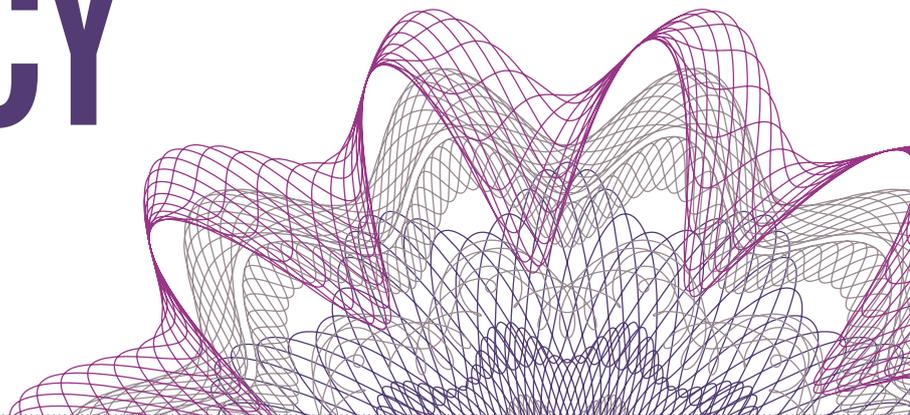


# CURRENCY NEWS™

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## Celebrating 20 Years of the Euro, and Record Lows for Counterfeiting

On 1 January 1999, 11 EU countries fixed their exchange rates, adopted a shared monetary policy under the European Central Bank, and launched their new common currency. The euro was born as an electronic currency.



Three years later, and with the addition of one country, euro banknotes and coins were introduced in 12 countries, providing the combined population of 309 million people with a visible and tangible symbol of European integration.

Today, the euro is the currency of 19 EU countries and over 340 million Europeans, and the second most important currency in the world (after the US dollar). A further two countries (Croatia and Bulgaria) will join in the next couple of years. In addition, the euro is the official currency of a further three countries, and the unofficial currency of several more.

The ECB and national central banks (NCBs) in the eurozone held a number of celebrations to mark the anniversary (albeit mostly virtual due to ongoing COVID restrictions) of what was a phenomenally successful exercise – both logistically and in terms of public acceptance and approval (with an approval rating now standing at 78%).

More than 15 billion banknotes were produced in 15 printworks across Europe in preparation for the launch, along with 38.5 billion coins. 20 years on, the number of notes in circulation is now 28 billion (as of the end of December 2021). For coins, the corresponding figure is 141 billion.

To add to the celebrations, this month the ECB released its latest counterfeiting statistics for 2021, which show that counterfeiting is at historically low levels, beating the all-time low of last year. The ratio now stands at 12ppm, compared with 17ppm in 2020. At its height, in 2009, it stood at 67ppm.

Some 347,000 counterfeit euro banknotes were withdrawn from circulation in 2021 (180,000 in the second half of the year), a decrease of 24.6% when compared with 2020.

According to the ECB, the current Europa series of banknotes contain upgraded security features which, together with less cash societies, helps explain why euro counterfeiting continues to fall year on year. However, less cash does not mean less banknotes, as last year's figures show a historically low level of counterfeiting in proportion to banknotes in circulation.

So the cash paradox continues, as does the reduction in counterfeiting activity.

## Thailand Adopts Polymer for Highest Use Note

**The Bank of Thailand will launch a new 20 baht note on 24 March, marking the transition to polymer of the country's most widely used denomination, which accounts for 30% of all Thai banknotes in circulation.**

This is not the first time Thailand has used polymer. In 1996, it issued a 50 baht polymer note, but this was short-lived, and the denomination reverted to paper in the 2001 series. The current series was introduced in 2018, with portraits of HM Rama King Rama X, who succeeded to the throne in 2016, and new security features.

The design of the new polymer note retains the familiar themes from the current paper note for ease of public recognition. But it contains two secure transparent windows, as well as an enhanced portrait.

The supply of the polymer is being split between De La Rue's SAFEGUARD® and CCL's Guardian™.

The Bank prints about 1.8 billion banknotes each year, of which 600 million are 20 bahts, the lowest denomination in the country's five note family. As of 2021, the value of 20 bahts in circulation was 47 billion baht.

The life cycle of the new polymer banknote is expected to be five years, compared with 2-3 years for the paper version. Its introduction is in line with the Bank's sustainability policy, who commented that 'the durability of polymer banknotes will reduce the need to print new notes to replace damaged ones over the long term, which is better for the environment'.

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# Sustainability Starts with Central Banks

**We have covered a number of initiatives by central banks and suppliers to reduce the environmental impact of cash. But operational measures apart, the biggest impact will come from the central banks, and their policies regarding the specification, denominational structure, recirculation and regulations that cash management companies must adhere to.**

At the highest possible level, sustainability starts with pursuing sound monetary policy. The evidence is clear that people turn to cryptocurrencies, or choose to hold foreign currencies or gold, when they lack confidence in the stability of their own money. The energy requirements of creating ('mining') cryptocurrencies are unbelievably large, and the distributed ledger technology that underlies them is also power hungry.

### The role of specifications in sustainability

Coin specifications affect both cost and recyclability. Banknote designs and specifications determine note life. For example, designs with white paper or pastel colours show soil swiftly.

### The vital importance of circulation velocity

One of the most significant determinants of note life is how long a note is in circulation between being sorted. In an efficient cash cycle, a short time between sorts suggests the note is working hard and will wear out, therefore, faster.

The speed of circulation is affected significantly by the denominational structure of coins and banknotes, particularly where the coin-note boundary is set, and the number of low denomination notes in circulation – the more notes per person there are, the less work they have to do.

Which notes are issued by ATMs plays a role since these are the payment notes, while the lower denominations are the 'market' notes, used almost as coins.

### The denominational structure

This month's edition includes an article by De La Rue on how to set the coin-note boundary, based on its D-metric™ model. The starting point is calculating the optimal number of coins and banknotes to pay and settle a bill. Within the coin hierarchy there are payment coins, those used to buy a coffee, and settlement coins, those received as change. Notes have these and store of value as well.

An efficient denomination structure allows the fewest coins and notes possible to circulate. Any inefficiency requires additional cash to be introduced into the system.

There are just over 1,000 banknote denominations in circulation. The average number of notes per issuer is six, but at the top of the scale, South Sudan has a whopping 13. At the other end of the

scale, Somalia has just two. Of the higher income countries (with per capita income of \$30,000 plus), 60% do not have a note in either of the top two note positions, as per the D-metric model.

There are also just over 1,000 circulating coins. The average number of denominations per issuer is again six, but the range here is from nine (Poland, Croatia, Tajikistan) to none at all (Iraq, Laos, Liberia).

Changing the denominational structure has implications for machine handling, retailers and the public, which helps explain why so many countries continue with illogical structures. Inevitably politics gets involved, for example introducing new high values can be seen as admitting the currency has devalued, or high values are seen as encouraging tax avoidance. The evidence for either is hotly disputed but perceptions matter.

### The impact of recirculation

Once in circulation, the movement of cash is a key environmental factor. Along with the energy used to power ATMs, the fossil fuels used by CIT companies has a major impact, so reducing movement matters.

An important step to encourage recirculation is to allow banks, cash management companies and CITs to hold cash in their secure storage off balance sheet, sometimes known as Note Held to Order (NHTO) schemes. This reduces the need to ship cash back to the central bank at the earliest opportunity. It requires central banks to be confident in the security of storage and in reporting on what is held.

Local recirculation requires clear sorting standards which are regularly audited so note authenticity and quality in circulation are assured. Rewards and penalties are used in equal measure to encourage good performance. Cashback schemes need to be included within the rules.

Circulation can benefit from using standards such as GS1, which introduces standard packaging units, labelling and data formats allowing interoperable cash systems. Concepts such as returnable boxes, direct exchange and NHTO become possible.

### The potential of utility models

Some of the less-cash countries, the Netherlands, Sweden and Norway, have moved to shared ATM networks and cash centres operate on a not-for-profit basis. Theoretically these allow the optimum infrastructure and the avoidance of duplication, with all the environmental savings that brings.

Central banks may feel far removed from the sustainability front line regarding cash, but, in reality, they have a key role in setting the agenda and guiding stakeholders to play their part.

# New Business Segment for Goznak as it Enters Banknote Processing Market

Russian state printer and mint Goznak has launched its own banknote counting and sorting machine – the BARS-S5. This follows the acquisition last year of BIS (which stands for Bank Innovation Systems), with whom the new machine was co-developed. The first order has already been received from the Central Bank of Russia.

Goznak describes the new BARS-S5 as a floor-standing, fast, highly automated, relatively inexpensive small-sized machine, which can count and sort 20 banknotes per second. Defective or worn out banknotes can be destroyed online at the same speed.

Depending on where the machine is used, it can operate both with one face value (as required by the central bank) or with several (as commercial banks are likely to require). Because the machine is modular, it is possible to increase the number of sorting pockets according to customer requirements.

The system was developed to fill a niche in the market for low cost high speed sorters. As Yuri Sivakov, Head of the Technical Competence Center of the Instrument-Making Directorate of Goznak, said: 'when we started developing the composition of the new counting and sorting machine



we evaluated a lot of variants and realized that it is necessary to create a principally new concept of the counting and sorting machine.'

In addition to its size and cost, Goznak believes the benefits of the new machine lie in its superior image and serial number detection quality. 'In the BARS S5 counting and sorting machine, we have installed the best scanning devices available now and improved the software', he added. 'As a result, we are sure that our machine will surpass all counting and sorting machines installed at the Bank and in the world in the image scanning quality and the serial number detection'.

Multi-level tests of the BARS S5 over a period of two months ensured it met the central bank's requirements. There it was proved that the machine can process more than 400,000 banknotes per shift, or 67,000 notes per hour. If the destruction mode is on, up to 400,000 notes can be destroyed daily.

The central bank is now recommending the system for the country's commercial banks. It will also be used at Goznak's printing works. Furthermore, Goznak will be promoting it to the export market for both central banks and large commercial banks with cash centres). As such it has created a new business segment for Goznak, which is already a large exporter of banknote paper and print.

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## COVID 19 Impacts De La Rue Turnaround Plan

**De La Rue has announced a trading update on the financial year ending March 2022, as well as an update of progress on its Turnaround Plan, which unsurprisingly has been impacted by the pandemic.**

When announcing its half year results last November, De La Rue noted increased commodity and energy costs, and challenges in the supply chain. Since then, the problems, primarily due to COVID, have become more pronounced. The Delta and Omicron variants have led to substantially increased employee absences in manufacturing facilities globally, which, the company said, will result in lower total operational output for the full year. Also, the Group has been affected by supply chain shortages in process raw materials and chips and has experienced a degree of supply chain cost inflation.

As a result, De La Rue says that it now expects adjusted operating profit for the

full year to be broadly similar to that of last financial year, ie. in the £36-40 million range, compared with market expectations in the region of £45-47 million. However, the company also noted that the outlook for Currency and Authentication still represented an increase in adjusted operating profit in the range of 35-45% compared with £27.5 million last year.

Furthermore, the company noted that the global implications of the pandemic were not present when it announced its Turnaround Plan in February 2020; it anticipates that the impact will simply delay the conclusion of the plan by approximately 12-months. But the Board retains full confidence both in the plan and in its execution, and further changes are not anticipated.

The company also noted that it is intensifying its efforts to deliver further efficiencies and cost reductions to mitigate some of the negative effects of the pandemic.

Commenting in the statement, Clive Vacher, CEO said: 'despite the macro challenges that are delaying aspects of the Turnaround Plan, De La Rue continues to increase adjusted operating profit in both divisions year on year, and the Plan anticipates this to continue going forward.'

'While this trading update is disappointing, it should be seen as a delay to reaching our Turnaround Plan objectives, rather than indicating that a change of direction is required. The company's leadership has worked hard to mitigate many of these external effects, with the cost reduction activities we have implemented since early 2020 having a significant impact in supporting our underlying performance while we navigate these external factors.'

The share price fell by around 27% on the announcement on 24 January, but is already showing signs of a recovery. The results for the full year are expected to be announced on 25 May 2022.

# News in Brief

## New Currency Orders for Spectra

Banknote authentication and security software provider Spectra Systems Corporation has announced three new contract awards, generating \$700,000 of additional unforecasted revenue for the 2022 calendar year.

One is an additional order for covert materials from its largest central bank customer, increasing this year's initial order by 20% and bringing the aggregate order for the current year to 75% of last year's record order size.

Another is an order for covert materials, from an AIM-listed customer which has renewed its sensor service contract at nearly double its historical annual value.

Chief executive Dr Nabil Lawandy said: 'we are delighted to announce these new contract awards which deliver further growth in revenues from existing customers across materials, service and software business lines'.

## Croatia Prepares for the Euro

Croatia hopes to hear in July this year whether it can join the Eurosystem and adopt the euro as its currency, with an issue date of January 2023. Bulgaria is also waiting to hear but with a later launch date of 2024.

The Croatian National Bank has urged people to deposit their kuna banknotes into banks to make the transition easier. 36 billion kuna (\$5.4 billion) is in circulation and the CNB is expecting about 500 million notes to be returned. Although people will be able to exchange kuna banknotes for euros for an unlimited period, and three years for coins, in other countries experience shows that people tend to exchange the vast majority of their legacy currency extremely quickly.

The Bank estimates the cost of switching to the euro will be 916 million kuna (\$138 million) in total, while commercial banks estimate it will cost them an additional 1 billion kuna in lost exchange fees. It will, though, reduce their currency risk and improve stability.

It will cost the Bank some 800 million kuna for its euro banknotes. It will be producing the coins itself. Of these, more than a billion, enough to fill 260 trucks, will need to be withdrawn. They will be moved to a secret location provided by the Ministry of Defence and stored for three years. Kuna banknotes, meanwhile, will be destroyed as they return.

## Ecuador Implements Anti-Theft Systems for Banknotes

The Central Bank of Ecuador has approved the implementation, through Resolution 017, of IBNS (Intelligent Banknote Neutralisation Systems) as a deterrent to cash robberies, in particular thefts from ATMs.

The systems consist of a device that is activated automatically when an attempted robbery is detected at ATMs and during the transport and custody of notes, to stain them with an indelible ink. All financial institutions will be required to implement the resolutions.

The Bank has stated that it will not accept any banknotes from individuals that have been stained in this way. Only those financial entities that totally or partially recover stained notes following a criminal act will be able to exchange them at the Bank.

The Bank has further recommended that citizens and businesses that carry out financial transactions refuse to accept stained notes. It is issuing guidelines to financial institutions and carrying out a PR campaign to make them aware of the new regulations.

Uruguay, Chile and Paraguay are some of the other countries in the region that already use the technology.

## First Trust Bank Begins Withdrawing Notes

First Trust Bank, one of the four note issuing banks in Northern Ireland, which announced two years ago that it will stop issuing its own notes as of June this year, has already started the withdrawal and is now only issuing Bank of England notes in its ATMs.

First Trust Bank is a subsidiary of AIB (Allied Irish Banks) and, along with the three other note issuing banks, has been issuing its own notes since 1929. It says that its decision to withdraw from banknote issue is a commercial decision which took into account the increasing use of digital payment methods and mobile technology.

Its banknotes will remain legal tender until 30 June. After that date, anyone still holding a First Trust Bank banknote can exchange these for Bank of England banknotes, or other sterling banknotes of equivalent value, in person at any First Trust Bank branch at no cost. There is no time limit on this.

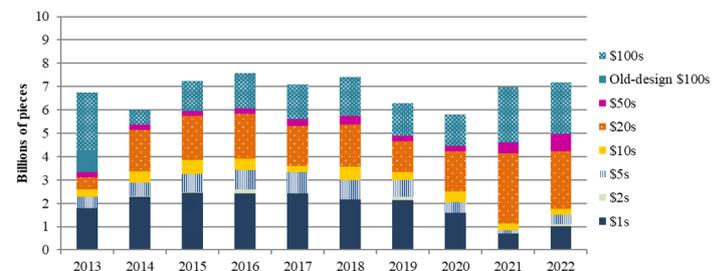
## US Coin and Banknote Production

The US Mint's production figures for 2021 show that 14.5 billion coins were minted in the year, down 1.9% from 14.7 billion the previous year, when production was ramped up to alleviate coin circulation issues brought on by the COVID-19 pandemic.

The Federal Reserve continues to order more 1 cent coins from the Mint than any other denomination, even though it now costs 2.1 cents to make and distribute each one. The 7.9 billion cents struck last year represents 54.6% of the combined production total for 2021. The number was up by 4% over the year before.

As previously noted, higher demand for cash has also resulted in the Federal Reserve increasing its order for banknotes from the Bureau of Engraving and Printing, which in volume terms will be in the 6.8 to 9.6 billion range, and in value terms in the \$310 billion to \$3 billion range. The final number printed in 2021 was 7 billion.

The Fed has also stated that currency in circulation increased by 4 billion notes (or \$212.8 billion) between June 2020 and June 2021. During the same period the previous year, it increased by 5.1 billion notes (\$226.3 billion).



Print orders for US banknotes – 2013-2022. The right hand bar is the number of banknotes the BEP has committed to delivering in the current fiscal year.

# Cash Trends and The Future of Cash in the Eurozone

At the European Cash Cycle last autumn, the presentation by Josef Vrana, Senior Banknote Issuance Expert, Directorate Banknotes for the European Central Bank (ECB), covered euro cash trends and the effect of COVID-19 to date. It also covered work to ensure that cash will remain for years to come and will continue as a viable means of payment for the next decade, in line with the ECB's Cash 2030 Strategy.

As of September 2021, the value of euro cash in circulation had increased to €1.5 trillion and the number of banknotes to 27.5 billion pieces. The increased demand for cash due to the COVID-19 pandemic is consistent with increased demand experienced during other major crises, such as the financial crash of 2008 and the Russian ruble crisis in 2015.

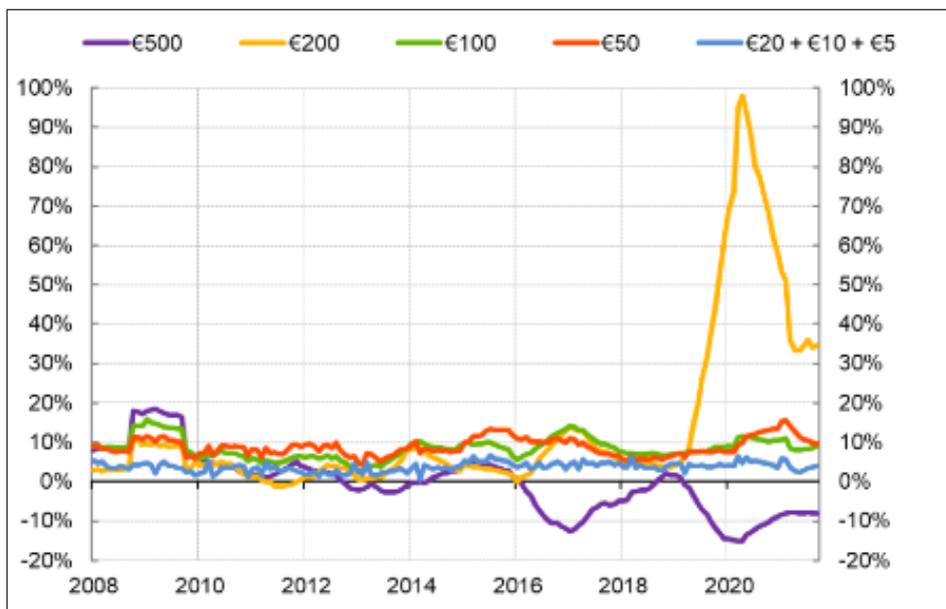
During 2020 the annual growth rate increased from 6% in February to around 11% in December. In 2021 it increased further, reaching a peak in February of around 12%, but then fell to around 8.5% in April and has remained at that growth rate since, which is around 2-2.5% higher than in 2019, ie. before the pandemic.

The €200 note has dominated the growth rate by denomination since the withdrawal of the €500 in 2019, taking over its role as both the highest transactional banknote and as a store of value (see graph). In early 2020 the increase in demand peaked at nearly 100%. It then fell steadily but is still around 33% higher than at the beginning of 2019.

The only denomination with an annual negative growth rate (-8%) is the €500, reflecting its withdrawal from circulation. Significantly, the three low denominations combined only showed an increase in growth rate of around 4%, with the €50 and €100 each achieving around 10%.

Also, the cumulative net euro banknote shipments – those shipped outside of the eurozone – contracted steadily from a peak of around €180 billion in mid 2015 to around €165 billion at the start of the pandemic. The rate of decline increased during the pandemic and is currently running around €150 billion. Notably, in the last 12 months the inflows have constantly outpaced the outflows.

Another statistic of relevance is that the gross issuance and the number of banknotes returned to NCBs is now 15% lower than in 2019, whereas the number of issued and returned banknotes for high denominations has returned to pre-COVID levels.



Evolution of banknotes in circulation – 2008-2021 (source: ECB).

The data is consistent with a crisis, in this case COVID-19 causing an increase in the cash in circulation, the majority of which is for emergency purposes and as a store of value.

The issuance of high value coins – €2, €1 and 50 cents – in recent months followed a similar pattern to 2018-2019; it increased from April 2021 reaching, at end September 2021, an annual growth rate of 2.2% compared with 1.4% at end 2020.

## The Eurosystem's Cash 2030 Strategy

It is the vision of the ECB and the NCBs that in 2030 cash will continue to remain widely available and accepted as a competitive payment instrument and store of value.

To achieve this, five strategic objectives have been identified, namely that the Eurosystem:

1. Ensures the issuance of cash.
2. Supports access to cash services (withdrawals and deposits) for all EU citizens and businesses.
3. Defines the acceptance of cash as essential for the freedom of choice how to pay.
4. Ensures innovative and secure euro banknotes.
5. Ensures the health and safety of banknotes and endeavours to reduce cash's environmental footprint.

Those involved are the European Commission, the ECB, the European Retail Payments Board (ERPB), the NCBs and national initiatives (such as those of the Dutch and French central banks, covered in the November and December 2021 issues of Currency News respectively).

Work is already taking place. The Experts Group on the Legal Tender of Euro Banknotes and Coins (TLTEG 3) is due to report in the first half of 2022, but may continue after that date given the complexity of this aspect.

A Study on Payment Attitudes in the Euro area (SPACE2), due in the last quarter of 2022, will give insight into the effects of the pandemic on different means of payments.

Another group, the ERPB Working Group, has recently reported on the access and acceptance of cash (see December 2021 issue of Cash & Payment News™).

Various countries in the eurozone are carrying out their own national initiatives in terms of non-binding agreements regarding the continued supply and use of cash in meeting the specific nature of the challenge in their own countries.

And finally, the European Commission is working on the role of NCBs in the cash supply and the potential solution to the optimal distribution of cash access points and applicable legal framework.

# The Challenges and Achievements of a 23-Year Career in Banknotes

**Ton Roos, who was appointed Director, Banknotes at the European Central Bank (ECB) in 2008, is retiring on 31 January.**

He took on the position at the time of the financial crisis, and has had to contend with two subsequent crises. At the same time, he oversaw the introduction of the second (Europa) series (and is leaving just at the point that the third series gets underway), as well as ensuring the continuing supply of banknotes in an increasingly less-cash society whilst putting sustainability at the heart of banknote production and circulation.

Currency News™ spoke to him about the challenges and achievements of his career in the ECB, and what he will miss about the banknote community when he leaves, after 23 years in the community.

**Q:** Tell us a little about your background.

**A:** I am a chemist by training. I spent four years working in a university as a research chemist and then 15 years working for Akzo Nobel, a Dutch international chemical company, before joining the Dutch central bank in 1999. I joined the ECB in 2008.

So there you have my career in a nutshell!

**Q:** What has been your greatest challenge?

**A:** The big challenge was a production one. When I came to the ECB, we were facing the challenge of the new Review portrait window feature for the second euro series that now appears in the €20, 50, 100 and 200 banknotes. It was the first time this was being used in paper banknotes of any volume, and whilst everyone loved the feature, it was a real challenge to produce it on a large scale and consistently for the billions of notes that have to be produced every year.

It took us some years to develop the right process and production equipment, and we had to have really good cooperation with the foil printers involved and printing works Europe-wide in order to get this done.

So that was a big challenge, and resulted in delays to the introduction of the second series. Of course, it is history now, but it was a real headache at the time.

**Q:** And your greatest achievement?

**A:** I'm not saying that this is my achievement, because it's down to teamwork involving all the staff and national central banks (NCBs) of the Eurosystem along with the joint research teams, law enforcement and the banknote communication teams, but what has been a great achievement is the counterfeiting



rate. It isn't only dropping because of the pandemic, which some people might say, but has dropped almost in a straight line since we issued the new €20 in 2015. The biggest impact has been in the €20 and €50, which are the most commonly used denominations.

We now have an all-time low counterfeit rate – in the range of 12ppm. I was already joking to my staff that it is a pity that I cannot stay two years longer because if I extrapolate the line then we might one day hit zero!

**Q:** Two big events during your time have been the financial crisis and COVID. Did you learn anything from the financial crisis that applied to COVID?

**A:** Actually for us it's three, because there was also the government debt crisis in between in the eurozone.

We learned a lot from the financial crash of 2008 because at that time there was a huge demand for high denomination banknotes. There was an outflow in a couple of weeks of about €40 billion. That's a lot and so our stocks were heavily affected. At the time we learnt how important this is, so we have since then increased our stocks of high denomination notes in order to be ready to face any possible new crisis.

That came with the government debt crisis that followed the financial crash. Taking Greece as an example, they went for a big

part to a cash economy because people no longer trusted the banking system. The amount of cash needed tripled, but thanks to the experience of the financial crisis, we had sufficient stocks to address this.

We saw the same effect in the pandemic, the only difference being that there were large outflows of lower, payment, denominations as well – ie. the €5, 10 and 20.

**Q:** Were you able to keep the cash flowing and meet demand?

**A:** Of course – that's our most important objective. We have to be able to always meet demand everywhere. During the first crisis we felt that we came a little closer than we would have liked to not being able to do that. By the time of the pandemic, however, we were definitely in a much more comfortable position.

The thing with crises is that you can't predict them. And if one hits, we can't produce banknotes overnight. That can take months. Hence, it's always good to be prepared.

**Q:** With the increased demand for cash when the pandemic struck, is it beginning to come back now or is it still all out there?

**A:** It's still out there. And euros in circulation keep going up, between 6-8%, every year.

**Q:** Regarding (mis)information around dirty cash, how quickly was the ECB able to respond?

**A:** We responded as quickly as we could. We couldn't respond any faster because, as the ECB, when we say something we have to be sure that it's reliable. We had to base what we said on scientific studies, which we commissioned to several laboratories. That took some time, but it led to the conclusion that the risk of COVID transmission through banknotes is so extremely small that you shouldn't be worried. You can more easily be affected if you touch a door handle or that kind of thing. In other words, cash is really safe.

**Q:** *How did you manage the ECB's function and the cash function in a time where people had to work from home?*

**A:** Our IT people did a great job because they have really levelled up enormously our IT capacity, our internet functionality, and we all have learned very quickly how to deal with online tools that we didn't use so often before the pandemic.

We had to quickly make a plan, including a list of essential people that came now and then onsite to do critical functions if needed, and we were able to handle everything else remotely.

The real challenge was not with the ECB but with the NCBs, who have to deal operationally with sorting banknotes on a daily basis, and took all the precautions that we are now fully used to in order to ensure that sorting continued and the cash kept flowing. Perhaps this slowed down a bit as a result, but still took place at a pace to always meet demand.

**Q:** *Moving to the next series now, can you give us some details about that and the preliminary design process?*

**A:** We have started with a theme advisory group comprising 19 members, one for each participating Eurosystem country. These experts come from all kinds of fields – archaeology, history, media, creative. So we have a really very broad scope in order to get us a wealth of ideas

This group will be fed by input from focus groups across all 19 euro area countries and age groups. Then this advisory group will come up with a shortlist, which will be tested among the public upon the ECB Governing Council's approval. At the end, the Governing Council will take the final decision based on the advisory group's recommendations and public feedback.

**Q:** *How seriously is the ECB committed to sustainability in banknotes, the production and the circulation?*

**A:** The ECB and the national central banks of the Eurosystem are very committed to improving the sustainability of banknotes, and not only the product but also the process. We have already been working on this for several years. For example, the varnish we use has really limited the amount of new banknotes that have to be printed – especially the €5 and €10 notes.

We have also worked for many years on using more sustainable cotton – from fair trade and from organic sources. By 2023 100% of the cotton used will be sustainable.

We are also well on our way to fully ban shredded banknotes going to landfill.

These are great steps for the environment, but of course we go further than that. We are now working on a programme called the Product Environmental Footprint. It uses a methodology developed by the Research Institute of the European Commission that is being applied to all the banknote processes and to the whole cash cycle. With this methodology you can then find out the impact of the different sources on the carbon footprint.

But it's more than just the carbon footprint – we are looking at all aspects, such as water usage, usage of land, chemical pollution etc. It's very broad and takes everything into account. We have done our first listing of the whole process, and we are now analysing these data. This is an important approach in order to really pinpoint those areas where we need to work on to solve or, at the very least, limit.

So this is the programme, and I really hope that we can publish the results this year.

**Q:** *Will sustainability be baked into the new series?*

**A:** Definitely. That is one of the pillars that should be in the new series. Not only that the banknotes are secure, but also more sustainable.

**Q:** *Do you think it's possible to make meaningful comparisons between the environmental footprint of cash (which is very physical) versus electronic payments (which aren't)?*

**A:** It is on our list to do. We will do first banknotes, then we will do coins, then we would like to also look at electronic payments if possible.

**Q:** *There is no one size fits all for cash, and the operation of the cash cycle works at a national level. To what extent can you ensure that all the different NCBs are doing the same?*

**A:** There is definitely no one size fits all because the cash cycles are quite different in Europe so depending on the country you need different measures. But we don't do things just as the ECB – we do them together with the NCBs in close cooperation. We act as one in agreeing and conducting programmes if possible.

We accommodate the needs of society for the existence and smooth availability of cash – not just now, but for the coming ten years and thereafter. That's our task as a central bank and we work hard to do that together, with all 19 NCBs.

**Q:** *What do you see as the biggest single challenge to cash?*

**A:** It's a difficult question! I think that the biggest challenge for cash is that there are now really good convenient alternative means of electronic payments, particularly contactless, and people like the convenience of these. It's difficult to defeat that.

**Q:** *Will you miss not being around for the new series?*

**A:** Of course I will miss it. I will miss it all. After all, it has been part of my life for 23 years. I have always really enjoyed working with banknote colleagues in such a multicultural environment and on such a great project as the euro.

And I think we have a great banknote community all over the world. The good thing about this community is that it's not too big – there's almost a family feeling about it, and I will definitely miss that too.

**Q:** *So what advice will you be giving Doris Schneeberger, your successor?*

**A:** I think what will help a lot, or at least helped me a lot, is to listen and ensure good cooperation. We have to cooperate anyway but it's really the essence of what we do, and also our strength in the euro area. The EU saying that 'together we are strong' is very much true for us too.

**Q:** *What are your plans next?*

**A:** I have to say I'm really busy, and will be up until the last day, so I have hardly had time to think beyond that. There are some hobbies that I would like to pursue, but I will also keep some involvement with the ECB too, so I won't be going for good.

# RBNZ Seeks Feedback to Determine Cash System Redesign

As part of our series of articles around the world to assess the growing trend to digital payments and what these countries are doing to ensure ongoing access to cash in a less-cash world, this month it's the turn of New Zealand.

The Reserve Bank of New Zealand (RBNZ) began investigating cash use and the systems that make cash available in 2017, trends in cash demand and the cost pressures on the commercial supply of cash leading to the conclusion that cash will likely become less widely available and used less in the medium to long term.

The effects of less cash in society would be felt more keenly by certain groups of people who rely on it and for whom no practicable substitute exists. The severity of these impacts would be worsened if the transition to a society with less cash acceptance occurred before mitigating measures could be put in place.

Further, the size of the affected groups might not be large enough to motivate cash providers to ensure future cash availability, but on the other hand the size (of affected groups) might also not be negligible.

This led to a public consultation on cash related issues in 2019 leading, in 2020, to the RBNZ's creation of a Money and Cash Department with a remit to better deliver on its responsibilities with respect to the smooth functioning of the monetary system.

Last September (2021), the RBNZ initiated a comprehensive public consultation – The Future of Money. The objective of this, the third in a series, is to obtain feedback on issues relating to the cash system and policy options intended to achieve greater efficiency and resilience.

In the first publication - 'The Future of Money – Stewardship' - the RBNZ articulated its role in relation to money and cash as one of stewardship and proposed stewardship objectives. The publication outlined the two important roles performed by central bank money - acting as a value anchor for the financial system and contributing to financial and social inclusion. Cash, currently the only generally available form of central bank money, is relied upon to perform these roles. But it can only meet the RBNZ's stewardship objectives if the cash system is fit for purpose, defined as:

- The physical capacity and ownership structure of the cash system is appropriate for delivering resilience.
- There is on-going cash acceptance and availability until such time as cash is not needed.

Theme	Potential policies	Potential bundle
Resilience and efficiency-themed	1. Achieve consolidation within the cash system via the creation of utility entities.	✓
	2. Broaden access to wholesale cash.	✓
	3. Accelerate setting of cash machine standards.	✓
	4. Find efficiencies related to coins.	✓
	5. Outsource core functions performed in the wholesale cash sector to an offshore supplier.	✓
Cash acceptance-themed	6. Mandate acceptance of cash by merchants and government entities (requires decisions about scope, thresholds).	✓
	7. Instigate the remuneration of merchants (or other retail cash sector cash service providers) by banks when a cash-out service is performed.	
	8. The Reserve Bank remunerates merchants for cash quality checking.	
Cash access-themed	9. License ATM providers.	
	10. An agency representing taxpayers contracts merchants (or other providers) to provide cash services.	
	11. Use moral suasion to impact on banks' cost recovery strategies.	
	12. Prescribe minimum standards for suite of services provided by banks.	
	13. Create new tools that allow the Reserve Bank to direct banks to provide cash services, and at low cost to customers.	✓
Consumer demand-themed	14. Campaign to increase public awareness of cash issues.	✓
	15. Financial incentives to use cash (e.g. a discount).	
	16. Limit use of consumer rewards by payment card issuers.	

RBNZ's potential policy responses to deliver a fit-for-purpose cash system (eight of which, ticked, being seen as the most appropriate policy bundles).

- Subject to these objectives being met, the cash system is an efficient user of resources.

The second publication in the series – 'The Future of Money – Central Bank Digital Currency' – explored issues related to CBDCs.

The purpose of the third and current consultation is to introduce the cash system, outline the RBNZ's objectives for it, explain the external drivers impacting on it, assess whether the system is likely to meet the RBNZ's objectives, and seek feedback on possible policy options for redesigning the cash system. The paper issued for the consultation has three parts.

1. Introduces and outlines the New Zealand cash system, outlines proposed objectives and external factors impacting the system.
2. Looks at the cash system in more detail, trends in the use of cash in transactions, explores financial and social inclusion outcomes, system costs and value anchor outcomes.

3. Explores possible policy outcomes. Feedback is sought on all policy options identified as well as on any that are not on the list, but that respondent think ought to be.

The RBNZ noted that the cash system is being affected by a number of significant external drivers, both challenging and beneficial, but on balance it regarded these as creating significant issues for the cash system and, in the absence of a policy response, the cash system will face acute resilience issues, cash's contribution to financial and social inclusion will continue to decline and its role as a trusted value anchor for private money and the wider financial system will be under threat. The cash system would be unable to meet the RBNZ's objectives.

The RBNZ outlines 16 potential policy responses that, in its view, can help deliver a fit-for-purpose cash system, stating that no single policy appears able to deliver on its own but that different combinations of policies could be effective.

# HUMANIA: One Note, One Job

Work has now started on the first in the HUMANIA series of banknotes, which are being produced to raise money to support people who have been most affected by the COVID-19 pandemic.



The notes will be available in September, and will be priced at \$5 each, equivalent to the cost of one dose of the COVID vaccine. Proceeds will be donated to the vaccine alliance GAVI, which is the delivery partner for COVAX, the global mechanism for pooled procurement and equitable distribution of COVID-19 vaccines.

HUMANIA was launched by the cash community in late 2020, with the objective of leveraging the unique characteristics of cash to help restore hope and support the people in society who have been most affected by the pandemic in their efforts to recover and rebuild. It aims to achieve this by:

- Raising funds and awareness to support post-COVID-19 recovery.
- Paying tribute to those who have been on the frontline during the fight against the pandemic.
- Demonstrating that cash connects people in a crisis thanks to its unique attributes: universality, resilience, trust.

The first phase of the initiative was a currency design programme, in which designers were invited to capture a moment from the pandemic and depict it in banknotes or coins. SICPA, CCL Secure, Koenig & Bauer Banknote Solutions, KURZ and Independent Currencies all submitted designs and artwork.

The first of these to proceed to production is from SICPA, with the theme 'Organic Algorithms'. It was originated by JURA and is being printed on Durasafe® substrate from Landqart by Orell Füssli with a new foil feature from KURZ. Numbering is being undertaken by Koenig & Bauer Banknote Solutions. All participants are providing their time and materials free of charge.

It is hoped that, in addition to the purchase of the notes by the banknote collecting community, the industry will also step up – buying the notes in volume to give to staff and customers, for example.

More information on the different options will be made available in due course.

'Commenting on this next phase of the HUMANIA initiative, Mark Stevenson, IBDA President and part of the HUMANIA executive committee, said: 'this is a landmark moment for the global cash community. HUMANIA CURRENCY is the first ever truly cross-community initiative involving actors from all sectors. It is now up to each and every one of us to build upon the incredible spirit of support and community demonstrated by our partners to date by making a firm and definite commitment to procure HUMANIA CURRENCY banknotes that will become available later this year.'

For more information, visit [www.HUMANIACURRENCY.com](http://www.HUMANIACURRENCY.com) or email [info@HUMANIACURRENCY.com](mailto:info@HUMANIACURRENCY.com)

As an illustration, eight policies are identified as having the possibility, in combination, to shape incentives and address the RBNZ's objectives appropriately. It stresses, however, that there cannot be a trade off between efficiency and resilience – ie. the cash system needs to have capacity that exceeds its business-as-usual demand levels, but as the cost of carrying excess capacity may be significant, a risk assessment decision will be required regarding the level of excess capacity.

The consultation also requires views on who should pay the costs for the cash system - bank customers when they access their accounts to acquire cash, banks that provide accounts, taxpayers on the basis the cash system produces attributes that have the characteristics of a public good, merchants who accept cash, or providers of payment options that compete with cash?

Some of the policies suggest a rebalancing of costs towards banks, but the question also arises regarding the role of banks in the cash system historically, now and in the future, noting that banks may prefer a digital dominant or digital only relationship with customers. This has consequences for cash availability, which affects the value anchor and in turn underpins private money. Also, should the government bear more of the costs?

The potential policies that were identified by the RBNZ and their eight policies chosen as a potential bundle are shown in the table on the previous page.

The deadline for feedback from New Zealand citizens and interested parties is 7 March.

## The Green Banknote Initiative

**Giesecke+Devrient (G+D) and Papierfabrik Louisenthal have been working on reducing the environmental impact of their banknote production and cash cycle related activities for many years. G+D signed up to the UN Global Compact, which includes a focus on sustainability, in 2010, and the current focus on sustainability by the wider community is welcomed by both organisations. Louisenthal's environmental work was recognised when it won IACA's Sustainability Award.**

G+D and Louisenthal are now launching a Green Banknote Initiative. It will involve the currency community, with the aim of working together to ensure that banknotes based on natural fibres are making cash a greener payment system by applying the principles of the circular economy, by decreasing emissions in the complete cash cycle and by driving resource efficiency across global value chains and operations.

G+D's ambition is that the Green Banknote Initiative should be the work of many and serve as a discussion forum and platform for intensive exchange. The initiative will be presented at the Intergraf Currency+Identity in April, as well as at the Global Currency Forum 2022 in May.

# The Role of Cash Cycle Analytics when Considering Banknote Durability

By Nikki Strickland, Head of Product Marketing, De La Rue

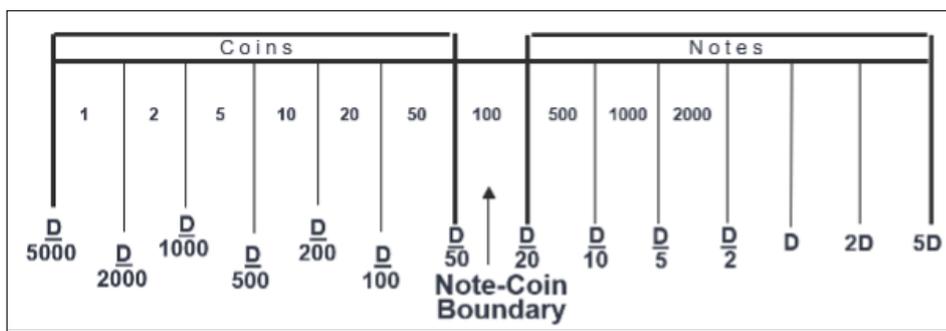
Banknote durability is an ongoing topic of interest for central banks. More durable banknotes have a reduced impact on the environment and save the central bank money because they need replacing less often. They also tend to look better in circulation for longer, which is frequently associated with lower processing costs; if a banknote is fit for circulation it will get re-issued into circulation instead of being sent back to the central bank for assessment and destruction.

When central banks want more durable banknotes they often focus on the banknote specification. Central banks will move to polymer or add varnish onto their paper banknotes. These approaches are well proven to increase banknote lifetimes. However there are also other factors that impact banknote lifetimes.

There are conscious decisions that central banks can make to trade off banknote lifetime with the quality of notes in circulation. Lowering the fitness standards will allow banknotes to last longer. However, assuming the notes are returned for sorting frequently enough to be removed from circulation at the end of their useful life, this comes at a cost and impacts the quality of the notes in circulation negatively. Sorting machine calibration can also play a role – a few central banks have anecdotes about a moment when a sorting machine destroyed perfectly good notes. Regular calibration and careful consideration of the settings required will ensure that banknotes that are fit for purpose get re-issued into circulation.

There are other cash cycle analytics factors that enable banknotes to last longer without impact the quality of notes in circulation. One factor is the number of notes in circulation – if you are carrying one note in your wallet you will use it for your next cash payment, whereas that note only has a 10% chance of being used if you have ten notes in your wallet. Notes that are used more often will wear out more quickly. Some countries have circulating banknotes with impressive banknote lifetimes and no obvious circulation quality issues due to a very high number of notes per head of population.

The other factor is the denominational structure of your banknote series. If your country has a \$20 as the highest value denomination and a restaurant bill comes to \$100, then it requires at least five banknotes to pay that bill (and more banknotes if the payee has mainly \$10 notes in their wallet). In this scenario at least



five banknotes are being handled, which comes with the risk that five banknotes are wearing out ever so slightly. If, in the same scenario your country has a \$100 as the highest value denomination then only one banknote is needed.

Most economies have at least low levels of inflation, which means the highest value storage-of-wealth note will eventually become transactional. As this happens, there is merit in considering the introduction of a new high value note (and possibly also transitioning the very lowest value note to coin). The optimal denominational structure will reduce the number of banknotes that a central bank has to purchase and reduces the stress on the cash cycle (eg. the volume of notes needing to be stored may reduce, the frequency of ATM replacement may reduce).

In extreme scenarios of hyper-inflation the difference between regularly introducing new high value denominations or not can represent millions of dollars in banknote spend. Despite concerns by some central banks, analysis at De La Rue has never found a causal link beyond the banknote denomination structure and inflation. In inflationary situations, new high value notes simply help a country manage the situation they are in.

For economies experiencing lower levels of inflation, it is still prudent to consider the optimal denominational structure and the potential efficiency gains periodically. One empirical model that supports central bank discussions on this topic is De La Rue's D-Metric™ model.

Research during the 1970s revealed that there was a remarkably robust empirical relationship between wages and currency. This led the D-Metric model, which is an empirical model that demonstrates a relationship between the daily average wage and the denominational structure of a country. De La Rue has used the D-Metric model over the past 40 years to demonstrate a relationship between the average daily wage and the denominational

structure of a country. Today D-Metric analysis, combined with the cash cycle analytics platform DLR Analytics™, supports central banks making data-driven decisions about their cash cycles.

The D-Metric model is best explained with the diagram above. In this example, the banknote denominations have been assigned to the appropriate section of the diagram.

For instance, the 1000 is an amount of money that is somewhere between 1/10th and 1/5th of the average daily wage. The diagram is unusual in that the top three note slots are not occupied and would indicate that new higher value denominations should be seriously considered. Recent De La Rue analysis of 48 countries revealed that 42% of countries have a note in the top position (ie. between 2D and 5D) and 73% of countries have a note in the second highest position.

The model is conceptually very simple but requires some skill and careful mathematical modelling to ensure it is applied correctly. Accurate and representative daily wage information can be challenging to obtain yet essential for the model, and requires some specific checks before being applied. Variants of the model based on consumer price indices and other economic indicators have been demonstrated to work in certain situations when the daily wage information is not available (for fun, in 2017 we even demonstrated that the Big Mac Index published by The Economist newspaper had useful applications).

Overall, there is a suite of cash cycle analytics tools available to central banks and, although more durable substrates play a critical role in banknote lifetimes, there is merit in thinking about banknote durability more broadly than simply the specification of the note.

# Supporting Design Excellence – ONE Security Software Becomes Two Point One

Koenig & Bauer Banknote Solutions, a pioneer in computer design software with the launch of its ONE Security system in 2001, has announced the arrival of version 2.1 with a raft of new features and capabilities.



ONE Security is described as a responsive, accurate and efficient design software, comprising several modules such as special rasters, crystal patterns, geometrics, image calligraphy, medal, raster, and image CTIP. In addition to this range, it enables the execution of the entire design and assembly process on one platform, enabling swift transition from design to output.

As such, it provides all the required tools to support the design and origination phases for banknotes and other high value documents. Since its launch over 20 years ago, it has been installed in more than 40 countries and 50 facilities.

A subsequent version, ONE 2.0, had already introduced a range of new features, including an improved user interface and better ergonomics, and the facility for multiple documents to be opened simultaneously and elements to be copied from file to another.

Now, the latest version, ONE 2.1, has a new graphic user interface and improved application usability, which - says the company - offers a better experience and more direct control. It also offers more design patterns and security modules.

An example of the new capabilities is the Color Check quality management solution, both a design feature and an inline ink density inspection and statistic measurement device.

Another is the Functional Layout Check (FLC), which replaces largely manual checklists by verifying if security features applied with different printing techniques are positioned within the tolerances allowed by production guidelines, ensuring they will remain machine-readable. It also draws attention to areas where elements are too close to one another or overlap, thereby improving quality control and eliminating errors.

And another still is the Object Library of 'smart defaults' to help users when starting new designs by enabling them to load pre-defined patterns.

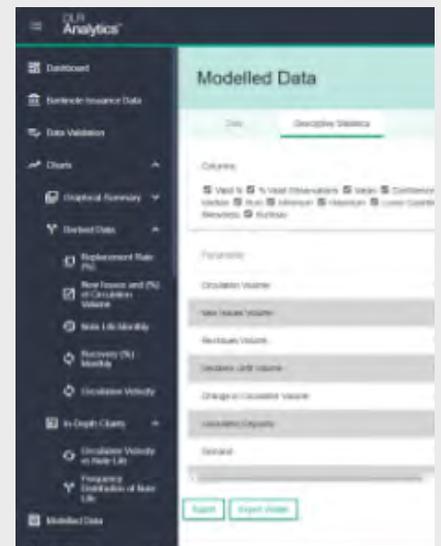
Version 2.1 of the ONE security system is part of a continuous programme of improvement, according to Product Manager Sébastien Perret. 'Specifically created for security designers to unleash their creativity and produce faster, ever more sophisticated and more secure documents, we keep on working on the ONE Suite to offer updates and new functionalities every year. Therefore we help you to fight counterfeiting,' he said.

# Upgrade for DLR Analytics™

The team behind the multi-award winning cash cycle analytics platform DLR Analytics™ have announced a major upgrade to the existing software. Going forward, all central banks using the platform will have access to new reporting tools, a modern user interface and the models that analyse the performance of co-circulating and commemorative notes individually.

According to the company, this milestone completes the DLR Analytics™ toolkit, providing a standardised suite of advanced modelling tools to assess banknote lifetime trends, note circulating trends and banknote demand forecasting.

All the major banknote forecasting algorithms used by central banks are available and the forecasting toolkit can provide visibility of what is happening to notes in circulation, issuance forecasts and stock-run downs. Shock events and scenarios can be additionally modelled and machine learning algorithms make recommendations about the best model. DLR Analytics launched in 2017 with the aim of providing free and standardised cash cycle analytics that aided central bank collaboration. Central banks who contribute anonymously to the DLR Analytics global data set gain access to global and regional trend data, as well as being able to benchmark their banknote performance against these trends.



## Online Seminar

Wednesday, Feb 16, 2022

KINEGRAM DYNAMIC® – New Dynamics for Safer Banknotes

# HSP Latin America Goes Ahead - Programme Published

Organisers of the High Security Printing Conferences (HSP), Reconnaissance International, have announced the programme for the upcoming HSP Latin America event which, originally scheduled to be held in June 2020, is now taking place in Mexico City on 14-16 March.

HSP Latin America was first held in 2012, making this the eighth edition. It has grown in stature, size and coverage over that period, and is the only event of its kind to focus specifically on the markets and solutions for cash, currency and other high secure documents in the Latin American and Caribbean region.

The conference programme will be split into two parallel tracks – one focusing on currency and the other on travel and identity documents – allowing attendees to concentrate on the topics and issues that interest them most. A total of 46 presentations will be delivered over the two days, with five dedicated sessions covering regional currency developments, design and production, substrates and features, securing currency and payments, and sustainability.

Sustainability will also be the subject of one of the pre-conference seminars on 14 March. 'Reducing the Environmental Impact of Cash' will look at what producers of cash and coins and what cash management stakeholders can do to reduce the environmental impact of their operations and the cash cycle. There will also be a panel discussion with central banks about the priority they place on sustainability, their ambitions and the changes they would like to see.

An exhibition of over 50 companies will be held alongside the conference sessions. As usual, the event will also play host to the prestigious Regional Banknote and Regional ID Document of the Year awards, which will be announced during the conference dinner.

Finally, on the day after the conference, 17 March, the Banco de México will host a visit to its new state-of-the-art production facilities in Guadalajara.

Following two years of lockdowns and travel restrictions, this will be one of the first in-person events for the industry, and Reconnaissance is expecting a high level of interest as a result. This has already been demonstrated by the record number of exhibitors, many of whom will be showcasing new features and solutions face-to-face for the first time.

[www.hsp-latinamerica.com](http://www.hsp-latinamerica.com)

# The Conference Scene for 2022 – Back in Business at Last

**Optimism towards the end of last year that the pandemic was running its course, and that things would start returning to normal, have been frustrated by the emergence of the Omicron variant of COVID. But while some events have been thwarted, others are going ahead as planned (or rather, replanned – several times in some cases).**

Then first casualty of Omicron is the World Money Fair, which has been cancelled for the second year in a row to be replaced by an online version. The dates for this have been moved – to 23-28 February.

The Technical Forum normally forms part of the World Money Fair. Last year it, too, went online, with a series of four webinars running over the course of four months. This year, it will be holding two sessions during the World Money Fair, on 23 and 24 February.

The Mint Directors Conference (MDC), originally scheduled for South Africa in 2020, has been postponed until October 2023, when it will be hosted by the Royal Canadian Mint and held in Ottawa. The South African Mint-hosted event in Cape Town will take place in November 2024.

In the meantime, the dates have now been finalised for MDC Online, an all-virtual event which will take place 24-25 May.

The postponement or cancellation of events, and/or their move online, is not universal, however, and some notable in-person conferences are still scheduled to go ahead this year.

First is the Banknote & Currency Conference, a major industry event, that is taking place 21-24 February in Washington DC. It will be followed on 25 February by the inaugural Digital Currency Conference.

High Security Printing (HSP) Latin America will be taking place 14-16 March in Mexico City. It will be followed by HSP EMEA, in Tallinn, Estonia, from 13-15 June, and then HSP Asia in Colombo, Sri Lanka, from 4-6 December.

Intergraf's Currency+Identity conference will go ahead in Lyon, France from 6-8 April.

Hard on its heels is Optical & Digital Document Security, the technical conference for the cash and ID sectors, from 11-13 April in Vienna.

The International Currency Association's Global Currency Forum will take place 2-5 May in Barcelona.

All three annual Cash Cycle Seminars (ICCOS) are due to go ahead in-person – Europe in Istanbul from 31 May-2 June, Asia in Manila from 6-7 September and the Americas in San Diego from 14-16 November.

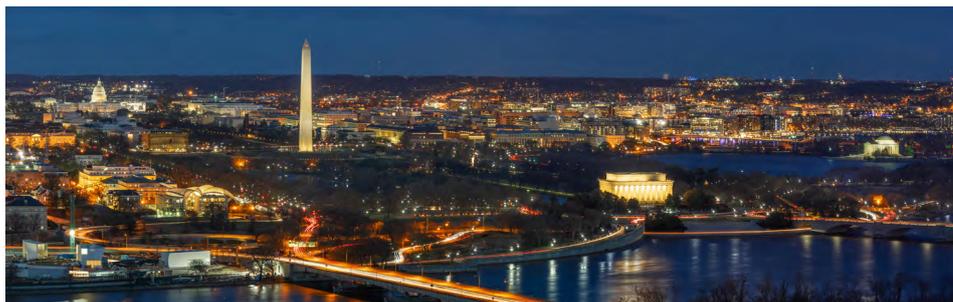
September will be a particularly busy month. The Future of Cash is scheduled to be held 14-15 September in Madrid, and the Coin Conference, which normally takes place every second year will take place in Amsterdam at the end of the month. The World Banknote Summit will also be held that week, in Antwerp.

In October, meanwhile, the Silk Road Conference takes place in Kazakhstan from 3-5 October, and the 6th IBDC (International Banknote designers Conference) in Dubrovnik from 24-27 October.

Undoubtedly there will be more, including a new event – The Sustainability Conference: Cash & Payments – which is provisionally scheduled to take place 2-3 November.

So it will be a busy year, assuming that COVID doesn't find a new way to bring travel and meetings to a grinding halt again. We very much look forward to seeing you again at these events.

# Full Steam Ahead for Banknote & Currency Conference in February



**Flights have been booked, hotel reservations have been made and final preparations are being made so that, after two years apart, Currency Research can bring the majority of the industry back together for some long-overdue discussions, professional networking, and a lively exchange of information and views. The Banknote & Currency Conference, which takes place 21-24 February in Washington DC is, say the organisers, happening!**

At the six weeks prior to the event mark, Currency Research gave a general update to attendees, noting that the overall level attendance at that stage was higher than the same stage prior to the previous Currency Conference (2019) and only marginally behind the previous Banknote Conference (2018), with particularly strong numbers of central banks and printworks.

'The Banknote & Currency Conference is a unique, one-time-only experience with our combined global event that raises important policy, strategy, and technology issues by leaders in the banknote business', said Shaun Ferrari, Conference Co-Chair. 'Combining these two leading, industry conferences for this one time allows the entire currency supply, issuance, and distribution chains to come together for a unique networking and educational event.

The event kicks off with a series of pre-seminar events on Monday, 21 February:

- IACA Member Meeting – Future of the Cash Cycle: The Impact of External Factors & Policy Considerations
- Polymer Users Summit
- State Print Works Summit
- Workshop on Circulating Coin – Intrinsic, Essential, Sustainable.

The main topics of the plenary sessions, from 22-24 February, include:

- Developments in issuance and production
- Currency and coin developments in the cash cycle
- Tour of the World's New Banknotes & IACA Awards
- Cash Tech
- Perception studies

- Global efforts on counterfeit deterrence and cybercrime prevention
- Reducing the ecological footprint of banknotes and coins
- Access to cash, payments and financial inclusion
- From physical to digital: the roles of cash and CBDCs.

Closing off the conference is the Networking & Awards Dinner on 24 February, held jointly with attendees of the Inaugural Digital Currency Conference taking place the following day.

The themes of this one-day event include:

- Quantum computing - risks and opportunities
- The Digital Currency Trifecta: privacy, risk, and security
- Importance of digital innovation
- Project Nexus: cross-border interoperability
- Interoperability in a global economy
- China and CBDC
- Interaction between the technical design and CBDC ecosystem implications
- Technical approach and design of a CBDC
- Big Tech and digital currencies
- Access to digital payments: the new digital divide.

Between presentation sessions attendees can enjoy connecting and networking with over 30 of the industry's suppliers in the Exhibition Hall, where discussions and connections can continue into the evenings with hosted drinks receptions.

According to Shaun, 'we are delighted to see so many central banks who have never been to Currency Research events before joining us, this is certain to be a valuable and memorable conference and only four weeks to go! We are looking forward to welcoming everyone to Washington DC for the 2022 Banknote & Currency Conference.'

More information can be found at the **Banknote & Currency Conference** and **Digital Currency Conference** websites.

## More Dialogue and Interaction for Designers

The International Banknote Designers Association (IBDA) has finalised the agenda for the 6th International Banknote Designers Conference that will take place in Dubrovnik, Croatia from 24-27 October 2022.

Like so many event organisers, the IBDA cancelled the original event, planned for October last year, and bridged the gap in 2021 by staging the International Banknote Designers Virtual Conference in an effort to reconnect members and partners during the prolonged period of lock-down, travel restrictions and limited face-to-face meeting opportunities.

The 6th IBDC has been designed to allow a higher degree of delegate interaction, dialogue and exchange than at previous events, says the IBDA. Presentation sessions will be shorter and more focused while workshop and special interest break-out sessions will be privileged. The delegates can effectively decide what mix of formal presentations, deep-dive workshops and technology break-out sessions they wish to participate in, allowing them to create a participation plan that suits their requirements.

In addition to the above, the 6th IBDC will feature a new component called the 'Developers Lounge'. This meeting space will allow currency technology developers (substrates, features, software, printing machinery etc.) the opportunity to showcase their latest development and innovation activity and gain feedback from the design community.

It is also intended to help delegates focus on future challenges for cash in the competitive payments arena and better understand how the industry is reacting to new challenges through the research and innovation.

The main theme of the 6th IBDC is 'Designing a Sustainable Future for Cash'. In view of the accelerated rate of change within the global payments ecosystem, banknote designers now have to address cash sustainability head on through their work.

'Design will be a defining factor in shaping how cash is accessed, moved and used and this event will demonstrate how design can facilitate and enable the type of innovation required to ensure a sustainable future for banknotes' says the IBDA.

[www.ibd-association.com/6th-ibdc/](http://www.ibd-association.com/6th-ibdc/).

# Bahamas New Series – a Case Study for Successful Feature/Substrate Pairings

In October 2021, the Central Bank of the Bahamas (CBB) released its new \$100 banknote, completing the roll-out of its CRISP (Counterfeit Resistant Integrated Security Product) Evolution series which it began back in 2016.

The new series of banknotes is – as the name suggests – an evolution of the original CRISP series first introduced in 2005, and is remarkable both for incorporating a broad cross-section of substrates, printers and features, and for its introduction of multiple firsts for feature-substrate pairings.

The Bahamas is an archipelagic state in the Caribbean consisting of around 700 islands, 16 of which are major islands, surrounded by hundreds of thousands of kilometres of ocean space. To reflect the size and diversity of the Bahamas, the new banknote series contains colourful portraits, a number of different features, and is printed on a variety of substrates.

The Bahamian dollar, which is pegged to the US dollar, was introduced in 1966, seven years before the Bahamas gained independence, and replaced the pound. The currency has undergone several revisions over the years, but has maintained its original structure of eight denominations, ranging from \$½ to \$100 notes.

The first banknote of the new series was the \$10 in 2016. The new paper note was designed and printed by De La Rue in collaboration with the CBB, and was the first circulating banknote to include its Active™ security thread, which uses lenticular technology and microscopic fine line printing to deliver a clear switching effect with image changes.

The design of the note included Sir Stafford Sands, the former finance minister. The CBB accompanied the launch with a publicity campaign, including a film explaining the features of the new banknote.

Last summer, Crane Currency was awarded the tender for the reprinting of the \$10, making it the company's first contract with the CBB. Besides the reprinting, the banknote also underwent a security upgrade with the addition of a RAPID® Detect 4mm micro-optic security thread (also used in the new \$50 banknote) and a revamped colour scheme.

The second note in the new series, in Autumn 2017, was the \$1, which was printed on Louisenthal's Hybrid™ substrate. At the Intergraf High Security Conference in 2019, Deputy Governor Derek Rolle was able to demonstrate that the \$1 lifetime in circulation had increased from 13 months to 22 months.



The note also features Louisenthal's RollingStar® security thread on the reverse, five colour intaglio on both sides, and includes an updated portrait of the first Prime Minister, Sir Lynden O Pindling, which was also used for the watermark.

The design on the note's reverse includes a drum major in full regalia leading the Royal Bahamas Police Force's marching band. As with all other new banknotes in the series, the reverse was designed in vertical orientation, with a vertical iridescent band incorporating a motif of a snake, the letters CBB and the denominational value appearing also.

In Autumn 2018 the new \$20 was issued, featuring a portrait of the late Sir Milo B Butler, the country's first Governor General, on the front, and the tower at Festival Place, overlooking Nassau Harbour, on the reverse. As with the original \$10 CRISP Evolution, the note was designed and printed by De La Rue and features its Active® security thread.

In 2019, the new \$½ introduced an updated design with the previous banknote not included as part of the original CRISP series. The front features a portrait of HM Queen Elizabeth II and a replica map of the islands of the Bahamas, with an image of a strongback flower in the centre. The reverse features a vignette of Sister Sarah, a prominent figure of the Straw Market in Nassau.

The introduction of the Evolution series \$3 note later in the year marked the first complete redesign of this banknote since 1984. As with the \$½, the note features a portrait of HM Queen Elizabeth II on the front and sailing boats on the reverse. Security features include OVI®, a colour

shifting thread, a watermark of the Queen with an electrotype of the denomination numeral, and an iridescent stripe.

The \$50 was the sixth banknote – and third in 2019 – of the new series to be introduced. Produced on Landqart's Durasafe® substrate, it was the first note in the world to integrate a RAPID® thread into the composite substrate. Other features include a see-through window in which a replica of a window from the Parliament building can be viewed, a mould-made watermark with electrotype, SPARK® and, on the reverse an iridescent stripe.

It features a portrait of Sir Roland T Symonette, the first Premier of the Bahamas following self-government, and an image of a blooming 'frangipani' flower on the front, with the reverse featuring a vignette depicting a rendering of the CBB.

The penultimate banknote of the new series, the \$5, entered circulation in September 2020. As with the \$1, the banknote is printed on Louisenthal's Hybrid™ substrate and features the company's RollingStar® security thread as one of the key security features.

The front of the note displays a portrait of Sir Cecil Wallace-Whitfield, a prominent politician who was posthumously conferred with the Order of National Hero. The reverse features a vignette depicting Bahamian artist Delton Barrett's likeness of a Junkanoo cowbeller in full costume. The bright colours of the banknote highlight the liveliness of the annual celebrations of the Junkanoo Festival, which have been evolving in the Bahamas since the early 1900s.

As noted in the introduction of this article,

# Albania Completes Modern New Series

The Bank of Albania has put into circulation new versions of the 500 lekë and 2,000 lekë, thereby completing its new series which also includes 200, 1,000, 5,000 and 10,000 lekë. The series began with the issue of the 200 lekë (on polymer) and the 5,000 lekë (on paper, with common with the other notes in the series) in 2019. The other two denominations were issued in June 2021.



The new series was the first redesign of Albania's currency in 20 years. Both banknotes, in common with their counterparts, have a refreshed, more modern, design and enhanced security, but retain the same images and motifs of the notes they are replacing. The 500 was produced by Oberthur Fiduciaire, and the 2,000 by De La Rue.

The main security feature on the 2,000 lekë is a KINEGRAM® foil stripe displaying multiple optical effects, which is applied in register to the print and partially metallised in multiple patch-like shapes, each with their own distinctive effects. The main motif is a portrait of King Gent of Illyria, a renowned statesman, a warrior and a scientist in medicine (which explains the gentian that appears on the reverse – a medicinal herb whose healing properties were discovered by King Gent and named after him). The flower also appears in three dimensions on the bottom of the stripe, which appears to be tactile but is in fact completely flat to the touch.

Additionally, fine line movements starting on the lower half of the security foil stripe are combined with a clearly visible image flip between the words 'DY MIJË' and the denomination number '2000'. The most striking effect of the foil stripe is a true colour portrait of King Gent, corresponding to the intaglio portrait to underline the integrated, harmonised design.

## In Other News...

- The Bank of Guyana has announced that it will shortly be issuing a new \$2,000 banknote on polymer to commemorate the 55th Anniversary of Independence. The front of the note depicts President Irfan Ali's 'One Guyana' agenda. The reverse shows six children from different ethnic groups.

This is the first banknote of such a denomination issued by Bank of Guyana, sitting between the 1,000 and 5,000 Guyana dollars, bringing to six the number of notes in the series.

- The Advisory Council created by the Bank of Canada to select a 'note-able' Canadian to be shown on its new \$5 banknote has released a short list of eight people selected out of more than 600 that were proposed in a public consultation.

The nominees, all Canadian by birth or naturalisation who have made a significant contribution to Canadian life (and who are deceased), are:

- Pitseolak Ashoona – Inuit artist.
- Robertine Barry (Françoise) – writer, journalist and social justice champion.
- Binaaswi (Francis Pegahmagabow) – Canada's most decorated Indian soldier.
- Won Alexander Cumyow – first Chinese-Canadian born in Canada, who worked for good relations between local and Chinese communities.
- Terry Fox – athlete who lost to cancer a portion of his right leg yet still ran a Marathon of Hope across Canada in 2008 using a prosthetic leg.
- Lotta Hitschmakova – humanitarian.
- Isapo Muxika (Crowfoot) – Indian leader who worked for good interracial relations.

- Onondeyoh (Frederic Ogilvie Loft) – Mohawk chief, political and social activist.

The shortlist will go to the Minister of Finance, who will make the final selection.

- The Czech National Bank will issue a 100 korun note in March as part of a set of three depicting the first governors of the Bank to commemorate the Centennial of the Czechoslovak korun in 2019. The first, honouring Alois Rašín, was issued in 2019. The second features Karel Engliš and the third, depicting Vilém Pospíšil, will be issued before 2025.

The notes are being issued at a premium in very limited quantities and, while being legal tender, are not intended for circulation.

- The Central Bank of the Republic of Uzbekistan has announced that a new of 200,000 som banknote will be issued in 2024. The new high denomination note will relieve pressure on lower denominations, in particular the 100,000 and 50,000 soms, which account for just over 34% of notes each in circulation. New versions of both were released late last year as part of the Great Silk Road series.

The Bank has also announced that new coins with a face value of 500 and 2,000 soms will be put into circulation soon. The 2,000 som is currently a banknote, and a new version was also issued last year.

- Nepal Rastra Bank has issued a new 2 rupee coin with an amended map of Nepal and marks for the visually impaired.

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## Bahamas New Series *(Continued)*

the eighth and final banknote of the new series – the \$100 – was launched in October last year. Printed by the Canadian Bank Note Company on Durasafe substrate, it features a MOTION® Surface stripe from Crane, another first for the combination of the two technologies. The security stripe on the reverse depicts a large water drop, with a three-dimensional image of fish swimming that can be seen when the note is tilted.

The front of the banknote features a portrait of the late Arthur D Hanna, the eighth Governor General, and a Royal Poinciana flower. The reverse features a blue marlin in the foreground, surrounded by other depictions of marine life such as coral.

As part of its public education campaign, in 2017 the CBB launched a CRISP Evolution Training Tool on its website including an online tour. Users can select denominations from the new banknote series and see the various security features used in the designs. The CBB has also published a video and explanatory leaflet to demonstrate the features of each new banknote.

To coincide with the launch of the new \$20, the Bank released a banknote app which includes detailed tutorials on the key security features of each new banknote. As new notes were introduced the app was updated, with the second iteration of the app released to coincide with that of the new \$5 banknote.

# Progress on ECB's Environmental Cash Programme

**The Banco de España has issued a press release about meeting the European Central Bank's (ECB) waste goal for banknotes. It puts this in the context of the ECB's wider programme.**

The ECB has taken a number of steps to reduce the environmental impact of euro banknotes. In 2012 the €5, €10 and €20 euro banknote specifications changed to include a varnish coating to extend their average note life. Longer life reduces the need to replace notes, which means fewer raw materials and energy used to produce the notes are needed.

In 2014 the ECB decided only to use cotton from sustainable sources, with a transition through until 2023 to achieve this. The Dutch National Bank had been the pioneer of this idea.

The cotton used in banknotes is cotton waste from the textile industry; in a sense it is already recycled material.

As part of its drive to reduce the environmental impact of banknotes, the ECB decided to ban any waste from banknote destruction or other production processes from going to landfill. The decision was made in 2020, and national central banks (NCBs) of the Eurosystem have until this year to achieve this. Waste must be recycled. If this is not possible, it can be used in energy recovery solutions.

The Banco de España achieved the zero waste goal in 2021 and is planning to recycle about 20% of its waste, with the rest going to energy recovery. It is researching more environmentally friendly recycling systems.

A key part of any environmental impact programme is to have good metrics against which to measure. The European Commission's Product Environmental Footprint initiative has a widely used methodology. The ECB calculated the impact of cash in 2004 and is currently updating this work. The 2004 work originally drove the changes listed above, including in addition, manufacturers of cash having to hold the ISO14001 environmental certificate.

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