the programme.

As in contrast to just about all other events in the field, Intergraf Currency+Identity has no commercial objective and is not sponsored, all papers presented should strive for neutrality and objectivity and avoid overtly marketing of products or services. This is an independent forum for industry discussion, debate and out-of-the-box thinking. Speakers should not shy away from controversy but challenge the audience with unconventional thinking!

AGENDA @ A GLANCE

TUESDAY 23/03/2021	WEDNESDAY 24/03/2021	THURSDAY 25/03/2021	FRIDAY 26/03/2021	SATURDAY 27/03/2021
<div>WORKSHOP ISO 14298 + CWA 15374</div> <div>INTERGRAF CURRENCY HIGH</div> <div>INTERGRAF IDENTITY HIGH</div> <div>Welcome cocktail</div>	<div>PLENARY Currency and identity: preparing for the future</div> <div>Exhibition aperitif</div>	<div>SESSION 1 Digital payment ecosystems – evolution or revolution?</div> <div>SESSION 2 Opportunities and challenges associated with Entry/Exit Systems</div> <div>SESSION 3 Smart solutions in currency production</div> <div>SESSION 4 Old dog – new tricks: new security features and new forms of identification</div> <div>SESSION 5 Sustainability in currency: contribution to a greener world</div> <div>SESSION 6 State of the art in morphing and presentation attack detection</div> <div>SESSION 7 Access to cash: challenges and new approaches</div> <div>SESSION 8 Digital Travel Credentials – the next era of identification?</div> <div>Dinner party</div>	<div>SESSION 9 Motivation for innovation: what's new in banknotes?</div> <div>SESSION 10 The latest in counterfeiting technologies</div> <div>PANEL Sustainability in the banknote and identity document industry</div>	<div>Post conference tour</div>

- Currency
- Identity
- Currency +Identity
- Exhibition
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EUROPEAN CENTRAL BANK AND BANK OF ENGLAND UNDER NEW LEADERSHIP

The world economy is entering phase of uncertainty, making the jobs of the new heads of the European Central Bank and of the Bank of England all the more difficult.

The world of central banking has made or will make two important changes among its leaders. The European Central Bank announced on November 1st, that Christine Lagarde, former Managing Director of the International Monetary Fund, has taken up her duties as President of the European Central Bank (ECB) and the Bank of England will have a new Governor as of 15 March 2020.



Christine Lagarde was appointed by the European Council on 18 October 2019 for a term of office of eight years. She succeeds Mario Draghi, who was President of the ECB from 1 November 2011 to 31 October 2019.

The Economic Affairs Committee of the European Parliament noted in a press release that in a first hearing at the Parliament, MEPs across the political spectrum wanted to know how the ECB can include action on climate change in its monetary policy and whether it would stop supporting unsustainable companies through its asset purchase programme.

Ms Lagarde pointed out that the climate issue, while secondary to protecting price stability, would be included in the ECB's macroeconomic models and taken into account when assessing risks and supervising EU banks. She also reminded MEPs that the ECB is the main buyer of European Investment Bank bonds, which committed to phase out investment in fossil fuels. MEPs were also concerned with the ECB's slow reaction to disruptive global technological developments, such as 'stablecoins', which present an opportunity to make cheap and fast cross-border payments, but at the same time pose risks to consumer protection. Ms. Lagarde replied that the ECB is attentive to technological developments, conducting research projects into digital coins, including the risks they might pose to stability, safety and the security of the monetary system and individual customers.

With a background in corporate law, she is the first ECB chief who is not a trained economist.

She is also admired as an effective communicator. Lagarde has herself pleaded for patience, saying she has been on a steep «learning curve» since taking up the job last month.

A SAFE PAIR OF HANDS



Shortly after Mme Lagarde started her new job, the UK Chancellor of the Exchequer announced the successor to the Governor of the Bank of England, Mark Carney, whose term of office will end on 15 March 2020.

The new Governor will be Andrew Bailey, hitherto chief executive of the Financial Conduct Authority. The Financial Times wrote that the government has placed the Bank of England in a safe pair of hands. The appointment of Andrew Bailey means investors can expect stability and continuity at the central bank, despite the turmoil and disruption elsewhere, notably around Brexit.

The FT continued that there was a temptation among ministers to recruit another "superstar" outsider like the Canadian Mark Carney rather than the Leicester-born Mr Bailey, a veteran of Threadneedle Street with a 34-year-long career in central banking. Mr Bailey is liked and respected by staff at the central bank. His experience at City regulators and as private secretary to former governor "Steady Eddie" George make him well-qualified for the position. He is intimately familiar with what is required for the job and the institutions he has to supervise.

The Guardian noted that "Mr Bailey has made a point of saying that Britain, home to Europe's largest financial centre, must not become a "taker" of EU rules after it leaves the bloc. Tellingly, he is viewed by former Treasury chiefs as "one of us". But is this enough, given the age we live in", the paper asked?

"The last three Bank of England governors have been big figures on the international stage, with the incumbent, Mark Carney, being a central banker whose words move markets. Mr Bailey, for all that he is an insider's insider, is not in the same mould. Britain ducked its chance to hire such a transformational figure, which is strange given what lies ahead. We are all born with imperfect foresight, but there are three dangers to the country's economy clearly visible on the horizon: Brexit, climate change and the next recession. We know next to nothing about Mr Bailey's thoughts on how to deal with these." ■

CENTRAL BANK DIGITAL CURRENCY REVISITED

The attack on cash by debit/credit cards, etc. is decades old, but digital forms of payment are no threat to sovereign currencies. By contrast, crypto currencies, such as Bitcoin and lately Libra, are designed to subvert state authority over money.

Talking about digital currency and especially central bank digital currency - CBDC - until recently looked rather esoteric, it was done mostly by central banks in countries where banknotes were falling out of favour with the public and central banks needed to find new ideas to stay in the game of controlling the money supply. Infosecura reported on several such central bank studies, but suddenly the subject has moved from the fringes to the centre. At the first appearance of the new head of the ECB, Christine Lagarde, at the European Parliament, MEPs complained about the slow reaction of the ECB to disruptive global technological developments, such as 'stablecoins' (or digital currencies generally). Ms. Lagarde replied that the ECB is watching technological developments attentively, conducting research projects into digital currencies, including the risks they might pose to stability, safety and the security of the monetary system and individual customers.

It is not the only central bank to do so. A press release by the ECB (among others) stated that the Bank of Canada, the Bank of England, the Bank of Japan, the European Central Bank, the Sveriges Riksbank and the Swiss National Bank, together with the Bank for International Settlements (BIS), have created a group to share experiences as they assess the potential cases for central bank digital currency (CBDC) in their home jurisdictions.

The group will look at the economic, functional and technical design choices for CBDC, including cross-border interoperability; and sharing of knowledge on emerging technologies. It will closely coordinate with the relevant institutions and forums – in particular, the Financial Stability Board and the Committee on Payments and Market Infrastructures (CPMI).

The group will be co-chaired by Benoît Cœuré, Head of the BIS Innovation Hub, and Jon Cunliffe, Deputy Governor of the BoE and Chair of the CPMI. Bloomberg noted that the People's Bank of China, which is poised to become the first major central bank to issue a digital version of its currency, is absent from the group.

In January last year the BIS published a paper (BIS paper 101) which was based on a 2018 survey of central banks to which 63 responded (representing

jurisdictions covering close to 80 per cent of the world's population). The survey asked central banks about their current work on CBDCs, what motivates that work, and how likely their issuance of a CBDC is.

The survey showed that, although a majority of central banks are researching CBDCs, this work was primarily conceptual and only a few intend to issue a CBDC in the short to medium term. However, a study by the US Brookings Institution published about a year later, in December 2019 found that a number of small nations, such as the Bahamas, Marshall Islands and Barbados, are much closer to issuing a form of CBDC. Barbados, even launched a block-chain versions of its Dollar in 2016. Saudi Arabia and the United Arab Emirates will jointly issue a digital currency named "Aber" for interbank money transfer - no date given - and Thailand developed a prototype CBDC for real time interbank settlements, with testing for cross border transfer under way. Thailand has no immediate plans for retail CBDC for consumers. Turkey is running a pilot test of digital Liras, which is expected to be completed at the end of 2020. And finally Uruguay successfully piloted the E-Peso from November 2017 to April 2018.

A CLOSER LOOK AT CBDC

At the Intergraf conference in Copenhagen in October, Christian Pfister, Advisor to the Governor of the Banque de France, in the abstract to his paper explained the ins and outs of central bank digital currency to non-experts. He distinguished between wholesale CBDC (WCBDC) and retail CBDC (RCBDC). WCBDC would be accessible only to financial institutions while RCBDC would be accessible to the public, including financial institutions.

One motive to issue a WCBDC could be to promote financial innovation and lower transactions costs using Blockchain. As the underlying technology (the Distributed Ledger Technology – DLT) does not involve high costs, the issuance of a CBDC could also improve the openness of the financial services industry by supporting competition through entry of new providers. The motives to issue a RCBDC may vary from one economy to the other, even though the objective would everywhere be to supply the public with a digitalised monetary instrument without any liquidity or credit risks, easy to access and cheap to use. Issuing a RCBDC could also contribute to reducing the social costs of retail payment services and support financial inclusion, notably in emerging countries. Finally, in an environment of growing digitalisation of retail payments, both the rise in the monetary base and the reduction in costs allowed by issuing an RCBDC would help preserve seigniorage.

Both wholesale or retail CBDC, need to have certain characteristics. Firstly it should be created or destroyed only by the central bank. To preserve

the uniformity of the payment system, it would be issued and exchanged at par with the other forms of central bank money. In order to maintain WCBDC and RCBDC separated and to keep some information confidential, WCBDC would have to be issued on a permissioned blockchain, not a public one. As reserves pay interest, WCBDC would have to pay interest too. Most central banks lack a direct experience in managing individuals' accounts and would not take the reputational risk of RCBDC being used in fraudulent transactions. Moreover, there would be little interest in having users validating transactions. Furthermore, recourse to intermediaries (banks and payment service providers) would allow the central bank to rely on them to implement regulatory obligations, such as KYC, etc.. It thus appears that an RCBDC would not necessarily be issued on a blockchain, or at least not a public one, and that its circulation would involve intermediaries.

Another 'explainer' this time by the news network Reuters notes that Bitcoin and other virtual currencies, hampered by wild volatility, have presented few

realistic threats to central bank control over money. But central bankers fret that Libra could reach billions and quickly erode sovereignty over monetary policy. CBDCs, they think, could address problems like inefficient payments that crypto-currencies seek to solve, while maintaining state control over money.

The article also states that China is closest to becoming the first major country to introduce a CBDC. While details to build a digital renminbi are scarce, it will be powered in part by blockchain technology and will initially be issued to commercial banks and other financial institutions. China's move may push other central banks to take action. In December, the president of the (US) Federal Reserve Bank of Philadelphia said that it was "inevitable" that central banks, including the US Federal Reserve, would start issuing their own digital currencies.

However, caution and skepticism exists in many quarters. The Bank of Japan, for example, has warned that uncertainties over the impact of CBDCs on commercial banking must be addressed. ■

SWEDEN: THINKING ABOUT THE EURO AGAIN

Sweden has had a complicated relationship with the Euro for decades. In a referendum in 2003, it voted with a majority of 56 to 42 per cent against joining the Euro zone. In Brussels it was thought that the Swedes' aversion to the Euro had been driven mainly by a general hostility to the EU, by a sense that their welfare state was threatened by the EU, and by a broad resistance to change, especially among older people. Surprisingly, voters in the 18-30 bracket voted more heavily against joining the Euro than any other age group. The same exit polls that predicted a no to the Euro also showed that 60 per cent of voters wanted Sweden to remain in the EU. Indeed, sentiment towards the Union actually warmed since Sweden first voted to join in 1994, the 'Economist' wrote in 2003.

The no-voters were less concerned with the economic consequences of their choice than expected. Their two biggest worries were about democracy and sovereignty; national control of interest rates came third. The fate of the welfare state only came fourth.

The referendum created a problem for both the Swedish government and the EU, as Sweden did not receive a legal "opt out" from the EU Maastricht Treaty requirement to join EMU (unlike Denmark and the UK). Sweden maintains that joining the European Exchange Rate Mechanism II (ERM II), which for at least two years is a requirement for euro adoption, is voluntary, and has chosen to remain outside

pending a referendum, thereby intentionally avoiding the fulfilment of the adoption requirements. Most of Sweden's major parties believe that it would be in the national interest to join, but they have all pledged to abide by the result of the referendum.

SECOND THOUGHTS

All this is water long under the bridge, but recently the issue awoke anew. Björn Olsson, an economist of the Swedish Bankers' Association published a survey in the 'Ekonomisk debatt' magazine, in which he argues that Sweden's yearly economic growth is currently 1.5% – 3% faster than it would be inside the Eurozone. The decision not to adopt Euro has benefited the country by one year's worth of GDP and the overall economic performance has been up to 24 per cent better outside the common currency. But what's happening in the long run in the light of increasing American and Chinese competition?

Despite his findings, Olsson is calling for a profound discussion on the country's future options. According to him, national economic policy and a stronger integrated Europe are hanging in the balance. But, in the long run, Europe has to cooperate in the face of toughening competition from China and the U.S.

"In the next five years, Sweden has to conduct a debate and make a decision on its long-term direction," Olsson said. "The EU is heading towards a direction where there will be a one and more integrated union. And then, standing next to it on the outskirts will be another EU," he added. ■



WHERE TO GET THE CASH FROM NOW?

The decline in ATMs may not be such an inconvenience for people living in city centres but for those in rural areas, and especially the elderly, who may find it difficult to operate only cashless, it is a serious loss of their quality of life.

The most convenient way to withdraw and to deposit cash is to use an ATM. But increasingly banks see this useful machine as a burden and try to let other companies run them, as the number of withdrawals is decreasing and costs are rising. According to the European Association for Secure Transactions (EAST), there are 391 434 ATMs in Europe, a 3% decrease from the 2018 total. These numbers are however, difficult to verify especially when looking at individual countries. Taking one country, Belgium, as an example, EAST, claims that there were 11 000 ATMs in Belgium as of June 30, 2019. According to Febelfin, the Belgian banking federation, the number of ATMs has declined from 8,754 units in 2015 to 7,869 today. The website expatica.com even claims that there are 13,700 ATMs in Belgium.

The actual number of ATMs in a country is not that relevant, it is more instructive to see their number in relation to the population they serve. The highest ATM density in Europe is in Croatia, with 12.5 per 10 000 people, followed by Portugal with 11.3 and Luxembourg with 10.5. In Belgium the number is 9.5 just ahead of the UK with 9.2 and in Germany it is 6.9. The bottom of the list is Sweden with 2.7. These figures were supplied by EAST, which gave a relative high figure for ATM in Belgium. Consequently its figures for ATMs per 10 000 may be on the high side. Of equal importance is where these ATMs are situated. In country such as Sweden, cities may still be relatively well served, but in rural areas, where population density is relatively low, much lower in the North than in the South, access to cash is often a problem.

Whatever the real figures are, the number of ATMs giving opportunities for people to withdraw cash is declining. The reason is continuing digitalisation (cashless payments, e-commerce and online banking), which is challenging the role of ATMs and putting pressure on the cash infrastructure in the EU and, for the same reasons, the closure of many

bank branches. As one possible reaction, banks in Finland, the Netherlands and Sweden have pooled their national ATM systems to reduce costs, by creating separate companies to take over running the cash machines. Belgium has now followed their lead.

Four leading Belgian banks, Belfius, BNP Paribas Fortis, ING and KBC will jointly operate a single network of ATMs under a neutral brand name. In a joint press release the banks say that developments in the payments landscape are prompting banks to reconsider their proprietary ATM networks, partly because of the serious investments that continually have to be made in stocking ATMs and implementing security measures.

The proposal to create a shared network will deal with the current oversupply of machines in city centres and sparse distribution in remote locations. Under the plans, the banks say 95% of people in Belgium would have access to an ATM no further than five kilometres away, with many installed off-premises or at standalone sites. The roll-out of the new network will be phased, with the first new ATMs appearing around mid-2021.

Reducing the concentration of ATMs in city centres will not cause too much inconvenience and increasing the number of stand-alone or off-site machines in remoter areas is a welcome bonus for rural areas where many bank branches have closed. However, that policy can face certain difficulties as the as the Dutch company Geldmaat, operator of the pooled Dutch ATM system found. The company decided to disable ATMs between 23 hrs. and 7 hrs. each night after ABN Amro decided earlier this month to shut down and empty 479 cash dispensers as an emergency response to a sharp rise in ATM explosive attacks.

Geldmaat, says the overnight shutdown will take effect immediately. The firm will also move any cashpoints that pose an elevated risk to nearby residents and place them in safer locations. The company is working with De Nederlandsche Bank and the police to implement new measures, which will render banknotes worthless if stolen by raiders.

Another country that is moving in the same direction as Belgium, Sweden, Finland and the Netherlands is Ireland. The 'Irish Independent', reports that the Bank of Ireland and Allied Irish Bank are planning to sell 700 and 300 cash machines respectively. Most of these ATM are located in retail shops. Both banks will continue to own and operate their in-branch ATM networks. Ulster Bank has already sold 400 ATMs to Euronet, which now operates 600 ATMs in Ireland. ■

Saving a dinosaur



The dinosaur is cash, which according to a three part research paper by Deutsche Bank, will hang around for quite a while, but digital currencies are eager to take his place.

When discussing the future of money, it is useful to ask banks, and not only central banks. In January 2020, the Corporate Bank Research of Deutsche Bank (which is not the German central bank) published a three part research project entitled "The Future of Payments". The paper admits that governments, banks, and card providers share at least one common goal: the elimination of cash. But this does not seem to be the shared goal of the general public, as cash is generally still growing. Looking at which denominations are growing most, indicates a better way to judge the preferences of the public, as most of the growth in the number of banknotes has been in high-denomination notes. The Financial Times writes that wealthy investors had been holding ever-larger investable assets in cash. Two-thirds of the people surveyed said they had considered increasing cash holdings given the economic uncertainty around the US-China trade war, conflict in the Middle East, and the potential effects of Brexit. And presumably all the hoarded cash is in large denomination notes.

The fight against large denomination notes is largely one by governments, which believe that these banknotes are mainly used for criminal activities. That argument has been debunked some time ago, when, e.g. the former President of the Swiss national Bank said that "... to stop high-denomination bank notes ... will fail to meet its objective to fight efficiently against criminality...". A report in 'Global Treasury Intelligence' stated that "...today most criminal activities are happening online and through electronic means of payment, not through cash."

FIGHTING FOR PENNIES

The real fight against cash is happening in the area of everyday transactions and the weapons are cards and new contactless payments, and cash is losing ground as a payment method. But still, according to Deutsche Bank's survey, a third of people in developed countries consider cash to be their favourite payment method and more than half believe cash will always be around, a statement held regardless of country, gender, and age. While cash is therefore unlikely to disappear anytime soon, its status quo is not assured, as this still leaves two thirds of people favouring non-cash payments.

As cash is still growing in most countries, the reasons cannot be payments. It seems that people like cash because they can keep it 'under

the mattress' away from official scrutiny and have complete control over it. It thus looks as if cash is relatively safe as store of value. The two other functions of cash, medium of exchange and unit of account, are less secure.

The research paper thinks that to predict the future of cash, the key question is what happens in the world's two most populous countries—China and India. As the push to remove cash escalates, these governments are encouraging greater use of digital currencies. In late October, Chinese President Xi Jinping endorsed blockchain as "an important breakthrough for independent innovation of core technologies."

In India, change is also coming but the situation is more difficult to assess. The paper states that cash payments declined from 59 per cent in 2000 to 30 per cent in 2016, but in November of that year, Narendra Modi's government rendered as much as 86 per cent of the currency notes useless, leading to a severe cash shortage. As one of the objectives of the note ban was to encourage digital payments and bring down the use of cash, it worked. But in August 2019, the Indian newspaper The Telegraph quoted the 2019 annual report of the Reserve Bank of India that "despite efforts to shift to digital payments and usher in a digital payment economy, currency in circulation jumped by 17 per cent in value to Rs 21.10 lakh crore (21.10 trillion) and by 6.2 per cent to 1,08,759 million pieces, respectively". However, retail electronic payments also rose by 59 per cent to Rs 23.3 billion. There are now over 10 million merchants accepting digital payments, but the lion's share of these seems to be QR-code based wallet payments rather than credit card payments. As an additional push, recently, a government economic panel pitched for the introduction of an official digital currency with the status of legal tender and regulated by the Reserve Bank of India.

In developing economies, mobile payments started already in the early 2000s, and were often used for micropayments (Alipay started in 2004 in China). In advanced economies mobile payments only got going in recent years. Apple Pay started in 2014, Google Pay and Samsung Pay began in 2015.

CARDS TO GO

The most unexpected conclusion of the second part of the research paper is already revealed in the title "Moving to Digital Wallets and the Extinction of Plastic Cards". While the first part states that cash will hang around for a long while, the question of whether we will see the end of cash in the 2020s is taken as a distraction. The right questions are: Which new means of payment will emerge and which existing ones will disappear the soonest?

What if plastic cards, a relatively recent invention, disappear first?

The digital payment revolution is rooted in the 2008 global financial crisis, when liquidity in the financial system was low, people struggled to borrow money, and distrust in the banking system grew. Since then, regulation over traditional banks has strengthened, but most fintech players have not been subject to the full array of banking regulations. The number of deals and the amount of capital raised for payments innovation increased greatly in recent years. Today, about a third of fintech deals and capital raised relates to the payments industry.

The growth in the sector has been phenomenal with the Asia-Pacific region representing nearly half of worldwide payments revenues. At the core of this remarkable development is the smartphone, which has become central to making financial transactions and which in turn lead to the creation of new payment services. In emerging economies, digital wallets are replacing cash very fast, as a large part of their unbanked population is changing straight from cash to smartphone payments, thereby skipping plastic cards completely.

In China, cash payments dropped from 63 per cent in 2000 to only 11 per cent in 2016. By contrast, forty per cent of citizens in developed nations reported that they prefer traditional payments over digital wallets. However, most people in these nations believe that digital wallets will eventually replace traditional wallets within the next five years. China offers a remarkable illustration of what could resemble the payment industry in many other nations in short-to-medium term.

The rate of online payments in China rose from 8.6 percent of GDP in 2000 to more than 40 percent in 2012 and 76 percent in 2016. Yet, credit card usage is relatively low, mainly because the Chinese economy is not developed enough for widespread credit card use, and the Chinese government actively promotes its Internet banking infrastructure. Today, WeChat Pay and Alipay are the most popular payment methods in China. The Chinese government has been playing an active role in building a Chinese world-class infrastructure to support digitisation. It operates as an investor, developer, and consumer. In turn, Chinese retailers have embraced mobile payments and some even refused cash, prompting the Chinese central bank to issue a formal notice in 2018 that renminbi cash is legal tender in China and should not be refused.

People in the US and Europe, have a long history of using credit cards, making it harder to shift to digital payments. The DB paper states that for the next five

years in Germany, cash is expected to remain the most popular in-store payment method with elsewhere cards and e-Wallets leading.

The main *raison d'être* of card platforms is to facilitate settlements between the bank accounts of a merchant and a payer. The development of peer-to-peer payments and e-Wallets for non-cash transfers between individuals will disrupt card platforms. An app can connect directly to a bank account and ensure e-Wallet settlements are finalised. If these platforms become widely used for merchant transactions, they could also shortcut businesses that provide consumers with cards.

DIGITAL CURRENCIES

The third part of the research, 'Digital currencies: the ultimate hard power tool' is necessarily the most speculative. The authors see the transition to digital payments as having the potential to rebalance global economic power. They think the implications for customers and business will be important; the potential macro and geopolitical consequences will be profound. Again, China will be a significant player. Already, in China the value of online payments is equivalent to three-quarters of GDP, almost double the proportion in 2012. Today, just under half of in-store purchases in China are made via a digital wallet, way above the levels in developed markets. China is working on a digital currency backed by its central bank that could be used as a soft or hard power tool. If companies doing business in (and with) China are forced to adopt a digital yuan, it will certainly erode the primacy of the dollar on the global financial market. The authors also believe a new digital currency could become mainstream within the next two years.

As for which digital currency will be the leading one, the paper thinks it will be either Facebook's libra or/ and the Chinese government's digital currency. The Chinese Government stated it would be launching a PBoC digital currency. The plans were finalised and approved in October 2019, so a pilot launch at the end of 2020 seems plausible. If this happens, China will become the first major economy to use a digital currency. That will pressure other countries to set up their own digital currencies. A government-issued digital currency could be a powerful political and economic tool for China.

There are of course dangers in going fully digital. To establish a robust digital financial system entirely on a foundation of electricity consumption seems reckless. The financial system needs to be able to overcome an electricity shutdown or cyberattack. Governments might also need to safely store backups of citizen data in another country. The environmental costs also need to be considered. ■

Making money into art

Money is serious business, but not every kind of money is taken equally seriously. Take the Chinese “heaven bank note”, used at funerals, that is burned to ensure that a departed soul does not lack cash in the afterlife, or the by now proverbial “Monopoly Money”. Both are symbolic money. But when the value of ‘real’ money falls too much that it is more profitable to turn the notes into craft items, they lose all functions of money.

The Venezuelan Bolivar is now so worthless that some people are turning the notes into pieces of origami artworks. Venezuelan immigrants in Columbia are folding and sewing the “origami bolívares” into wallets and purses to sell to tourists. The news channel Aljazeera quotes one Venezuelan immigrant, Hector Cordero, as using about 70 notes of 100 bolívares to handcraft a small coin purse, or 100 of the notes to make a larger wallet. A handbag can take up to 1,200 notes to produce. All in all, the artist incorporates 16 different denominations of Venezuelan currency into his crafts, many of

them discontinued bolívares soberanos.

Cordero sells wallets made from hundreds or even thousands of bills of the now almost valueless currency for about \$8; the handbags go for about \$12. He says most of his clients are European and North American tourists - people who want to take home a piece of what was once one of the strongest economies in South America.

He learned his technique by watching others in the streets of Caracas and by studying dozens of YouTube tutorials uploaded by fellow Venezuelans to teach people how to make what has become known as origami venezolano.

So far Venezuela had to face hyperinflation for over 36 months. The Venezuelan government does not publish data related to inflation, but the Finance Commission of the opposition-controlled National Assembly calculated that inflation for October 2019 was 20.7 per cent and that cumulative inflation for 2019 was 4,035 per cent. Even so, those numbers may be very conservative.

The International Monetary Fund estimates that inflation in Venezuela this year will reach 200,000 per cent - and that the economy will contract by 35 per cent.

In June 2019 the Banco Central de Venezuela issued Banknotes of 10,000, 20,000 and 50,000 bolívar denominations, less than a year after the last revaluation, when hyperinflation eroded the effects of the August 2018 monetary overhaul and when the bolívar was changed into the bolívar soberano. ■

A NEW CROP OF £20 NOTES IN SCOTLAND

Following on from the Bank of England's £20 note in late February, three Scottish banks have released their version of the £20 into circulation

For people not too familiar with British bank-note issuing practices, the news that new £20 pound notes have come into circulation may be a little confusing. In the last issue of Infosecura we reported that the £ 20 note, issued by the Bank of England, would enter circulation on 20th February. And now we report that the Bank of Scotland has released a new £ 20 note into circulation and the Royal bank of Scotland has done so likewise, as has the Clydesdale Bank. While the Bank of England is the central bank of the United Kingdom and the only bank that can issue banknotes in England and Wales, there are eight banks that can issue banknotes in the United Kingdom,

three of them in Scotland. The Bank of Scotland and the Royal Bank of Scotland are simply retail banks that have the historic right to issue banknotes. They are not central banks. The same applies to the Clydesdale Bank.

The picture in Northern Ireland is even more complicated. Here four banks can issue sterling notes, the Bank of Ireland, the First Trust Bank, Danske Bank, and Ulster Bank. In spite of its name, Bank of Ireland is not, and never has been, a central bank; it is a retail bank, which is headquartered in Dublin, but issues sterling notes within the United Kingdom. Like other banks in Northern Ireland, it retains its note-issuing rights from before the partition of Ireland. Similarly, Danske Bank is not a Danish bank, but the successor of the Northern Bank that was bought by Danske Bank, but retained the latter's note-issuing rights.

THE SCOTTISH £ 20 NOTES

Over a two week period at the end of February, beginning of March, three new polymer £20 banknotes have been released into circulation throughout Scotland, starting with the Bank of Scotland and Clydesdale notes and finishing with the Royal Bank of Scotland's note on 5th March 2020. This is the first time that the Scottish £20 notes have been printed on a polymer substrate, following the £5 and £10 Scottish banknotes and the Bank of England £20 in February.



All the notes continue existing series. The Royal Bank of Scotland's new £ 20 note is the third in the series of 'Fabric of Nature' notes, following the £5 in 2016 and £10 in 2017. It features illustrations of red squirrels on its reverse and also features the blaeberry fruit, known to the English as bilberry, an European version of the American blueberry. The red squirrels on a tree illustration for the £20 follow mackerel in the sea on the £5, and otters on the shore for the £10.



The Scottish women honoured on the front of the note is Kate Cranston, the turn of the last century entrepreneur who commissioned Charles Rennie Mackintosh to design her famous Glasgow tearoom. It continues the Royal Bank of Scotland's celebration of Scottish women who made a significant impact and follows on from Nan Shepherd on the £5 and Mary Somerville on the £10.

The note design also includes extracts from 16th century Scottish poet Mark Alexander Boyd's work,

Cupid and Venus and carries the same exclusive weave pattern developed by textile designers Alistair McDade and Elspeth Anderson for the £5 and £10 polymer notes.



The new Bank of Scotland £20 note is similar to the previous paper designs, but adds the new bridge in behind the Forth Bridge illustration on the reverse.

Sir Walter Scott remains on the front of the note, alongside an image of The Mound in Edinburgh. The notes are slightly smaller than the existing paper versions in circulation, consistent with those issued by other UK banks this year.

All these banknotes share a common colour and set of security features to help with public recognition. All banknotes contain a window, the same tactile embossed feature to help the visually impaired distinguish between different values, microtext, colours that glow under UV light and a colour-shifting metallic ink. In addition Clydesdale and Bank of Scotland denominations contain a holographic foil in their windows featuring imagery relevant to the banknotes. Design themes such as Robert the Bruce and spiders carry across from the paper series in the Clydesdale £20 and themes such as thistles and Sir Walter Scott link to the paper series for the Bank of Scotland £20. ■

GREECE: A BACKDOOR TO CURRENCY DIGITALISATION

The newspaper *Euroactiv* reported that as of 1 January 2020, each person living in Greece should make at least 30per cent of his or her payments by electronic means (including bank transfers, credit/debit cards etc). If not, an extra 22 per cent tax will be applied.

It is a major change to Greek people's everyday life. Electronic payments and their connections with the tax authorities has been one of the major reforms in all bailout programs of Greece since 2010, and is only now fully implemented. The government plans also want all businesses to have exclusively electronic relations with tax authorities by the summer. ■

Are you one of them or one of us?

ID documents are a way to prove to the authorities who you are, but in some countries, not even a valid birth certificate or ID card is necessarily proof of citizenship. Your identity may be used to keep you out, rather than to confirm you as a citizen.

Tunji Durodola of the National Identity Management Commission of Nigeria talked at last year's SecurityPrinters, Banknotes & Identity in Copenhagen about the challenges of establishing and maintaining an identity document system in a country of 186 million people, with 250 ethnic groupings and a major division of the country into a Muslim North and a mainly Christian South.

In such a diverse country, a national identity is vital and the aim of the present and of past governments is to make their citizens that identify as Hausa, Igbo, Yoruba or any of the countless other ethnic or cultural groups into Nigerians, into a common 'us'.

So far the National Identity Management Commission (nimc), a body set up in 2007 with the purpose of issuing identity numbers and cards to Nigerians, has reached less than a fifth of the population. Political geography and bureaucracy are among factors to blame as is the fact that Nigeria, which is a federal state, has 13 federal and three state ID schemes.

Many developing countries in Africa and elsewhere are facing similar challenges. However, there was one country that was miles ahead of any other in Africa in matters of identity, South Africa.

Under the apartheid regime that lasted until 1991, people were told where they could live and work and whom they could marry. To successfully discriminate against its 'coloured' and black population, the South African government developed a very efficient system of identifying people. After the demise of apartheid, the system lost its discriminatory purpose but South Africa is still one of the few countries on the continent - Botswana is another one - that have relatively good programmes that register most birth and issue papers to almost all of their people. In contrast, some countries, such as Liberia, have only just started to register births and only plan

to issue ID documents next. Other countries are upgrading their paper records to digital ones.

Although Africa has huge and teeming cities, many people live in remote areas and find it difficult and time-consuming to register a birth at a government office. They may not even see any immediate reason for doing so and especially if - and this is not unknown - officials demand bribes to register a birth. Often governments also fail to explain the benefits of birth registration, which is the most basic form of official documented identity. South Asia more than doubled its rate of birth registration to 71 per cent between 2000 and 2014. In sub-Saharan Africa the rate dropped by one point, to 41 per cent, over the same period.

FROM HERE, BUT NOT ONE OF US

Place of birth (and place of birth of parents) should be the defining reason to be recognized as belonging to a certain country, but that is not always so. Uganda, Liberia and Sierra Leone explicitly withhold nationality from children of certain races and ethnicities. Other countries do so informally by refusing to issue papers. And it is not always racial discrimination either, religious discrimination or a mixture of both also play a role. And the problem is not restricted to so called "third world countries".

A SCANDAL IN EUROPE

In 2018, a scandal blew up in the UK, when people, who were recruited in the 50s, 60s, and into the 70s in the then British colonies of the Caribbean, decades later were wrongly detained, denied legal rights, threatened with deportation, and, in at least 83 cases, wrongly deported from the UK by the Home Office. Most were members of the "Windrush generation" who were born as British (colonial) subjects, had arrived in the UK before 1973 and as citizens of a British colony had the legal right to settle there. (The Empire Windrush, was the ship that brought one of the first groups of West Indian migrants to the UK in 1948). Following active UK recruitment drives between 1948 and 1970, nearly half a million people moved from the Caribbean to Britain. Since these people had a legal right to come to the UK, they neither needed nor were given any documents upon entry to the UK. Many worked or attended schools in the UK, without any official documentary record of their having done so, other than having the same records as any UK-born citizen. They simply believed themselves to be British.

And as the right to live in the UK was for them automatic, they also saw no change when their home countries became independent, or when the 1999 Immigration Act was introduced, or when it was updated in 2014. But change there was, for them and for their children and grandchildren.

Already in the 60s and early 70s legislative measures limited the rights of citizens of these former colonies, now members of the Commonwealth, to come to or work in the UK, but anyone who had arrived in the UK from a Commonwealth country before 1973 was granted an automatic right permanently to remain, unless they left the UK for more than two years.

A clause in the 1999 Immigration Act specifically protected long-standing residents of the UK from Commonwealth countries from enforced removal. The clause was not transferred to 2014 immigration law because Commonwealth citizens living in the UK before January 1st, 1973 were “adequately protected from removal”, the Home Office said.

Since changes to nationality legislation in 1983, just being born in the UK is not enough to make someone British; one or both parents must be British or have settled status in the UK. There are believed to be tens of thousands of children who were born in the UK, who were not automatically British at birth; many of them do not realise they have any immigration issues until adulthood, when they have difficulties accessing student loans or housing support.

WEAPONIZING IDENTITIES

In spite of the “hostile environment” for immigrants declared in 2012 by the then UK Home Secretary Theresa May, these acts were probably the results of official bungling rather than malice. The same cannot be said for what happened to the Muslim Rohingya, an ethnic minority in northern Rakhine State in Myanmar, who found themselves stateless in 1982 when the Burmese Citizenship Law stipulated that Muslims in the country were legally unrecognised and denied Burmese citizenship. After many years of armed and unarmed resistance, an estimated 655,000 to 700,000 Rohingya people reportedly fled to Bangladesh between 25 August 2017 and December 2017, to avoid ethnic and religious persecution by Myanmar’s security forces in their “clearance operations” against insurgents. They were joining an additional 300,000 Rohingya refugees in Bangladesh who had arrived after fleeing earlier waves of communal violence.

At the 73rd session of the UN General Assembly in late September 2018, Bangladeshi Prime Minister Sheikh Hasina stated that her country was hosting at least 1.1 million Rohingya refugees, and asked international leaders to help support an “early, peaceful solution” to the humanitarian crisis. In January 2020, the UN’s top court ordered the Buddhist-majority country to take measures to protect members of its Rohingya community from genocide. At the time of writing, February

2020, the Rohingya were still stateless refugees in Bangladesh awaiting their future.

The next crisis involving citizen’s rights came from next-door India, which due to the acclaimed “Aadhaar” registration system had been the star performer of the world-wide drive to give all people an official identity. Aadhaar, introduced in 2009 by the Congress Party led government, is a voluntary 12-digit unique identity number that provides access to a wide range of services the government provides. Aadhaar has been widely accepted and now there are 1.246 billion number holders and although it is not an official ID card, it fulfils many of the same functions and it usually not seen as discriminatory.

The crisis that erupted in December last year did not concern Aadhaar and was not about place of birth as a definition of citizenship, but religion. In December, the Hindu-nationalist BJP party led government of Narendra Modi changed the Citizenship Amendment Act (CAA) to create a legal loophole for unrecognized immigrants from persecuted religious minorities who belong to Hindu, Sikh, Buddhist, Jain, Parsi or Christian religious communities — but not Islam — to be eligible for citizenship, the Financial Times wrote. People from these communities, who entered India until 2014, “shall not be treated as illegal migrants”, according to the amended law, which was designed to help minority groups who have come to India from Muslim-majority states such as Afghanistan, Bangladesh or Pakistan. It is the first time that India has incorporated religious criteria into its naturalisation or refugee policies.

Although the new law does not change anything for the 200 million Indian Muslims, it was widely seen as discriminatory. Countrywide protests, not only by Muslims, erupted in December and continued into January and February with a loss of at least 23 lives before Christmas. Towards the end of that month there were full-scale religious riots in Delhi. Critics called the legislation a violation of India’s secular constitution and the latest effort by Modi’s government to marginalise the country’s Muslims.

Protests against the law came amid an ongoing crackdown in Muslim-majority Kashmir, the restive Himalayan region stripped of its semi-autonomous status and demoted from a state into a federal territory in August.

The demonstrations also follow a contentious process in the north-eastern state of Assam designed to weed out foreigners living in the country illegally. Nearly 2 million people, about half of them Hindu and half Muslim, were excluded from an

official list of citizens – called the National Register of Citizens, or NRC – and have been asked to prove their citizenship or else be considered foreign, risking to be detained or deported. Modi's home affairs minister, Amit Shah, has pledged to roll out the process nationwide, the Guardian wrote. Shah has stoked further fears among India's Muslims with his aim to conduct a nationwide national register of citizens that he says will exclude all "infiltrators" by 2024. In the shadow of the Citizenship Amendment Act (CAA), it seems fair to assume that most of the 'infiltrators' will be Muslims.

Another country that decided to follow India's successful 'Aadhar' initiative and seemed to be on the brink of making similar mistakes is Kenya. As AFP reported on January 28, in an ambitious new initiative, the Kenyan government is planning to assign each citizen a unique identification number that will be required to go to school, get health care and housing, register to vote, get married and obtain a driver's license, bank account and even a mobile phone number. In preparation, nearly 40 million Kenyans have already had their fingerprints and faces scanned by a new biometric system. But millions of people from ethnic, racial and religious

minorities are running into obstacles and facing additional scrutiny when they apply for the documents required to get a biometric ID. Many have faced outright rejection. To secure a biometric identification number — known as a Huduma Namba, or "service number" in Kiswahili — adults must provide a national identity card, while birth certificates are required for those under 18.

The Kenyan government has long made it harder — or even impossible — for members of some ethnic groups, among them Nubians, Somalis, Maasais, Boranas, Indians and Arabs, to apply for the documents required for national ID cards. Applicants may be asked to present land titles or the papers of their grandparents, or be questioned by security agents. And often, they can apply only on specific days of the week or in certain seasons, especially in small towns and rural areas. However, the project was recently challenged in court over privacy concerns, and fears that it could exclude millions from accessing public services. Kenya's high court on January 31 temporarily suspended the new national biometric identity program until the government enacts laws to protect the security of the data and prevent discrimination against minorities. ■

THE RETURN OF THE UK'S TRUE BLUE PASSPORT

It won't be anything like the 'old blue' as ICAO sets the rules for content and layout.

Participants in Intergraf's 2018 Dublin Security Printers Conference may remember the surprise of the delegates, when the news came through that the UK Home Office had chosen to award the contract to print the new blue (post-Brexit) UK passport not to the local champion De La Rue (present at the conference) but to Gemalto, the French/Dutch ID specialist headquartered in the Netherlands and now part of Thales. The move, apparently based on price and proof of the impartiality of the relevant UK authority, was especially painful because of all the emotional baggage the pro-Brexit part of the UK population had invested in the traditional colour of the passport, which had become an 'icon of independence' for Brexiteers. Now the new 'true blue' passport will be issued as of March 2020, about 32 years after the 'old blue' was replaced by the burgundy EU passport.

The Home Office described the new passport as "the greenest British passport ever". A spokesperson said: "The carbon footprint produced through manufacture will be reduced to net zero, through projects such as planting trees," and he was

boasting about technology as well. "There is a raft of new and updated security features, including a hard-wearing, super-strength polycarbonate data page, which contains innovative technologies embedded into the document, to keep personal data secure".

The UK Home Secretary, Priti Patel, said that "Leaving the European Union gave us a unique opportunity to restore our national identity and forge a new path in the world. By returning to the iconic blue and gold design, the British passport will once again be entwined with our national identity and I cannot wait to travel on one."

She forgot to mention that the burgundy colour of the EU passport never was an issue connected to national identity, as the EU law only regulates the words on the cover of the passport and mentions nothing about the colour.

Several papers homed in on her words "I cannot wait to travel on one" that now she, and all Britons, will have to wait in the slow lane, whenever they travel to the Schengen area.

The standards governing interoperability of computer-readable passports are set by the Civil Aviation Organisation, not the European Union, and so while there will be a different-coloured cover, not much else will change about the fundamental design. ■



The UK Home Secretary and the 'iconic' blue passport

Knowing who comes and who goes



Photo: secunet Security Networks AG.

The European Union is changing an archaic border control system into a modern one that will regulate the entry and the exit of visitors and fight identity crime at the same time.

For EU citizens living in the Schengen area, crossing a border is hardly noticeable. When e.g. crossing the border from Belgium to Luxembourg, cars should slow down to 70km/hr, but as usually there is no-one to check, very few do so. Internal borders have become invisible, which makes controlling the external borders an increasingly important task for the European Union.

There are already systems to do so in place: the Visa Information System (VIS) is one of them. It allows Schengen states to exchange visa data via links from a central IT system to national systems and connects consulates in non-EU countries and all external border crossing points of Schengen states. It is consulted every time a visa-holder enters the Schengen area. The VIS system came into force in 2015.

Similarly, the concept of “smart borders” was proposed in 2013, to improve the management of the external borders of the Schengen member states. A part of it is the Entry/Exit System, which will create a unified information system to record entry and exit data of short-stay third country nationals crossing the external borders of the EU, e.g. at airports, seaports and land crossings. Adopted and signed by the European Council in 2017, it will be used in conjunction with the European Passenger Name Record (PNR) Directive, which, since 25 May 2018, collects data on air passengers. As the EES system is scheduled to launch soon, it is useful to see what it will do.

THE ENTRY/EXIT SYSTEM

As the numbers of “Third Nation Citizens (TNCs)” crossing external EU borders are increasing, by 2025, 76m are expected to cross 302 border points, the EES will be modernizing borders by automating checks and controls on legitimate visitors while strengthening methods for combating irregular migration and by creating a central register of cross-border movements. Obviously EES will improve the internal security of member countries and aid the fight against terrorism and serious crime, but its biggest challenge will be systematic identification of people ‘overstaying’ in the Schengen area.

The system will record the alphanumeric data and biometrics of travellers and the data will be held for three years and five years for those that have exceeded their stay. Access will be limited to visa granting authorities as well as to law enforcement including Europol. This is a great advantage, since it raises fewer data privacy concerns and is easier to accept for the traveller.

One effect of the EES is that it will change, or update, the Schengen Borders Code (SBC), which presently requires ‘thorough manual checks’ by border authorities at entry and exit points, without the possibility of automation. SBC is also not designed to keep records of entries and exits, as only a passport stamp is available to calculate if a person has exceeded a right of stay.

The “smart borders” initiative of 2013 not only consisted of the EES and an amendment of the Schengen Borders Code, but also of a Registered Traveller Programme (RTP) to allow pre-vetted regular travellers easier border checks. This proved to be too complicated for all the member states to implement and was eventually withdrawn in favour of the present form of EES for short-stay visitors (max. 90 days in a 180 day period). However, EES includes a similar concept, the National Facilitation Programmes. A reference to the programmes in which the TCN is enrolled is also stored in the Traveller File.

EU-LISA AS THE DATA HUB

The technical aspects of the EES have been designed and are being managed by eu-Lisa, the Tallinn based ‘European agency for the operational management of large-scale IT systems’. Currently eu-Lisa also manages the second generation Schengen Information System (SIS II) and the Visa Information System. As the date for the operational start of EES is given only as “sometime in 2020” (although a Swiss customs/border document mentions the 3rd quarter of 2021 as a possible start date), eu-Lisa will or already has developed the



Image: European Commission, DG Migration and Home Affairs (this map is correct until the end of this year, after which the UK will be a "third country".)

central system and will provide a National Uniform Interface (NUI) in each member state, as well as for secure communication between the EES and VIS central systems and for the communication infrastructure between the central system and National Uniform Interfaces. There will also be a web service through which third country nationals travelling in the Schengen area will be able to check how many days longer they can remain in the Schengen territory. Carriers such as airlines will also be able to use this function to check whether their passengers are authorized to enter the EU.

Each Member State will be responsible for the organization, management, operation and maintenance of its existing national border infrastructure and its connection via NUI to the EES.

The data recorded in the EES files will be prints of four fingers, a facial image, full name, date of birth, nationality(ies), gender and the type and number of the travel document, as well as the date and time of the entry/exit, the border crossing point and the authority that authorized the entry/exit. For people who need a visa for short-term visits to the Schengen Area, additionally the short-stay visa sticker number, including the three letter code of the issuing member state, the type of short-stay visa and its end date and any information on any limited territorial validity, if applicable are recorded.

Although the new mechanism will apply to all TNCs, visa-exempt or not, there are different rules according to the data. The VIS already records visitors requiring visas and the EES aims to create a database for all others and it will also include travelers who have been refused entry.

Once the system is operational, each member state must notify eu-LISA of the law enforcement agencies authorized to consult data to prevent, detect or investigate terrorist offenses and other serious crimes. Europol will be included in the law enforcement agencies authorized to access the system within the framework of its tasks. Of course, in the case of investigations to identify a third country national, and prevention or detection of terrorist offenses, exceptions may be made.

The process can be sped-up or automated, e.g. through the use of a self-service terminal. As biometric identifiers, under the old RTP system, 10 fingerprints were planned. The new one makes do with four and a portrait for facial recognition. On entry, the border authority will create a file, where the live facial image of the visitor is stored and automatically compared with the photograph in the Machine Readable Travel Document.

The new processes will require considerable infrastructure measures. At major airports these may already exist, but at busy land and sea crossings, let alone remote ones, national authorities may struggle to ready their borders for EES in time. The EU agency Frontex is providing support and expertise to border authorities in each EU country. Frontex has already published "Guidelines for Processing of Third Country Nationals through Automated Border Control" and will play a key role in analysing and defining the capability needs in border control and in supporting the Member States in the development of these capabilities.

PRIVACY BY DESIGN

Considering the increasing public nervousness about biometric surveillance technologies and the use of facial recognition and of four fingerprints, as well as the retention of personal data of visitors for up to five years, the European Commission found it necessary to reassure the public by establishing principles of "privacy by design" in the EES process. The Commission emphasizes that the data collected and stored, and its period of retention, are strictly limited to what is necessary for the system to function and meet its objectives. In relation to the original plan of 2013, the volume of personal data recorded in the EES will be significantly reduced, i.e. 26 data items instead of the 36 originally planned. The mechanism will be negotiated between the European Data Protection Supervisor (EDPS) and the national authorities responsible for applying the new regulation. And as EES will be a centralised system through which member states will cooperate, common architecture and operating rules are necessary, as is a uniform collection of data. EES has been passed as a regulation and consequently there will be no adaptation to national legislation. ■

THE RIGHT NOT TO BE RECOGNISED

Facial recognition is one of the biometric technologies that have caught the attention of the public as well as that of EU legislators. The European Commission's 'data strategy' and 'white paper on artificial intelligence' sheds some light on its future in the EU but does not answer all questions.

In designing and perfecting the border-management Entry-Exit System, the European Commission recognized the need to modernize and automate the management of the increasing number of genuine visitors as well as of migrants crossing its borders. A necessary part of this management is the use of advanced biometric technology that can identify and trace everyone crossing the external borders of the EU. The EU's choice for this task is fingerprints and facial recognition scans and a central database.

In many quarters in Europe and the world over, the mention of facial recognition technology leads to alarm bells going off. China is often cited as an example not to follow, as, at least in the Chinese case, facial recognition implies almost constant indiscriminate surveillance of citizens and a significant loss of privacy. Until the second week in February, the European Commission seemed to have largely agreed with this description and was considering a moratorium on the use of facial recognition technology in public spaces by public and private actors. For about three to five years, facial recognition was to be forbidden, until "a sound methodology for assessing the impacts of this technology and possible risk management measures could be identified and developed."

As reported by *Euroactiv.com* on Jan. 17, if the Commission's idea had been implemented, the moratorium would have thrown current AI projects off course in some EU countries, including Germany's that wants to roll out automatic facial recognition at 134 railway stations and 14 airports. France also has plans to establish a legal framework permitting video surveillance systems to be embedded with facial recognition technologies. If and when implemented, these systems are to be used for general surveillance and people thus identified may not even be aware of that fact.

The use of facial recognition technology in the Entry-Exit System is perhaps less controversial, as travellers are well aware that their image is taken and compared to that in their ePassports - a one-to-one comparison that is more accurate than the one-to-many comparison used in public observation.

The fact that a moratorium was even considered

makes it clear that the European Commission is well aware of the problems with facial recognition.

The moratorium was mentioned in a draft white paper by the Commission that "emphasised the need to oversee the implementation and application of this technology to ensure compliance with EU law, although it says member states should decide whether to rely on existing authorities or create new bodies for the regulation of AI." The document also highlights provisions from the EU's General Data Protection Regulation (GDPR), which give individuals "the right not to be subject of a decision based solely on automated processing, including profiling."

A second draft of the same white paper no longer mentions the temporary moratorium. As the *Financial Times* reported, the ban was removed from later drafts due to fears that it would stifle innovation and compromise national security. Instead, the non-binding document lays out a definition for "high-risk" AI applications that can interfere with people's rights, such as those used in the fields of employment, transportation, healthcare, and law enforcement. Those tools, it proposes, should go through extra testing, certification, and human oversight. That definition also covers the use of facial recognition in otherwise uncontroversial applications such as automatic entry gates and kiosks as part of the EU's Entry and Exit System.

The answer to all these questions was supposed to come when the EU's Data Strategy and the White Paper on Artificial Intelligence were revealed on February 19.

THE EU'S DATA STRATEGY

The Commission's press release states that "the Data Strategy and the White Paper on Artificial Intelligence are the first pillars of the new digital strategy of the Commission. They all focus on the need to put people first in developing technology, as well as on the need to defend and promote European values and rights in how we design, make and deploy technology in the real economy."

The Commission explains that facial recognition can be used for "user authentication i.e. ... for verification/ authentication at border crossings to check a person's identity against his/her travel documents (one-to-one matching). Facial recognition could also be used for remote biometric identification, where an image of a person is checked against a database (one-to-many matching). This is the most intrusive form of facial recognition and in principle prohibited in the EU."

The Commission does not block-off remote facial

recognition totally but “specifically, ... it can only take place for reasons of substantial public interest. It must be based on EU or national law, the use has to be duly justified, proportionate and subject to adequate safeguards. Hence, allowing (remote) facial recognition is currently the exception. With the AI White Paper, the Commission wants to launch a broad debate on which circumstances might justify exceptions in the future, if any.” In short, all doubts about the ethical use of facial recognition are centred on the remote kind, which leaves the kind used at border crossings in the clear.

THE THIN EDGE OF A WEDGE?

Civil rights and privacy advocates fear that police forces will try to circumvent the ban on remote facial recognition, *sciencebusiness.net* writes. Several state and local governments in the US have stopped law-enforcement officers from using facial-recognition databases. Trials of the technology in Europe have provoked public backlashes. But facial recognition technology is already slowly creeping into life in Europe. Last year the Swedish

Data Protection Authority fined a municipality €20,000 for using facial recognition technology in monitoring the attendance of students in school, while France’s data regulator, the CNIL, said the technology breaches GDPR consent rules. So far, EU countries are handling the technology very differently and the Commission needs to come up with common rules.

Police forces in the EU already have the possibility to search fingerprint and DNA databases under the Prüm system in all member countries. According to a leak reported in the online paper *The Intercept*, the national police forces of 10 EU member states, led by Austria, drew up a report that calls for the introduction of EU legislation to introduce and interconnect facial recognition databases in every member state. None of this has been confirmed and everything may well remain just rumours. However, it seems reasonable to assume that any challenges to the use of facial recognition, even in uncontroversial areas such as border control, will center on the privacy issue.■



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