

# INFOSECURA

# BORDER ISSUES

or the end of stamping  
passports in the EU

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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## Restrained optimism



The tenor of this editorial is restrained optimism. The emergence of a number of vaccines against Covid 19 gives all of us hope. And, although unrelated to this, our general outlook became more optimistic. Yes, we will have a successful Intergraf Currency+Identity Conference and Exhibition online in March next year and yes, we are confident that there will be a great physical Intergraf Currency+Identity one year later. The programme for the coming event looks exceptional and the 'Committee of Experts', our 'eyes on the industry', have ensured topics that are extremely relevant for our industry. Over the coming weeks and months anything that happens with regards to the virtual conference will be shown on the website [www.intergrafconference.com](http://www.intergrafconference.com). Although we dedicated three pages of this issue to the conference programme, there will be further speakers announced as they are chosen and have agreed to speak. The registrations for participants and exhibitors for the virtual event are open and thus the Intergraf website is the space to watch closely for more details on the event.

Although central bank digital currency is still a hot topic in the banknote industry, especially after the European Central Bank announced that it is actively investigating the issue, we wanted to give identity subjects their proper due by putting them in the front of the magazine. Border issues have been much talked about recently, with the imminent conclusion of Brexit and the problems of transnational access associated with it, but borders and how to cross them are not primarily European issues. We are also looking further afield, e.g. to Africa. Here too restrained optimism is in order. Developing countries are making efforts to give all of their citizens an official identity, and thus also make it easier for them to cross borders.

Another small step that inspires optimism, at least on the part of the editor, is the article on De La Rue on page 18. In the last issue of InfoSecura, the editor wrote an article that listed the difficulties of the company in the recent past. The article was based on information in the general press and thus on publicly available material. It did not touch the latest information about the company and De La Rue took the highly commendable step to contribute an article that corrected and completed the picture and that describes the transformation of De La Rue.

The Editor




## COMING TO YOUR OFFICE OR LIVING ROOM

The virtual INTERGRAF CURRENCY+IDENTITY Conference offers an exciting programme. Here are some of the speakers you will be able to hear.

This line-up of speakers reflects the situation at the time of writing. New speakers and subjects are being added all the time. Latest details can be found at [www.intergrafconference.com](http://www.intergrafconference.com).

The INTERGRAF CURRENCY+IDENTITY conference and exhibition will not be like the ones you are used to because of one main new characteristic: it will be a virtual event.

Although in many ways the virtual INTERGRAF CURRENCY+IDENTITY will be just like the other Intergraf conferences you have experienced, in some ways it may even be better. In past physical conferences, delegates had to choose to either go to the 'banknote event' or the 'identity event', although there were of course many plenary presentations that concerned all branches of the industry. At the virtual INTERGRAF CURRENCY+IDENTITY participants are free to, for example, listen to a live presentation in the currency section and afterwards watch a recorded discussion in the identity section.

Intergraf has lined up an impressive roster of speakers, some of whom will be on screen live, while others will be pre-recorded. As every session is moderated, regardless of 'live' or 'recorded', you can post your questions and remarks and get answers from the speakers. And unlike in the real live conference, you can go back to the presentations to check a point you may have missed or need to have clarified.

### TALKING ABOUT BANKNOTES

On the banknote side, the programme includes important policy questions for central banks related to CBDC, such as the one **Maureen Carroll, Managing Director Currency Department of the Bank of Canada** addresses with "Objectives, conditions and feature demands for the introduction of a CBDC based on Bank of Canada's role as a central bank". The Bank of Canada is preparing for a future where Canadians may need a digital currency issued by their central bank. The evolving conditions, features, value proposition and public policy considerations will be discussed in this talk.

Similarly, the **Bank of England's Chief Cashier Sarah John** will explain the "Bank of England's thinking on CBDC". This talk will provide an update on its current thinking on the topical area of CBDC,

including providing insights from the feedback on its consultation document that was issued last year.

The Swiss National Bank is also thinking about CBDC, but will present the subject in a more inclusive manner: Sébastien Kraenzlin, the SNB's Director of Banking Operations, will consider **"central banks and digital innovation: understand the past, prepare for the future"**. Building on the Swiss National Bank's collaboration with the BIS Innovation Hub, Mr Kraenzlin will share insights on the experiments with DLT to design a potential wholesale digital currency.

Dealing more with existing paper based currencies, Bolette Møller, Head of Cash Supply of the National Bank of Denmark will talk about the **upgrade of the Danish 2009 banknote series** and Bernadette O'Brien, Senior Banknote Production Expert at the European Central Bank (ECB) will unveil the plans of the ECB to **"improve the environmental sustainability of Euro banknotes"**.

And finally there will be contributions from important suppliers to the central banks. Nikki Strickland, Head of Product Marketing at De La Rue, will examine **"the sustainability of how we pay and store value"**. All payment methods and ways of storing wealth come with advantages and disadvantages, and all come with some form of environmental impact. This presentation will examine the sustainability of various payments and look at the continued importance of cash in this changing landscape.

Kalin Nicolov, Head of Digital Currency of SICPA SA will present his thoughts on **"currency in transition: insights from our physical past to help navigate our coexistence of the physical and the digital"**. The industry's ability to adapt, and a spirit of optimism will make this coexistence a success.

But it is not only weighty policy questions that will be discussed in the banknote segment, there are some very important technical contributions as well. Felix Abt, of Orell Füssli Security Printing, will talk about the **inspection of transmissive security features in single note inspection**, while Pierre-Yves Boissinot, the General Manager, Printing Works of the Banque de France, will look at the **"automation of the finishing department"**. His talk will be amplified by a panel led by Sylvain Calluau, Head of Production Section in Directorate Banknotes at the ECB, which will discuss the very topical subject of **"managing high security production and distribution in time of crisis"**.

Bridging the two sections of the conference will be a

talk on a problem common to all: Covid 19. Bernd Kümmerle, Head of Banknote Solutions at G+D Currency Technology GmbH, entitles his talk **“challenging the virus: a concerted global effort”**. Our industry, challenged as part of a critical infrastructure, was hit by the COVID-19 crisis without warning. This presentation aims to share insights that should make us stronger for times to come.

#### DEFINING AND IMPROVING IDENTITY

On the identity side, the line-up of speakers is just as impressive, ranging also from big national pictures of ID policies to very technically detailed ones.

Many emerging countries have to battle against the Corona virus as much as developed countries do, but they are often hampered by their citizens lacking trusted identities. One of the countries tackling this problem effectively is Ghana. Kenneth Agyemang Attafuaah, the Executive Secretary of Ghana's National Identification Authority (NIA) and Moses Kwesi Baiden, CEO of Margins ID Group, Ghana, will talk about **Ghana's National eID Project**, which aims to establish a credible register of all Ghanaians and permanently resident foreigners. It will serve as the single source of truth and proof of identity for all transactions in the country.

Going into ID protection details, Leonie Bruckert of secunet Security Networks AG will talk about **“post-quantum cryptography's role in protecting digital identity and identity documents”**: She explains that identities are secured using asymmetric cryptography and are therefore threatened by future quantum computers. An early migration to post-quantum cryptography (PQC) is critical to long-term security.

An equally fascinating technical problem is explored by Nuno Gonçalves, Innovation Manager of Imprensa Nacional Casa da Moeda (INCM), Portugal. He will talk about **“what secrets can photos hide?”** He will give an overview of mobile decoding of messages hidden in printed or digital photos.

Another highly topical technology will be examined by Patrick Grother of the US National Institute of Standards and Technology (NIST) who entitles his talk **“face recognition: attacks on enrolment and comparison”** that will focus on morphing and presentation attack detection. Equally topical will be the talk by Luuk Spreeuwiers of University Twente in the Netherlands, who will ask **“can face morphs be detected using face recognition systems?”** Some commercial face recognition systems could not distinguish morphing attacks from genuine comparisons. Recent research

shows that other face recognition systems behave differently and generate scores for morphing attacks that lie between genuine and imposter comparisons. This presentation will show how to make standard face recognition methods more resistant against morphing attacks.

Both face recognition and morphed ID pictures are highly relevant for ID documents and the Spanish National Police Force is working to **update the country's electronic National ID Card** to comply with the EU Regulation 2019/1157. Ignacio Lopez Torres, Team Leader International Affairs, will show that new security features incorporated in the polycarbonate support and a new design as well as electronic changes, will enable Spain to meet all the technical and functional requirements of the EU Regulation on new identity cards.

Offering technical solutions to document fraud, Andreas Schilling of OVD Kinegram will speak about **evolution of DOVID technology and how to respond to the latest counterfeiting advances**. Matthias Schwann of Germany's Bundesdruckerei will ask - a little tongue in cheek - **“stolen or lost passport? Just download a new one”**. He will demonstrate how to load a digital passport onto a mobile phone and describe the main security architecture, giving an overview of the ongoing standardisation work within ICAO and ISO in the field of digital travel credentials.

As a voice from the frontlines, Igor Vucko of the Information and Telecommunications Office, Slovenian Police, will clarify **“solutions and challenges in implementation of EES in Slovenia.”** The presentation will focus on technical solutions aiming to match Entry/Exit System (ESS) requirements, with minimal negative effect on border control processes and waiting queues.

And finally, Doug Witschi, Assistant Director, Cybercrime Threat Response & Cybercrime Operations, INTERPOL Global Complex for Innovation, Singapore, will say **“together we can make a difference.”** The presentation will focus on the drivers for change globally that we need to make to mitigate the most significant global threat that we are facing. Cybercrime is the most illicit criminal activity globally, that is impacting on all facets of life.

He will discuss the observations INTERPOL made during the COVID-19 pandemic, a point in time that created a 'perfect storm' for cybercriminals to exploit the situation. He will explore the drivers of cybercrime and the protections that are inadvertently provided, and what countries and organisations need to do to fight back against this threat. ■

**INTERGRAF**  
CURRENCY + IDENTITY

24-26/03/2021

**THE  
KEY NOTE**

Intergraf conferences usually begin with a key note presentation, which is not directly from the industry but which is centred on an important current development which in the future will influence the industry, directly or indirectly. At the next conference, the development we will be looking at is artificial intelligence or AI, which has the potential to turn our lives upside down in the not too distant future. Intergraf invited Daniel Hulme, founder and CEO of the London-based, award-winning company Satalia, to deliver the opening keynote at Intergraf Currency+Identity on Wednesday 24/03/2021.

Intergraf asked Daniel Hulme to talk a little about AI. The first question was what Artificial Intelligence (AI) is and what it isn't? Where did it come from and where it is going? And what separates AI from automation and machine learning? Here is Daniel Hulme's answer:

Over the coming few decades we're going to see massive changes in the way we interact with our environment, and each other. Many of these changes were once in the realm of science fiction. But Artificial Intelligence (AI) is going to make much of that reality. These changes will raise many ethical questions, and will force us to reassess our social and economic models. Many of the questions that philosophers have been pondering over the millennia will now have to be practically addressed.

There is a huge misunderstanding about AI in industry. Most of content that people are spreading is not AI. More and more people claim to be AI experts, but only a handful truly understand what these technologies are and what they are capable of achieving.

Companies are hiring data scientists, thinking they will solve their AI problems. This is hugely naive. There has probably been more hype around AI than any other technology I can think of. And whilst I suspect there might be a bubble in the short term, AI will impact our businesses and lives in more ways than perhaps any other technology.

There are two definitions of AI and the more popular one is the weakest. This first definition concerns machines that can do tasks that were traditionally in the realm of human beings.

Over the past decade, due to advances in technologies like deep learning, we have started to build machines that can do things like recognise objects in images, and understand and respond to natural language. Humans are the most intelligent things we know in the universe. So when we start to see machines do tasks once constrained to the human domain, then we assume that is intelligence.

But I would argue that you can't benchmark machine intelligence against human intelligence. Humans are good at finding patterns in, at most, four dimensions. And we're terrible at solving problems that involve more than seven things. Machines can find patterns in thousands of dimensions and can solve problems that involve millions of things.

Even these technologies aren't AI - they're just algorithms. They do the same thing over and over again. In fact, my definition of stupidity is doing the same thing over again and expecting a different result.

The best definition of intelligence - artificial or human - that I've found is goal-directed adaptive behaviour.

I use goal-directed in the sense of trying to achieve an objective, which in business might be to roster your staff more effectively or to allocate marketing spend to sell as much ice cream as possible. It might be whatever goal you're seeking.

Behaviour is how quickly or frictionless I can move resources to achieve the objective. For example, if my goal is to sell lots of ice cream, how can I allocate my resources to make sure that I'm achieving the objective?

But the key word for me in the definition of goal-directed adaptive behaviour is adaptive. If your computer system is not making a decision and then learning whether that decision was good or bad and adapting its own internal model of the world, I would argue that it's not true AI.

And it's OK for companies at the moment to be calling machine learning AI. So for me, the true definition of AI involves systems that can learn and adapt themselves without the aid of a human. Adaptability is synonymous with intelligence.

To summarise, there are broadly two flavours of AI: The first is focused on fully automating tasks that were traditionally only in the realm of human capability.

The second is building complex adaptive systems. Both flavours are quickly helping organisations become more efficient and effective. ■

## THE EU'S EES - THE PRACTICALITIES

**In 2022, the European Entry/Exit System will come into force, according to which nationals of Third Countries will have to register with four fingerprints and a facial image when entering Schengen countries through land, sea and air borders. The logistical challenges of this scheme seem as daunting as those posed by Brexit on either side of the Channel, unless a technical solution can speed things up. It looks as if there is indeed a technical solution to solve the contradiction between an increased demand for personal information of people crossing external EU borders and the wish to make border crossings as smooth as possible.**



The common biometric Entry/Exit System, EES for short, is part of the EU's Smart Borders Initiative. It collects biometric data, which is stored in the EES together with biographical data of the person and other information taken from the travel document. The many new and equally complex and time-consuming tasks that the launch of EES entails, present first-line border control officers with new challenges.

A white paper by the company Secunet entitled 'Kiosk systems in border control: Why kiosks play a key role in the launch of the European Entry/Exit System,' argues that using self-service or kiosk systems as part of the EES system can solve or at least ameliorate the operational problems the EES will cause. The paper argues that it has also long-term benefits for border control and the authorities tasked with border control operations. The more complex process of capturing biometric data at border crossings and the continuous growth in passenger numbers will lead to longer waiting times at the EU's external borders unless automated systems are used to provide help and support. The study of the German 'Smart Borders' pilot project revealed that the waiting time for Third Country Nationals at the border control desk more than doubles if additional biometric data acquisition (face and fingers) and the required searches of the central EES system are performed entirely at the desk.

When drafting the regulation, the EU seems to have imagined that there is such a technical solution as EU Regulation 2017/2226 implies that the use of automated methods and self-service systems, as defined by Article 2, Number 23 of Regulation (EU) 2016/399, can simplify and speed up the border control process.

A significantly longer inspection process at the desk would not only slow down the border control process and lead to longer waiting times for travellers, but would also have an impact on subsequent processes outside of border control. In airports, for example, this would result in increased transfer times, increased time for baggage claim, and

consequently also changes to flight schedules. The introduction of kiosks could therefore not only minimise the impact of the introduction of the EES on the actual border control process, but also on travel processes as a whole.

Using self-registration of data at kiosks can save massive amounts of time at the stationary border control desk. For border control officers, the inspection time for travellers requiring visa falls by an average of 60 per cent (82 seconds saved) and for visa-exempt travellers by an average of 58 per cent (53 seconds saved), reducing the time needed at the border control desk to be reduced by more than half.

Kiosks enable Third Country citizens to enter their biometric data, which is searched for in an estimated total of 300 million records to ensure that the person has not already been registered under a different identity ("so called deduplication"). This search of the central EES systems takes a while – early estimates assume between 20 and 30 seconds (as per ICD specification and the implementing act for EES performance). Without self-service systems the traveller has to wait at the border desk for the result of the search. With prior data registration, the search is performed while the passenger is moving to the desk. In addition, kiosks can also be used not only for first-time registration, but also help to optimise processes for return travellers. Their ability to automatically pre-register and examine identity data therefore allows kiosks to speed up processes for any inspection at land, sea or air borders.

Even after entering their data at the kiosk, the border control officers still decide whether to permit or deny entry into the country after examining the travel document, the acquired facial image and possibly the fingerprints.

### DAY-TO-DAY SUPPORT

The EES process will increase the complexity of the duties of border control officers, who will have to integrate biometric registration processes into their existing inspection and verification duties. Dealing with the passenger in front of them and scanning their documents may force them to pay less attention to other aspects of border control such as observing the behaviour of the person before they reach the desk, increasing the risk that border control officers become little more than simple clerks for biometric data capture.

Kiosks will not only save time but will also help to overcome language barriers by conducting the entry interview at the kiosk in the native language of the traveller and giving the direct translation of the answers for the official. With integrated

security mechanisms, kiosks guarantee consistent data quality in the border control process. Kiosks ensure that facial images are of consistent quality in accordance with ISO 19794-5:2011 and that fingerprints are equally so in accordance with NFIQ 2.0. State-of-the-art liveness detection, monitoring functions and reliable detection of spoofing attacks for face and fingerprint scans ensure the highest level of security. By continuously monitoring passenger behaviour, kiosks also enable risk assessments of subsequent process steps. This provides additional information for the border control officer to use and also enables optimisation of passenger flow management, for example with instructions to proceed to the border control desk or the ABC gate. With the help of kiosks, border control officers will ultimately be able to perform their inspection and verification duties just as effectively as before the launch of the EES.

#### EXPANDING CAPACITIES NOT COSTS

The pending launch of the EES requires an expansion of border crossing capacity, either by increasing the number of stationary border control desks trained staff and/or use automated systems such as kiosks.

The white paper claims that experience has shown that kiosks can be installed and integrated into existing infrastructures more quickly than stationary border control desks. Self-service systems frequently guarantee a fast roll-out phase with live operation. In addition to fast installation, flexibility also often plays a key role. The number of kiosks can be adapted as necessary and adjusted to match variations in passenger numbers in arrivals. Increasing personnel is not only costly, manning these desks with qualified personnel at short notice is usually difficult given the challenging recruitment situation. From this perspective, kiosks are much more cost-effective in the long run when considering total cost of ownership than expanding and operating stationary desks with trained border control officers.

#### IT IS ALSO A QUESTION OF SPACE AND OF SPECIAL FEATURES

Severe space shortages often mean that existing air, land and sea border infrastructure cannot be substantially adapted, certainly not at short notice. Despite this, longer queues are to be expected at border control points after the launch of the EES. This need for more time to control travellers and the limited available space for inbound and outbound travellers suggests a flexible solution.

Kiosks offer flexibility as the waiting areas of self-service systems and stationary desks can be kept separate from each another. Also, due to their integrated monitoring functions, they do not

necessarily need to be within view of the border control desks. If conditions change, they can even be relocated elsewhere without the need for extensive construction work.

EES kiosks must ensure that facial images and fingerprints are captured with the highest quality possible. The former in accordance with ISO 19794-5:2011 and fingerprints in accordance with NFIQ 2.0. Only an integrated camera that automatically adapts its capture position to the passenger's height can guarantee optimum, fast and high-quality capturing of facial images of all travellers, regardless of how tall they are.

When using kiosks at border crossings, anti-circumvention security plays a key role. Kiosks must be capable of reliably recognising forged and falsified identity documents, spoofed faces or fake fingerprints, as well as other types of attack on the system. Particularly for biometric scans, novel attack methods present a greater risk that travellers could potentially falsify their identity, thus illegally entering or leaving the country. To prevent spoofing attacks, for example using forged photos and/or fingerprints, automated systems should rely on a robust "presentation attack detection" system (PAD) for facial scans and fingerprints. Biometric data scans must be 100 per cent trustworthy to prevent multiple or illegal identities. This is why kiosks used in the EES context should be equipped with state-of-the-art PAD technology to provide protection against attempts to circumvent the system.

Article 8a (7) of EU Regulation 2017/2225 also states that self-service systems shall be operated under the supervision of a border control officer, whose duty it is to detect any inappropriate, fraudulent or abnormal use of the self-service system. In particular, it is important to ensure that there is no change of travellers while using the kiosk. According to the article, kiosks that do not have sufficient monitoring functions would require the border control officer standing right next to the kiosk and watch the traveller enter their data in order to satisfy the requirement. For this reason, the kiosk system in use should feature additional surveillance cameras and smart security functions that detect inadmissible or suspicious situations so that passengers can be monitored conveniently from a distance.

Accordingly, when procuring kiosks, particular value should be placed on ensuring that they can take high-quality scans of biometric data, that they offer superior anti-circumvention technology using PAD, and that they feature integrated security functions. Not every kiosk automatically satisfies EES requirements under EU Regulation 2017/2226. ■



## NORWAY'S PASSPORT STILL LOOKS AS 'COOL' SIX YEARS LATER

An unexpected design sensation finally became an issued ID document after a long development phase

Passports, as a genre, became visually interesting in 2002, when Switzerland issued its new passport designed by the graphic designer Roger Pfund, who is well-known in the banknote and ID world. Because passports have a validity of five to ten years, progress in passport design is nothing but 'measured', and it took eight years for the next national passport to deviate from the, than usual, standard subtle patterns and colours, perhaps with the country's stylized emblem in the middle. This was the UK passport of 2010, which used the visa pages of the book for a little tourist promotion, but not forgetting the British weather, with images of some famous beauty spots and accompanying night images visible under UV light.

The clever use of UV images was fully exploited in the 2012 Swedish passport, which showed city street scenes in subtle colours in daylight and the same images at night, with street lamps shining and windows lit-up, visible under UV light. It was, however, the winning entry in a design competition announced by the Norwegian Police Directorate, the passport issuer, at the end of 2014 that caught the imagination

### GERMANY CLARIFIES PASSPORT LAW

On 5 November 2020, the German Parliament passed the Federal Government's draft law "to strengthen security in passports, identity cards and documents relating to foreigners". One of the newly introduced measures is specifically designed to prevent "morphing".

Now the ID photo must be produced exclusively in digital form and sent to the passport authorities by secure transmission. Printed photos can no longer be submitted to the passport office by the holder. This new measure combined with the two

not only of the graphic design community but also the interest of the general press in many countries.

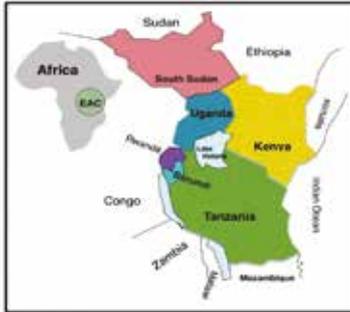
In 2015 we wrote: "Norway's new passport - already a design classic?" ran a headline in British daily The Guardian, admittedly not on the front page but in the Travel section. Other publications chimed in with great praise as well, from CNN to specialized design magazines. "Norway's New Passport Design is a Thing of Beauty" gushed "design" in its November edition, while "Skift", a travel platform, praised, perhaps a little prematurely, the artists at the design studio Neue in Oslo, that created the new wonder, as "The Design Firm That Created the World's Best Looking Passport".

What everybody had seen at that time was just a sample spread of the design. To be able to look at the real thing, everybody had to wait six years. It took this time to get the security elements, the production parameters and the technical features of the data page right. The finalised versions of the travel documents have now been unveiled, and include the Norwegian passport, and the diplomatic and emergency passport. So, has much changed since the time the winning entry was announced? It seems not. We don't know the security features, but the images published are as 'cool' as they were in 2014, in fact they seem exactly the same. ■

fingerprints contained in the documents should make the ID card or passport more forgery-proof, the government says. Another measure concerns police investigations. Often police forces abroad only transmit the serial numbers of identity documents when seeking further information and German police was not authorized to do searches based only on this. Now they are able to search data linked to serial numbers.

Moreover, people who do not assign themselves any gender will be able to have an "X" entered in their passport instead of "M" for men or "F" for women. ■

## IDENTITY MOVES IN EAST AFRICA



The current member countries of the East African Community

The Kenyan government has confirmed that national ID cards will be replaced by a so called Huduma Namba card by the end of 2021. The roll-out of the new cards will start in December 2020. Huduma Namba cards carry the personal information found on the National Health Insurance Fund, Kenya Revenue Authority, the National Social Security Fund, and the soon-to-be-phased-out national identification cards.

An individual's biodata, such as name, parents, nationality, education, disability and employment status are captured in the system, as also will be fingerprints and a photograph of the person. The card will serve as the official government issued document for the identification and conduct of transactions.

The system is meant to facilitate national planning and efficient provision of services especially to the elderly, school children, the disabled, small and medium enterprises and farmers. It will also manage and control illegal immigration and prevent criminal activities, such as terrorism, drugs and fraud.

"We are now ready to start issuing cards to Kenyans, so that they can start getting them online and stop the long queues in government offices," Kenya's president Uhuru Kenyatta said.

Kenyans will receive a text message notifying them where to collect the new card and they will have one month to pick up their cards from the designated centres.

### A UNION OF SIX COUNTRIES

Kenya, alongside Burundi, Rwanda, South Sudan, Tanzania, and Uganda is a member of the East African Community (EAC), an intergovernmental organisation that was founded in 1967, collapsed in 1977, and was revived in 2000. Since 2008, it is part of an expanded free trade area which also includes the member states of the Southern African Development Community (SADC) and the Common Market for Eastern and Southern Africa (COMESA).

The EAC is a potential precursor to the establishment of the East African Federation, a proposed federation of its members into a single sovereign state. In 2013, the EAC outlined plans for launching a monetary union within 10 years. In September 2018 a committee was formed to begin the process of drafting a regional constitution.

### FROM NATIONAL TO COMMUNITY PASSPORTS

Nearly a decade ago, the organisation introduced the East African Community passport as a travel document in all the then three EAC partner states - Kenya, Uganda and Tanzania - to ease border crossing. That passport was valid for travel within the EAC countries only but allowed a multi entry stay of renewable six months in any of the countries, unlike the national passports, which only entitled the holder to a single entry stay of up to three months.

In March 2016, the EAC heads of state launched the new East Africa ePassport, which, as it complies with ICAO guidelines, is admissible globally. It replaces the machine readable East African and ordinary passports issued by the member states and is available in diplomatic, service and ordinary categories.

It has a chip that holds the same information that is printed on the passport's data page, the holder's name, date of birth, and other biographic information. It also comes with a biometric identifier and bears a digital photograph of the holder as well as digital security features to prevent unauthorised reading or "scimming" of data stored. The new e-passport database also uses the Automated Fingerprint Verification System (AFIS) to minimize fraud, identity theft and forgery.

The member nations of the EAC are now getting serious about the new ePassports. Kenya issues them already, but when production of the old EAC passport was halted, it was left with a backlog of 16,000 applications. This meant that the 16,000 applicants had to provide biometric data in order to receive the new e-passport.

Uganda has urged its citizens to apply now online for the ePassports, as the old passports will cease to be legal documents at the end of January 2021.

Rwanda's immigration department announced: "All passports issued before June 27, 2019, will be phased out and replaced by the Rwanda EAC electronic passport after June 27, 2021," meaning it will nullify all its single-nation passports. Holders of the Rwandan passport were given a two-year grace period to replace their passports with East Africa ePassports, when the country began issuing them in 2019.

The statement also urged the public not to wait until the expiry date to apply for new passports, adding that applicants are required to apply for the new passports through the online platform Irembo, which enables the public to access government services of Rwanda. ■

## ECB CBDC

**There has been a lot of talk about Central Bank Digital Currency, and even some action. But if a country like Sweden, with just over 10 Million inhabitants ponders such a move, it does not change the world's payment systems much. If giants, such as China with 1.3 Billion or the Euro zone with 340 Million inhabitants do the same, the payment world will need to take notice.**

The last but one issue of Infosecura, number 84, had one main subject: Central Bank Digital Currency. In that issue, we felt that we had neglected identity issue a little and consequently the following issue, number 85, dealt extensively with passport, visa and ID card subjects, without, however, neglecting the banknote sector.

But now CBDC is back with a vengeance. At first there was a press release by the European Central Bank announcing advanced work on a digital Euro and the publication of a Eurosystem High-Level Task Force report, called simply "Report on a digital Euro" on October 2. Throughout all communications of the ECB in October and until now, there was never a mention that there definitely would be a digital Euro, only that the Eurosystem needs to be ready for a possible future decision to introduce a digital Euro, should that be necessary. Christine Lagarde, President of the ECB, put it like this: "The Euro belongs to Europeans and we are its guardian. We should be prepared to issue a digital Euro, should the need arise." But before any decision, there would be a public consultation and experimentation launched, the ECB promised.

The next sign of increased interest by the ECB in CBDC came with a speech by Fabio Panetta, member of the ECB's Executive Board and Chair of the Eurosystem High-Level Task Force, introducing the said report on a digital Euro. He emphasized that "central banks are entrusted with the fundamental task of providing citizens with costless access to simple, secure and risk-free means of payment that can be used on a large scale," which necessitates "central banks to analyse relevant developments in society and adapt accordingly."

With an increasing move towards digital payments, the ECB's Governing Council has decided to advance work on the possible issuance of a digital Euro, he said.

"Should the need arise, we want to be ready to introduce a digital Euro: a form of central bank money that would complement cash, not replace it. Together, these two types of money would be accessible to all, offering greater choice and easier access to ways of paying."

Looking for possible scenarios that would prompt issuing a digital Euro, the Eurosystem task force of experts from the ECB and the 19 Euro area national central banks, identified an increased demand for electronic payments that would require a European risk-free digital means of payment, a significant decline in the use of cash as a means of payment, the launch of global private means of payment that might raise regulatory concerns and pose risks for financial stability and consumer protection, and a broad take-up of CBDCs issued by foreign central banks.

The ECB already provides currency in two forms: as Euro banknotes and as transfer of electronic deposits to banks and other financial institutions. A digital Euro would additionally give citizens in the Euro area free access to a simple, universally accepted, safe and trusted means of digital payment. It would be an electronic form of central bank money accessible to all citizens and firms – like banknotes but in a digital form, not to replace cash, but rather to complement it.

Fabio Panetta said "a digital Euro would support Europe's drive towards continued innovation. It would also contribute to its financial sovereignty and strengthen the international role of the Euro." He argued that a digital Euro would make daily payments faster, easier and more secure. It could support the digitalisation of the European economy and actively encourage innovation in retail payments.

It would also help cushion the impact of extreme events – such as natural disasters or pandemics – when traditional payment services may no longer function. It could also be crucial if people were to turn to foreign digital means of payment, which might undermine financial stability and monetary sovereignty in the Euro area. The ECB insists it wants to make sure the value of our money is preserved and that any form of digital Euro is ultimately safeguarded and regulated by the central bank.

### WHEN WILL IT BE READY?

The ECB is still in the preparation phase, working on the concept, starting practical experimentation on possible designs, and discussing with stakeholders and international partners. Towards the middle of 2021 a decision on whether to launch a



Fabio Panetta, member of the ECB's Executive Board and Chair of the Eurosystem High-Level Task Force

digital Euro project is expected. This will be followed by an investigation phase on user requirements and service providers. “We need to make sure that our currency is fit for the future. Inaction is not an option,” Fabio Panetta said. “Even if a digital Euro has not been necessary so far, we should be ready if and when developments make one necessary.”

It is too early to identify any specific type of digital Euro. Experts from the ECB and the national central banks of the Euro area have laid down a number of basic requirements for a digital Euro, such as easy accessibility, robustness, safety, efficiency, privacy and compliance with the law. These will help the ECB to define what it might look like.

Whatever the design and the functioning of a digital Euro, it would be an electronic form of central bank money, accessible to all citizens and firms – like banknotes but in a digital form – to make their daily payments in a fast, easy and secure way.

Finally, Flavio Panetta said, “a digital Euro would increase privacy in digital payments thanks to the involvement of the central bank, which – unlike private suppliers of payment services – has no commercial interests related to consumer data. Ensuring privacy is an essential element of modern democracies and part of our European values. Payments must also respect people’s right to privacy in the digital era, and the design of a digital Euro would have to respect this principle. This is a core aspect we will look at – indeed, we have already started exploring possible ways of enhancing privacy.”

At the same time, payments in a digital Euro – just like any form of payment – would have to respect the rules against money laundering, the financing of terrorism and tax evasion. This would enable public authorities to combat any illegal activity more effectively.

### THE REPORT

The “Report on a digital euro” (which is available on the ECB website under [www.ecb.europa.eu › Report\\_on\\_a\\_digital\\_euro~4d7268b458.en.pdf](http://www.ecb.europa.eu/Report_on_a_digital_euro~4d7268b458.en.pdf)) looks at the whole project in great detail. It is divided into seven sections: reasons to issue a digital Euro, potential effects of a digital Euro and implied requirements, legal considerations, functional design possibilities, technical and organisational approaches to digital Euro services and follow-up work.

The report insists that “the issuance and circulation of a digital Euro should not create undue financial risks to the Eurosystem. This implies that the amount of central bank money issued in the form

of digital Euro should always be under the full control of the Eurosystem.” “However, the digital Euro should be widely accessible on equal terms to prospective users in all Euro area countries, and supervised private intermediaries should have the opportunity to use their expertise and participate in the provision of payment services. The prospect of central bank initiatives to issue a digital Euro should neither discourage nor crowd out private solutions for efficient digital retail payments in the euro area.”

### HOW TO HOLD AND USE IT

Section 6 tackles the complex question of how the public could hold and use digital Euros and what the role of the ECB would be in this. The ECB looks at centralised infrastructures such as direct access by end users to central bank accounts, and intermediated access by end users to such accounts, and at decentralised infrastructures. Some decentralisation could be used to provide a bearer digital Euro, where either end users, or supervised intermediaries acting on their behalf, would verify any payment. This could be achieved through either of the following two models, which could also be combined: Direct end-user access to the bearer digital Euro or hybrid bearer digital Euro (also allowing wholesale transactions) and account-based infrastructure. The report lists and describes the various methods of holding and using digital Euros, but does not give any indication which method it would prefer.

The report also gives more details on the possible scenarios that would warrant the introduction of a digital Euro than Mr. Panetta’s remarks. Among them is one that seems to have been sparked by the announcement by Facebook that it wants to introduce its own cryptocurrency called Libra. This did not only shock the ECB, but central banks the world over. So far these are only plans, if that. However the ECB noted that “a decline in the use of cash in the economy would imply increasing dependence on private forms of money and private payment solutions in the euro area. Beyond a certain point, such a trend could endanger the sustainability of the cash infrastructure and hamper the provision of adequate cash services.” It could also severely affect following a monetary policy agreed by the member countries of the Euro area.

Another reason for a digital Euro is the possible competition by non-Euro denominated CBDCs. If many foreign central banks would be issuing their own CBDCs, which could potentially also be made available to Euro area citizens, this could cause currency substitution as well as an increase in foreign exchange risk in the Euro area economy. The ECB launched a public consultation which will be open until 12 January 2021. ■

## AWAITING THE DIGITAL RENMINBI

China seems to be serious about introducing a digital version of its currency, the Renminbi and it will probably be the first large economy to do so. It will bring some advantages for its internal economy, but it will also have important ramifications for all economies that trade with China.

While the European Central Bank is moving from the 'pondering stage' about digital currency to one characterized by modeling and design decisions, China is miles ahead of other large nations in its endeavor to launch the first digital currency.

The 200 digital yuan lottery prize



Chinese President Jinping Xi even said that China should proactively participate in creating the international regulatory framework on digital currency. "We need to take advantage of the momentum and accelerate the digitalization of various fields including our economy, society and government, as well as proactively participate in creating the international regulatory framework on digital currency and digital tax," Xi said in a statement titled 'Issues on National Medium and Long-Term Social and Economic Strategies'.

Since early this year, China has gradually ratcheted up testing of its first central bank-backed digital currency, known there as DCEP, or "digital currency electronic payment." After conducting small-scale trials earlier this year in different regions, some civil servants were even paid in digital yuans.

China began its largest test in mid October, with a total of 10 million yuan being offered to 50 000 citizens in the southern city of Shenzhen through a lottery. Each lottery winner received 200 yuan (\$30) worth of the virtual money, by downloading the pilot version of the digital yuan wallet app on their mobile phones through a link sent by the government, as the app has not been made public yet. Then they could see the currency show up in the app, according to the Chinese publication the Economic Observer. Using the app is similar to Alipay and WeChat Pay. The digital money could be spent at over 3,000 vendors, and the wallet could be topped up from their bank accounts once winners spent the 200 yuan.

While it seems entirely feasible that the digital yuan will be on the streets as of early next year, the official plan is to have it ready for general use for the planned Winter Olympic in February 2022 in Beijing. If the project succeeds, a digital yuan could eliminate the need for both physical cash and online payment services like PayPal, and be another way for China to challenge the US for global dominance.

The legal preconditions for the introduction of a digital yuan are already in place. At the beginning of 2020, the People's Republic of China passed a new law governing the regulation of online encryption, which gives the state authority over the standardization of online encryption for politics and industry which includes the setting up of the digital yuan.

The stated reasons for wanting to introduce a digital sovereign currency are not that different from those in western countries: the Chinese population has taken to electronic payments, mainly via smartphones, in a very big way. So the DCEP is merely following the will - or the habit - of the people. That is of course not all there is. The central bank hopes that the digital yuan will increase efficiency in the financial sector to cut costs while stimulating industry. It also promises to give the government detailed insight into, and a better understanding of, the financial activities of its citizens and finally more control. Officially, the government hopes to use the digital yuan to combat tax evasion and fraud more effectively, and to track money flows abroad in a more controlled manner.

### GAINING INFLUENCE WORLDWIDE

Being the first to issue a sovereign digital currency could give China an edge over other countries in this domain, potentially becoming a technological leader in the transition to a digital currency. China may "hope to create its own international payment architecture, something comparable to SWIFT," an expert at the German Konrad Adenauer Stiftung said, "but which would be more centered on digital

currencies and dominated not by the US dollar, but by the Chinese digital yuan.” “I think that’s especially important in current times where we talk about the decoupling between the US and China,” he added.

Currently over 60 per cent of known central bank foreign exchange reserves are in US dollars, according to the International Monetary Fund, making it the de facto global currency. Rather than attempt to settle transactions in different currencies, countries and companies use the dollar to streamline international payments. For comparison, the No. 2 global currency is the Euro, which accounts for 20 per cent of international reserves. A widespread uptake of a digital yuan could lead to central banks similarly holding reserves of DCEP. As the sole issuer of DCEP, this would give the Chinese central bank greater influence over global financial markets.

By becoming the first world power to dominate the digital sphere, China could potentially carve out a stronger position for itself in the global economy and make it less vulnerable to sanctions from Washington, another step in Beijing challenging the US for global dominance. But that would depend on other countries to play along and the potential of the Chinese government to know where and how its DCEP are used would surely discourage some central banks to hold DCEP reserves.

#### HARDLY BORN AND ALREADY COUNTERFEITED

Even before its official general rollout there are already counterfeit digital yuans, according to Mu Changchun, the head of the Chinese central bank’s digital currency research institute, in a speech on the digital yuan’s progress in Shanghai.

“We have spotted counterfeit digital yuan wallets in the market. Just like in the era of paper currencies, the central bank also has the task of fighting forgery [of the digital yuan],” said Mu. China’s new digital currency, however, is backed by the country’s central bank and all transactions must be verified by it.

Chinese authorities, like those elsewhere, have long waged a war against counterfeiters. Earlier this year, police seized 422 million yuan (\$59.5 million) of counterfeit money, the largest amount ever seized in one go. Clearly that battle will continue with the digital yuan, which is yet to be rolled out nationally. Mu emphasized that Beijing won’t use forceful administrative measures to push its use, but would adopt a market-oriented approach.

“How much digital yuan citizens need, we will issue the corresponding amount. As long as people still

need paper yuan, we will continue to issue it. The two will co-exist for a very long time in my personal opinion,” he said.

#### USING AN EXISTING INFRASTRUCTURE

As avid users of the communication and payment services of WeChat and Alipay, Chinese are used to electronic processes and thus the infrastructure for mobile money transactions is already in place. The operators of these services, Tencent und Alibaba, are also considered to be close to the government and are important pillars of the Chinese digitalisation strategy. Since 2018 citizens have been able to display their official identification documents on their smartphones via the WeChat app. This means that procedures that require identification can be transacted via WeChat. The digital yuan is a logical extension of this development and would fit in well into the existing infrastructure.

And, although Chinese citizens are among the most prolific ‘miners’ of Bitcoin, the new DCEP is not one of the wildly fluctuating crypto-currencies. It is as stable as the physical Renminbi, as the official currency is called, of which the Yuan is the most common unit. Like cash, each digital yuan is created, signed and issued by the PBOC, China’s central bank, and it will be rolled out with the help of the country’s largest commercial banks. Unlike cash, however, the bank retains the ability to track the movement of every piece of digital currency it issues.

Commercial banks distribute DCEP to their customers, who can download the currency from their bank accounts into digital wallets or apps, akin to taking cash out at an ATM. Consumers can then make contactless, instant payments to anyone else, who uses the service. The well-established Chinese habit of paying with a mobile phone should make the transition to a digital yuan an easy sell for consumers there while offering big benefits to the government.

Theoretically this could eliminate the need for third-party digital payment services like WeChat or Alipay which are very widely used in China. But these are deeply embedded in a world of social media, e-commerce, ride-hailing, bill-paying, investments and other functions. There’s no obvious reason why they couldn’t co-exist. Such apps handled 53 trillion yuan (\$7.8 trillion) of transactions in China in the first quarter of 2020, according to research firm Analysys. Ant’s Alipay handled more than half of that, followed by Tencent’s WeChat Pay with a third. The PBOC said all non-cash transactions (which also includes credit, debit and stored-value cards, bank transfers and checks) totaled 3.8 quadrillion yuan in 2019, Bloomberg observed. ■

## THE THREAT OF LIBRA IS GONE, DON'T RUSH CBDC

On October 12, the news organisation Reuters wrote that a G7 draft showed that the financial leaders of seven large economies, the United States, Canada, Japan, Germany, France, Italy, and the United Kingdom, will oppose the launch of the long-awaited controversial stablecoin, Libra. Until the stablecoin is properly regulated, the launch of Facebook's Libra coin will be halted. "The G7 continues to maintain that no global stablecoin project should begin operation until it adequately addresses relevant legal, regulatory, and oversight requirements through appropriate design and by adhering to applicable standards," the draft said.

That statement came as a relief to many central bankers the world over, who had been prompted but the proposed launch of this stablecoin to seriously advance their work on their own Central Bank Digital Currencies. However, that was not the only reaction of the financial world. Even before this news broke, the editorial board of the Financial Times warned that central banks should not rush into digital currencies.

The Financial Times wrote that the Libra project highlighted an important problem: an inability for people and businesses to make cross-border payments quickly and cheaply. Central banks now not only recognise this, but have invested considerable resources in attempts to solve it. It is

welcome, too, that officials have woken up to the threat from the private sector. But banking on - and with - the state carries risks. Centralised ledgers would contain frightening amounts of information about their citizens' behaviour, although advocates contend that transactions can be anonymised.

State-backed digital money could also hasten the demise of cash, already hit by the pandemic. Aware of the likely public backlash, central bankers are adamant they would keep on producing physical currency. Yet the costs to print and distribute it make less sense the less it is used. It could also undermine banks, especially during crises. If people can bank directly with the state, then it would seem foolish to take the risk of parking deposits with a private lender.

As the article on page 12 shows, China's serious march into CBDC has the potential to upset the global monetary order. Beijing would love to replace the dollar as the global reserve currency. A digital renminbi would accelerate that aim and bypass rival western-operated cross-border payment networks, such as Swift, which the US has used to enforce sanctions. Time and effort would be better spent to upgrade existing payment networks rather than pursuing options that, for all their innovation, could create more problems than they solve. Although in some countries digital currencies now look unavoidable even without the threat of Libra, central banks should not rush them out. With so many challenges to consider, it is vital to get it right, the FT wrote. ■



**India seems to have difficulties deciding about currency, and its politicians can't make up their minds. Should cash go or stay, should it be printed on paper or on polymer? And how should rampant counterfeiting and tax evasion be tackled?**

In November 2016, prime minister Narendra Modi suddenly "demonetised" all ₹500 and ₹1,000 banknotes of the Mahatma Gandhi Series in order to stop counterfeits of banknotes and tax evasion and generally strip India of 'black money'. Two years later, the 2018 annual report of the Reserve Bank of India, the country's central bank, implied that demonetisation may not have done much to curb the generation of new fake currency, the

Indian online paper 'The Wire' noted. The new ₹2,000 note – which was initially believed to have come printed with better security features – was also not immune to counterfeit. Latest reports of the National Crime Records Bureau (NCRB) reveal that in terms of value, ₹2,000 banknotes comprised 56 per cent of all fake currency seized in India after demonetisation (i.e. in 2017 and 2018).

Demonetisation also had the secondary aim of weaning India from cash and introducing a cashless society. However, "requirements for currency notes have been on the rise over the years despite coordinated moves - including demonetisation - to encourage a cashless society" an article in 'The Billion Press' by Ganga Narayan Rath, former Chief General Manager of the Reserve Bank of India stated. As an example, in May 2019, currency in circulation rose by 22 per cent over pre-demonetisation levels.

### IS POLYMER A SOLUTION?

Taking still high levels of counterfeiting and the

- perceived and unproven - threat of banknotes carrying the corona virus together, some commentators see a solution in the Reserve Bank of India switching from issuing paper money to polymer banknotes. In the same article in which he talks about growth in banknote supply, Ganga Narayan Rath asks 'Why isn't India using polymer banknotes?' The Reserve Bank of India certainly has thought about it. In 2002 it stated that it had no intention to introduce polymer notes in place of paper notes. In October 2009, however, the central bank called for an expression of interest (Eoi) from global manufacturers for one billion pieces of polymer banknotes in the denomination of ₹10. The annual reports of the RBI for FY 2009-10 and FY 2010-11 clearly talked about introducing polymer notes on a "field trial" basis, in select locations and the central bank even commissioned a study on the "environmental impact" of cotton-based bank notes vis-à-vis the polymer-based alternative.

In March 2010, while inaugurating the Bank Note Paper Mill at Mysuru, a joint venture of SPMCIL and BRBNMPL, then RBI Governor Subbarao said: "Considering the relatively long life of polymer notes and their amenability to recycling, the 'carbon footprint' of polymer notes vis-à-vis paper (the balance for polymer) notes is likely to be on the plus side." He continued: "Regardless, this is one of the issues that we will study during the pilot phase, and will embark on (using) polymer notes on a long-term basis only if the cost-benefit calculus is decidedly positive in all dimensions."

In 2013 the talk was again of 'field trials' of polymer notes, which would be conducted in five cities — Kochi, Mysuru, Jaipur, Bhubaneswar and Shimla — identified on the basis of their geographic location and climatic diversity. The RBI's annual report for FY 2012-13 also highlighted the relative advantages of polymer notes as cost effective, more secured and difficult to counterfeit. Then, the 2014-15 annual report mentioned that the request for proposal (RFP) for banknotes in the ₹10-denomination had been issued and its technical evaluation undertaken.

However, startlingly, owing to certain 'technical infirmities', the process of acquiring one billion pieces of banknotes could not be taken further. The central bank further stated that a committee was being constituted to evaluate means to increase the life of bank notes.

The central bank, in its annual report for FY 2015-16, said that the project "field trial" of plastic notes in the denomination of ₹10 had been shifted to the Bharatiya Reserve Bank Note Mudran Private Ltd (BRBNMPL) and the government-owned Security

Printing and Minting Corporation of India Ltd (SPMCIL) and thus out of the central bank.

While the fate of that project is unknown, owing to the RBI's conspicuous silence over the issue in the annual reports for FY 2016-17 and 2017-18, the latest annual report (2018-19) lists a field trial of varnished banknotes in the denomination of ₹100, in order to increase the life of Indian banknotes, as an agenda for the year 2019-20.

#### KEEP WHAT YOU HAVE

Perhaps a look at India's existing capacity in producing banknote substrates will shed some light on the issue.

In 2010, in a joint venture, SPMCIL and BRBNMPL, set up a 12,000-MT per year bank-note mill paper at Mysuru. Commercial production started in 2015. SPMCIL also runs another mill for security and banknote paper at Hoshangabad in Madhya Pradesh which produces 6,000-MT per year. At the inauguration of the Hoshangabad line, then Finance Minister Arun Jaitley said that two further paper lines with a total capacity of 12 000 MT p.a. would be set up in Hoshangabad. This would make India more-or-less self sufficient in banknote paper, but so far the second Hoshangabad phase is just a project. A possible date for these two lines coming into operation would have been 2020. As part of the 'Make in India' campaign, BRBNMPL also diversified into setting up a back-end project to manufacture note-printing ink in Mysuru.

Added to these massive production-related investments, already made or projected, commercial banks have also sunk a good amount of money into setting up the many ATMs — which will require replacement of cassettes and recalibration, in case of a shift to polymer notes. The machinery used to verify and dispose paper currency also requires periodical replacement due to a high degree of wear and tear.

Switching to polymer banknotes would mean writing-off much of the capital investment in banknote paper and the paper cash cycle. But for Prime Minister, Narendra Modi, there may be more at stake than that. When he started his 'Make in India' campaign in 2014 to boost industrial production in India for India, shooting for "Indigenisation of Currency" was one of the often-trumpeted goals of the initiative. To go back to being totally at the mercy of only two foreign suppliers of polymer banknote substrate, one of them being De La Rue, a company that was excluded from even bidding for Indian banknote contracts, would have been something close to humiliation. And Mr Modi is a proud man. ■



**Another point of view: Having to consider the Covid epidemic, the life in circulation of its banknotes and the threat of counterfeiting, the Reserve Bank of India finds it difficult to make up its mind. An industry association tries to help.**

The Authentication Solution Providers' Association (ASPA) in India is regularly publishing "Reports for the Nation", giving updates on counterfeiting in the country. ASPA is not only concerned with currency or document counterfeiting, but with counterfeiting in general. In its 2020 report "The State of Counterfeiting in India", in which it lists what has been counterfeited where, it writes that in a ranking of counterfeiting incidents in 2018, currency counterfeiting was in the top spot, with 132 reported incidents, followed by alcohol (106), FMGC (fast moving consumer goods) (79), pharma (36) and tobacco (25). In 2019, currency counterfeiting was still in the top spot with 181 incidents. The other categories also rose in similar ways, but tobacco was knocked out of the top five in favour of document fraud with 21 incidents (18 in 2019).

In terms of the value of counterfeit Indian currency, in 2017/18, law enforcement agencies seized counterfeits valued at ₹460 million (approx. € 5,227 million or \$ 6,201 million). It was no surprise that counterfeits of new ₹ 2000 appeared very shortly after 'demonetisation'. They even made up 56 per cent of all counterfeits seized in 2017/ 2018. What is more surprising is that the last annual report of the Reserve Bank of India (RBI) states that detection of fake ₹ 200 notes saw a 151 per cent rise in 2019-20, and fake notes of the new ₹ 500 series saw a 37 per cent rise. While it is clear that for lack of larger denominations, ₹ 2000 are hoarded - and counterfeited - counterfeiting of ₹ 200 and ₹ 500 notes seems unusual, as the value of these in Euros or Dollar is only € 2.27 and \$ 2.69 and € 5.68 and \$ 6.47 respectively.

#### SAFER NOTES AND LONGER LIFE

The Reserve Bank of India and the Indian government are clearly concerned about counterfeiting, but also about the durability of the banknotes they produce. An article in the Economic Times of India in August, claims that the Reserve Bank "has undertaken several initiatives to introduce

varnished banknotes in ₹ 100 denomination on a field trial basis. However, the process of printing of these notes has been delayed due to disruptions caused by the COVID-19 pandemic and certain other developments."

While varnishing banknotes has the principal aim of extending their life in circulation, the RBI had also announced several times over the years, that it had started trials of polymer banknotes, presumably to extend note life but also to deter counterfeits, although it seemed it had never actually started such trials. As there seem to be diverting opinions about polymer banknotes in India - a merchants' association even demanded the introduction of polymer banknotes as a way to prevent or slow the spread of the corona virus pandemic - the above-mentioned ASPA published a report entitled "COVID-19, Currency Usage & Analysis for Polymer Banknotes in India".

As for the claim that banknotes spread Covid infections, the report states bluntly that there is no evidence for this. As for the longevity of the virus on banknotes, the report cites an expert: "In principle, it is entirely irrelevant how long pathogens can survive on surfaces. What is decisive is whether it is an infection channel" says German health expert Dr. René Gottschalk, who does not consider there to be any risk of transmitting coronavirus via banknotes.

#### IS POLYMER AN ALTERNATIVE TO PAPER?"

To counter both the thread of Corona 19 and that of counterfeiting, the report asks "is polymer an alternative to paper?"

With regard to the Corona 19 threat, the answer had been given already; there is no risk of transmitting coronavirus via banknotes, paper ones or polyester ones. So why did some central banks move from paper to polymer notes? There are two main reasons: polymer banknotes last much longer and they make counterfeiting harder. The Reserve Bank of New Zealand states: "The average polymer note lasts about four times as long as a paper note. This keeps the cost of producing money down." That seems to be so, but the polymer substrate is about twice as expensive as banknote paper, diminishing this claim somewhat. But there is still a saving over time for polymer banknotes due to the significantly longer life of banknotes in circulation.

Production costs of polymer banknotes are certainly higher than those for paper. The Bank of Canada (2018) estimates that the printing cost per banknote of the last paper series of Canadian banknotes amounted to CAD 10 cents per banknote; the first of their polymer series cost CAD 23 cents per banknote; and the latest polymer series cost CAD 27 cents per

note. One can assume that all-in unit processing and destruction costs are roughly 10 cents per banknote, irrespective of banknote substrate. (Source: A Cost-benefit Analysis of Polymer Banknotes, Reserve Bank of Australia, 2019)

The reasons for banknotes to be withdrawn from the market differ between paper and polymer. Paper banknotes failings are corner folds, edge tears, and soiling, all caused through general handling and processing. Polymer banknotes fail primarily because of ink wear/fading. This occurs when the banknote has been circulating longer than recommended for its environment.

Polymer is most cost-effective when used for denominations that have a high circulating velocity. The longer life of polymer banknotes means that annual banknote issues can be significantly reduced and over a while, this can offset the initial higher cost associated with buying polymer.

The first non-paper notes were produced on a polyethylene material called Tyvek, and issued in Costa Rica, Haiti and the Isle of Man. These early banknote issues were not successful due to poor adhesion of

the print to the plastic substrate. Polymer banknote substrate, as used today, refers to a biaxially oriented polypropylene substrate (BOPP), established in Australia almost 30 years ago. It was developed by the Reserve Bank of Australia (RBA) in conjunction with the Commonwealth Scientific and Industrial Research Organisation (CSIRO).

Until recently the only polymer banknote substrate available was Guardian supplied by CCL (earlier Innovia, formally known as Securrency International). In 2012 De La Rue ended this monopoly by launching a polymer substrate, which it called Safeguard. This has enabled central banks to have a choice of suppliers and polymer substrates.

The ASPA paper does not advocate the use of polymer over paper as a banknote substrate, but necessarily, in concentrating on polymer only, it does not come to - nor attempt to - strike a balance between the two. Nor does it mention the many other choices now open to central banks and banknote printers, such as hybrid paper plastic substrates such as Hybrid and Durasafe and the many coatings that extend the life of banknotes and keep them clean longer. ■

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## DE LA RUE TRANSFORMATION

**D**e La Rue, the largest commercial producer of banknotes, recently extended its long-term contract with the Bank of England, has secured Authentication orders with a total lifetime contract value of £120m and reported a seven-fold increase in profit as part of its interim results on 25th November.

With a new leadership team in place, De La Rue are driving a leaner and more agile business through the execution of a turnaround plan led by new CEO Clive Vacher. The completion of a £100m equity capital raise on 7th July 2020 provided the first major indication of the future direction of the company. Since the last edition of Infosecura the indications of a healthier and stronger De La Rue have become increasingly apparent to those outside of De La Rue.

On 30th October 2020 the Bank of England confirmed it had exercised the option to extend its existing ten-year banknote print contract with De La Rue for another three years until 2028. This contract maintains De La Rue's exclusivity in printing Bank of England banknotes and operating the Bank's facility in Debden, Essex and continues a close partnership that stretches back to 2003. In recent years De La Rue has supported the Bank of England with banknote design and manufacture as the Bank has upgraded its banknote series to polymer substrate. The £20, launched in February 2020, is the first Bank of England banknote to co-circulate on SAFEGUARD® polymer substrate and will be followed with the £50 when it launches in 2021. De La Rue has also supported the Bank to manage the replacement of two full print lines whilst simultaneously transitioning to polymer. Polymer printing is now well-established at the Debden site, which printed its five-billionth Sterling polymer banknote during November 2020. Five billion banknotes are enough banknotes to go around the entire world 16.5 times.

This was followed by Advanced DLR Analytics™ winning "Best New Currency Innovation" at the 2020 Technical Awards of the International Currency Association in November. De La Rue's Carbon Neutral Banknote Service was also a finalist. DLR Analytics™ provides the leading cash cycle analytics service for central banks around the world. 'Advanced DLR Analytics™' provides additional banknote demand forecasting tools, scenario planning capability and advanced algorithms to unlock global trends and benchmarking. This service has quietly gone from strength-to-strength

since its launch, with several central banks now relying on the tool for their regular reporting.

Later in the month De La Rue reported positive H1 FY 2020/21 results on 25th November. Its "Turnaround Plan" to fix legacy issues, cut costs and drive profitable growth was reported as being on-track, with new CEO and turnaround expert Clive Vacher saying "I am satisfied with the progress of the Turnaround Plan so far, which is yielding positive improvements across the company." H1 FY 2020/21 results showed significantly improved operating profits, positive operating cash flow and a reduction in net debt. The outlook for the full year is anticipated to be in line with the De La Rue Board's expectations, with claims that SAFEGUARD® polymer substrate production and banknote print lines were 100% full for the remaining financial year.

The De La Rue Turnaround Plan is based on more than three months' data-driven intensive work by an extended leadership team of 18 people. It covers the three-year period from FY 2020/21 to FY2022/23 inclusive. The plan to return the Currency division to progressive margin growth is already being realized, as outlined in the H1 FY2020/21 interim results. Investment has also been secured for polymer and security features. As part of the cost-cutting measures banknote printing will cease operations in Gateshead however De La Rue will maintain its current capacity and continue printing in the UK, Malta, Sri Lanka and Kenya, which is double the number of locations of any other commercial banknote printer.

Under current plans De La Rue will more than double its polymer capacity, with a second polymer line already ordered to meet the growing market demand. Since 2013 the number of banknotes on polymer have more than tripled. Furthermore, on 28th October 2020 a survey of over 90 central banks indicated that 68% were 'likely' or 'very likely' to convert more banknotes to polymer in future years.

De La Rue is also continuing to invest in paper security features. An entirely new "embedded stripe" product category will soon launch, with NEXUS™, which is a micro-optics embedded stripe. NEXUS™ claims to combine the high impact of a large viewing area with the "embedded" security associated with a banknote security thread. The Central Bank of Qatar will be the first central bank to issue banknotes containing NEXUS™.

In the past year it appears that a lot of change has occurred in De La Rue and the benefits of that change are recently becoming apparent. The current De La Rue is emerging as bigger, better and stronger than in recent years. ■

## LOUISENTHAL WINS IACA SUSTAINABILITY AWARD



**Louisenthal won the Award for the Best New Environmental Sustainability Project by the International Association of Currency Affairs. Louisenthal is part of the G+D Group which joined the UN Global Compact in 2010.**

**E**nvironmental responsibility, sustainability and respect for natural resources have always been part of Louisenthal's DNA", said Clemens Berger, Louisenthal's Chairman of the Board of Managing Directors. "We are delighted to have won this award, acknowledging our contribution. Last year, we decided to set up a sustainability project, adding metrics and analytics, which would help us to measure our efforts in sustainability and to even increase them step by step."

One of Louisenthal's visions is a sustainable banknote. For this purpose, the company examined the lifecycle of a banknote from cradle to grave. Increasing the proportion of organic and fair trade cotton used in its substrates was a first step. Taking a closer look at water consumption, conditions of production and energy resources a second one. A third step is the careful handling of hazardous materials. Berger explained that "water is a very

emotional topic. Louisenthal is located within the drinking water catchment area for Munich. Building a paper mill in the middle of this area meant that, right from the start, part of our main focus has been environmental protection and sustainability in our processes. When it comes to ensuring clean water we follow perhaps the strictest rules in the world – and gladly so. Louisenthal has always gone beyond legal requirements when deemed environmentally sound for its two locations."

Over the last decade and a half, Louisenthal spent EUR 15 million on sustainability. One example is the efficient, sustainable approach to heating and cooling works. This has yielded savings of around 1.5 gigawatt hours of electricity per annum since 2009, the equivalent of some 600 tons of CO<sub>2</sub>. Another is the reduction of water consumption by 40 per cent over nine years, from 1,600 m<sup>3</sup> a day to 900 m<sup>3</sup>, with the help of a wastewater treatment plant. Bacteria are used to purify the processed water. Once they have fulfilled their purpose, the bacteria are separated and recycled using a membrane filtration system. The purified water is reused in production. 25 per cent of Louisenthal's electricity in Gmund is being generated locally through combined heating and power generation and CO<sub>2</sub>-neutrally through three water turbines. They are equipped with a sensor-controlled, fully automatic water inlet that only takes the amount of water it actually requires, most of which goes back into the river. In a last step, Louisenthal addresses the issues of disposal and recycling, aiming for "no waste". ■

## SECURITY PAPER MARKET TO INCREASE BY 1.8 PER CENT

A new Smithers report – The Future of Security Papers to 2025 - expects that 914,000 tons of specialty paper valued at \$6.27 billion will be used in different security documents in 2020. This is expected to increase to \$6.58 billion in 2025, at a compound annual growth rate (CAGR) of 1.8 per cent, even as volumes fall and suppliers adjust to new commercial priorities under Covid-19. Coronavirus lockdown orders will have the biggest impact on ticket and cheque papers. Event and transportation tickets have been similarly affected by ongoing travel restrictions, and an increasing shift towards paperless or fully electronic ticketing. Demand in banknotes and personal ID documents – principally passport visa pages – will be much less affected due to stronger demand for identity documents and cash in developing regions through to 2025. Postage stamp volumes will continue to decline, but the segment will benefit from the wider use of tax stamps as authorities look to clamp down on illicit and grey market trade.

Banknote demand peaked in the first quarter of 2020 but in the medium term, paper banknote printing volumes are projected remain stable. Polymer substrates are now in use for all denominations in two G8 countries; but no other changeovers for major currencies are anticipated. Central banks are increasingly looking for full-service providers to supply note substrates, security features, and design expertise, as a single package; opening new revenue potential for larger, integrated security print firms. However, governments that have their own banknote paper mills may adopt a more commercial outlook and compete with private-sector security printers for contracts.

Across 2020-2025 genuine volume increases will be confined to growth economies in Asia and Eastern Europe. Asia-Pacific specifically will expand its share of the security paper market by volume from 41 per cent to 47 per cent across the Smithers forecast period. This will prompt existing suppliers to diversify their sales forces and pursue new joint ventures in the region. ■

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