

INFOSECURA

SecurityPrinters Banknotes+Identity

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SAVE THE DATE

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Optimism and Concerns



This issue of InfoSecura is about the SecurityPrinters - Banknotes +Identity Conference in Copenhagen in October. It is intended to be a kind of memory support, as not every delegate had the chance, let alone the stamina, to listen to every presentation. A conclusion that can be drawn from the total of the presentations made is that the industry as a whole is in good shape, or perhaps that should be 'still in good shape'. The challenges are certainly there, the question is only, if and when they will become critical.

It is certainly possible to see both sectors of our industry as perhaps entering a period of decline, but this is not the line the speakers at the conference took. They showed the industry as being in robust health, but to counter any adverse developments, they have to be recognized and answered with innovative solutions.

On the banknote side, the use of cash, especially in northern European countries, has been falling for years and is now quite low, as any of the conference delegates venturing into the centre of Copenhagen will have found. But cash is far from being on the way out, even if its use has changed much. It is still an important means of payment even in the economically leading countries in Europe, but as the statistics of e.g. the European Central Bank show, one of its most important roles seems to be as a store of value. With interest rates hovering around the zero mark, it remains to be seen what will happen, if and when they rise, as at present there is little incentive for those that like to keep their savings 'under the mattress', to put their money into a bank account. With card and other non-physical means of payments increasing, one way of central banks keeping control of the money supply would be to issue 'central bank digital currency', (CBDC) which is the subject of a lengthy article in this issue.

On the ID document side, the talk by IATA on the second day of the conference confirmed that at least the airline industry would much prefer the replacement of physical ID documents by electronic ones. A realisation of this wish may still be some time off, not least because of the need to record visas somewhere, but for domestic flights in large countries, e.g. the USA, Australia or Canada or the European Schengen area, it may already be feasible to do most operations, including ID verification, prior to getting to the airport. Even flights e.g. between Belgium, or probably the whole Schengen area, and India are now possible with an electronic visa, with no visible entry in the passport prior to departure. One still has to show to the airline that one has a visa, usually on a piece of paper, as the airline is responsible for returning the passenger to the departure country when no visa has been found, and the entry into India is recorded in the (physical) passport with a stamp, but the system could eventually be tweaked to be fully electronic. On the positive side, a valid passport is still necessary to enter any of the 195 countries of the world and it is unlikely that all would agree to physical-document-free entry anytime soon.

The Editor



A MEETING OF MINDS AND IDEAS

SecurityPrinters - Banknotes+Identity is an event that every 18 months brings together the two parts of the security printing world - banknotes and ID documents. The aim of the conference and exhibition is to «connect issuing authorities and solution providers». Once again it was shown how much each of the two sides can learn from the other and how beneficial the mutual exchange between customers - central banks, ministries and police forces - and those that work on delivering new products and solutions for these authorities, can be.

Some conferences are held in the same city every time, not so Security Printers. In all of its 43 years of history, the conference, or its newer incarnation, SecurityPrinters, Banknotes+Identity,

halls and the main conference hotel are in the same building, only 10 minutes by taxi from the airport. Of course, convenience is a good contributing factor, but it is not the deciding one for attending the conference. That role falls to the programme.

The idea of giving equal time to the two main branches of security printing that Intergraf represents, banknotes and identity, goes back to the beginning of the conference series. Although being clearly distinct, the production of banknotes and ID documents and the underlying technical and legal issues, have much in common and to explore and express these communalities, the conference starts with a joint session. The first conference day began with an upbeat keynote presentation by the UK futurologist Rohit Talwar on “the many futures of identity and money”. The following presentations looked at augmented reality in security, banknote security features from a forensic point of view and advances in commercial digital print and the implications for security printers.

rarely went back to cities where the conference had been held before, and if so, as in the case of Barcelona, Montreux and Vienna, only after a very long interval, - 21 years for the two former cities and 13 years for the latter. Copenhagen was the exception. The conference was held there in 2015 and again in 2019. The reason for coming back to Scandinavia was because the 2015 conference was very good and very convenient for delegates and exhibitors. There were over 850 participants from central banks, ministries, police forces, security printers and suppliers, coming from 65 countries and over 100 exhibitors.



If Copenhagen 1 was successful, Copenhagen 2 repeated this success. In size it was similar, 850 participants from 67 countries, representing 336 organisations. There were 92 speakers, 29 more than at Copenhagen 1, and the number of delegates from law enforcement, ministries and central banks - the vital customer segment - was also significantly higher than in Copenhagen 1, in fact it was higher than at any previous conference. The satisfaction of the participants was also very encouraging: 89.8 per cent of the participants said they would attend again. Another important factor in both Copenhagen conferences was convenience. Not only has Copenhagen excellent air connections to just about anywhere in the world, the conference centre and exhibition

For the identity side, an African perspective on “identity management challenges in 21st century Africa” opened the presentations of the day, which found its high point in the celebration of the Swiss security printer Orell Füssli’s 500 years in business. Orell Füssli’s presentation was called “a journey through 500 years of innovation” and it prominently featured the anniversary sample note that is described in more detail on page 10.

In the following day’s sessions in the banknote segment, the first three presentations were concerned with apps with which new banknote series could be digitally marketed (Germany), presented more effectively to the users (Malawi) or verified as being genuine



850
participants



67
countries



336
organisations



90
exhibitors



Above: a view of Vieux Lyon. Top right: the Palais des Congrès

or counterfeit (Russia), followed by a very timely presentation on the product environmental footprint of security documents, as well as by Interpol's response to the currency counterfeiting threat.

Among the other subjects of the day in the banknote sector was one, Infosecura has repeatedly looked at: Central Bank Digital Currency or CBDC. Representatives of the Banque de France and the Central Bank of Norway gave the views of their respective central banks.

Technology was also prominently featured on the Identity side of the conference with presentations on machine-assisted document authentication and on block chain and its potential impact on secure identification. The various data banks available for identification, such as the Schengen Master List, were also discussed, as was the wish list of organisations such as IATA for a totally digital air travel experience.

The two high points of the last day were the two panel discussions. The one on "Crossing borders and boundaries" centred on the challenges of managing borders in the face of growing numbers of travellers, immigrants and refugees. The participants were Florian Foster of the International Organisation for Migration, Claudio Kavrecic of Frontex, Sylvia Kolligs-Tuffery of the European Commission, Jonathan Rochon of the Government of Canada and Matt Schneider of the US Customs and Border Protection.

The panel in the banknote section discussed the "Impact of changing ownership structures on the banknote supply chain". Is this trend increasing the efficiency of the industry or undermining its core values? This discussion went to the heart of the industry and under the leadership of Danish finance commentator Ole Krohn, Vincent Bonnier, head of Banknote Manufacturing, Banque de France, Toby Davies, Head of Banknote Resilience, Bank of England, Ross Holliday, CEO of Portals, UK, Bolette Møller, Head of Procurement and Quality, National Bank of Denmark, Wolfram Seidemann, CEO of G+D Currency Technology, Germany and Annemarie Watson, President of Crane Currency, USA gave their verdict of the state of the health of the industry. Wolfram Seidemann commented: "The changes in the industry and their impact on all parts of the supply chain is an important topic as the lively discussion with the industry experts on the panel and the interest of the audience demonstrated. While some of the changes may be painful, the panel also pointed out the opportunities that arise with the new developments, e.g. external investors showing a strong interest in the industry. And the discussion illustrated that we all must evolve, use digitalisation and sustainable technologies to grow our business, and adapt with flexibility to new requirements by our customers."

Right: A bridge over the river Rhône



AND NOW: LYON

The dates for the next conference are fixed: March 24th to 26th, 2021, as is the place, the Palais des Congrès in Lyon, France. So, what kind of city is Lyon? It is the third largest city in France, located in the country's east central part, at the confluence of the rivers Rhône and Saône. The city is an ancient one, dating back to Roman times. Its historical heart, Vieux Lyon, is one of the largest Renaissance districts in the country. It is now a UNESCO World Heritage site.

Lyon is perhaps most famous for its cuisine, a place of well-being and of dining and wining splendidly. But it also is and always has been, a city of commerce, historically being an important area for the production and weaving of silk. Today Lyon is a major centre of banking, and it is host to a significant software industry and in recent years has fostered a growing local start-up sector.

Importantly, Lyon has excellent air and rail connections, with flights to most European countries, Africa and the Middle East. The city is part of the high-speed rail network that connects the important cities in France and the rest of Europe.

The Palais des Congrès de Lyons, designed by the celebrated architect Renzo Piano, is located close to the city center on a bend of the river Rhône in a newly built district of the town, the Cité Internationale. It sits directly across from one of Europe's largest urban parks, the Parc de la Tête d'or, and close to Interpol's world headquarters. ■



CBDC: A SUDDEN URGENCY

The announcement by Facebook that it plans to introduce its own digital currency called Libra led to strong reactions by politicians and to a thoughtful comment by the governor of the Bank of England and an interesting reaction by the Financial Times.

In recent issues of Infosecura we talked about central banks researching the need for and the potential functioning of Central Bank Digital Currency (CBDC). There have been several research projects, notably from Finland and Sweden and the Eastern Caribbean Central Bank even announced a real trial roll out (issue 80). As cash use is declining in several European countries as well as in China, and India pushing - so far without much success - the use of cashless payments, the subject received mild interest from central banks but there was no hint of urgency, let alone panic. The reason was that the main threat came from payment cards and some new smartphone-based payment methods, all still based on sovereign money and the most prominent digital or crypto currency, Bitcoin, and its many siblings, behaved so erratically with precipitous changes in value, that only financial adventurers would go near it.

That changed in July when the social media company Facebook, which has 2.41 billion monthly users, announced that it planned to introduce its own crypto currency, called Libra. Suddenly central banks took this particular projected currency serious. Why? Instead of Bitcoin et al, which is backed by nothing and the working of which is facilitated by every Bitcoin transaction being recorded and verified by an entry in a distributed ledger in the block-chain system, Libra - if it comes about - will be a 'stablecoin'. It is to be international and to be fully backed by capital from a consortium of rich financial and IT companies in the form of a basket of currencies including the US dollar, the euro, and sterling. It could be exchanged between users on messaging platforms and with participating retailers. It is to be administered by an association located in Basle, Switzerland and a board consisting of nominees of the investors.

There was enough fear that Libra could actually work and threaten the "monetary sovereignty of governments", to prompt the French finance minister Bruno Le Maire, who said at an OECD conference on virtual currencies in September, that "...we cannot authorize the development (of Libra) on European soil." M. Le Maire suggested that the annual meetings of the World Bank and the IMF open a global discussion on the need for CBDC. He also called for a common European framework for digital currencies.

DIGITAL VERSUS RESERVE CURRENCIES?

In a speech in August in Jackson Hole in the US, the governor of the Bank of England introduced a slightly different rationale into then debate on virtual currencies by not taking direct aim at Libra, but by suggesting that there may be a case for introducing a form of "synthetic currency", CBDC or not, as a way of creating a new reserve currency. He thought that it would be wise to counter some of the effects of "dominant currency pricing", which is reducing the shock absorbing properties of flexible exchange rates. A new synthetic currency "perhaps [provided] through a network of central bank digital currencies" rather than a private provider such as Facebook, could gradually replace the dominance of the US dollar in international transactions. At present the global financial cycle is basically a dollar cycle, as the dollar represents the currency of choice for at least half of international trade invoices, around five times greater than the US's share in world goods imports, and three times its share in world exports. It is therefore not surprising that developments in the US economy, by affecting the dollar exchange rate, can have large spill over effects to the rest of the world. Movements in the US dollar also significantly affect the real burden of debt for those companies, especially in emerging market economies (EMEs) that have borrowed in dollars.

The national economies of EMEs have also been affected by the consequences of the growing asymmetry between the importance of the US dollar in the global financial system and the increasingly multi-polar nature of global economic activity, Governor Carney said. Financial instability in advanced economies also causes capital to leave EMEs for 'safe havens', as it did during the 2008 financial crisis and the 2011 euro-area crisis. EMEs themselves have reacted against an inadequate and fragmented global financial safety net and capital flow volatility by accumulating reserves of safe assets, most of which are dollar dominated.

Given the uncertainties in the international monetary and financial system (IMFS), Mr Carney thinks that a new or different reserve currency not directly linked to a dominant country could solve some of the problems. Changes between reserve currencies are rare events, but when change comes, it should not be to swap one currency hegemon for another, as would happen if e.g. the world would adopt the currency of the now leading trading nation, China, which overtook the USA at the start of this decade, as the next reserve currency. This means that in our multi-polar world any new system should not be unipolar. It would be prudent to look at all possibilities, including those presented by new technologies, to create a more balanced and

effective system, he said. While the likelihood of a multipolar IMFS might seem distant at present, technological developments provide the potential for such a world to emerge. Such a platform would be based on the virtual rather than the physical.

TECHNOLOGY AS CHANGE ENABLER

History shows that the rise of a reserve currency is founded on its usefulness as a medium of exchange, by reducing the cost and increasing the convenience of international payments. The additional functions of money – as a unit of account and store of wealth – come later, and reinforce the payments motive. A reserve currency is deeply embedded in the international monetary and financial system, but technology has the potential to disrupt the network effect to make it possible to replace a reserve currency and to usher in a new Synthetic Hegemonic Currency (SHC). Such a virtual currency could reduce the dollar's influence on global financial conditions if a financial architecture developed around the new SHC and it displaced the dollar's dominance in credit markets. By reducing the influence of the US on the global financial cycle, this would help reduce the volatility of capital flows to EMEs. Widespread use of the SHC in international trade and finance would imply that the currencies that compose its basket could gradually be seen as reliable reserve assets, encouraging EMEs to diversify their holdings of safe assets away from the dollar. This would lessen the downward pressure on equilibrium interest rates and help alleviate the global liquidity trap.

Whether such a new reserve currency would be best provided by the public sector, perhaps through a network of central bank digital currencies or through a private endeavour such as Libra is an open question. Mr Carney did not endorse Libra as a potential reserve currency directly, but he did not rule it out either. But he insisted that the Bank of England and other regulators have been clear that, unlike in social media, for which standards and regulations are only now being developed after the technologies have been adopted by billions of users, the terms of engagement for any new systemic private payments system must be in force well in advance of any launch.

He admitted that even if the initial variants of the SHC idea are not yet perfect, the concept is intriguing. It is worth considering how an SHC in the IMFS could support better global outcomes, given the scale of the challenges of the current IMFS and the risks in transition to a new hegemonic reserve currency, such as the Renminbi.

An SHC could dampen the domineering influence of the US dollar on global trade. If the share

of trade invoiced in SHC were to rise, shocks in the US would have less potent spill overs through exchange rates and trade would become less synchronized across countries. By the same token global trade would become more sensitive to changes in conditions in the countries of the other currencies in the basket backing the SHC.

As for Libra, there are a host of fundamental issues that would have to be addressed, ranging from privacy to Anti Money Laundering and Counter-Financing of Terrorism (AML/CFT) and operational resilience. In addition, depending on its design, it could have substantial implications for both monetary and financial stability.

PRIVATE OR CENTRAL BANK DIGITAL CURRENCIES?

In the last issue of Infosecura, we quoted the head of the Bank of International Settlements (BIS), Augustin Carstens as well as the former deputy governor of the Baque de France, Jean-Pierre Landeau coming down on the side of those that advocate for CBDC, in order to avoid any fragmentation of the monetary system (Landeau) by the likes of Libra and of the possibility of the latter “rapidly establishing a dominant position in global finance” with the linked potential threat to competition, stability and social welfare. The BIS also said that “there needs to be evidence for demand for central bank digital currency and it is not clear that the demand is there yet”. Thus both agree with the Bank of England that CBDC is a possibility and if the conditions are right it could become a reality, although neither deal with the potential of CBDC act as counterweight to the currently dominant reserve currency.

In an article in the Financial Times (September 17), the paper's Alphaville editor Izabella Kaminska argues that central bank should not issue their own digital currencies, not so much out of macro-economic considerations, but because she fears that central banks will not be any good at it.

The starting point of the argument is Libra, or stablecoin in general. If non-bank stablecoins become very popular, they could make it difficult for central banks to control their money supply, especially if the non-bank issuers back their currencies with safe assets such as government bonds instead of with cash. As a counter measure the People's Bank of China, has already dictated that non-bank issuers such as WeChat must hold cash - not bonds - to back their payment coins and keep them at the central bank, rather than at private institutions.

Some central banks could be tempted to compete with stable coins by issuing their own CBDC

because they think there is a demand in the market for a low cost, frictionless cross-border payment system that is not met by the official banking sector. Central banks are certainly capable of doing this, as they already provide highly efficient digital real-time settlement services to the banks they oversee. With CBDC central banks would also be able to impose a negative interest if needed and supply the market with unlimited safe assets.

However, the potential negative effects of CBDC are easy to see: If CBDC competes with banks it makes it harder for them to attract deposits and thus undermines their ability to make loans. This would probably force central banks to enter the lending market directly and if they would become the cheapest source of retail payments and loans they would closely resemble monopolistic state banks, which in democracies does not seem to be desirable.

The FT article identifies other pitfalls. Even without the competition issue, central banks are not used to providing good quality services at the retail level that comply with modern regulatory standards, including handling public complaints and user inquiries and performing 'know your customer' and money laundering checks. They are just not well equipped to be profit-oriented, customer-facing specialists.

The author suggests that "central banks would be better off following the People's Bank of China model of bringing digital payments into the central banking fold and focusing on what they do best: managing stability. Then, if stablecoins do become so popular that the sheer volume of their reserves starts to constrain the funding for loans, central banks have recourse. They could start charging such reserves a negative rate, while allowing competitive forces to determine how much to charge customers in turn." ■

UK FINANCE LAUNCHES CASH INITIATIVE

The UK financial sector has confirmed that it is serious about cash as a means of payment for the whole population. Its 'Community Access to Cash' initiative aims to assure that people can withdraw cash in every high street in the UK, where in some rural areas, access to cash is sometimes difficult.

At the beginning of October, UK Finance, an association of over 250 companies in the UK financial sector, launched an initiative to identify and secure convenient access to cash and payment services. The Community Access to Cash Initiative will also pave the way to improved cash recycling, better access to digital alternatives and increasing engagement of key technology partners, the association announced.

Chief executive of UK Finance Stephen Jones says it's "vital" that the initiative is supported by other sectors such as telecoms, retailers and infrastructure providers to achieve "a resilient and sustainable cash landscape". ATM provider Link pledged to make funding available to secure free cash access for every high-street in the UK where free-to-use ATMs or Post Office counters are not available. Although the average number of cash payments made by an adult each month is 17, overtaken by 28 card payments, cash is still seen as vitally important.

Payment Systems Regulator's MD Chris Hemsley says the initiative is showing the first steps towards "a comprehensive community engagement

scheme" applied across the UK which allows local communities to raise problems with access to cash. Hemsley says it's "essential" that banks and payment providers still serve the needs of cash-paying customers, especially if they want to serve the diverse needs of communities throughout the UK.

Free access to cash is translated by Link and Finance UK as being a free-to-use cash withdrawal service within one kilometre of the "weighted mid-point" of the retail centre. City minister John Glen acknowledges that "with 11 billion payments made in cash last year we know that access remains a critical issue for many".

Looking into pertinent issues such as the digitally-excluded elderly, UK Finance is working with HM Treasury, Bank of England, the Financial Conduct Authority, the Payment Systems Regulator (PSR), Innovate Finance, Natalie Ceeney CBE and consumer group representatives to solve payment needs through an "iterative innovation process".

UK Finance has also published two reports which shed an interesting light on the UK financial and cash providing industries: 'UK Cash & Cash Machines 2019' which is for sale, but a good summary is available free on www.ukfinance.org.uk. On the same site there is a report on UK bank's battle with fraud, the "Half year fraud update 2019" which although not directly linked to cash provides a useful comparison of the losses through counterfeiting to the losses through bank fraud. ■

In praise of JMW Turner

The new UK £ 20 note

The first Sterling note to be issued after Brexit is less unambiguously English than the rest of the series. While Churchill and Turing clearly point to Britain's war history, Turners works reflect his many European painting tours and his interest in a new age of modernity and in a new understanding of colour.

On 10 October 2019, the governor of the Bank of England, Marc Carney, unveiled the design of the new £20 note featuring the artist JMW Turner. It will be issued for the first time on 20 February 2020. The note has been designed and

produced by De La Rue, and the substrate used is also De La Rue's, the polymer Safeguard. The £ 20 is the note that's most frequently taken out of ATMs and accounts for 60 per cent of all Sterling notes in circulation.

Following public consultation, it was decided that JMW Turner, one of the UK's most loved artists would feature on the £20. Turner joins the polymer banknote series which also includes Winston Churchill on the £5 note, Jane Austen on the £10 note and Alan Turing who will be celebrated on the £50 note when it goes into circulation in the next few years.

The new £20 note will be the first to feature the signature of Sarah John, the Bank's Chief Cashier. She said: "The new £20 is an important part of our commitment to providing banknotes that people can use with confidence.

Features on the new £20 note include a large see-through window with a blue and gold foil on the front - and silver on the back - depicting Margate lighthouse and the Turner Contemporary gallery. The shape of the large window is based on the shape of the fountains in London's Trafalgar Square and connected to it is the Queen's portrait in a see-through window with '£20 Bank of England' printed twice around the edge. A smaller see-through window in the bottom corner of the note was inspired by the windows in Tintern Abbey. On the back, the note shows JMW Turner's self-portrait, painted c. 1799 and currently on display in the Tate Britain gallery as well as one of his best known paintings, "the Fighting Temeraire", which hangs in London's National Gallery. This was a tribute to the ship HMS Temeraire, which played a distinguished role in Nelson's victory at the Battle of Trafalgar in 1805. His signature from his will, the document with which he bequeathed many of his paintings to the nation, is incorporated into the portrait. On the front there is also a metallic hologram, which changes between the word 'Twenty' and 'Pounds' when the note is tilted and above the large window a silver foil patch with a 3D image of the coronation crown.

Again on the back there is purple foil patch containing the letter 'T' and a shape based on the staircase at the Tate Britain. And finally, below Turner's portrait there is a quote "Light is therefore colour" from an 1818 lecture by Turner referring to the innovative use of light, shade, colour and tone in his pictures.

It took around two years for the Bank of England and De La Rue's technical and creative design teams to realise the detailed design giving pride of place to Turner's artistic talent and philosophy. ■



ORGANIZED DIVERSITY

At «SecurityPrinters -Banknotes+Identity» in Copenhagen, the Head of Currency of the Hong Kong Monetary Authority, Samson Chi Choi Yuen, explained how the authority manages six HK\$ denominations and four issuers without anyone getting confused.



Singing the same tune



In the discussion surrounding the new proposed Facebook digital currency Libra, opponents often argued that cash represents the authority of a state and the central bank of a given state is the only issuer of currency. A private, international digital currency would threaten that national authority. That is undoubtedly true for most countries in the world, but not for all.



In the Euro zone, the European Central bank is the issuer of the Euro, which is the national currency of 19 countries. However, there are some countries where cash is also issued by commercial banks. In the UK, in England and Wales, the Bank of England (BoE) is the only one to issue Pound Sterling, which it distributes of course in Scotland and Northern Ireland as well, but in these two places there are seven commercial banks that also issue their own currency, four in Northern Ireland and three in Scotland. In Northern Ireland, confusingly, one of them is the Danske Bank that in spite of its name - it is the successor of the Northern Bank - issues sterling notes, although it now limits itself to £10 and



£20 notes. These regional notes all have exactly the same value as the English/Welsh pound issued by the BoE, but they differ in just about everything else. While the BoE issues the denominations of £5, £10, £20, and £50, the Royal Bank of Scotland still has a £1 note, while in Northern Ireland, the First Trust Bank does not issue a £5 note, (it will stop issuing banknotes all together on 30 June 2020), but all issuers in Northern Ireland and Scotland issue £100 notes. These banks also seem to be more adventurous than the "old Lady of Threadneedle Street", the first polymer notes in the UK were not issued by the Bank of England, but by the Clydesdale Bank in Scotland. Seen from the outside one wonders how confusing all this is.

ROOM FOR INDIVIDUALITY

Hong Kong, by contrast, is an example of banknote-individuality coupled with great co-ordination. Here, the issue of banknotes of the Hong Kong dollar is governed by the Hong Kong Monetary Authority (HKMA), but only the \$10 (€1.15) is issued by the HKMA itself. The HKMA licences three commercial banks to issue the denominations of \$20, \$50, \$100, \$500 and \$1,000. The three commercial banks are the Hongkong and Shanghai Banking Corporation Limited, the Standard Chartered Bank (Hong Kong) Limited and the Bank of China (Hong Kong) Limited. All notes are printed at the Hong Kong Note Printing Printing Limited, which the HKMA acquired in 1996 from De La Rue.

One of the key decisions the HKMA took, was to devise a series of functional layouts for all security features, including machine readable ones. The last (2018) series of Hong Kong dollar notes was the first to standardize also the thematic subjects on the reverse side of the notes and the orientation, which in contrast to the horizontal orientation on the front, is vertical. Also standardised is the overall colour of each denomination. All notes have very similar mold-made watermarks in the same position, regardless of issuer and the windowed security threads and the dynamic OVD all used the Spark technology. All main denomination numbers are printed prominently in intaglio and as a latent image, as well as fluorescent see-through image. Within these parameters, the issuers are allowed to use different patterns, etc. This functional layout is observed in all denominations, creative differences between the issuers are in the details.

While the main security features can be found on the front of the note, the back is reserved for the thematic subjects. The five denominations depict respectively the position of Hong Kong as international financial centre (HK\$1,000), the Hong Kong UNESCO Global Geopark (HK\$500), Cantonese opera as the art and cultural legacy of Hong Kong

(HK\$100), as shown on the left side, butterflies that inhabit Hong Kong (HK\$50), and the popular dim sum and tea culture (HK\$20). The dynamic Spark Live feature on the front echoes the theme on the reverse side, eg. a Chinese string instrument to link with the theme of the Cantonese opera on the HK\$100 or the tea leaf on the \$20.

While it may seem confusing to have three parallel issues of Hong Kong dollars in circulation at the same time, the common functional layout for the security features and the coordination of the images make it easy for the public to distinguish between genuine banknotes and counterfeits. While not giving definite figures, the Hong Kong police

mentions on its website that the number of counterfeits is 'insignificant'.

Providing ease of recognition for the public is very important, but it is not the end of the story. All Hong Kong banknotes have to be delivered through the same ATMs, and the whole cash cycle has to function as flawlessly with three issuers - or even four, if the HKMA \$10 note is included - as it would be with only one. The machine-readable features on both sides of the notes, including UV, IR and magnetic features enable them to be used in high-speed sorters and all other features, even covert ones, are tightly controlled to function as one - the Hong Kong dollar. ■



A SWISS MASTERPIECE REVEALED

The most striking artefact to be produced during and for the jubilee year of Swiss security printer Orell Füssli was the sample jubilee note, which was revealed at 'SecurityPrinters - Banknotes+Identity' in Copenhagen. Orell Füssli has always prided itself on its design and the work of Christophe Métroz for this note follows a long line of outstanding design by Swiss artists.



The Orell Füssli jubilee note, printed on cotton paper (above) and Durasafe (right).

To be in business for 500 years is an extraordinary feat, even for a company in the printing industry, where longevity is not that unusual. Orell Füssli, the Swiss security printer and book publisher celebrated its 500th anniversary in style for a whole year, with exhibitions, an impressive book, parties, etc. But the pride of place was held by a special jubilee-house-note, which was revealed at SecurityPrinters - Banknotes + Identity on 23rd October in Copenhagen. To increase the expectations, Orell Füssli had informed the press about the plan in August and revealed a bit of the note in every press release, like a puzzle where another piece is added, stopping short of the completed picture.

The full picture became evident when Orell Füssli Security's CEO, Michael Kasch traced the long path of Orell Füssli from 1519 Zürich to the present. The centre of his presentation was of course the commemorative note, which was clearly intended to demonstrate the technical excellence of the company's work. The note was produced on three different substrates, cotton, Landquart's Durasafe and Guardian polymer showing clearly which security features work well on one substrate and cannot be used on the other. ■



THE PRODUCT ENVIRONMENTAL FOOTPRINT OF SECURITY DOCUMENTS

Central banks are increasingly facing new types of challenges, not least related to climate change, the disruptive impact of technological change, and the potential fragmentation of the current multilateral order.

Christine Lagarde, next ECB President

In the last issue of Infosecura we reported on the successful efforts of a banknote paper manufacturer to produce sustainably. In that case the focus was on the material that goes into the paper and on the manufacturing process, including water and electricity consumption, etc. As paper is only a contributing part, the complete analysis of the ecological impact or the lifecycle assessment was left to the final product, the banknote.

FROM LCA TO PEF

Lifecycle Assessment (LCA) is a method for analysing the environmental impact of a product throughout its life cycle, from the extraction of raw materials (the cradle) to handling the waste (the grave). In 2004 the European Central Bank (ECB) published the first LCA of the newly introduced Euro, which showed that only 14 per cent of the environmental impact of banknotes came from banknote manufacturing, while 30,7 per cent came from transport and 44,2 per cent from ATMs. Of the 14 per cent contributed by manufacturing, 22,8 per cent was due to production (printing, etc.), 72,8 per cent to paper, 1,7 per cent to ink, 1,5 per cent to foil and 0,6 per cent to thread.

The ECB noted that, as euro banknotes are designed to be used on a daily basis, their environmental impact was compared with the impact caused by other everyday activities. The assessment concluded that the total environmental impact caused by the 3 billion euro banknotes produced in 2003, weighing approximately 2,500 tonnes, was equivalent to the environmental impact of each European citizen driving a car for one kilometre or leaving a 60W bulb switched on for 12 hours.

Meanwhile the volume of Euro banknotes had fluctuated greatly. From initially 3 billion banknotes, the numbers climbed to 7,1 billion in 2010, 8,4 billion in 2012, 8,3 billion in 2014, to fall back from 6 billion in 2015 to just under 4 billion in 2018 and to 3,7 billion in 2019. While the percentages established in 2004 may not have changed much, the actual numbers certainly have.

As Euro banknotes are issued by 19 national central banks, linked in the Eurosystem, with input from 46 accredited manufacturers - 13 printing works, 6 paper mills and 27 raw material suppliers - and, in

its mission statement, the European Central Bank has promised to reduce the ecological footprint of the Euro, the Life Cycle Assessment was not seen as the most comprehensive - or only - methodology to measure its ecological impact. And meanwhile, the challenges have changed. Christine Lagarde, the next ECB President said: "Central banks are increasingly facing new types of challenges, not least related to climate change, the disruptive impact of technological change and the potential fragmentation of the current multilateral order."

Lifecycle Assessment is a valuable method but even for the same product produced in different location and under different circumstances, different LCAs could produce different results. Also, the EU determined that LCA could not be used systematically in policy making. What was needed was information that was reproducible, comparable and verifiable, as different EU countries have different live cycle assessment protocols. In response, the European Commission's Joint Research Center (JRC) developed an extended methodology based on Life Cycle Assessment, the Product Environmental Footprint (PEF), a method for assessing environmental impacts of the flow of resources, energy and emissions and waste associated with the product's life cycle with common protocols for the whole of the EU. Although it was not specifically developed for this, it is held to be the most suitable methodology to measure the environmental impact of Euro banknotes given the different production locations.

SO WHAT IS PEF?

Product Environmental Footprint (PEF) is a "common methodological approach, established by the European Commission to enable Member States and the private sector to assess, display and benchmark the environmental performance of products and services based on a comprehensive assessment of environmental impacts over their life cycle". There are 16 impact categories to be considered but it started as an attempt to check the proliferation of environmental labels that were sowing confusion and were even considered a potential threat to the Single Market. Between 2013 and 2017, the number of eco labels worldwide grew from 30 to 465. 95 per cent of consumers say that buying "green" products is the right thing to do, but 68 per cent of respondents to an enquiry found that a label or environmental information was misleading. What was clearly needed was information that is reproducible, comparable and verifiable. PEF is part of the EU project "Single Market for Green Products" which dates back to an EC Recommendation of 2013. Meanwhile the project has been defined and it went through a pilot phase in 2018. The results of this are being analysed for proposals to be made for implementation in the

near future. Proposals for several product categories are already on the table, such as apparel, flexible packaging and red meat and several others. For each project or category, four policy options can be considered:

Option 1: Business as usual,

Option 2: continued support for the implementation of the Ecologic Footprint methods,

Option 3: integration of the methods in existing policies,

Option 4: new instrument on specific green claims. For Euro banknotes, the goal is to use the PEF as indicator to measure the environmental performance of banknotes as payment instrument, helping to identify opportunities to improve through annual monitoring follow-ups. The project

preparation was still on going as of October 2019 and PEF-BN for banknotes as a means of payment is planned to start in the last quarter of 2019. It is possible that the project will be extended to PEF-CASH covering Euro banknotes and coins as means of payment and PEF-OMP for other means of payment.

The ECB describes the Euro banknote lifecycle in PEF stages as such: 1. Raw material acquisition and pre-processing, which includes ink, paper and foil and thread, each with their raw materials, chemicals and packaging.

2. Manufacturing including plates and packaging.

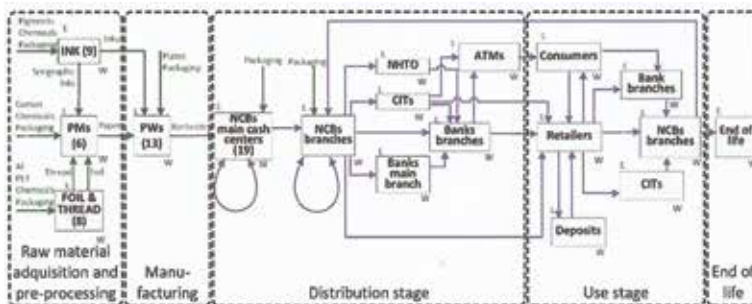
3. The distribution stage encompassing the main cash centres of National Central Banks, their branches, the main branches of banks and their own branches as well as ATMs.

4. The use stage consists of consumers, retailers, bank branches, deposits and branches of National Central Banks, and finally

5. The end of life of the notes.

The future will show how effective the Product Environmental Footprint methodology will be in identifying areas in the Euro orbit that could be ecologically improved. ■

Euro banknotes life cycle in PEF stages



NEW ANTI-COUNTERFEITING SECURITY TECHNOLOGY WINS AT INTERNATIONAL HOLOGRAPHY AWARDS



KINEGRAM COLORS with FLUX Effect



Surys' Moov patch

An advanced optical anti-counterfeiting solution for banknotes has won at the Excellence in Holography Awards 2019, organised by the International Hologram Manufacturers Association (IHMA).

Germany's Leonard Kurz's KINEGRAM COLORS with FLUX Effect scooped the top slot in the 'Best Applied Security Product' category at the awards, which were presented by the IHMA at the annual Holography Conference in Athens, Greece (14 - 15 November).

Developed for the Singapore Bicentennial \$20 commemorative currency notes issued in June 2019, the effect's use in the foil stripe marks the

first time that a KINEGRAM with FLUX prominently features on a currency note as a critical security feature. In addition, the banknote marks the first time that a security foil has been applied onto a fully offset-printed polymer substrate with a Steuer machine.

The Excellence in Holography awards recognise outstanding achievement, marking success for those at the forefront of the sector who have developed innovative or commercially viable hologram products or techniques over the last 12 months.

Also commended in the same category were China based Shandong Taibao Anti-Counterfeiting Technology Products for its cigarette packaging anti-counterfeiting holographic paper, and France's Surys, who's Moov patch features as a high-level authentication feature on the new Sudanese 1000 pound.

Attended by hologram suppliers, manufacturers and end-users from around the world, the event saw Dr Paul Dunn, chair of the IHMA, commend the standard of entries as extremely high, adding to an industry that continues to innovate, evolve and find new markets. ■

WEAK LINKS IN THE IDENTITY CHAIN

Identity is something intensely personal, but documented identity is what we present to those that need to know who we are.

It starts just after birth with the birth registration and subsequently with the birth certificate and continues with the ID card and passport, on which all other documents are based. At every stage in this chain there are weaknesses that can be exploited by those who want to pretend that they are someone else.

At the ID part of SecurityPrinters Banknotes+Identity in Copenhagen many of the papers presented dealt with necessary improvements to physical ID documents, assuming that these were still necessary and broadly fit for purpose. There were also papers that argued that to switch completely to digital ID would solve many problems. The answer to this is still in the future but for the present we have to make physical ID documents as secure as possible.

There are weak links in the identity chain and Dr. Christian Weigand of the German Federal Police, the Bundeskriminalamt, gave a good run-down of where these weak links can be found.

SECURE THE ORIGINS

The beginning of the process chain that enables identification of an individual after birth is the registration of name, date of birth, etc. at an appropriate government authority, central in some countries or local in others. A birth certificate is a copy of that registration handed to the parents of the child. It is not necessarily a very secure document and as in many cases it is not possible, and often not even attempted, to go back to the original registration, it is one for the weakest links in establishing identity. As the very beginning of the document based identity chain, it lacks most of the security elements of later ID documents, such as facial image, fingerprints or other biometrics, but on this minimalist basis, all further identity documents, e.g. an ID card, a passport, driver's licence or any other legal document needed, which define a person legally, are issued. Before establishing this subsequent identity document chain for a person, the issuer must simply assume that the person holding the birth certificate is the person described thereon. All documents issued on the basis of a birth certificate are authentic. It is obvious that the security level of breeder documents needs to be raised to make at least sure that the certificate itself is not a forgery.

The vulnerability of birth certificates is a long-running problem. One of more recent origins is

morphing, another weak point identified by Dr. Weigand. Morphing is the electronic merging of two ID photos to enable two different persons to use the same passport. A potential solution is to use "live-enrolment", the acquisition of the image and the fingerprints at the place where the document is issued. This prevents morphing as well as "beautification" of the ID photo, it is cheaper and more comfortable than the applicant going to a professional photographer or an automat, and results in higher image quality. The drawback is that it entails substantial investment in the places where the enrolment takes place.

WEAK LINKS IN CONSTRUCTION AND DESIGN

A different class of weaknesses are those caused by weaknesses in the design of the data pages of passports or of polycarbonate ID cards. If the personal data and the security features are on separate layers in the card stack, it is possible to remove and substitute the portrait without damaging the main security features. To increase the level of integration in the card, it is necessary to interweave personal data and security features.

Another weak point is the use of diffractive optical variable devices (DOVIDs) that are easily counterfeited. Many kinetic DOVID effects are of the same kind and as long as the counterfeited effect is similar, it is often confused with the original. Dot matrix counterfeits are widely available, it is therefore recommendable to raise the technology barrier above the level of dot matrix counterfeits by choosing for example Zero-Order devices, features based on asymmetric diffraction gratings, e.g. contrast inversion, and 3D-relief effects and volume holograms with distinctive colour and no rainbow effect.

However good DOVIDs are, they work best when used sparingly. Overloading a document with optical variable effects, even if the originals are zero-order devices, to be observed in direct reflection and have single identifiable colours and show a distinct colour flip on rotation, they can easily be confused with a counterfeit that only has first order diffractive effects and rainbow colours. To use fewer, well-placed and striking features is usually more effective than crowding a card or page with effects.

WEAK LINKS IN EXAMINATION

If we look at the way a ID document is used, it is a fact that is hardly ever just looked at but examined. The next question is who is doing the examination and do they know what they are looking for? We can assume that border guards, whose main task is to examine ID documents, know what to look for. And even for ID documents they do not see very often, e.g. from distant countries, they know where to get the relevant information. But police officers?

Depending on where they are stationed, they may need to examine an ID document very often or very rarely. And what about other government agencies, and even employees of banks or car rental companies? If nothing on the document arises suspicions, it is unlikely, that the next step is taken, and the next step should be to consult a reference database. Even in highly organised countries like Germany, many non-police authorities are only now getting access to national databases.

The challenge is to provide training not only to the front line, but to all subsequent authorities that need to verify an ID document. As ID documents are examined by eye and by document readers, it is important to share knowledge and experience between examining authorities. Continuous feedback is vital. It was found, for example, that there were strong variations in UV features in passports from Syria, which, because of the high reject rate, created insecurity among examiners. Examiners also need to understand the working principles and capabilities of machine inspection. These capabilities and limits should already be integrated into the document design in the design stage to enable both human and machine inspection. In the digital and electronic inspection chain, it is important to read barcodes as well as the RFID chip.

But reading alone, e.g. seeing that the printed data and the electronic data match, is not sufficient either. In drawing attention to the RFID chip, Dr. Weigand presented an example of a complete forgery, where the machine-readable data, the portrait and all electronic data matched the printed data perfectly. Only the wrong certificate for the digital signature revealed that the document was a forgery. This means that the security of the RFID chip lies in the verification, not in the reading.

In conclusion, to avoid any of the weak links in the documented ID chain, attention should be given to breeder documents. And further, in polycarbonate passport data pages and ID cards, personal data and security elements should be interwoven to prevent or reveal counterfeits, among optical security features, DOVIDs should be more sophisticated than dot-matrix, but not everything should be based on a single feature. Technical diversity is a good defence against counterfeiting, but it is self-defeating to overload a document with security features.

Already in designing a document, machine readability should be kept in mind. A very important point is training of examiners and sharing and providing relevant information to keep databases updated. And finally, the security of RFID chips is in the verification, not in the reading. ■

NEWS

KBA-NotaSys becomes Koenig & Bauer Banknote Solutions as of 1 June 2020.

The name change will harmonize brands within the Koenig & Bauer Group and has no influence on the organization and structure of KBA-NotaSys. A global overhaul of the logo, the website and related visuals will be presented during the first half of 2020.

KBA-NotaSys was founded in 1952 as Organisation Giori, and became De La Rue Giori in 1964. Since 2001, the company is part of the German industrial group Koenig & Bauer, and initially adopted the company name KBA-GIORI. It was rebranded as KBA-NotaSys in 2011.

Eric Boissonnas, CEO of KBA-NotaSys, explains: "The renaming of KBA-NotaSys to Koenig & Bauer Banknote Solutions reflects the operational and structural situation that has existed for many years, and ensures consistency across the entire group. It does not impact the current or future activities of our company. It's all about fully integrating the Koenig & Bauer brand, both in the complementarity of the technical solutions we offer and in our visual identity. In this way, we want to ensure the continuity of our brand and offer our unique know-how under a single global name."

KBA-NotaSys is the last entity of the group to be renamed as Koenig & Bauer. The "Banknote Solutions" addition reflects the company's core competence: providing banknote printing technology solutions.

A leader in the field of printing for 200 years, the Koenig & Bauer Group is historically the oldest manufacturer of printing presses in the world. With nearly 5,700 employees worldwide and a turnover of EUR 1.2 billion at the end of 2018, the Group enjoys a strong reputation, and a recognized and well-established image in the printing industry.

The Koenig & Bauer Group has four distinct and specialized product segments: Sheetfed, Digital & Webfed, Flexo and Special. KBA-NotaSys is part of the Special segment, focusing on security printing, especially banknotes. Each company in this industrial line is a leader in its field and offers highly technological solutions.



Digital Traveller ID - up in the air or down to earth

In Copenhagen, IATA presented a very ambitious plan for the future of air travel. Its centrepiece is a single validated digital identity token, OneID, which would contain not only personal data but also all necessary permits to enter - and leave - a country. ICAO presented its ideas about Digital Travel Credentials in June. Its proposal looked more into details and it came up with a hybrid solution, encompassing both digital ID and a physical ID document as a fallback.

In June this year, the International Civil Aviation Organization (ICAO) held its 15th TRIP Symposium in Montreal under the title “bridging the physical-digital document divide”.

TRIP stands for Traveller Identification Programme and at the symposium, Louise Cole, New Zealand's outgoing representative to ICAO's New Technologies Working Group and the Lead of the Digital Travel Credential Sub Group, gave a comprehensive overview of the problems the national immigration departments and the travel industry faces. Louise Cole is now the Manager of Identity Management Solutions at the International Air Transport Association (IATA) and in her new position she identified the same problems facing the airline industry as she did in her previous one: increasing passenger numbers at airports, a limited physical infrastructure, the need for increased security and aging or legacy processes and systems. These problems have been generally recognized and governments and industry have put forward many innovative solutions, but as they remained uncoordinated, they only created unpredictability for travellers.

IATA'S WISH LIST

Louise Cole told the audience at the ID session at SecurityPrinters, Banknotes+Identity in Copenhagen in October, that IATAs OneID programme would provide a solution offering a “seamless, secure, customer-centric travel experience”. She suggested that under IATAs OneID programme, the present steps before boarding an airplane of booking - check-in - self-bag drop - access to secure airport area - security screening - outbound border control - boarding and inbound boarder control could be shortened. In a collaborative identity management solution, which is what

IATA is aiming for, this could be done by collecting passenger data already at the booking stage and admissibility (meaning visas) could be validated and identity confirmed well before getting anywhere near the airport. The next steps would be the bag drop, access to secure airport area, security screening and outbound border control and boarding. There would be no inbound border control as the identity of the passenger and his/her status would already been known to the arrival authorities. An inbound boarder control would only be necessary when flying back. The key elements of such a scheme would be a trusted digital identity, which would necessitate a validated digital identity token to be created, which could take different forms and which would need to be introduced into the process as early as possible.

One challenge is that data would have to be shared, used and updated by different stakeholders in different countries. For stakeholders read travel agents, airlines, border control and customs. Stakeholders should have access to passenger data only on a “need-to-know” and “authorized-to-know” basis, in order to meet privacy and data protection requirements. There would have to be a very sophisticated operational framework to govern a multi-party and multi-national collaboration. The set of specifications, rules and agreements would be framed by a common set of requirements, which should work on a local as well as on an international level, IATA states. A precondition for the functioning of OneID is instant biometric recognition at every touchpoint. The system should only need one token.

Once operational, the IATA programme would have considerable benefits for passenger, as it would eliminate repetitive processes and reduce the number of touchpoints. IATA also claims productivity and capacity improvements and cost savings as well as better use of airport space, which may lead to defer or avoid infrastructure expansion.

The IATA programme is something of a wish list for the airline industry and in the programme there are several details, which will need a lot of technical and political advancements. One obvious one is the key point of passing the “touchpoints” without having to join a long queue for identification. This requires a very sophisticated facial recognition programme without the well-known weak points of false-positives or false-negatives especially in the case of women and black people, probably multiplied in the case of black women. If OneID really aims to have only one - digital - ID without the need for a physical back-up in the form of a passport with all the ancillary items, visas, health or vaccination certificates in certain countries, etc. the political questions

may well be more difficult to solve than the technical ones.

ATA'S IDEA FOR THE FUTURE

IATA is the trade association of the airline industry, while ICAO, the International Civil Aviation Organization is a specialized agency of the United Nations and has thus international authority (among signatory states). At its TRIP Symposium, ICAO had a goal similar to that of IATA in front of its eyes. But recognizing the difficulties to transform an aim into reality, ICAO's New Technologies Working Group (NTWG) established a specialized sub-group, the NTWG DTC (Digital Travel Credential) Sub-Group, to develop technical specifications and define international policy for the issuance of virtual forms of traveller identification. The DTC Sub-Group is lead by New Zealand, and is supported by national representatives and the international standardization organization (ISO).

As a very important point for the security printing industry, the mandate of the DTC sub-group states that "the ePassport must be used as the benchmark (for any future development) as it offers a secure, portable, verifiable and unclonable token. Anything that is pursued by the working group must match this offering, while maintaining a balance between security and facilitation".

THE SUCCESS OF THE EPASSPORT

The ePassport is an undoubted success story. Approximately 135 ICAO Member States - out of a total of 193 - issue ePassports and 65 States participate in the ICAO Public Key Directory. The ePassport contains digitized identity information contained in a chip, including two mandatory elements, i.e. DG1 and DG2. DG1 lists the issuing organisation, the name of the holder, the document number, nationality, date of birth, gender and date of expiry. DS2 contains the face. The data is added to the passport and encrypted at the time of issue.

In trying to establish which technology would be the most useful for digital travel documents, the NTWG DTC Sub-Group looked at four distinct technologies: smart devices, server based techniques, distributed ledger and hybrid technology. Each of the first three technologies has distinct limitations: With smart devices, it is the compatibility with border technologies, the fact that the user becomes responsible for the device security and there is a diluted responsibility for control. Storage on a server is limited by the lack of explicit user consent or control, the inability to add travel history or records and that there is no fall back if a 1:1 biometric match fails. Distributed ledger technology has no logical initiator or owner,

immutability can lead to difficulties (such as revocation) and storage requirements and responsibilities are difficult. The DTC Sub Group in the end decided to recommend a hybrid form: A travel credential that has both a virtual and physical component. Combined, these elements minimize the integrity/operational risks of creating a purely virtual token, and e.g. can fall back on the physical token when required. It also puts control in the hands of the user and is consistent with current the ICAO model, etc.

The sub-group found that a digital travel document could be created as a derivative of the ePassport, by extracting data from it and/or issued in parallel to a physical passport. Regardless of technology, the DTC would contain the facial image, the holder's personal details and the security features supporting authentication. And it would be and remain backwards compatible.

LIMITS TO DTC

Current passenger data exchange systems are limited to biographic data and do not include other very important information, e.g. visas. For international travel, DTCs would have to be able to flow from one national administration to another - any other. This could create conflicts with national privacy frameworks, which are based around existing passenger data exchanges. Access to the ICAO Public Key Directory in which currently only 65 countries participate, is limited to national administrations, e.g. border police, etc. but as the travel industry is not part of this, it cannot confidently use the DTC without authentication.

On the positive side, border control and immigration will benefit from improved identity validation, improved data quality, better pre-arrival screening, as the passport is reviewed, authenticated and validated prior to arrival, which also means that border officers can concentrate on high-risk travellers. Another positive side effect would be reduced congestion at borders, although at departure, security checks take longer than passport checks. Airlines too can expect positive results, such as reduced congestion and improved connection times.

THE STATE OF PLAY

The NTWG has endorsed a policy paper by the DTC Sub-Group, which will help in drawing up specifications. This paper defines policy interests of member states and the three DTC types. On behalf of the DTC Sub-Group, ISO has applied the Policy Paper to develop specifications for DTC Type 1; which were to be finalized in November 2019. Generation 1 specifications will be presented to the Technical Advisory Group to the TRIP (TAG/TRIP) for final approval in 2020. ■



Talking about risks



Andrew Davidson,
Director of Security,
HSE & Risk, De La Rue

The Intergraf certification scheme is a world-wide success. There are now 140 production sites in 52 countries that have been certified, 123 of them belong to security printers and thus were certified according to ISO 14298 and 17 are certified security suppliers certified according to CWA 15374. Intergraf launched its certification scheme in 2003 as part of its mission to promote and protect the interests of the printing industry. Together with technical experts from all over the world, it developed international standards with one goal in mind: to provide security printers and their suppliers with a solid framework for managing all security printing processes.

Intergraf's ISO 14298 and CWA 15374 ensure that a set of requirements are met to guarantee a high level of security across all operations and processes, eliminating risk for customers and their products.

The auditing process covers a wide range of risks, among them "disaster related risks". At the SecurityPrinters - Banknotes & Identity conference in Copenhagen, an interactive certification seminar was held, at which Andrew Davidson, Director of Security, HSE & Risk at De La Rue talked about "managing compliance risk in order to provide confidence and control".

THE NEED TO BE AWARE OF RISKS

As the world's largest commercial security printer, De La Rue is a global business and a partner at the highest level of government, central banks and commercial organizations. To be trusted is of the highest priority and part of this trust is to be aware of and to be ready to counter the effects of disasters. Although a word often misused in many trivial contexts, disasters are events such as floods, riots, hurricanes, lightning strikes, dangerous epidemics, and earth quakes. And lately there were many of those. In 2019, 70.8m people were forcibly displaced due to war or natural disasters, climate related disasters cost \$ 520bn per year, 2.78m workers die each year from occupational accidents or diseases and over 100 000 people are killed in conflicts worldwide.

De La Rue has a well established Risk and Incident Management structure with a Board & Audit Committee on top, an Executive Risk Committee below and three levels of further risk management: Group (Centralised) Risks, Site and Functional Risks and a Business Continuity Management System. Any issues and incidents are reported upwards to the Group Incident Management and sideways to the four risk management levels up to the Executive Risk Committee, which reports to the Board and Audit Committee.

When an incident occurs, there is an appropriate 'Incident Organisation Structure' with an operational, tactical and strategic component.

STRATEGIC INCIDENT MANAGEMENT

De La Rue's incident management is very detailed. Among 'Operations Disruptions', it asks to assess which facilities are affected, when can operations be resumed, how much will it cost to repair the damage, etc. but also "has responsibility for restoring a facility been specifically assigned?" and "will this incident impact operations at other De La Rue facilities?" and "are there other industry or government groups available to give assistance?"

After having looked at the operational effects, 'Business Plan Considerations' come next, with questions such as how the incident will impact De La Rue's image and reputation, or pending or future tenders, and the severity of the likely financial impact and the impact on company strategy. The last and equally important consideration is protecting the company's reputation. Based on the current or likely public perception of the incident, a media strategy has to be decided, media needs to be monitored, key messages to be available etc.

Apart from the public perception, there are the relations with the authorities, which have to be monitored. It is important to establish liaisons with authorities and provide reasoned and positive responses. Responses to an incident - dependent on severity - are likely from a wide range of sources, such as governments, regulators, competitors, suppliers, shareholders etc. Dealing with an emergency, as the management response shows, requires teamwork. What is needed is one team with mutually dependent supporting functions. Under the Director of Security, HSE and Risk at De La Rue, Security, Business Continuity and Risk, Health, Safety and the Environment, Information Security, Insurance and finally Facilities work together to create confidence and control in case of an incident. It is a very detailed and complicated process and the Intergraf/ ISO 14298 audits insure that all the pieces in the large puzzle are there and are functional. ■



Time was, when banknotes were simple and dependable and still difficult to produce and to reproduce. The security features in a banknote of, say, 70 years ago were a watermark and intaglio printing. These are still there and they have lost nothing of their effectiveness, but they have been joined by an abundance of new and increasingly complex security features, which make modern banknotes into high-tech products. These features, mostly using different materials and processes, are what define the quality of the end product, the banknote or the passport. The printing part of banknote or passport production is only the beginning. But any production difficulty in e.g. offset or intaglio may be as difficult and expensive to rectify as any other fault in the following production stages. Now add screen-printing, UV printing, windows, various security stripes and patches, numbering, etc. all of which need to be 100 per cent accurately positioned and faultlessly executed, and it becomes clear that a vital ingredient of security printing production is print inspection and process control to ensure a quality product.

This was well illustrated in a recent conversation with Isaam Lutfiyya, Sales and Marketing Director of Baldwin Vision Systems (BVS) at the SecurityPrinters exhibition in Copenhagen. He said that BVS knows the security printing workflow both for banknotes and ID products very well and works with major equipment manufacturers by installing complete inspection systems on new installations, perfectly adapting their inspection systems to any machinery configuration the customer has chosen.

For central banks and security printing companies flush with money, to start with a bespoke production system and with an integrated inspection system is not much of a problem, but it is a fact that in much of the world, security printers have to work with equipment that is sometimes decades old and still deliver products that are at the cutting edge of 21st century technology. For production conditions like these, print inspection systems are vital. For retrofitting any security printing production line, just like for new lines, Baldwin's approach for e.g. the Guardian PQW 100% Print Inspection is to analyse the workflow of the client and suggest a tightly fitting solution to meet all the requirements. The Guardian PQW inspects 100 per cent the sheet or web 100 per cent of the time. The system is flexible to enable changes and additions in equipment and technology.

Among the advantages of BVS Guardian PQW is that regardless of it being a new or refitted line, the inspection system offers a single point of accountability for installation, training and support, instead having to deal with several suppliers in the print inspection chain. Features can be added as new security features come about or the production is growing.

The system works with state-of-the-art cameras that can be mounted on one or both sides of the substrate to inspect print quality, variable data and the position and execution of security features. Guardian PQW can inspect all types of materials and substrates and applications such as holograms, coatings and varnishes and even covert security features. The inline defect detection system enables printers to find and remove defects quickly, and monitors their processes to prevent defects from occurring in the first place. But PQW print quality verification is not only used in the printing presses, it monitors quality from prepress through production, reporting, and archiving for perfect runs.

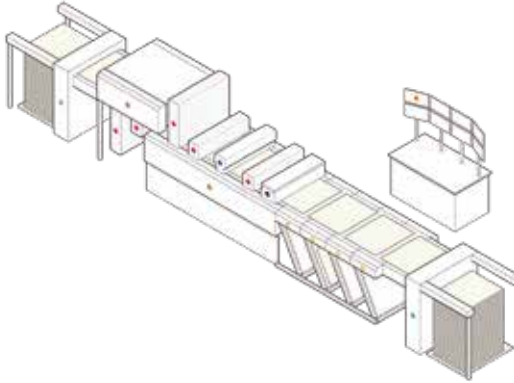
Combined with Guardian RTM Real-Time Monitoring, an optional part of the data-connected defect management workflow system, printers can track and compare many different production metrics. Press managers can monitor changes as they happen, and make highly-informed decisions about print quality, defect management, and even operator-to-operator performance. Guardian RTM uses a central server to monitor, collect and display real time inspection data even simultaneously for several presses, jobs and even across different plants.

Mr. Lutfiyya emphasizes that the complete solution of BVS Guardian PQW and Guardian RTM leads to a dramatic reduction in substrate waste. By monitoring and improving their processes with accurate

performance data, printers can prevent future waste. With the quality of every print run verified, the financial advantages of an advanced, data-connected

workflow become obvious and compelling.

"With the modular and highly configurable nature of the solution, printers can start with an arrangement that meets today's business needs and budget, and easily upgrade and expand in the future to realize additional efficiencies and profits," Mr. Lutfiyya adds. ■



Feeders
roll or sheet



Vacuum Tables
top or bottom



Inspection
print quality
variable data
security features



Inkjet
Printing



UV Ink Curing



Reject Gates
& Bins



Sheet
Stackers



Real-Time
Monitoring
& Reporting

NEWS

Mark Carney named UN Special Envoy for Climate Action and Finance

United Nations Secretary-General António Guterres announced the appointment of the Governor of the Bank of England, Mark Carney, as UN Special Envoy for Climate Action and Finance.

The Governor will support the Secretary-General's climate strategy by galvanising climate action and transforming climate finance for the 26th Conference of the Parties (COP) meeting in Glasgow in November 2020. A key focus will be on shifting the financial system towards mobilising private finance to the levels needed to achieve the 1.5°C goal of the Paris Agreement. This will include building the frameworks for financial reporting, risk management and returns to bring the impacts of climate change to the mainstream of private financial decision making and to support the transition to a net zero carbon economy.



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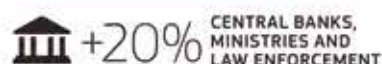
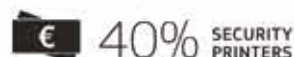
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2019 SecurityPrinters, Copenhagen



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99% to network with selected attendees from government, central banks, law enforcement, security printers and suppliers

84% to get new perspectives on changing trends, emerging technologies and best practice

82% to listen to the most inspiring voices in the banknote and identity sectors

74% to explore new products and solutions on exhibition floor

What they say

'SecurityPrinters brings together the government sector, the private sector and also the public sector. It is important that we talk to each other'

'It is an event which allows me to keep all my contacts within the industry, whether it is our competitors or customers or colleagues'

'There are really interesting speakers at SecurityPrinters'

'The event met and surpassed my expectation'