

# INFOSECURA



## Back in Session

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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## Back in session again



This issue of InfoSecura is, fortunately, going back to the long established pattern, as is CURRENCY+IDENTITY, the Intergraf Conference and Exhibition, itself. We are 'Back in Session' is not only a nice headline to put on the cover, it is also a sigh of relief. We are again able to meet each other face to face, hear and see speakers and even button-hole them after their speech if we have some very special questions. So good so normal.

On the part of exhibitors at CURRENCY+IDENTITY, there has obviously been some pent-up demand to get their new products and services out to their customers and get the expectations up even before the gates at the Centre de Congrès in Lyon open. This is the reason why in the section ID Matters of this issue, there is an unusual number of advertorials and articles written by companies themselves. InfoSecura is happy to provide this service, as it establishes a very direct link from the industry to the industry and to issuers.

In the banknote section, there is the news that the Euro is to be redesigned, which raises the interesting question of whether one of the most important banknotes of the world should continue to project the image of seriousness and sobriety, as it has been doing until now, or if it should, at least a little, follow the lead of equally the important passports to project a more relaxed and light-hearted image. Of course, the idea of finding Tintin or one of his friends on a European banknote will surely be several steps too far. Besides Tintin and friends are too recognizably Belgian to make it onto a European banknote or ID document. But as the competition between banknotes and CBDC and cyber-currencies heats up, it is worth considering how to make banknotes more attractive and - yes - more fun.

This issue also draws attention to a country that is not at all bothered about what its banknotes look like but is very concerned about the lack of banknotes in any shape, Afghanistan. Wars play havoc not only with peoples' lives but with the money supply as well. At the time of writing, the situation in the Russian war against Ukraine is too fluid to comment on, but apart from the many human tragedies there will also be great upheaval in the money supply of both sides involved.

The Editor

## INTERGRAF CURRENCY+IDENTITY

06-08/04/2022  
LYON | FRANCE



### BACK IN SESSION

By the time  
this issue of  
Infosecra  
reaches you,  
you will have

taken the necessary measures to attend the conference and exhibition in person or to participate online. Here are some last-minute points to make your experience more rewarding. As always, the Conference and Exhibition provide excellent opportunities to meet colleagues and customers, and to establish new contacts with leading executives of security printing companies, central banks, and law enforcement from across the world. And in contrast to just about all other events in the field, Intergraf Currency+Identity has no commercial objective. It is not sponsored. Neutrality and objectivity are guaranteed.

We will know in a few weeks what it will feel like to be physically back among friends and colleagues at CURRENCY+IDENTITY in Lyon. Going by past events, it will be highly interesting, full of fascinating encounters, offer new opportunities and not least, it will be fun. To take part in real discussions, to see what speakers and colleagues make of the changed circumstances in the industry, and to talk to suppliers and see their latest developments and to be again in the centre of our industry will be exhilarating.

Most of our usual delegates will be able to come, but in some countries, there may still be restrictions on travel, making it impossible for some to attend. For this reason, we are offering a virtual component that will include live streams from all stages, giving everyone complete access to the programme. So, if you come in person or only attend online, you will not miss any of the presentations.

#### KEEPING YOU SAFE AND HEALTHY

To make your participation safe and to keep you healthy is a prime concern at CURRENCY&IDENTITY. You will need an up-to-date proof of your COVID-19 vaccination status, as accepted by the French government, which most people will have as part of their travel arrangements. France has its own official mobile app to

help fight COVID-19. It is called TousAntiCovid and it is available in English. It also allows you to store locally your COVID vaccination certificate, negative test certificate or proof of recovery. The French Government recommends that you download and activate TousAntiCovid during your stay in France. The app is easy to use, and it is designed to let you enjoy socialising safely.

The Intergraf team is in close contact with the Centre de Congrès de Lyon to monitor and stay up to date on current COVID-19 rules and regulations. Delegates can also check the latest regulation at the official website of the French Interior Ministry - also in English - at [www.diplomatie.gouv.fr/en/coming-to-france/coming-to-france-your-covid-19-questions-answered](http://www.diplomatie.gouv.fr/en/coming-to-france/coming-to-france-your-covid-19-questions-answered). COVID-19 restrictions at the French border were eased on 12 February 2022 for fully vaccinated travellers. For them - see website above - no more tests will be required on departure. Proof of a complete vaccination schedule becomes sufficient to arrive in France, regardless of the country of origin, as was the case before the Omicron variant arrived.

#### SAY HELLO

After nearly two years, we may have to relearn how to greet each other. Not everyone is ready to return to the familiar handshake. For this reason, we will offer different coloured lanyards to express how comfortable you are with close proximity. There will be colours for no-touch greeting, elbow or fist bump preferred or happy to shake hands.

#### YOU ARE WELCOME IN PERSON OR IN SPIRIT

We are certainly looking forward to welcoming you in person in Lyon. However, if you registered in-person and are not able to attend because of imposed travel bans or quarantine restrictions that were not known at the time of registration, your in-person registration will automatically be turned into an online registration. If you wish to completely cancel your in-person registration instead, Intergraf's cancellation policy will apply.

If you registered to attend online and prefer to travel to Lyon to attend in-person after-all, your registration can be transferred, if you e-mail us at [intergraf-conference@intergraf.eu](mailto:intergraf-conference@intergraf.eu) before 21/03/2022. ■



## A RENAISSANCE FOR THE EURO

When the European Central Bank announced that it is planning to redesign the Euro banknotes, it promised the widest possible participation of all eventual users in all 19 Euro area countries, as well as design experts and cultural leaders.

*From the 1996 Euro Design Competition: Not all entries in the design competition followed the bridges, windows and doorways theme. German designer Reinhold Gerstetter chose a drawing based on the portrait of an elderly man by Michiel van Mierevelt and on the reverse a satellite picture of northern Europe. The other denominations showed other European areas*

The European Central Bank announced on December 6 that it is planning to redesign the Euro banknotes in a process, involving the citizens of the Euro member countries, that is expected to lead to a final design decision in 2024. In promising to involve the public at the start of the design process, the ECB is following to a certain extent the example of the Bank of England, which, at the start of the redesign of its four-note pound sterling series asked the public, which personality should be depicted on the reverse side of the notes.

The public duly had its say and, although the banknotes issued by the Bank of England are legal tender only in England and Wales - and not in Scotland or Northern Ireland - they circulate in all four UK 'nations'. In spite of this, the personalities gracing the current series of BoE notes are all English, leaving out the Welsh and the Northern Irish. In the last series there were two Scots, Adam Smith on the € £ 20 and James Watt on the £50.

For the ECB, such national sensitivities are a major headache, and they are the reason why the first two series of Euro banknotes had impersonal subject themes such as windows and doorways on the front and bridges, on the back. The notes are visually differentiated by the historical period from which the images come, e.g. €5: Classical, €10: Romanesque, €20: Gothic, €50: Renaissance, €100: Baroque and rococo and €200: 19th century iron and glass architecture.

The ECB seems to very eager to reflect the will and taste of the people in its next banknote series. 'The redesign process will start with the creation of focus groups, tasked with gathering opinions from people across the euro area on possible themes for the future euro banknotes. A theme advisory group with one expert from each euro area country will then submit a shortlist of new themes to the ECB's Governing Council. The members of the advisory group have already been appointed by the ECB based on proposals from euro area national central banks, and are drawn from diverse fields such as history, natural and social sciences, the visual arts and technology', the ECB writes in a press release.

"Euro banknotes are here to stay. They are a tangible and visible symbol that we stand together in Europe, particularly in times of crisis, and there is still a strong demand for them," said ECB President Christine Lagarde. "After 20 years, it's time to review

the look of our banknotes to make them more relatable to Europeans of all ages and backgrounds."

Following the proposals from the advisory group, the ECB will call on the public for their input on the shortlisted themes. A design competition for the new banknotes will follow, after which the ECB will again consult the public. The Governing Council will take the final decision.

### A NEW LOOK AT THE IDEA OF EUROPE

The first - and so far last - design competition showed the breadths of creativity across Europe. The competition, called in 1996, led to 44 design proposals, 27 under the title of bridges, windows and doorways and 17 under the 'abstract' theme. Looking at some of the entries, which can be seen online at [https://www.ecb.europa.eu/pub/pdf/other/euro\\_catalogueen.pdf](https://www.ecb.europa.eu/pub/pdf/other/euro_catalogueen.pdf) shows what the Euro could have looked like. However, the Euro's design problems were not connected to a lack of creative ideas but to a lack of images that were not linked to a specific country. Even a gothic sculpture that could be identified as coming from a cathedral in a certain country could have led to questions such as why select an image from e.g., a French church when Italy, Germany or Austria have equally famous and beautiful examples of gothic sculptures with the same subject matter that could have been chosen. And so it went with all denominations. Of course, the subject could have been neutralized by choosing an abstract design, as was possible in the design competition, but it was obviously felt that the general public was not yet ready for really abstract bank notes, although abstract paintings had been part of the cultural mainstream for the preceding 80 years at least.

Perhaps this time round it will be better, although the iron rule of not favouring any particular country in the Euro group will probably be strictly adhered to. Perhaps Europeans could agree that there is - apart from national cultures - a positively 'European' culture, which is part of every Europeans cultural make-up, regardless of national location. Or perhaps we should look again at the abstract option. ■



Swiss designer Roger Pfund suggested this abstract design as well as a number of more traditional solutions.

## ECB APPOINTS NEW DIRECTOR BANKNOTES, STRENGTHENING CASH STRATEGY

The European Central Bank has announced that it has appointed Doris Schneeberger as Director Banknotes to succeed Ton Roos, who has retired. Ms Schneeberger has taken up her position on 1 February 2022.

The Executive Board of the European Central Bank has appointed Doris Schneeberger as Director Banknotes. The Directorate Banknotes is responsible for coordinating and monitoring banknote developments within the Eurosystem and with third parties. Ms Schneeberger will shape the Directorate's overall strategy including the Eurosystem's cash strategy. She has been the Head of the Currency Management Division since 2015, coordinating the production and issuance of Euro banknotes across the Euro area.

Before joining the ECB in 2015, Ms Schneeberger held a number of expert and managerial roles in the field of cash and payments at the Oesterreichische Nationalbank. She holds a master's degree in Business Administration from the Vienna University of Economics and Business.

### THE EUROSISTEM'S CASH STRATEGY

The ECB's cash strategy, referred to in the above press release, aims to ensure that cash remains widely available and accepted as both a means of payment and a store of value. Christine Lagarde, President of the ECB said: "Banknotes are part of our economy, our identity and our culture – and we at the ECB have an immense responsibility to ensure that people maintain their trust in them."

Euro banknotes and coins are legal tender in the Euro area, and cash is the only form of public money to which everyone can have direct access. The ECB and the national central banks – the Eurosystem – have a fundamental responsibility, together with the banking sector, to ensure the smooth supply of cash and facilitate the use of cash in payments by people and businesses.

### ENSURING THE AVAILABILITY OF EURO CASH

The ECB works to ensure that euro banknotes and coins are available to the public at all times. The national central banks offer free-of-charge cash services throughout their countries and they also work to make the cash cycle as cost efficient as possible. The needs of international markets are likewise met, since between 30 and 50 per cent of Euro banknotes circulate outside the Euro area. And if a digital euro were to be issued in future, it would exist alongside cash.

To meet the public's payment needs and preferences, banks need to provide adequate cash services, including cash withdrawals that are free or incur only a reasonable fee. The ECB also supports retailers that provide complementary cash services such as "cash back" or facilitate limited cash withdrawals and deposits. And it helps banks to deal with sudden surges in demand for banknotes and makes sure that cash can be used as a fall-back means of payment in case electronic payments are temporarily unavailable.

Most people in the Euro area still prefer to use cash for retail payments. Ensuring that cash is accepted everywhere is therefore a vital part of the payment system and is also in line with its status as legal tender. Retailers, traders and other private businesses cannot refuse cash payments, unless the two parties have previously agreed on other means of payment. Generally, public authorities and service providers must also accept cash, unless otherwise stipulated by law.

Developing innovative and secure euro banknotes Euro banknotes are protected by the latest and most effective technologies to make them highly resistant to counterfeiting and easy to authenticate. The European Commission's PERICLES programme is also encouraging the development of security features for potential future upgrades of the current Euro coin denominations. Last but not least, the ECB said that it aims for the design of Euro banknotes to be one that Europeans can identify with. ■

## BANK OF ENGLAND TO PUBLISH POP-ECONOMICS BOOK

Can't we just print more money? is a new pop-economics book, written by the Bank of England, which will be published this May in partnership with Cornerstone Press.

The book, which will be published on 19 May, is part of the Bank's work to increase public understanding about the economy and the Bank's role in it. The Bank's advance and future royalties will be used to buy copies of the book for thousands of state school libraries and support the Bank's wider education programme.

The book addresses ten economic questions, from, 'Why are all my clothes made in Asia?' to 'What actually is money?' Along the way, it offers idiosyncratic examples of economics in action: from the City of London to Springfield Power Plant; from Babylonian gold lending 4,000 years ago, to the economic effects of the Covid pandemic. ■

## UK BANKS COMMIT TO SUSTAINABLE CASH INFRASTRUCTURE

Whatever the outcome of its deliberations about issuing a central bank digital currency may be, the Bank of England has promised to maintain access to its physical cash for the whole population. Now commercial banks and the UK wholesale cash operators are joining the BoE in this commitment.

In December last year, the UK banks that fund or participate in the wholesale cash infrastructure and the UK wholesale cash operators, announced commitments to ensure an effective, resilient and sustainable cash infrastructure, which in turn will support continued retail access to cash. These organisations will report on their commitments to the Bank of England.

The wholesale cash market is an integral part of the UK's overall cash network. It sits between the issuers of new notes and coins, and those notes and coins being sent to individual bank branches, Post Offices, ATMs and retailers. With the use of cash for transactions declining, action is needed to ensure that this system remains able to support cash as a viable payment method into the future.

The Wholesale Distribution Steering Group (WDSG) was convened by the BoE to help ensure that the Wholesale Cash Distribution model for the UK remains effective, in an environment of declining cash volumes. As a result of the work of the group, the UK banks that fund or participate in the wholesale cash infrastructure and the UK wholesale cash operators have made the following commitments:

**To ensure** there is adequate resilience of the wholesale cash infrastructure so it can effectively underpin access to cash for wholesale and retail customers across the UK.

**To work** with the Bank of England to ensure processing efficiencies are maximised and costs are managed as usage of cash declines in the UK, so that cash remains an accessible payment method for as long as it is needed.

**To reduce** the environmental impact of wholesale cash processing, in particular by:

- Aiming for Net Zero for each organisation's own operations by 2030; and
- Aiming to use 100% renewable electricity for each organisation's own wholesale cash operations by early 2024.

To reinforce the approach, the Bank of England has asked industry participants to bring forward by the end of Q1 2022, individual, measurable commitments with a set of key indicators and criteria that they are willing to be held accountable for. To help

support this, HM Treasury will provide the Bank of England with the powers that it needs to keep the wholesale infrastructure sustainable and resilient into the future.

By ensuring an effective, resilient and sustainable wholesale cash network, these commitments will underpin the initiatives announced by the Cash Action Group this week, which aim to protect access to cash and deposit services for households and businesses across the UK.

Speaking in her capacity as Chair of the Wholesale Distribution Steering Group, The Bank of England's Chief Cashier Sarah John said: "Cash remains an important way of making payments, and the ability to use cash is critical for many people in the UK. That is why we have to make sure the infrastructure for distributing cash around the country remains viable in the years to come. The commitments made today will ensure that the provision of cash services to households and firms is underpinned by an effective, sustainable and resilient cash distribution network." ■

## IMF URGES EL SALVADOR TO END BITCOIN INVOLVEMENT

Here is a follow-up to Infosecura's article on El Salvador's decision to use Bitcoin as a national currency. The International Monetary Fund urged the government of the country to end its recognition of Bitcoin as legal tender, the New York Times wrote on January 26. Adopting a cryptocurrency in this way "entails large risks for financial and market integrity, financial stability and consumer protection," the fund's executive board wrote.

By the end of January, the price of Bitcoin had fallen by more than 50 per cent from its peak in November, and the cryptocurrency market as a whole has lost more than \$1 trillion in value over that time. For institutions that have bought into Bitcoin, from El Salvador's government to some multinational corporations, the downturn could prove costly.

A year ago, Bitcoin was worth just over \$30,000. Since then, it has twice more than doubled in price and then fallen again. El Salvador has spent about \$85.5 million on Bitcoin since adopting the cryptocurrency as legal tender in September, including a \$15 million purchase a few days ago, during the latest dip. The country has paid an average of about \$47,500 per Bitcoin, and the current price is about \$37,000, meaning that the Salvadoran investment has lost about 23 percent of its value. ■

## CBDC IN THE INTERNATIONAL SPOTLIGHT

To introduce a central bank digital currency or not is now being debated in important international gatherings and by national monetary authorities. Last year, under the chairmanship of the UK, the G7 group of advanced economies published a report setting out a set of 13 «Public Principles for Retail Central Bank Currencies». Shortly after, the Monetary Authority of Singapore (MAS) issued a «Global CBDC Challenge» to see how firms involved in the currency and finance industries would design a CBDC and manage its introduction. 300 companies from all over the world accepted the challenge and 25 (?) entries were chosen. MAS published a report on the entries.

The decision on whether to launch a CBDC is for each country to make, and no G7 jurisdiction has yet made this choice, the G7 confirmed. Its report covers a range of important matters such as financial stability, operational resilience and cyber security, energy efficiency, privacy, inclusion and tackling illicit finance, all factors that should be considered when designing and potentially delivering a CBDC.

The impacts of the rapid rise in the use of digital payments are now wide-ranging, with implications for broader public policy objectives. These trends have been further accelerated by the Covid-19 pandemic. In response, G7 central banks and finance ministries are exploring how digital innovation can maintain access to central bank money in the form of retail CBDCs. This would be a digital form of central bank money in the national unit of account, distinct from electronic reserves (which cannot be accessed by individuals), and physical cash. As a direct liability of the central bank, CBDCs would also be distinct from commercial bank money. If issued, CBDCs, as a form of central bank money, could act as both a liquid, safe settlement asset and as an anchor for the payments system.

The G7 announced in its communiqué of June 2021 that its finance ministries and central banks had developed a common set of principles for retail CBDCs, to guide and inform the potential development of national retail CBDCs with respect to these wider public policy considerations.

The principles explored in the report are divided into two categories. The first category, foundational issues, covers monetary and financial stability; legal and governance frameworks; data privacy; competition; operational resilience and cybersecurity; illicit finance; spillovers; and energy and environment. The second category, opportunities, focuses on supporting the digital economy and innovation; financial inclusion; payments to and from the public sector; cross-border functionality; and international development.

The final section discusses the ‘dependencies’ that may occur in a retail CBDC ecosystem, for example, interactions between protecting users’ privacy and countering illicit finance.

### FOUNDATIONAL ISSUES

- Principles: 1:** Any CBDC should support the fulfilment of public policy objectives, does not impede the central bank’s ability to fulfil its mandate and ‘does no harm’ to monetary and financial stability.
- 2:** G7 values for the International Monetary and Financial System should guide the design and operation of CBDCs, namely the rule of law, sound economic governance and appropriate transparency.
- 3:** Rigorous standards of privacy, accountability for the protection of users’ data, and transparency on how information will be secured and used.
- 4:** For trusted, durable, and adaptable digital payments; any CBDC ecosystem must be secure and resilient to cyber, fraud and other operational risks.
- 5:** CBDCs should coexist with existing means of payment and operate in an open, secure, resilient, transparent and competitive environment.
- 6:** CBDCs need to integrate faster, more accessible, safer and cheaper payments with a commitment to mitigate their use in facilitating crime.
- 7:** CBDCs should avoid risks of harm to the international monetary and financial system, and the monetary sovereignty and financial stability of other countries.
- 8:** The energy usage of any CBDC infrastructure should be as efficient as possible to support the transition to a ‘net zero’ economy.

### OPPORTUNITIES

- 9:** CBDCs should be a catalyst for innovation in the digital economy and ensure interoperability with existing and future payments solutions.
- 10:** CBDCs should contribute to financial inclusion and also complement the important role that will continue to be played by cash.
- 11:** Any CBDC, where supporting payments between authorities and the public, should do so in a fast, inexpensive, transparent, inclusive and safe manner, both in normal times and in times of crisis.
- 12:** CBDCs should enhance cross-border payments, including through central banks and other organisations and consider the international dimensions of CBDC design.
- 13:** Any CBDC used for international development assistance should safeguard key public policies of the issuing and recipient countries, while providing sufficient transparency about the nature of the CBDC’s design features.

National authorities are carefully considering CBDC objectives and design choices – including understanding where their implications may need to be carefully balanced.

*The complete text of the reports - here edited - can be found at [G7\\_Public\\_Policy\\_Principles\\_for\\_Retail\\_CBDC\\_FINAL.pdf](https://www.mas.gov.sg/-/media/MAS-Media-Library/development/fintech/CBDC/Global-CBDC-Challenge-Report-2021.pdf) and at <https://www.mas.gov.sg/-/media/MAS-Media-Library/development/fintech/CBDC/Global-CBDC-Challenge-Report-2021.pdf>*

### SINGAPORE'S GLOBAL CBDC CHALLENGE

A different approach to finding out how CBDC might work was taken by the Monetary Authority of Singapore, which issued a "global challenge" to companies in the monetary sector to suggest solutions that would realize the potential of retail CBDC without compromising other principles including security, privacy, financial inclusion, efficient cross-border flow of funds and speed, among others.

The challenge ran for 20 weeks in 2021 and received 300 entries and selected 15 finalists from eight countries. There were 12 'problem statements' such as New Functionalities vs Inclusivity, Security vs Accessibility, Availability vs Risks of disputes, Recoverability vs Anonymity. etc. Selecting at random two of the entries to explain the range of possibilities, the Australia and New Zealand Banking Group presented a 'National Integrated CBDC Ecosystem (NICE)' which uses government infrastructure that acts as primary distribution system for CBDC enabling inclusion through digital identity.

CBDC is issued as a token in specific denominations. Each token has a unique identifier, is digitally signed and issued by the central bank which is able to monitor the circulation of different denominations. It can enforce dynamic currency management and control in real time through its nodes on the distribution networks.

Prime Wallets form the primary public access and distribution mechanism for CBDCs, which is centred on enabling direct transactions between the government, individuals, and businesses. The solution proposes a distributed ledger technology (DLT) system for Government cash and treasury management. The prototype uses R3 Corda, with nodes for ministries and departments for recording financial transactions and hosting Prime Wallets which are available to all residents and entities, authenticated through the National ID system.

Prime Wallets can be accessed online through the web or mobile apps, and NFC-enabled smart cards for offline storage and transfers. The Prime Wallet services can be enabled for feature phones using the Unstructured Supplementary Service Data (USSD) communications protocol, while offline cards can be administered using smartphones or CBDC kiosks. Wallet programmability allows for effective fiscal policy implementation and monitoring.

Examples include the automated direct transfer of sales tax from the point of sale to the internal revenue department, and the ability to designate spending of government grants.

Secondary Wallets are provided by 'Regulated

Commercial Operators' and they form the innovation layer for distributing and using CBDCs. Competition within the private sector will speed the development of new wallet features and overlay services, such as atomic settlements across digital assets, programmable payments, and smart contracting using wallet addresses.

### G+D FILIA

Another among the challenge winner is Giesecke +Devrient's G+D FILIA, described as cash for the digital age. It can be used anywhere, even if there is no connectivity or even during a natural disaster without power supply. It enables everyone to participate in the digital economy, even without a smartphone or a bank account - and no transaction fees.

On the payment layer, Filia is a token-based digital currency resembling cash. It was designed from the very beginning to allow for consecutive offline payments without third party involvement. Payments are settled instantly and are re-spendable.

Filia works on smartphones and hardware wallets, providing full privacy at the payment layer supporting programmable use cases. Unlike standard DLT platforms, neither account balances nor transaction metadata are stored - only the validity of a particular token and its denomination. This can either be on a blockchain or a more traditional database.

This ultralight payment layer also assures integrity. Payment is done by transferring a piece of data from one person to another, utilising all types of devices, smartphones, or a smart card or wearable device. Next is the data layer that only stores pseudonymous transactions required to assure AML and CFT compliance standards.

Since the payment layer does not store any payment transactions, it can be configured for the preferred degree of transparency in the system.

To enable innovation and interoperability, their Smart Wallet infrastructure, the third layer, provides a powerful rule engine run by payment service providers which allows for triggered and conditional payments. It enables interaction with smart contracts and does not lock in central banks to one DLT or blockchain solution. Instead, it allows central banks to remain flexible, and foster market competition.

The G+D Filia solution was just one of the systems proposed. 23 per cent of the proposals said their solutions were production ready or already running live networks, while 27 per cent stated that their solution was in Proof of Concept (POC) or Pilot stage. ■

## A BIG STEP: NIGERIA INTRODUCES CBDC

**Central Bank Digital Currency will be an important and much discussed subject at Currency+Identity in Lyon in April. Rather than just theorizing about CBDC, we will hear from one speaker with practical experience of the issue: Deputy Governor Derek Rolle of the Bahamas, which introduced CBDC in October 2020. A small country can afford to experiment, some may say, but meanwhile there is another country that has introduced CBDC and it is large indeed: Nigeria.**



The Central Bank of Nigeria (CBN) officially launched the “eNaira”-a central bank digital currency (CBDC) - on October 25, 2021. This is the second CBDC fully open to the public after the Bahamas.

The International Monetary Fund (IMF) pointed out that like cash, the eNaira is a liability of the CBN. The eNaira uses the same blockchain technology as Bitcoin or Ethereum and, like them, the eNaira is stored in digital wallets and can be used for payment transactions and it can be transferred digitally and at virtually no cost to anyone in the world with an eNaira wallet. There are, however, important differences. First, the eNaira features stringent access right controls by the central bank. Second, unlike crypto-assets, the eNaira is not a financial asset in itself but a digital form of a national currency and draws its value from the physical Naira, to which it is pegged at parity.

The aim of the CBN is to increase financial inclusion, although that goal is still some way off in Nigeria, as for now only people with a bank account can have digital eNaira wallets. It is, however, expected that this will be extended to anyone with a mobile phone even if they do not have a bank account.

A large number of people do not have bank accounts (38 million people; 36 percent of the adult population), and allowing those of them with a mobile phone to have access to the eNaira would increase financial inclusion and facilitate more direct and effective implementation of social transfers programs. It is expected that the move would enable up to 90 percent of population to use the eNaira.

There are other, less lofty goals for the eNaira: just like El Salvador with its introduction of Bitcoin

as national currency, Nigeria is a very large recipient of remittances (\$24 billion in 2019) usually sent through international money transfer operators (e.g., Western Union) with fees ranging from 1 per cent to 5 per cent of the value of the transaction. The eNaira is expected to reduce remittance cost substantially.

Another reason is to reduce Nigeria’s large informal economy, which accounts for over half of the GDP and 80 per cent of the employment in the country. The eNaira is account-based, and transactions are in principle fully traceable, unlike token-based crypto asset transactions. Once the eNaira becomes more widespread and embedded into the economy, it may bring greater transparency to informal payments and strengthen the tax base.

### A TOUGH ROAD AHEAD

Nigeria is a country with about 212 million inhabitants. Its economy is the largest in Africa, with an annual GDP of roughly \$432 billion. In 2020, the country’s economy contracted due a COVID-19-driven increase in unemployment and reduced demand for exports. Though economic conditions have improved, more than a third of Nigerian adults were unbanked in 2020.

There were some impressive early results for the eNaira - just 25 days after its launch, almost 500 000 consumers had downloaded an eNaira digital wallet and conducted transactions worth a total of 62m naira (US\$151,000) in the country’s central bank digital currency the CBN claimed. However, compared to the size of the population, to get traction also outside the large cities of Lagos, Kano and Ibadan, will take some time.

Digital eNaira customer wallets are available in four tiers with daily transaction limits ranging from 20,000 naira (US\$49) to 1m naira (US\$2,435) depending on whether a user is banked or unbanked and has “minimal” or “regular spending abilities”.

As well as making contactless in-store payments and peer-to-peer transfers, including international remittances, users can choose to pay their taxes and bills from their eNaira wallet and opt to receive government financial aid in the CBDC. Some 78,000 merchants from more than 160 countries have already added support for the eNaira, a CBN spokesman told Bloomberg.

Nigerians, at least those in the cities, are not new to digital money, crypto currencies seem to be quite popular. Predictably, perhaps fearing competition, the magazine Bitcoin.com said that the eNaira was still “unattractive to users despite claims of excellent adoption rate”. ■

## THE COUNTRY THAT RAN OUT OF CASH

When the US Armed Forces completed their withdrawal from Afghanistan on 30 August 2021, ending the war there, they had been in the country since 2001. The Taliban had already taken control of most of the country two weeks before, capturing major cities before storming the presidential palace in the capital Kabul. Afghanistan's president fled, and Afghan security forces collapsed. The Taliban's rapid takeover surprised the world and left Afghanistan in a state of chaos. Thousands rushed to Kabul's airport to try and flee on evacuation flights to countries like the US, UK, and the EU. Others closed their businesses and hid in their homes - fearful that their rights and freedoms would be erased under renewed Taliban control.



*After the Taliban banned all foreign currencies, Afghani is the only legal currency in Afghanistan.*

Even before the last US soldier had left, Afghanistan's banking system was in a state of collapse, and people throughout the country were running out of money. And predictably, after the Taliban took over the government and the whole country, the cash crisis became worse. That was no accident, and it was no surprise. Most of the previous Afghan government's assets were held in offshore accounts that have since been frozen to prevent the Taliban from gaining access. The Afghanistan Central Bank held \$9.4 billion in reserve assets as of April, according to the IMF, amounting to roughly one-third of the country's annual economic output. The vast majority of those reserves were not held in Afghanistan, but mainly in the United States, although the precise amount is unclear, the Washington Post reported in August. The US also halted bulk shipments of sealed pallets of cash that had been a regular feature before.

This is having a catastrophic effect on everyday Afghan citizens, leaving many without access to important services, as the UN warns of a growing humanitarian disaster. As with much in Afghanistan now, the broader financial situation is chaotic and hugely uncertain. The value of the Afghani, the country's currency, has plummeted, and it's unlikely to stabilize for some time, according to Thomas Groll, an economist at Columbia University.

For now, many Afghans will be forced to rely on any cash reserves, local currency traders or bartering to get the goods they need, Groll says. And that was in August, when the Americans were still there.

## BACK FROM THE FUTURE

Before the Taliban, there had been efforts to bring Afghanistan's finances into the modern age, such as the Afghanistan Payments System, or APS, founded in 2011. It was funded by the World Bank and became part of the Central Bank of Afghanistan two years ago.

It was an important project: the Afghan economy runs on cash, and only an estimated 10 to 15 per cent of Afghans have a bank account. APS was meant to help Afghanistan become less cash-dependent, make economic transactions more secure and efficient, and bring real banking to more people. And it was moving fast before the Taliban took over. Now, though, as chaos continues to unfold in Afghanistan, the project has stopped, and cash is running out before any viable alternatives have been put in place, the MIT Technology Review wrote in August.

## AN UNFOLDING CATASTROPHY

Four weeks after the Taliban takeover, 'Human Rights Watch' said that donor countries, the UN and international financial institutions should urgently address Afghanistan's collapsed economy and broken banking system to prevent widespread famine. The UN World Food Program has issued warnings of worsening food insecurity and the risk of large-scale deaths from hunger throughout Afghanistan in coming months. Impoverished Afghans facing malnutrition have described desperate attempts to buy or forage for food, and the deaths of people unable to leave.

US sanctions policy on the Taliban appears to contradict new policies that the US Treasury released on October 18, Human Rights Watch said, which state that the department "should seek to tailor sanctions in order to mitigate unintended economic and political impacts" while adopting a "structured policy framework that links sanctions to a clear policy objective."

There are many reasons for Afghanistan's current crisis, including cut-offs in foreign assistance that paid salaries of millions of public and private employees, mass withdrawals from private banks, and a collapsing economy. These factors include the Taliban's past links to Al-Qaeda, disastrous prior period of governance, failure to keep public commitments, and horrific human rights record – in particular, with respect to women and girls and religious minorities. All this made governments and international financial institutions unwilling to recognize the Taliban government or allow institutions that the Taliban now control to operate as governmental entities within the international financial system.

At the World Bank, the US government has led a process to prevent the Central Bank from accessing World Bank assets, grants, or assistance, which, in any case, it would be unable to transfer because of the bank's lack of access to the international banking system.

Afghanistan's Central Bank has imposed limits on withdrawals of local currency by account holders and private actors and prohibited many types of electronic transactions in US dollars. Private banks lack adequate local currency to cover withdrawals, have few or no dollars in cash, and do not appear to be providing credit. They are also facing difficulties settling incoming dollar transactions via correspondent accounts at private banks outside the country, most likely due to foreign banks' fears that they may be violating sanctions.

The Central Bank's inability to conduct transactions in US dollars or obtain US dollars in paper currency are major factors in Afghanistan's economic crisis. Dollar transactions, both paper and electronic, are integral to Afghanistan's economy. Most of the country's gross domestic product in the last three decades have initially entered the economy in dollars – such as donor money, remittances, and export income.

At the same time, shortages of local currency also remain acute and can be expected to worsen over time with inflation, physical decay of banknotes, increasing personal debt, and growing economic inequalities. Companies that print Afghan currency in Europe, understandably concerned about the Central Bank's credentials and sanctions issues, cannot ship new bills to Kabul. Taliban authorities themselves have no capacity to print money.

Even where legitimate electronic transactions are possible, Afghan banks and foreign financial institutions with local agents in Afghanistan, including vital remittance services and banks, do not possess enough Afghani to cover withdrawals, are unable to provide dollars, and cannot obtain either currency from the Central Bank in substantial amounts. Numerous legitimate account holders are unable to access balances or money sent to them.

The UN humanitarian agency said \$4.4bn was needed within Afghanistan, while a further \$623m was required to support the millions of Afghans sheltering beyond its borders. More than half the population – about 22 million people – face acute hunger, the UN said, adding a further 5.7 million displaced Afghans in five neighbouring countries needed vital relief this year.

In response to the UN appeal, the United States

promised more than \$308 million in an initial aid package for Afghanistan. The money will provide for food and nutrition for vulnerable people, health care facilities, winterisation programmes and logistics support, the United States Agency for International Development (USAID) said.

#### A DIFFERENT POINT OF VIEW

In trying to resist the Taliban and at the same time help the suffering Afghani population, the West seems to be in an insoluble position. Can Afghanistan help itself? An article in the New York Times in August shows that the Taliban are not just penny-less fighters.

A study by Graeme Smith and David Mansfield mentions that the Taliban had claimed the country's real economic prize: the trade routes - highways, bridges and footpaths - that serve as strategic choke points for trade across South Asia. With their hands on these highly profitable revenue sources and with neighbouring countries, like China and Pakistan willing to do business, the Taliban are surprisingly insulated from the decisions of international donors.

One reason foreign donors inflate their own importance in Afghanistan is that they do not understand the informal economy, and the vast amounts of hidden money in the war zone. Trafficking in opium, hashish, methamphetamines and other narcotics is not the biggest kind of trade that happens off the books: The real money comes from the illegal movement of ordinary goods, like fuel and consumer imports. In size and sum, the informal economy dwarfs international aid.

For example, in the border province of Nimruz, the Overseas Development Institute estimated that informal taxation – the collection of fees by armed groups to allow safe passage of goods – raised about \$235 million annually for the Taliban. By contrast, the province received less than \$20 million a year in foreign aid.

Nimruz is the sort of place that might serve as a basis for Taliban thinking about how the economy works. In summer, the Taliban captured Ghorghory, and Delaram, two towns that alone could be worth \$18.6 million a year for them if they maintain the previous systems of informal taxation, including \$5.4 million from the fuel trade and \$13 million from transit goods. Zaranj, a city bordering Iran, officially provided the government with \$43.2 million in annual duties – plus \$50 million in direct taxes in 2020 – and there was a significant amount of undeclared trade, particularly of fuel, taking the true total revenues from the border crossing to at least \$176 million a year. All is now going to the Taliban. ■

## TRAVELLING WITH TINTIN

Belgium has issued a new passport that puts the country's famous comic-strip cartoon characters in centre position on every visa page.



Images: Hergé-Moulinsart 2021 and Peyo via Federal Public Service Foreign Affairs

The time when the most interesting parts of any visa page in just about any passport were the visa stamps on it, are long gone. It was probably the Swiss passport designed over 20 years ago by Swiss artist and designer Roger Pfund, that dared to make a passport visually interesting. Other countries soon followed. Sweden showed images of its city streets and - when viewed under UV light - the same street with streetlights on, Great Britain rhapsodized about the beauties of its beaches and mountains and in the newer edition about 'iconic inventions', marrying the portraits of the inventors with their inventions and the places they worked in. Even Belgium reminded those checking passports - very discreetly - of the beauty of its classical buildings. The idea was to link the design in the passport to the natural or architectural marvels of the country.

But what about the less tangible things that may characterize a country. Fish and chips for the UK, for example? Sorry, no luck. And what is Belgium famous for? The Smurfs, Lucky Luke and of course Tintin.

Bingo, comic-strip cartoons, these true symbols of "Belgianess" made it onto the pages of the new Belgian passport, that came out on February 7th. When introducing the new passport, Foreign Affairs Minister Sophie Wilmès said: "The Belgian passport is one of the best in the world, it is a source of pride for us, but also an object of desire for counterfeiters. This is why we are constantly working to improve its security. The introduction of this new passport is also an opportunity for us to highlight the 9th art, the comic strip, which is a central element of our culture and our influence abroad."

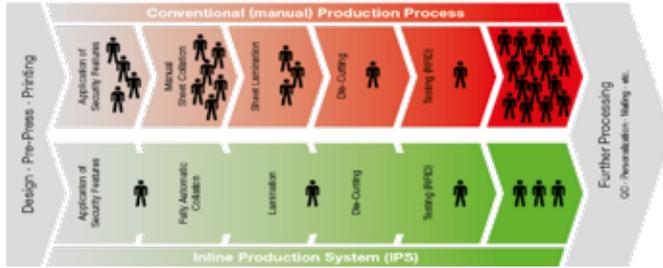


While when viewed in daylight, the cartoon scenes and the characters are just shady, pale outlines, as is necessary to avoid obscuring the stamps on top of it. But under UV light, the figures come to life in all their glory. And because of the fun of it, it is almost certain that these passports will be viewed under UV light more often than before. This adds another layer of difficulties for any prospective counterfeiter, but there are many other security features.

"Laser etched images, information in the form of laser perforations, or embedded data readable only under ultraviolet light are the main techniques used," the manufacturers Zetes and Thales claim. There is also a digital protection inside the chip integrated in the polycarbonate data page. And "for the first time in the world", according to Thales, the passport number is also laser-etched on the hinge connecting the booklet and the data page. ■



Conventional Production Process versus Inline Production System (IPS)



In any event both above-described production methods should constantly strive for highest possible quality, at the lowest possible costs, with shortest set-up and lead time. The costs, productivity and profitability are also directly influenced by the amount of waste generated within the entire production process.

The “7 Mudras” (the Japanese word for waste, something that adds no value) are the following:

- Overproduction: Producing too much too early, leading to inventory and longer lead times, hard to identify defects
- Inventory: Causes costs until the goods are sold, requires space for storing, packaging, also risk of being damaged during transport
- Waiting: Waiting time for material, tools, operator, answers etc., disrupts production flow
- Motion: Unergonomic production steps, unnecessary movement of material or operators between workstations
- Transportation: Movement of materials from one location to the other
- Defects/Rejects: Non-compliant products, out of spec, costs of defects are usually major percentage of manufacturing costs
- Over Processing: Inappropriate techniques, oversized equipment, too tight requirements

Due to a continuous flow in accordance with lean thinking principles, the inline production process reduces the risk of waste down to a minimum.

Convinced by these advantages, a constantly increasing number of world leading suppliers to the ID credential industry as well as a state printer already changed their mind and decided to go or even to swap for an inline production system.



Picture shows an example of an IPS to manufacture ID-1 card and ID-3 data pages

Conclusion: There are always pros and cons and there is always room for the conventional and the industrial approach to manufacture ID credentials, at the end the end-user has to decide which system fits the best to the specific needs/ requirements. ■

## INDIA FINALLY GETS ITS BIOMETRIC PASSPORT

Biometric passports are making advances in India, with passport offices to be set up in every parliamentary constituency.

The Indian daily ‘The Economic Times’ wrote in January that the new generation of biometric passports, originally slated to launch broadly in 2021 is now set for rollout in India. The planned full-scale launch follows a successful pilot in which the central government issued 20,000 official and diplomatic copies of the ID document embedded with biometric chips that will carry the biometric data of the passport holder. The new passports will enable seamless passage by its holders through airport checks anywhere in the world, and will be compliant with ICAO requirements.

### TATA WINS \$1B SERVICE DEAL

Meanwhile, the Ministry of External Affairs (MEA) has concluded a deal with Tata Consultancy Services (TCS) for the second generation of the Passport Seva Program (PSP-V2.0) aimed at increasing data security for the biometric passports, writes Deccan Herald. The contract has been reported by the Times of India as being worth almost \$1 billion over nine and a half years, based on analyst estimates, with a possible two-year extension.

The PSP-V2.0, the MEA says, is a continuation and modification of PSP-V1.0, which delivered modern passport services to Indian citizens. The upgrade is to provide a convenient user experience for submitting biometrics and demographic data.

“The key elements of PSP-V 2.0 are setting up of a state-of-art digital ecosystem, process overhauling and integration among various stakeholders and database, improving citizen interface, upgrading technology, adopting best practices and strengthening data security,” the MEA is quoted as saying.

“The issuance of e-Passports for enhanced customer satisfaction, increased security and next level of citizen experience will also be unveiled in the upgraded PSP-V 2.0,” it adds.

TCS won the contract for the previous PSP in 2008, setting up 77 Passport Seva Kendras and deploying 2,500 staff throughout India. That contract was reportedly worth Rs 100 billion (roughly US\$1.35 billion).

The Herald mentions that the central government intends to set up one passport services center in every Lok Sabha (Parliament) constituency where there is no Passport Seva Kendra (PSK) or Post Office Passport Seva Kendra (POPSK). ■

## CLOSE-UP ON A PASSPORT'S HEART

By Katharina Schuldt,  
Mühlbauer Group

A passport's heart is the data page. This is where all the relevant data of the passport owner is stored and shown, which is why it is also called the Holderpage. In addition to personal data, this page also contains the passport's most important security features. How is this "entrance ticket" for border crossings created and how can it be guaranteed that the wrong person will not walk through the checkpoint with it?

The Holderpage is not just a single page, but consists of several layers. The layers are made of polycarbonate foil and every layer has a different function and appearance. The so-called core layer builds the white background for the transparent overlay sheets.

During the production process of the Holderpage, a sheet hot stamping machine applies special diffractive optical variable image devices, better known as holograms, on one or more of the polycarbonate layers. The elements are processed from the reel and directly transferred to the sheet through freely programmable parameters such as time, pressure and temperature. Each hologram may in turn contain a wide range of additional security features such as micro-text, nanotext, spectral colours, guilloches, three-dimensional effects or special holographic elements. Depending on the illumination or viewing angle, the appearance of the holograms change with regard to colour and design.

The chip for eHolderpages is also embedded between the layers. To enable this chip to "communicate", it is connected to an antenna using thermo-compression welding. This thin copper wire can receive information and also transmit data stored on the chip when requested by a reader. To check that the chip and other security features are working perfectly, quality assurance machines test all inlays and automatically sort out damaged inlays.

When all the different layers are produced, a sheet collating machine gathers the sheets and aligns them. Depending on requirements, overlays from the top and bottom are delivered from reel. The collated set is welded by an ultrasonic welding system and transferred to the lamination machine. Multiple collated sheets are laminated in one cycle.

A punching machine separates the data pages from the laminated sheets. However, before the Holderpages are integrated into the passport booklet, they must undergo a full inspection. Here, each data page is automatically checked for right alignment of elements, positioning tolerances, quality of printing as well as possible scratches and defects. This process step

ensures that only Holderpages of perfect quality are used for the final passport booklet.

To marry Holderpage and booklet forever, a hinge is created. The hinge is the flexible part of a polymer Holderpage with which it is subsequently sewn into the passport booklet. After this final production step, the Holderpage is now combined with the remaining parts of the passport book. This includes, for example, the paper visa pages, the end pages and the front and back of the cover. Finally, the passport book is punched into the correct format and, if necessary, perforated with a serial number.

The prepared Holderpage body is now ready to be personalized. For a high-secure personalization result, manufacturers of passport personalization machines such as the Mühlbauer Group rely on a combination of color picture personalization and laser engraving. "The image of the holder is split into two parts using special image processing algorithms", explains Martin Ederer from the Document Solution Team at Mühlbauer. "During the personalization process, one part of the picture is engraved into the document using the same laser engraving system as already used for the biographical data. As this picture is securely embedded into the document body, it is not easily reachable for counterfeiting attempts. In order to colourize the picture, the laser engraved picture is precisely overprinted with the colour picture. Using special inks, the colour parts are invisible in infrared light and therefore the laser engraved picture located inside the document body is verifiable. Splitting the holder's portrait in two different physical locations is a huge benefit in creating a secure document."

The final result is a high-resolution colour picture, which shows utmost details. This picture technology has the same long lasting durability characteristics and resolution as a pure laser engraved picture. Since the colour part of the photo is printed on the document surface, however, it has to be additionally sheltered by a protective layer. Attempts to remove the photo are protected as the greyscale information remains inside the document. The greyscale picture can be additionally verified under IR light.

The complete production process of a Holderpage is already optimized and perfected down to the smallest detail. Nevertheless, many steps still involve manual actions. "At Mühlbauer, we are convinced that the future lies in fully automated passport production", Ederer adds to his explanation. "In this context, not only each machine must run fully automatically, but the entire process. Any human intervention can be a source of error." ■



Different layers before welding and lamination.



The individual holder pages are punched out of the laminated sheet.

## IDEMIA UNVEILS LASINK HELIOS

**IDEMIA, leader in Augmented Identity, unveiled its latest ID security feature, LASINK Helios. This high-tech innovation combines both laser colour personalization and DOVID technologies on the secondary portrait.**

**L**ASINK Helios is based on two technologies, the holographic DOVID technology and LASINK. The latter is a colour technology developed by IDEMIA which is based on a matrix of red, green and blue lines.

According to Olivier Charlanes, SVP Global Business Development, Marketing & Product Offer, Public Security & Identity, IDEMIA, "As a colour portrait embedded into a DOVID, LASINK Helios meets the foundational requirement of all of IDEMIA's ID security concepts: hard to reproduce but easy to inspect. The development of this new security feature is an illustration of how IDEMIA stays one step ahead of fraud." The Group demonstrates its "experience in producing tamper-proof documents and continuous innovation".

LASINK Helios displays striking optical effects. These effects vary depending on the angle of vision and are easily recognizable for both in-person

or remote authentication, for instance using the device's camera.

When the ID document is tilted upwards/downwards, the checkers (made of three coloured dots) positioned on the edge of the portrait will change colours. The full-colour image is revealed when the colour checkers show a combination of red/green/blue.

Non-specialists – e.g. bank employees, hotel staff, retailers etc. – have little experience in document inspection but they are facing more and more scenarios in which it is required. They will be able to easily authenticate the genuineness of an identity document, without the need of specific equipment.

As there is a growing number of situations in which verification of an identity document is required, IDEMIA designed a solution that is hard to reproduce but easy to inspect. Non-specialists will benefit from this new security feature that allows them to easily authenticate an identity document.

Besides the main portrait, which is the most attacked feature of an ID document, the secondary portrait creates an additional level of security. It validates the main portrait, thus confirming the identity of the document holder. Interlinking both images makes forgery almost impossible, thereby deterring any fraud attempts.

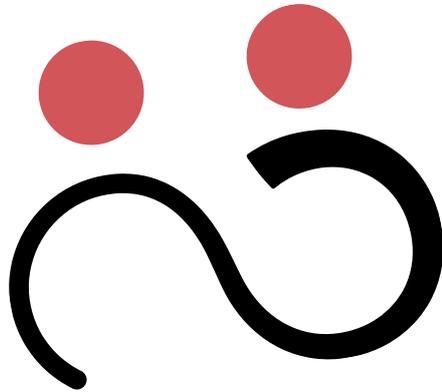
LASINK Helios is based on a holographic matrix, incorporated into the core of the blank document before lamination. An exclusive software application is needed to produce LASINK Helios. Fraudsters cannot use equipment that is available to the public to personalize the picture with the required optical effects. For the same reason, it is impossible to create a full reproduction of the document (anti-counterfeit) or modify the portrait (anti-forgery and anti-morphing).

LASINK Helios is available in two versions. The secondary portrait is either displayed as a standalone image with a sleek design, or LASINK Helios has a partially transparent side that covers the portrait, offering an additional layer of security. In this second version, it also contains a DID that changes colour when rotated at a 90° angle.

With LASINK Helios, IDEMIA extends its security concept to create ID documents that are hard to reproduce but easy to inspect. With this technology, IDEMIA addresses the concerns of many countries with regard to strengthening the security of their identity documents. LASINK™ technology already secures the ID documents of several countries including Estonia, Latvia, Morocco, Colombia, Costa Rica, Burkina Faso and Andorra. ■



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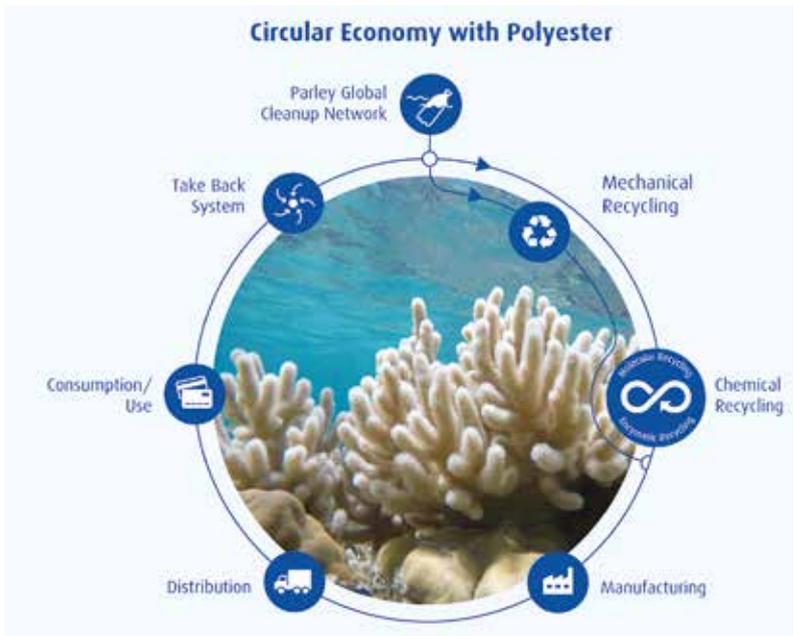
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**SUSTAINABLE INNOVATION**

## CIRCULAR ECONOMY: OCEAN PLASTIC PROVIDES SUSTAINABLE RAW MATERIAL FOR IDENTITY DOCUMENTS

More and more banks, corporations and smart card manufacturers around the world are using sustainable plastics. To follow this important trend, there is a promising innovation for identity documents, Parley Ocean Plastic, that will help to solve a seemingly intractable problem.



by Daniel Lützelshwab

Every year, over eight million tons of plastic enter the world's oceans, threatening ecosystems and the animals that live there. According to science, 90 percent of large fish have disappeared from the oceans since 1950. By 2050, 90 percent of the world's coral reefs will have been destroyed - according to forecasts. As marine biodiversity declines, so does the quality of human life. A major cause of this development is the careless use of resources, which is responsible for global warming, waste production and disappearing biodiversity.

Successful initiatives are counteracting marine pollution. For example, the global collaboration network PARLEY FOR THE OCEANS and its *Parley Ocean Plastic* material, created from upcycled plastic waste that was intercepted from beaches, rivers, and coastal communities before reaching the ocean. *Parley Ocean Plastic* is used in electric cars, high-tech functional clothing, and smart cards, and fulfils its new function perfectly.

International companies, such as banks and credit card manufacturers are partners of *Parley for the*

*Oceans* and use *Parley Ocean Plastic* with great success for their high-quality products. The material is also suitable for the production of identity documents.

At the 26<sup>th</sup> World Climate Conference COP26 in Glasgow, the 197 participating countries recognized that the world must do significantly more in climate protection this decade to limit global warming to 1.5 degrees. Plastic is a significant contributor to global warming, with both its production and combustion releasing greenhouse gases. The upcycling of marine plastics represents a necessary change in thinking: away from the currently prevailing linear open material flows to closed cycles.

### CIRCULAR ECONOMY : A WIN-WIN SOLUTION

The circular economy aims at not throwing away resources, focusing instead on sustainable management. A recyclable plastic such as PET from marine plastics can be reprocessed by means of mechanical, molecular, or enzymatic recycling. It easily re-joins the material flow and can be processed into a new product. It does not simply replace conventional plastics such as Polycarbonate and Polyvinyl Chloride, it is a sustainable solution that goes one step further and sets an example. The circular economy is a working business case and a win-win solution for the economy, the environment and society.

It is important to view the environmental impact of plastics in a holistic way, not only in terms of its carbon footprint, which only looks at a single aspect, namely CO<sub>2</sub> emissions. Only a life cycle analysis can determine the actual environmental impact: it holistically examines the environmental impact of products throughout their entire life cycle (from cradle to grave) and is thus significantly more informative.

### GREEN CHEMISTRY IS THE BASIS FOR SUSTAINABLE PLASTICS

It is only possible to establish a truly sustainable and clean circular economy if its products and processes comply with the principles of Green Chemistry. The International Union of Pure and Applied Chemistry (IUPAC), the world's leading scientific body on chemistry, defines Green Chemistry as «the utilization of a set of principles that reduces or eliminates the use or generation of hazardous substances in the design, manufacture and application of chemical products.» This definition lays the foundation for plastics that can be used without hesitation.

If the plastics industry wants to adhere to Green Chemistry requirements, it must eliminate toxic substances such as halogens and endocrine disrupting chemicals such as BPA from its raw

materials and processes. *Parley Ocean Plastic PET* fully meets these criteria.

#### **PET IS FUTURE-ORIENTED AND RECYCLABLE**

The PET bottles that were intercepted from beaches, rivers, and coastal communities before reaching the ocean belong to the polyester family. They are perfectly recyclable, whether colourless or coloured, clean, or soiled. Polyesters also meet the requirements of Green Chemistry as well as the EU Chemicals Strategy, the central part of the «European Green Deal»: they are free of toxic substances such as halogens and BPA - at every stage of the life cycle. Polyesters are ideally suited for recycling.

It is assumed that only a limited proportion of plastic waste can be mechanically recycled. Moreover, mechanical recycling leads to a secondary raw material of lower quality with every recycling cycle the material went through. It thus merely delays disposal. The largest share of plastic waste can only be recycled molecularly or enzymatically.

These two recycling methods offer enormous advantages, as they provide a secondary raw material of the highest quality. Only molecular and enzymatic recycling allow the complete closing of the loop and support the circular economy. Both technologies allow plastic waste to be reintroduced directly into the economic cycle - an infinite number of times.

The US chemical company Eastman Chemical has announced that it will invest up to 1 billion US Dollars in a new material-to-material molecular recycling plant in France. From 2025, up to 160,000 metric tons of difficult-to-recycle plastic waste will be recycled here each year. Until then, this waste will be thrown away.

Carbios, a pioneering biotech company, announced that it will build the first fully enzymatically recycled PET production plant in France in collaboration with Indorama Ventures. The reference plant is scheduled to come on stream in Longlaville in 2025 with a processing capacity of 50,000 metric tons of PET waste per year.

Recycled PET from marine plastic is the material of choice for smartcards and ID documents in every respect. PET is durable and enables the integration of all proven security elements.

#### **GLOBAL INITIATIVE FOR A NEW PLASTICS ECONOMY**

The independent Ellen MacArthur Foundation, together with the United Nations Environment Program, has developed the very broad-based

New Plastics Economy Global Commitment initiative. The initiative is closely aligned with IUPAC's Green Chemistry definition and the 17 UN Sustainable Development Goals, and it advocates a global circular economy. More than 500 organizations unite behind a common vision with the goal of holistically solving the problem of plastic waste pollution:

- over 250 globally active companies (representing more than 20 per cent of the plastic packaging used worldwide),
- 20 governments on all five continents,
- 27 global financial institutions (together they manage 4,000 billion US Dollars in assets),
- World Economic Forum (WEF), National Geographic, Consumer Goods Forum, and numerous other non-governmental organizations,
- more than 50 academies, leading universities, and other educational institutions in numerous countries.

Consumer goods groups around the world have made public their goals for using sustainable plastics in recent years.

On the way to sustainable ID documents, plastics with a beneficial life cycle analysis such as PET made from marine plastics are pointing the way. This is an important step towards a clean circular economy that meets people's growing need for transparency and environmental sustainability. ■

#### **THE RIGHT MOMENT FOR DECISION MAKERS AND GOVERNMENTS IS NOW**

*Political and social pressure is increasing to make environmentally sound choices. Companies and document issuers need to choose a sustainable, future-proof plastic now and position themselves as pioneers in our industry. They should set an example. Identity documents are your environmental statement to the world. An identity document made from marine plastic has symbolic character. PET credit cards made from marine plastic are already being used extremely successfully and are receiving the positive attention they deserve. Now ID document issuers can be among the first in the identity document market to seize this opportunity.*

#### **ABOUT THE AUTHOR**

Daniel Lützel Schwab is CEO of smart ecofilms and a pioneer in sustainable, security-critical smart cards and ID documents. He advocates the use high-quality recycled plastic from marine plastics instead of single-use plastic. He is a partner and exclusive agent of films for smart cards and ID documents from Germany's Folienwerk Wolfen GmbH.

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