

Exchange

THE GLOBAL MAGAZINE OF DE LA RUE



DeLaRue

Design integration

SPRING 2015

POLYMER BANKNOTES ON THE RISE

CRYPTO CURRENCIES

RAISING GOVERNMENT REVENUES

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THE GLOBAL MAGAZINE OF DE LA RUE

SPRING 2015:

EXCHANGE IS DESIGNED TO BE A FORUM FOR ALL THOSE INVOLVED IN MAINTAINING SECURE TRANSACTIONS WORLDWIDE. WE WELCOME CONTRIBUTIONS AND SUGGESTIONS FOR THE FUTURE. PLEASE SEND THEM TO: exchange@uk.delarue.com

ON THE FRONT COVER:

THE IMAGE SHOWS A CLOSE-UP INTAGLIO PRINT BUTTERFLY AND KINGFISHER HOLOGRAM FEATURED ON THE LATEST DE LA RUE HOUSENOTE.



Foreword

The publication of the latest edition of our customer magazine, *Exchange*, provides the ideal opportunity for me to introduce myself to you as the new Chief Executive of De La Rue. I am proud to join a company which is a leader in its markets and with such a long history of innovation. I intend to work hard with my management team to continue that legacy, delivering high-quality security products and services which our customers value and can rely upon.

Long-standing and strong customer relationships are one of De La Rue's great strengths and I very much look forward to meeting more of our customers over the coming months and years.

I hope you find *Exchange* both interesting and informative. As always, we value your comments on the magazine so please send them to: exchange@uk.delarue.com

Martin Sutherland
Chief Executive Officer



CENTRAL BANK EDUCATION
MEETING THE TRAINING NEEDS
OF CURRENCY TEAMS



POLYMER NOTES POINT THE WAY FORWARD
THE WORLD WATCHES AS THE UK PREPARES
FOR PLASTIC BANKNOTES



**HOW TO CONTROL
BANKNOTE QUALITY**
SECURING QUALITY
DURING MANUFACTURE



**THE FUTURE
OF PASSPORTS**
WILL THE WAY WE
IDENTIFY OURSELVES
CHANGE?



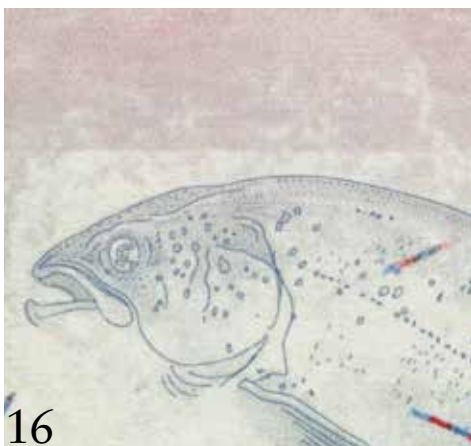
INTEGRATED BANKNOTE SERVICE
HOW DE LA RUE'S ONE-STOP SHOP
BENEFITS CUSTOMERS



CRYPTO CURRENCIES
INTERVIEW WITH BANK OF ENGLAND ON
VIRTUAL CURRENCIES



SEEING IS BELIEVING
NEW PRODUCTS KEEP DE LA RUE AT FOREFRONT
OF BANKNOTE SECURITY THINKING



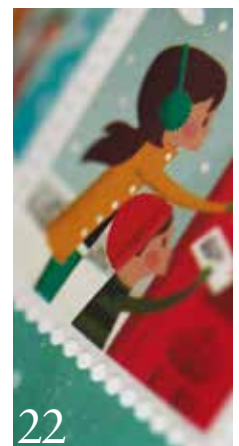
NO LIMITS
DESIGN EXCELLENCE:
GOING TO EXTRAORDINARY LENGTHS
FOR CUSTOMERS



**DELIVERING REVENUE
PROTECTION SOLUTIONS**
TAX STAMP SCHEMES BOOST FUNDS
AND HELP FIGHT ILLICIT TRADE



THE BATON BOOK
CAPTURING THE
HOPES AND DREAMS
OF YOUNG PEOPLE



WORLD VIEW
NEWS AND EVENTS
FROM AROUND
THE GLOBE

Currency: approaches to staff development



Exchange talked to consultant and central bank trainer Charles Spencer to find out why training for currency teams is so important – and how best to meet their specific needs.

In the context of central bank functions, currency issuance is the odd man out. Why? Because it is a predominantly technical and operational business. And perhaps more crucially, unlike monetary policy, financial stability and (for some) banking supervision, it is very visible and tangible for the public. Since public confidence in currency is so influenced by the acceptance of its banknotes, those working in issuing or currency departments should have the broadest possible training and development.

With a wider knowledge of banknotes and how currency functions, specialists in currency will understand the bigger picture of how their work fits in, learn how to collaborate and with whom, be able to interact more effectively with suppliers and partners and be better prepared for internal career moves.

“For me the missing ingredient is usually breadth of knowledge,” says Charles Spencer. “I believe a broad exposure to all aspects of banknotes, from policy to operations, from design to destruction, is an asset to anyone working at any level in a central bank’s issue or currency department.”

The challenges

So why doesn’t this kind of exposure always happen? Perhaps because currency teams are often compartmentalised. Those in technical and operational functions – typically optical specialists, physicists or engineers and vault and processing teams – often have little contact with policy people.

There is also the comfort zone factor and the reality that day-to-day work, particularly in specialist fields, often feels all consuming. Finally, training for other central bank functions that focus primarily on economics isn’t a preparation for currency work. So separate provision must be made.

“I think existing middle management and new senior people in currency should be the priority,” says Charles. “Those who need a broader outlook and those who are starting in a decision-making role. They might be policy analysts, economists, managers of policy or operational teams (including cash processing, mutilated banknote handling, business support planning and infrastructure), or scientists dealing with banknote components who need to get out of the lab.

“But training throughout the organisation can pay off. For example, machine operators in a Bank of Canada processing centre had been coached on the importance of reporting new developments in counterfeits. It meant they were later the first to spot and report a new type of counterfeit – which gave the Bank very early warning of a new threat.”



As a director at the Bank of Canada’s currency department, Charles Spencer was closely involved in two new banknote series and led major new staff programmes. He set up his own consulting firm www.spencerstrategy.com in 2012, providing independent banknote advice to central banks. He is also the external facilitator at De La Rue’s Advanced Banknote Manager course for central bankers.

Internal focus

What is a rounded education for currency people? Beginning in-house, it’s important to make knowledge sharing integral to the corporate culture. “This may require incentives,” says Charles, “such as making it a part of performance evaluation.” A handful of central banks, including the Bank of England, and some Scandinavian and central European banks, also make staff rotation a priority to promote career development.

A comprehensive example of internal training is the Bank of Canada’s *Banknotes A to Z* programme, offering 21 self-paced modules, delivered by internal and external presenters, to a wide range of staff including internal partners such as HR and Finance – usually completed over two to three years. Other central banks encourage teams to present their work to the whole currency department from time to time.

Look outside the bank

External opportunities are many and varied. A simple idea is to seek invitations from suppliers to visit their operations. After all, it’s in their interest to have knowledgeable customers, who will understand better the design and production challenges suppliers face.

Such insights can be enlightening for the visitor. One of Charles’ former staff, an experienced research engineer on a visit to a De La Rue print works, saw for the first time an OptiNota H machine that puts holograms on banknotes. “Of course I knew in principle how security devices were applied to banknotes,” says Claire Marchand, “but the site visit gave me an invaluable opportunity to see the technology at work in real life.”

Training away from the office

Several organisations run training courses for currency managers from central banks worldwide. Our own De La Rue Advanced Banknote Manager intensive two-week course looks in detail at the issues and policy decisions the managers face and has attracted over 140 attendees since it began in 2003. Content includes introducing a new series, counterfeiting, durability, selecting security features, the cash cycle and currency policy. There is discussion on the major issues facing the industry and exchange of experiences and solutions. It also offers practical sessions and tours of banknote production sites: design, components, substrate manufacture and print.

“This course is probably the most comprehensive in the field,” says Charles. “As it’s limited to one representative per country, they learn a great deal from each other and the quality of discussion is very good. The mixture of theoretical and practical exercises makes it very effective.”

Central Banking offers a one-week overview course, but others tend to be more specialist. Those run by De Nederlandsche Bank and the European Central Bank are more policy oriented, and typically senior currency people are invited. Banco de España provides courses in Spanish and produces a bilingual Spanish-English publication *Billitaria* for currency professionals. By contrast the Federal Reserve Bank of New York’s Management and Operations Seminars cover all central banking operations including currency.

Other good trade publications include *Currency News*, the more broadly focused *Authentication News*, both published by Currency Research, and *InfoSecura* published by Intergraf.

Networking opportunities

Active participation and presentations at conferences are excellent ways to expose currency staff to others in the field and to keep them abreast of recent developments. The three most prominent are each run once every two years: the Currency Conference (which moves around the world), the Banknote Conference in Washington, and Intergraf (always in Europe) – with its security printing focus.

Conclusion

Staff development challenges are not unique to currency departments. But, knowing how critical quality banknotes are to the objectives and reputation of central banks, it is worth addressing the particular needs of these expert teams with the management commitment, creativity and investment they deserve.



The Bank of England's high-profile decision to introduce a polymer £5 in 2016 and £10 in 2017 has arguably put polymer banknotes firmly on the agenda for many central banks across the world. *Exchange* looks at the reasons why central banks, including the Bank of England, are taking the decision to move to polymer and the implications that polymer banknotes have for the cash processing industry.

Polymer notes point the way forward

Prior to its announcement the Bank of England carried out a three-year study into banknote substrates as well as holding a public consultation exercise in 2013 with 13,000 people giving their feedback on the potential introduction of plastic banknotes. The Bank of England's research concluded that polymer notes were cleaner, more durable and more secure than paper banknotes.

Announcing the decision to go with polymer, Bank of England Governor Mark Carney said: "Ensuring trust and confidence in money is at the heart of what central banks do. Polymer notes are the next step in the evolution of banknote design to meet that objective. The quality of polymer notes is higher [than paper], they are more secure from counterfeiting, and they can be produced at a lower cost to the taxpayer and the environment."

De La Rue has looked at the key factors that might be driving central banks to polymer.

Security

One of the strengths of polymer banknotes is that they enable central banks to stay one step ahead of counterfeiters. It's the combination of substrate and print features that makes them hard to copy successfully. Polymer substrate provides a platform for layered and sophisticated security features, including intricate and complex windows; a security feature in their own right but that can also incorporate other features. For example, blind emboss and holographic foils can be applied over windows and are visible from both sides of the note, maximising their effectiveness as a security feature.

Experience from the countries that have introduced polymer notes so far shows just how secure they are. Australia was the first country to introduce polymer banknotes for some of its currency in 1988 and since 1996 all its banknotes have been on polymer.

The level of counterfeit notes in circulation in Australia since they went wholly to polymer has been low, with around 12 parts per million on average in the past five years. The majority of these were poor counterfeits on paper but recently there have been examples of counterfeiters attempting to use a polymer substrate. Perhaps the best testament to the security of Australia's banknotes is that the Reserve Bank of Australia has not felt the need to introduce a new series for the last 20 years. However in 2012 they did announce that they were actively researching new technologies for their next series.

Durability

Increased banknote longevity was another key factor in the Bank of England's decision. As with security, the evidence from those countries with polymer is compelling. For example, the Reserve Bank of New Zealand has stated that its polymer notes last on average four times longer than paper notes, and the Bank of Canada expects a 2.5 times increase in note life. The Bank of England's research found that the low denominations that were most frequently handled would last 3.8 times longer than paper notes in the same denominations. One of the reasons for this is that polymer banknotes are not porous and so are cleaner than their paper counterparts. The nature of the polymer material means they will not absorb moisture or dirt and can be easily wiped clean to remain cleaner for longer.

Continued on page 6

“POLYMER ALLOWS US TO INCORPORATE CLEAN VECTOR SHAPES AS WELL AS FINELY DETAILED AND GRADUATED DRAWINGS, AND FOR THE FIRST TIME WE CAN BRING ELEMENTS OF COLOUR INTO THE SUBSTRATE.”
NATALIE TURNER, SUBSTRATE DESIGNER



Environmental benefit

Based on studies carried out on behalf of the Bank of England and the Bank of Canada using ISO standards for Environmental Management (ISO14040: 2006 Methods and ISO14044: 2006: Standards), polymer notes have been shown to have a lower overall environmental impact than paper. Their increased longevity leads to fewer notes being manufactured and transported, and fewer unfit notes being sent back for destruction. According to a report by the Bank of Canada, polymer notes are transported 2.5 fewer times than paper banknotes. In addition polymer notes weigh less than paper ones which reduces the amount of fuel required to transport them. It is worth noting, however, that the environmental impact of any banknote varies depending on the circulating environment.

Cash processing

If the benefits of polymer notes seem clear cut, the operational and financial implications for the cash processing industry are significant but well understood. A move to polymer combined with changes to banknote size will necessitate changes that include ATM cassette sizes, software modifications and potentially hardware upgrades. Machines that weigh, count, sort, accept, dispense or recycle banknotes will need to be adapted and recalibrated.

Another area that needs to be addressed is static build-up during the processing of polymer notes. This is well known and is managed with anti-static equipment.

During the period when new notes are being introduced and the old notes are being phased out, detectors may need to be set up in cash processing equipment to manage the new notes and the new note fitness standards. This is also true, of course, if introducing new paper notes.

These changes will, of course, involve additional initial investment from the cash industry compared to changing to paper-based notes. Ultimately, however, cash machines will need less frequent replenishing, which in turn will lead to reduced transit and storage costs. Over the longer term the benefits of polymer notes should outweigh any additional outlay.

For any country introducing polymer banknotes, prior to their introduction the central bank and cash handling industry should work together and factor in time for upgrades to be implemented and tested prior to launch. Banks, businesses and retailers will all require training on the features of the new notes and of course the public will need to be fully educated on their introduction.

It's too early to say whether the Bank of England's high-profile decision to choose polymer represents a tipping point for plastic banknotes. However, the positive experiences to date in countries like Australia and Canada, the increased security of polymer notes allied with their enhanced longevity and cleanliness, mean that central banks across the world will be watching the launch of the UK's new £5 and £10 polymer notes with keen interest before deciding on their own next generation of banknotes.

WORLD OF POSSIBILITIES

As well as being more secure and durable, polymer banknotes also have different aesthetic possibilities, allowing total design integration between substrate and print.

For De La Rue's design team, working on polymer opens up a new world of possibilities, as Substrate Designer, Natalie Turner explains: "It allows us to incorporate clean vector shapes as well as finely detailed and graduated drawings, and for the first time we can bring elements of colour into the substrate. By bringing in these three aspects of design we can be incredibly creative and inventive, allowing us to create some truly striking and beautiful designs."

DE LA RUE'S POLYMER OFFERING

Since the launch of Safeguard® De La Rue has developed more than 45 polymer banknote designs, built up a wealth of knowledge and understanding of polymer design and print process and developed polymer feature patents.

De La Rue launched Safeguard in 2013 following an intensive four-year development and investment programme. Safeguard notes have been issued in six countries already – Fiji, Mauritius, Lebanon, Cape Verde, Trinidad and Tobago and The Gambia – and others are due to be issued in the next few months including Scotland (Clydesdale Bank).

As well as its increasing polymer portfolio, De La Rue's range of cash processing solutions, consultation and support services, for both central banks and commercial banking sectors, means it is well placed to help cash handling industries across the world prepare for the introduction of polymer notes.

How to control banknote quality

It's well known that the quality of banknotes is key for both public perception and machine effectiveness. *Exchange* considers the best approach to securing quality during manufacturing.

Quality is a vital component in a finished banknote because it helps preserve its value. When in circulation, quality helps maintain public confidence in the currency. Not only that, in an increasingly automated world of cash, consistent and reliable machine readability is ever more significant.

This means that both visual quality and machine processing quality must be guaranteed and both are achieved by single note inspection machines (SNIM). But if quality were only checked at the end of the manufacturing process by a SNIM, the cost of waste would be unmanageable. For that reason, quality control must be built in throughout the process. So it's important to have a detailed quality management system, supported throughout the organisation – from senior management to individual operator.

In most banknote operations, the aim is to manage and govern the quality process within an overall framework (ideally ISO9001 certified) which provides structure, standards, procedures and an audit trail for product and service delivery.

Establishing quality control

It's important to define clearly the quality standards and banknote specification at the start. These standards should apply not only to the finished banknote but to every stage: from raw materials supply, through each printing phase, to finishing. The measures of quality should be clear and objective, so they can be monitored at each stage. Determining the efficiency and quality of each process allows for targeted improvement to deliver a better product and continually reduce waste levels.

As well as setting standards, it's vital to create a dedicated quality control plan for each banknote job. This plan should be based on a structured risk assessment (for example, De La Rue uses Failure Modes Effects Analysis methodology) that considers every stage of the manufacturing process.

The likelihood of finding a fault determines the sampling frequency for each test. The quality plan covers all areas where risk is predicted and is structured to follow the order of the manufacturing process – with all results recorded to provide full traceability of the product.

In theory, if a banknote manufacturer manages quality effectively throughout the production process, a final audit shouldn't be necessary. But many central banks with highly automated cash cycles still use a SNIM to guarantee the quality of finished banknotes.

Best SNIM practice

Like all inspection systems, accurate SNIM set-up is critical for effective operation. Optimising the SNIM for attribute defects (to only accept good notes and only reject bad ones) is an iterative process based on the development of a note training set (a set of notes used to calibrate the machine). Uniform image capture is important to ensure that calibration is accurate and that decision making (to accept or reject banknotes) is consistent.

For effective and sustainable high-quality production there should be a focus on continuous improvement. All staff must take responsibility, and single note inspection can play a key part.



The DLR 9000™ single note inspection machine uses state of the art camera and detector systems to inspect each banknote at the highest level of detail. It examines every element of the note, at every level of feature recognition, to detect any that do not meet the customer's agreed specification and determines whether the note is fit (free from defects) or unfit (has one or more defects).

The DLR 9000™ provides all the tools users need to operate the system in the most efficient and effective way. Its modular, open architecture design creates a fully customisable solution that will integrate into any production environment. Its full colour, touch screen panels allow operators to monitor and control the system with ease. The user interface provides graphical task guidance and comprehensive diagnostic screens, increasing operator productivity and system availability.

Throughout the process, inbuilt security systems monitor and protect the banknotes. The machine logs the exact progress and location of every banknote in real time with the Banknote Management Information System, BMIS™. This means individual banknotes can be pinpointed to a specific batch, bundle and pack. The system's powerful and flexible search functionality allows users to query this information by any variable. Key metrics are clear and readily available in generated reports.



The future of passports



Today's constantly changing and developing technology means that the passports of the future, and the ways in which we identify ourselves, may be very different from what we know now. *Exchange* spoke to an expert in identity systems and a designer exploring future forms of identification to find out what may lie ahead.

It may sound like something from a sci-fi film but experts are predicting that fingerprints, iris scans, heartbeats – even body odours – could be the new currency for passports. And the paperless passport of the future could soon be a reality with a chip placed in a smart card or mobile device or even, in the longer term, embedded beneath our skin. From a technological viewpoint, all things are seemingly possible.

Beyond the biometric chip

Tony Dean, a Senior Technical Consultant in De La Rue's Identity Solutions business, explains: "Current passports follow the format specified in the 1980s by the UN's specialist agency, ICAO (the International Civil Aviation Organization), to facilitate speedier and more secure crossing of international borders. Today more and more people cross those international borders quickly and securely and much of this is being achieved through the use of an electronic chip storing the holder's biometrics. Many think that this 'chip' will become the key form factor in the future, superseding the paper passport of today.

"Another element that is changing the way we travel is the increased importance of and reliance on the database. As electronic security increases and there is a greater need for access to data, perhaps countries will agree to allow their databases to talk to each other, either directly or perhaps through an intermediary. In fact, this is already happening, to some extent, through the ICAO Public Key Directory (PKD).

"In the future, our biometrics could potentially be stored in a database that could be accessed directly or indirectly by other countries. They may not be the face, finger, iris or even multi-modal biometrics of today; our bodies could be scanned from a distance so that we are identified by the arrangement of our organs, flow of blood or even our thought patterns.

"Ultimately, if our being becomes our identity, its theft becomes virtually impossible. Automated border crossing would become the norm and ICAO's goal of secure but speedy facilitation of travellers will have been achieved.

"And if our biometrics do become our identity, then they could be used for other transactions such as banking, legal transactions and healthcare. People may decide to become a 'Citizen of the World' and trust global entities like Google, Facebook or Amazon to store their identity information rather than individual governments."

And, adds Tony: "As the world changes shape and if we all become its citizens, would we actually have national boundaries? Maybe international travel as we know it today will not be within our world but it will be to other worlds – to other planets or to space stations."

Data and identity

Renee Verhoeven, a design graduate from the Royal College of Art, is interested in identities and how they can be used in the physical and digital world.

"Personal information, such as user IDs, passwords, fingerprints and eye scans have become common ways of identifying ourselves. But these don't have much to do with our personalities – the most individual and difficult to forge aspect of our identity. I believe that our brain paths and thought patterns make us each unique – and it is this part of our identity that we should pursue in future security and validation systems."

If an identity document or passport is based on someone's mind, then the validation system could include an interaction between the digital and physical world to prove your way of thinking.

Renee continues: "To do this we could re-examine the user experience of putting in a password, instead of using factual information that is possible to copy or look up. Imagine something like playing a short video game to validate your identity.

"With this kind of interaction users could create all sorts of passwords that fit their minds and memories better, based on personal interpretation of visuals, muscle memory, sound, and touch. All senses could be translated in a measurable password using the right programme. The power to choose what a person wants to have as an identity is now with that person."

Looking one stage further, what if data and identity really are becoming one? With the increasing possibilities of wearable technologies and growing capacity to analyse data, a more dynamic verification process based on the whole person will be needed.

Renee concludes: "If we were constantly being asked to prove our identities to access numerous services, it would make sense to keep track of personal details that have unique patterns, combined with a thought/memory exercise that could make up a strong identity. Could this all be incorporated in phones that already hold large amounts of personal data? Or perhaps another piece of wearable technology that is dedicated to this function and serves as a person's wallet, passport and data storage device?"

Global interoperability

One of the real challenges ahead in determining the future of passports and identity systems isn't so much technological as regulatory. True global interoperability in terms of passports is still some way off. Governments have yet to settle on technology and process standards for border control agencies and navigating through the inevitable red tape will take years.

Whether the future of passports and identity really will be chips with everything remains to be seen. De La Rue's Tony Dean concludes: "The passing of the paper passport would certainly be mourned, but if whatever replaces it leads to a safer world and the opening up of new horizons I suspect that most people will welcome the future with open arms."

DE LA RUE'S PASSPORT TO SUCCESS

De La Rue is the world's most successful commercial provider of passport solutions, specialising in machine-readable passports (MRP), ePassports and integrated personalisation and issuance systems. Every year it produces more than 15 million passports for issuing authorities across the globe.

De La Rue delivers the design, production and personalisation elements of the UK ePassport, one of the largest and most prestigious identity systems in the world. Since 2010, more than 20 million new UK ePassports have been issued.

De La Rue combines beautiful imagery with the highest levels of security, and prints and manufactures both MRPs and ePassports in-house. De La Rue also provides integrated personalisation and issuance systems and tailored service packages as part of a complete solution for the passport customer.

As one of the world's leading passport suppliers, De La Rue is also closely involved in setting the future direction of ePassport developments with active representation on the industry's international standards bodies.

De La Rue's banknote service covers every stage of design and production. It is the only supplier in the world to offer this range in-house for both paper and polymer notes. *Exchange* examines the benefits to customers.

Integrated banknote service: the advantages

De La Rue's fully integrated service incorporates design, security components, substrate manufacture, printing and the provision of banknote sorters. It is the only supplier that offers this wide proposition for both paper and polymer substrates. No other supplier has the facilities or expertise to do so in-house. Why should that make such a difference to you?

Firstly De La Rue can offer genuinely expert advice based on an unrivalled knowledge of how banknotes work in the whole cash cycle. Knowing exactly how a banknote sorter will detect counterfeits and banknotes that are no longer 'fit for purpose' (for example, those that are soiled, torn or folded), how to design to make the most of different substrates, and the effect of consistent design elements through security components, is all of enormous value when advising a customer and planning a new design concept.

Secondly you know that since one supplier is responsible for the 'whole package', that supplier will deliver and is accountable to you. De La Rue is happy to take this on because it is genuinely expert at each element, rather than just one or two.

It is increasingly common to have different durability solutions across the denominational structure: polymer, coated papers, varnished banknotes, coated and varnished banknotes and plain paper. All need to work as a 'family' of banknotes so as not to confuse the public. De La Rue is uniquely placed to deliver this with its paper mill and its Safeguard® polymer product. The award winning Fiji series, issued in 2013, was De La Rue's first mixed substrate series (see panel for more information).

Design: broad knowledge

The design team at De La Rue draws considerable knowledge from the complete service the company offers its customers. "We know how to take into account not only aesthetics – and we do have amazing artists – but also the functional needs of a banknote: how it will be used and how it will get processed. We think about all of that while designing something beautiful," explains Laura Wheeler, Head of State Manufacturing – Currency.

Another key factor is knowing how to increase public confidence, and being skilled at balancing visual consistency and security considerations. For example, a main portrait reflected in the watermark, printed portrait and a holographic patch or stripe is easy for a member of the public to authenticate quickly – albeit subliminally.

"Because we operate in the real world and understand how cash is used in circulation and the security issues faced by central banks, we can design banknotes that will not only fulfil the customer's conceptual brief but also last in circulation," adds Laura.

State manufacturing customers

While many central banks choose to purchase finished printed banknotes, De La Rue also reliably and expertly offers substrates and component elements to those countries who choose to manufacture their own banknotes. These central banks, sometimes referred to as the state manufacturing (STM) central banks, make up 53 nations including the US, Egypt, Thailand, China and the Euro member states. De La Rue supplies many with the products and services needed to manufacture their national currency, from design and innovative threads and holograms to polymer substrate and banknote paper, the latter incorporating the customer's chosen security features such as the watermark, fibres and security thread.

Some also choose De La Rue to supply Single Note Inspection Machines (SNIM).

"Customers know our reputation for excellence at each stage of the banknote production process, so feel relaxed and confident in buying selected elements depending on their local needs," explains Laura.

Whether a customer is a state manufacturer or can outsource the whole banknote process from design to print, they benefit from De La Rue's complete knowledge of each stage of production and thorough understanding of a banknote's use and application once in circulation.



FIJI: PAPER AND POLYMER

The award-winning 2013 series combined both polymer and paper substrates. The \$5 was the country's first ever polymer note – to increase note life in a tropical climate. The \$10, \$20, \$50 and \$100 were all printed on cotton paper.

"Even though the \$5 polymer note inevitably feels different, visually it is absolutely a part of the whole Fijian banknote series. De La Rue's technical, scientific and artistic abilities have come together to produce this totally harmonious set of banknotes depicting our flora and fauna. We are delighted." (Barry Whiteside, Governor, Reserve Bank of Fiji)



ICELAND: OPTIKS™ SECURITY THREAD

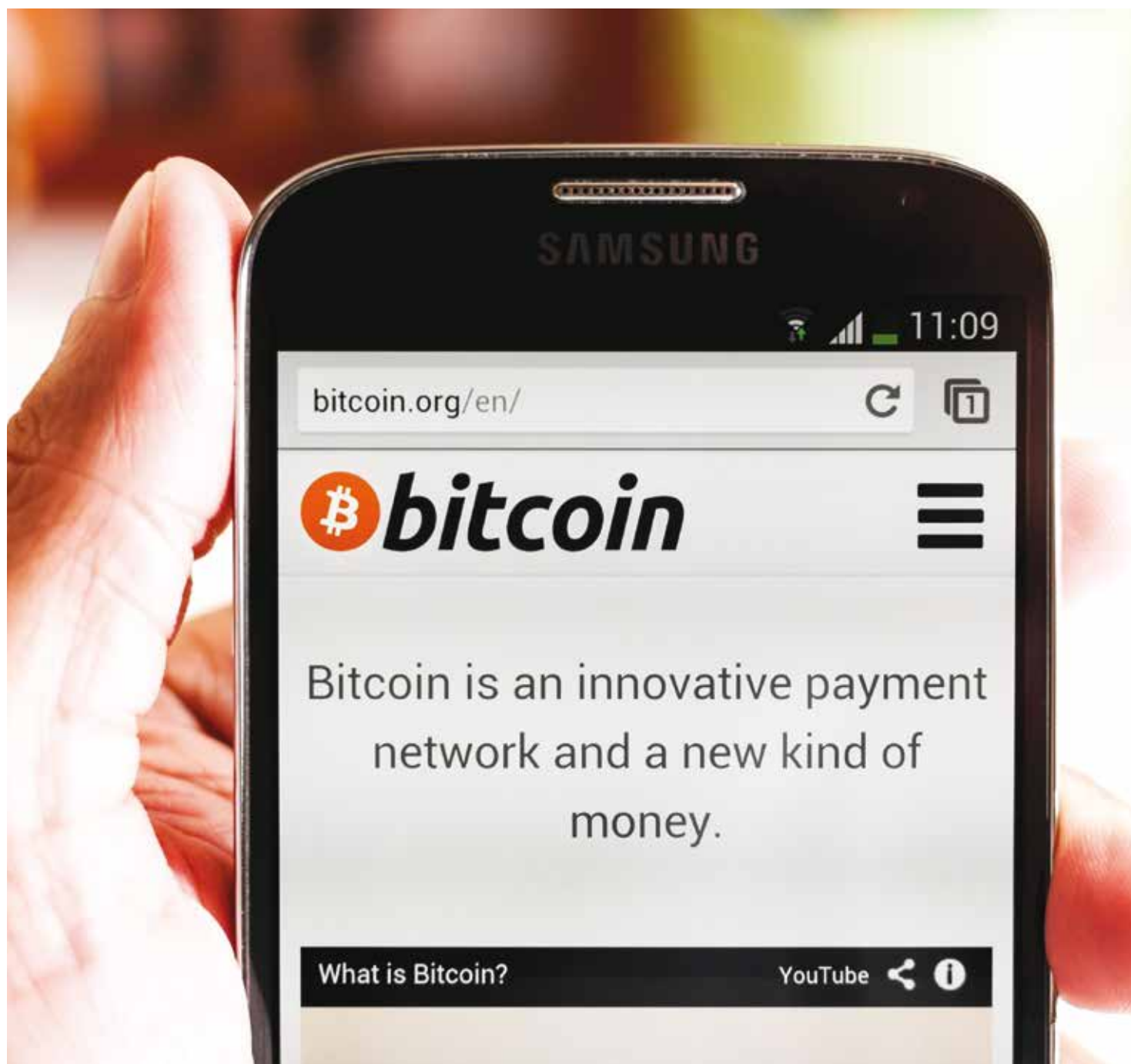
De La Rue recently designed and printed this new high-value 10,000 krónur note for the Central Bank of Iceland. This high-denomination note is dedicated to the Icelandic poet, scholar and naturalist Jónas Hallgrímsson, featuring references to his life and work. The note incorporates De La Rue's 18mm wide Optiks™ security thread. Optiks™ is a distinctive and highly secure technology and received a Queen's Award for Enterprise: Innovation in 2013.



DE LA RUE KINGFISHER HOUSENOTE

The new 2014 housenote illustrates design integration. The 2013 housenote, printed on De La Rue's polymer substrate, Safeguard®, featured a heron set in an autumnal scape with a girl pond dipping on the reverse. This time the note is on paper – showing the potential for a mixed substrate series – adopting a kingfisher motif in a summer setting, with a young boy on the reverse catching butterflies. It also showcases design and technical progression, with two variants incorporating a Kinetic StarChrome® or Optiks™ thread. A holographic patch with a Depth™ Image 3D effect and Spectrum™ are included in both notes.

Crypto currencies



Alternative currencies are not new. But digital or virtual currencies are. The first, biggest and best-known 'crypto currency' – Bitcoin – was launched in 2009, by a mysterious person or group of people known as Satoshi Nakamoto.

Created to offer a medium of exchange for online transactions outside of existing nationally issued currencies, crypto currencies have attracted considerable media interest. High-profile business figures such as Bill Gates and Richard Branson are said to have spoken positively about the development of Bitcoin as a flexible and secure means of buying and selling goods online, with lower charges than other transaction methods such as Paypal and American Express.

Others have pointed towards the volatility of crypto currencies and towards vulnerabilities exposed by the collapse of the Mt Gox Bitcoin exchange in February 2014. Mt Gox was launched in Tokyo in July 2010, and by 2013 was handling 70 per cent of all Bitcoin transactions. However, following a major hacking operation which skimmed off 850,000 Bitcoins worth more than US\$460 million at the time, Mt Gox suspended trading and in April went into liquidation.

In December, we interviewed Victoria Cleland, Chief Cashier of the Bank of England, about virtual currencies. This is what she had to say.



VICTORIA CLELAND
CHIEF CASHIER OF THE BANK OF ENGLAND

Exchange:

Is crypto or virtual currency actually money – taking Bitcoin as an example?

Victoria Cleland:

One normally thinks of money as having three core functions – as a store of value, as a medium of exchange and as a unit of account. Typically when we are thinking about money it needs to fulfil all three of these functions.

Bitcoin is one of thousands of different digital currencies but it is the largest so we can look at it as an example. If we ask whether people use it as a store of value we need to consider the fact that it is very volatile at the moment so it is not clear that people are using it as a store of value except at the more speculative end of the spectrum.

Another core function is as a medium of exchange which comes down to how many places accept digital currencies and the ease with which they can be used and spent. At the moment this is fairly limited, so they can act as a medium of exchange but not very frequently. The number of people who use it and how many places accept it suggest limited usage.

Finally, digital currencies are used as a unit of account because each of the digital currencies out there is denominated in their own way.

The work the Bank of England has done so far has looked at how many people have used digital currencies on a daily basis in the UK and at the moment this is very small. Other work has been done on whether you can survive using digital currencies alone in which it was found that though you may be able to get by for a couple of weeks you would be very limited in what you could buy.

Overall it only fulfils the core functions of money to a very limited extent and for relatively few people.

Exchange:

Singapore and Germany have classified Bitcoin as private currency. What are the barriers to it becoming legal tender? Does the irreversible nature of a Bitcoin transaction act against it being recognised as a currency?

Victoria Cleland:

Legal tender has a very narrow legal meaning which relates to whether a currency can be used to settle debt. It is not useful to define currencies in this way. For example, while Scottish and Northern Ireland banknotes are accepted as payment, and there is legislation in place that regulates their issuance, they are not legal tender.

One of the key things here is the extent to which a currency is trusted and how it is backed. In the UK, for example, the Bank of England issues notes which are fully backed by the state, which instils trust as far as the public is concerned. The main challenge facing digital currencies is generating this level of trust, the irreversible nature of transactions is not the key issue.

Exchange:

The US and Canadian revenue services have categorised Bitcoin as property rather than currency. Do you share their view?

Victoria Cleland:

It is the revenue services in US and Canada, not the central banks that have done this as it is a question of tax treatment. Revenue & Customs (HMRC) would be the equivalent organisation in the UK rather than the Bank of England.

Currently, HMRC's view is that digital currencies are treated in broadly the same way as foreign exchange rather than pure property.

Continued on page 14

Exchange:

Historically, innovations in currency have come from private sector activity that has later been absorbed by the central authority as official currency – copper token coinage in England at the beginning of the 19th century and paper banknotes in Sweden in the 17th century are examples. Could there be a tipping point at which the number of Bitcoin transactions in the economy reaches a mass where central banks would feel obliged to step in and take control? What might that tipping point be?

Victoria Cleland:

The two Quarterly Bulletin articles that the Bank issued in September 2014 looked at the extent to which digital currencies could impact on our role as a central bank in terms of monetary policy and financial stability. At the moment, digital currencies are too small to have an impact on our remit and would need to grow incredibly large to start to have an impact on how we implement monetary policy. Likewise, we found that it was unlikely but not impossible that digital currencies would, in the near future, be big enough to have implications for financial stability.

There are £60bn worth of banknotes in circulation in the UK today, but we estimate only a tiny fraction of the population use digital currencies. Usage would have to grow substantially before it would have an impact.

There are other areas of concern such as tax and money laundering but these lie outside the Bank's responsibility.

Exchange:

Crypto currencies would appear to be more difficult to regulate because of the anonymity surrounding participation in the schemes and the decentralised nature of the mining operation (see panel). Is it possible for the Bank to regulate them effectively?

Victoria Cleland:

The initial question is whether digital currencies should be regulated and, then who should have responsibility for that regulation.

The choice of regulator would depend on the type of regulation being applied. In the UK, the Bank of England's mandate relates to maintaining monetary and financial stability so it would not necessarily be the Bank's responsibility, or solely the Bank's responsibility, to regulate digital currencies, were such a decision taken.

Exchange:

Some countries – Bolivia, Ecuador, Kyrgyzstan, Iceland and Bangladesh – have already moved to ban Bitcoin outright. What circumstances might prompt the Bank of England or HM Treasury to ban the use of crypto currencies? How could such a ban be implemented technically?

Victoria Cleland:

The Bank of England is working with colleagues in the UK government and other central banks to understand both the risks of digital currencies and the potential the technology carries. Banning anything would require extremely good reasons and detailed risk analysis.

Exchange:

The collapse of the Mt Gox exchange highlighted a vulnerability in software security. Does the Bank consider unregulated crypto currencies to be particularly vulnerable to cyber attack, or no more so than other digital payment systems?

Victoria Cleland:

We are looking at a range of risks, as we do with any sort of payment mechanism. There are some instances where having a distributed ledger, as used in digital currencies, can reduce risks like liquidity and capital risks. But any technological system could be subject to cyber attacks, and there doesn't seem to be a reason why digital currencies would be any more or less vulnerable to this. However, a lot of the key infrastructure we have in the UK, be it the stock exchanges, clearing houses or the Real Time Gross Settlements system here in the Bank, have incredibly detailed and robust business continuity plans and back systems and resilience. It's not clear that you get that with a lot of the digital currency platforms.

Exchange:

Do digital currencies threaten the future of cash?

Victoria Cleland:

At the moment, in line with most other central banks, we are still seeing an increase in demand for cash year on year. There are a variety of reasons people like to use cash; it is anonymous, it is easy to use and some people like to hoard cash.

There are a lot of alternatives to cash out there – credit cards, cashless payment and so on – yet the demand for cash continues to pick up. Digital currencies could perhaps nibble away at the edges but perhaps they would more likely be used as a substitute for other electronic cash alternatives.

HOW DOES BITCOIN WORK?

- A subscriber must install a Bitcoin 'wallet' on a computer or mobile phone. The wallet will generate a Bitcoin address which can be used by the subscriber's friends or trading partners to make Bitcoin transfers.
- Transactions between subscribers' wallets are secured by signing the transaction with a private key which locks down the data being transferred. A number of transactions will be packed into a 'block'.
- At the centre of the Bitcoin network is a 'block chain' which acts as an accounting ledger, recording transactions and confirming that the subscriber really does own the Bitcoins being spent. It also ensures that transactions are conducted in an appropriate sequence so that one subscriber cannot manipulate the timing of blocks of transactions going through the block chain. This is designed to ensure that a malicious subscriber cannot alter transactions by quickly inserting another transaction into the block chain before earlier transactions have been authenticated and approved.
- The sequence of transactions conducted through the block chain is overseen by a collective process called mining which is undertaken by a community of 'miners' engaged in the checking process rather than the transaction process itself. Mining involves a series of mathematical checks on each block which confirm the legitimacy of the transaction.

BUYING BITCOINS

- On the whole, Bitcoins are paid for with hard currency. Purchases can be made with Visa and Mastercard, but are difficult using other credit cards or Paypal. They can also be made through exchanges (such as the former Mt Gox exchange) or from other individuals who already hold Bitcoins.
- In some cases direct bank transfers to exchanges are possible, though sometimes only if the bank is located in the same country as the exchange itself.
- Complex three-way transactions are possible where one person uses a credit card to pay a supplier and receives reimbursement from a third party in the form of Bitcoins. Thus, one individual is paid in standard currency for his goods or services; a second person receives those goods or services, but pays for them in Bitcoins to a third person who acts as the exchange, converting the Bitcoins into currency and vice versa.

SELLING BITCOINS

- This is more difficult to do than buying Bitcoins, but can be done on trading sites, or via the Single European Payments Area (SEPA) system.

De La Rue continues to be at the forefront of banknote security innovation with the introduction of Kinetic StarChrome®, a dual technology thread that is eye-catching and simple to authenticate.

Seeing is believing



**KINETIC STARCHROME
THREAD SEEN IN DAYLIGHT.**



**KINETIC STARCHROME
THREAD SEEN IN UV LIGHT.**

The biggest challenge for any banknote security feature is getting the public to look at it and then to understand it. Keeping it simple, but also making it hard for the counterfeiter to copy, is key.

Launched in 2014, Kinetic StarChrome® combines two established banknote security technologies to produce a security thread which is both innovative and striking. The holographic thread and its dynamic movement act as a trigger to catch the attention of the public, drawing the eye to the feature. The clear colour change of StarChrome provides a simple authentication tool for the public.

StarChrome is the world's most successful premium colour-changing security thread and is currently in use on more than 80 million banknotes in countries including Uganda and Venezuela.

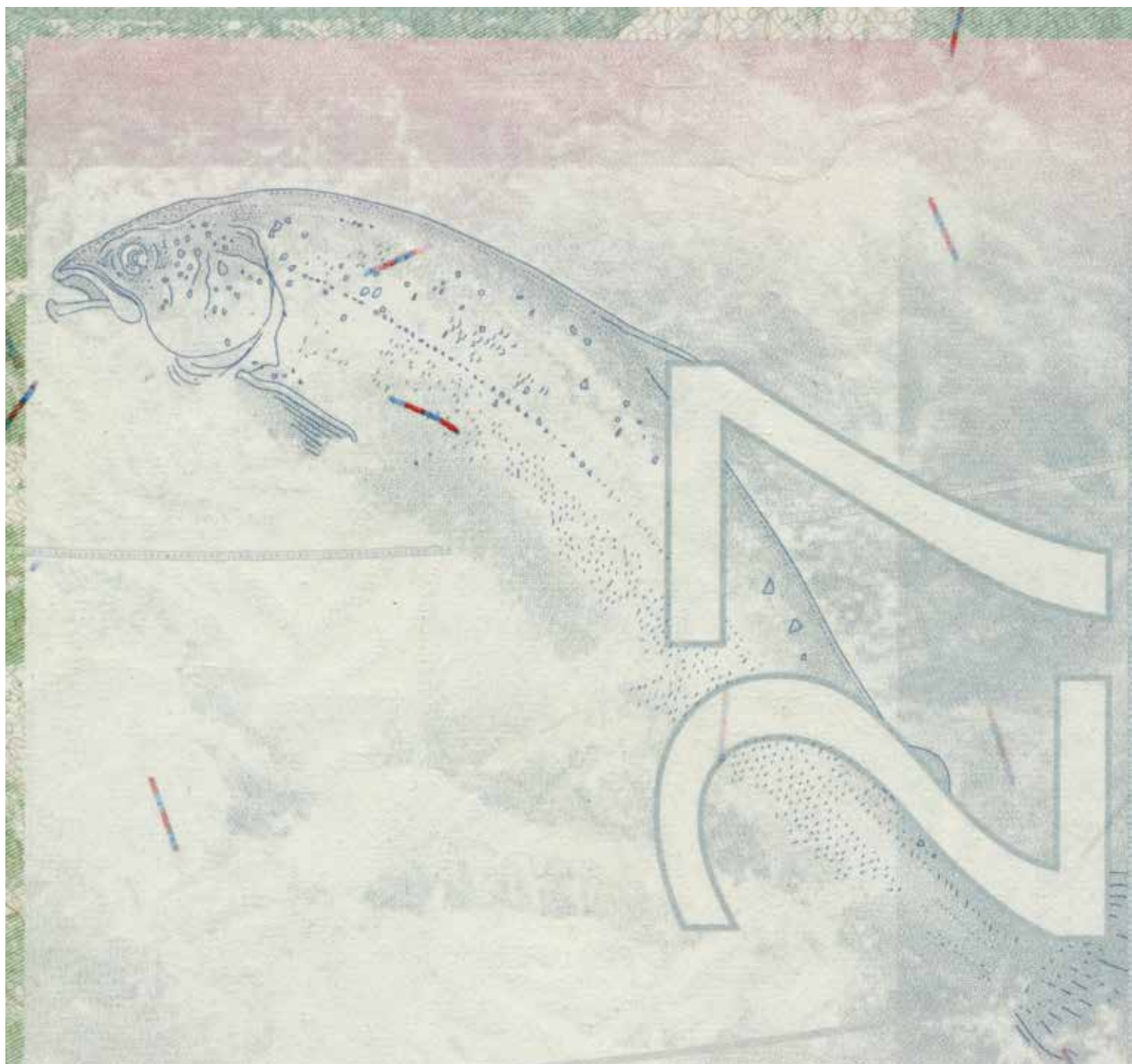
This combination of holography and colour change also offers banknote designers fantastic opportunities to be creative in their approach. This is a security thread that can be designed to be bold and stand out, or can be subtly integrated to complement the printed banknote design.

De La Rue has produced two new housenotes (sample banknotes that showcase De La Rue's latest technology and designs) for 2014 – one of which features Kinetic StarChrome. The design of the thread is fully integrated with the overall print design by using common imagery.

COMING SOON

In 2015 at the Currency Conference in Vancouver, De La Rue will be unveiling a number of new banknote security technologies – all focused on enhancing the security, whilst complementing the aesthetics, of banknotes.

No limits: the art of getting it right



The design of a passport or banknote that satisfies every requirement involves a special relationship with the customer and often means going to extraordinary lengths to fulfil a brief. *Exchange* looks at two examples of unusual challenges overcome with skill, dedication and flair.

"NOT ONLY WERE THERE LEGAL AND REPUTATIONAL DANGERS, BUT ALSO UNDERSTANDABLE SENSITIVITIES ABOUT THE VISUAL CONTENT OF THE NEW SERIES."

GREGOR ROSS
SOUTH SUDAN, REGIONAL MANAGER

Working with customers worldwide makes it vital to capture the real essence of a country in aesthetic terms. That involves a careful blend of background research and simply 'getting out there' to reflect the culture and fulfil specific requirements. The designer, often paired with a regional manager, needs a complex skill set to do his or her job well including painstaking observation and diplomacy.

Elusive British birds

Even where the country and its culture are familiar, the design process may require logistical ingenuity. For the 2010 UK passport, De La Rue designers had produced three concepts to reflect transport, iconic figures, and scenic Britain. The Home Office chose the latter and the team set to work sourcing material for a series of landscape-based scenes. These included major geographical features, flora, fauna, seascapes, harbours, villages and stately homes.

Since all images had to be originals to minimise the risk of counterfeit, the list of fauna presented particular obstacles. As a first option, the designers hired a photographer to attempt to capture each image. But two birds proved particularly elusive. The fulmar, destined for the bio data page, breeds on high cliffs and hunts far out to sea. The golden eagle is rare, and at the time the image was needed, its habitat was veiled in snow.

The salmon challenge

The fulmar was eventually screened from an original image provided by an ornithologist known to the resourceful design team. And the eagle involved a visit to a museum of taxidermy. But perhaps the toughest was the 'leaping salmon'. It was March and salmon only make their journey upstream later in the year.

"I suggested we buy a handsome salmon from a supermarket fish counter and try to restore a little life into it," explains designer Colin Howell. "Against a white background in the studio we used a pole inserted through the salmon's gut to elevate and bend it.

But it proved too floppy and slid to the floor!" Finally the team shot the image from above laying it on white card and shaping it to reflect the curvature of a leap.

The resulting image appears on page 27 of the passport, with a rushing river in the background.

A South Sudan tightrope

The planning and design of the South Sudan pound presented an entirely different set of challenges and illustrates the complexity of working amid political uncertainty. Understanding that the referendum planned for 2011 was likely to result in a separate South Sudan, Regional Manager Gregor Ross embarked on a scoping visit to appropriate contacts in the country to discuss potential currency needs. Subsequent trips were to include the close involvement of the designer.

So began the delicate process of building the trust of a prospective new customer who, unless they planned ahead for a 'Yes' vote, ran the risk of being caught out with an unusable currency. What's more, the De La Rue team needed to be very cautious when discussing a new currency for a not-yet-sovereign nation.

CHANGING TIMES

De La Rue engraver Steve Matthews last completed a traditional engraving in around 2001, using a square graver tool to cut the image into a plate. He had to use an eye glass, traditionally working on a banknote-sized image, with the lettering, portrait and numbering created on individual plates. He trained for around 10 years, first as a 'vignette engraver' (animals, buildings, scenes) and later as a 'portrait engraver'.

Before technology began to play a role in banknote design, De La Rue designer Luis Morris painted watercolour images onto airmail paper using special sable brushes – to size – to pass on to the engraver. "Consistency was very important, so I had to produce the same painting in different colour washes." Now portraits are more commonly drawn in pencil at the design stage, and at four times banknote size.

The Minister of Finance for South Sudan understood this and became a very effective and professional partner throughout the journey.

"Not only were there legal and reputational dangers, but also understandable sensitivities about the visual content of the new series and, since the central bank could not be involved pre-referendum, there were challenges in explaining some of the essential elements of effective banknote design," Gregor explains.

Speculative solutions

Design research involved considerable time, at this stage all speculative, hiring planes to take pictures of bridges, rivers and other iconic imagery of South Sudan. Those finally selected as a basis for the design included an aerial photo of Juba and a bridge over the Nile, which were combined with indigenous animals. It was later decided to depict the wartime rebel leader Dr John Garang – who had become a hero in the south following his death in a helicopter crash in 2005 – on the front of the notes.

Throughout the design process, the team made regular trips for each stage of design development and subsequent feedback.

Following the referendum's 'Yes' vote and final design sign-off, De La Rue was able to act fast and print the whole South Sudan pound series of six denominations in time for independence six months later. The final denomination was arriving at the bank as the President made his inaugural speech. The 100 pound note was later shortlisted for the International Banknote Society (IBNS) Banknote of the Year 2011.

Getting it right

The South Sudan currency series and UK passport are just two examples of the sensitivity and resourcefulness needed to overcome sometimes unexpected challenges – all in a day's work for the De La Rue design team.

Delivering revenue protection solutions in the fight against illicit trade

Continued population growth and advances in technology have led to significant increases in global international trade. The world has never seemed smaller or more connected.

This expansion in global trade leads to greater prosperity, which in turn gives governments opportunities to collect more revenue through indirect taxes on products like tobacco and alcohol. However, criminal gangs have been quick to seize on opportunities in the new global economy to raise their own revenues.

Exchange looks at how the introduction of revenue protection programmes can both support government funds and fight the tide of illicit goods.



A growing opportunity, with growing challenges

The world's population stands at more than 7.1 billion and is forecast to grow by 10.6 per cent in the next 10 years. Population growth, allied with improvements in technology, travel, communication and finance, has meant growth in international trade. The World Trade Organization (WTO) reports that in 2013 global exports equated to US\$18.8 trillion and that figure is expected to rise by 4 per cent over the year ahead.

Growth in international trade and consumer spending enables governments to increase the overall direct and indirect tax revenues they collect without necessarily having to increase tax on individual products. This is especially true in the emerging markets and developing economies. As people become more affluent, they have more discretionary spend on 'everyday luxuries' like cigarettes and alcohol. Consultants McKinsey estimate that growing economies can offer a 10-15 per cent increase in tax available to governments, a key part of that percentage being indirect taxation on tobacco and alcohol.

If that all sounds very positive, it has to be set against a backdrop of the growth in illicit trade, which has now reached macroeconomic proportions. Goods of all sorts are being manufactured on one continent, trafficked in another, and sold and consumed on a third. The World Economic Forum (WEF) now values the illicit economy, primarily driven by the sale of counterfeit goods, at US\$650 billion worldwide. Illicit trade not only reduces excise revenues; it also causes untold damage to legitimate business and is potentially harmful to customers and to public health.

Illicit trade: a threat to the public purse

Illicit trade comes in three key and interlinked forms – smuggling, counterfeiting and tax evasion. The manufacture of counterfeit products and sales of smuggled and stolen goods on the grey and black markets are a significant part of this global problem. The illicit trade of tobacco products alone is estimated to cost governments US\$40 billion per annum in lost tax revenues.

The best and simplest way to protect revenue on taxable goods is through a proactive revenue protection scheme, which most commonly takes the form of a stamp denoting tax paid being affixed to each product in the market. Many countries across the world already have schemes in place with varying levels of sophistication, enabling them to collect excise taxes on tobacco and alcohol – the so-called sin taxes. Depending on the threats encountered, revenue protection or tax stamp schemes can encompass authentication, verification, track and trace and supply chain visibility.

Domestic revenue generation in emerging markets is also coming under increased scrutiny; as their populations grow and their economies develop, these countries face acute financial needs. One of the benefits of having a well-run revenue protection scheme is that the taxes are levied at or near the point of manufacture, making them simpler to collect and having an immediate impact on a government's budget.

Every country faces different challenges and as a result their priorities will differ. In addition, there are many government departments involved in revenue protection programmes, including health, finance and customs and excise: each with their own priorities and that in itself can create challenges. However, the one thing that all governments and their departments share is a need to improve the effectiveness and efficiency of how they collect taxes.

Illicit trade: a threat to public health

Governments across the world are increasingly using sin taxes as a way to address rising public health concerns and fill gaps in stretched public finances. Sin taxes are typically levied on tobacco and alcohol, but some governments are now starting to impose them on food and beverages high in sugar and fat content.

However, more than 100 countries have no tangible scheme in place to protect the revenues due on these products, meaning that they are potentially missing out on taxable revenue while also giving criminal gangs free rein to smuggle and sell counterfeit or stolen goods. Governments in those countries will also need to address this situation in response to initiatives like the World Health Organization's Framework Convention on Tobacco Control (WHO FCTC): the world's first global public health treaty set up to protect present and future generations from the health, social and environmental and economic consequences of tobacco consumption.

The WHO FCTC's Protocol to Eliminate Illicit Trade in Tobacco is a multi-faceted protocol that will, in time, compel governments to introduce a host of measures to strengthen tobacco control. One of the keys to this will be the introduction of revenue protection programmes using tax stamps or codes to ensure that the correct tax is paid on tobacco products and to guarantee supply chain visibility.

So far, 168 countries have signed up to the treaty. Now, more governments are starting to consider the potential health and financial benefits involved and engage with the process of planning actions to comply with their obligations under the Protocol. In the European Union (EU), the Tobacco Products Directive (TPD) introduced in 2014 sets more stringent rules for tobacco products. Its aim is to establish a benchmark for tobacco control across the EU.

A trusted partner

De La Rue has a long history of providing tax stamp solutions around the world, having successfully supplied government schemes with physical products for decades. The most recent innovations are in the digital field. By blending technology with strong material science, De La Rue is well placed to meet the needs of governments, by specifically tailoring government revenue protection programmes to individual requirements.

De La Rue has assisted in more than 20 tax stamp schemes, both in the developed world and emerging markets, with a strong presence in the Commonwealth and former Commonwealth countries in Africa and the Caribbean. De La Rue also has a strong presence in the CIS region where governments have invested in revenue protection programmes with high-end security stamps and labels to fight counterfeiting to great effect, resulting in large increases in revenue collection.

Wherever the need is around the globe, De La Rue works with its government partners in a consultative approach, engaging and working together with the client to set up the most appropriate scheme. To ensure programmes are introduced smoothly, De La Rue also works with and considers the needs of other legitimate stakeholders, such as manufacturers. The result has been faster acceptance and introduction of tax stamp schemes, which has in turn led to higher revenues and less illicit trade in a shorter space of time.

PARTNERSHIP IN KOSOVO

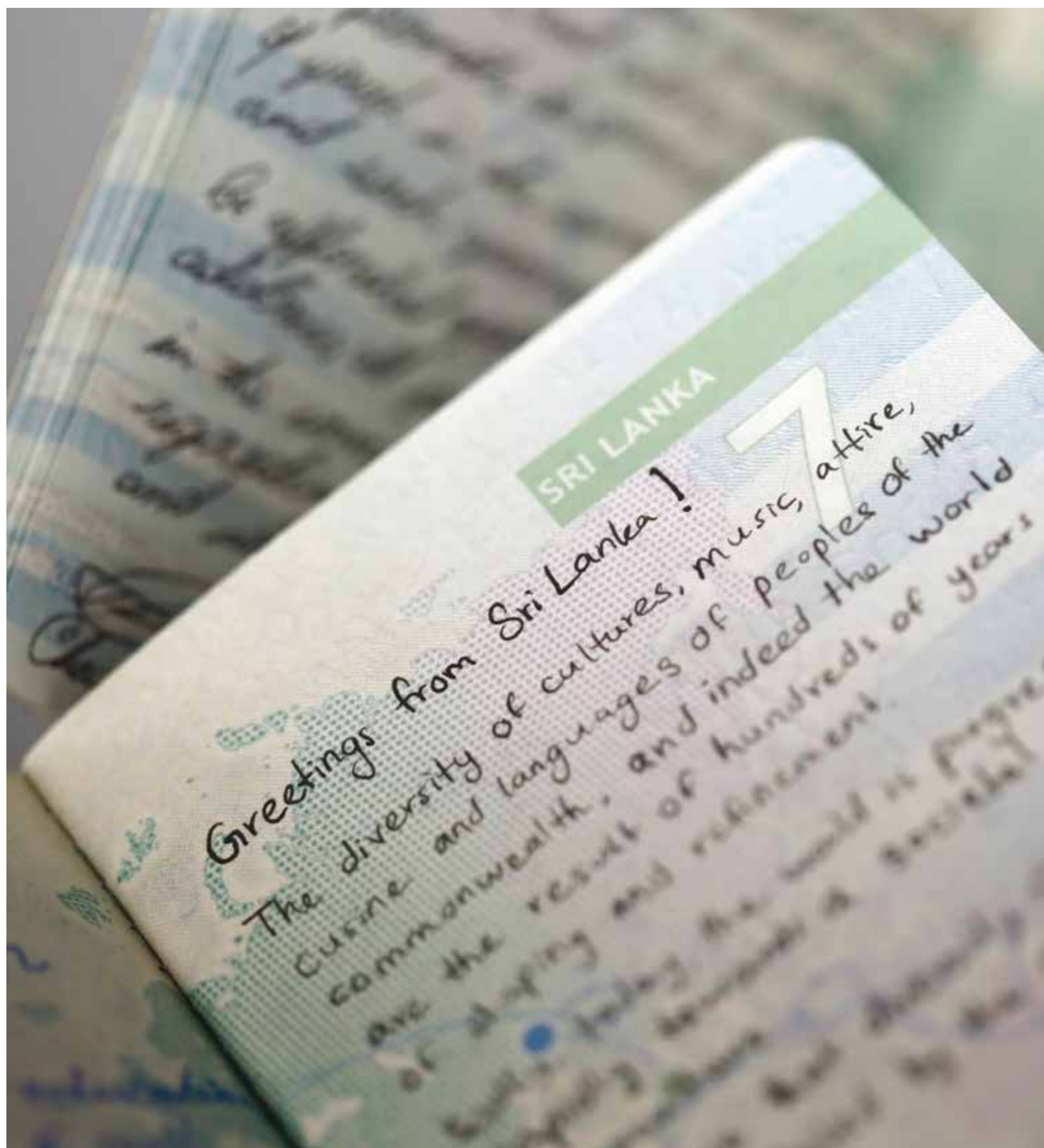
Following a period of significant economic, political and social change in the Balkans, the young country of Kosovo is emerging as one of the most open and commercially competitive in Central Europe.

Kosovo's pivotal position in the Balkans puts it on the front line to fight smuggling and counterfeiting of illicit goods. The government decided that the introduction of a tax stamp programme for cigarettes and alcohol would be key to collecting more revenue and stopping the flow of illicit products within its borders. De La Rue, which manufactures and supplies the secure tax stamps for the country's tobacco and alcohol products, is helping the Kosovo government achieve ambitious revenue targets.

The results make for compelling reading: since De La Rue began working with the Kosovo government on its tax stamp programme in 2012, in the first full year alone, 15 million euros in additional revenue were collected and there was a 61 per cent reduction in domestic cigarette smuggling.

This partnership-based approach with Kosovo's customs department has become a benchmark for best practice.

The Baton Book



The 20th Commonwealth Games took place, to great acclaim, in Glasgow in the summer of 2014. Almost 5,000 athletes participated. But even before the games began members of the Commonwealth took part in special events designed to inspire the hopes and dreams of young people around the globe.

One of these events was the Baton Relay, and one of its features was the Baton Book.

Since Auckland in 1990, the Queen's Baton Relay has been a key part of the build-up to the Commonwealth Games. The Baton sets off from Buckingham Palace in London and tours the Commonwealth before arriving at the Games' host city. The intention is to link and inspire the participating countries.

An organisation called 33Fifty invited De La Rue to take part in Glasgow 2014. 33Fifty is a joint venture between the Royal Commonwealth Society and an NGO – Common Purpose – that promotes leadership programmes across the Commonwealth for citizens aged 18-25. Its name is based on the fact that 33 per cent of the world's population lives in the Commonwealth and 50 per cent of those are aged under 25. What we produced was the Baton Book.

Epic journey

The Baton Book is a 'passport' – though one of a kind. Designed using genuine security features in a style that reflects national passports, this one-off document accompanied the Baton on its journey around the world. It left London in October 2013 on a 190,000km trip over 288 days visiting 70 nations and territories.

At each stop, a young person representing that country was given the opportunity to write a message where normally a visa stamp might appear. Together these comments present a unique, historical snapshot of what the youth of the world would like to see – through the lens of the most uncommon institution that is the Commonwealth.

Entries in the Baton Book were made by individuals selected locally. Almost all are in English though others chose to write their messages in their national languages – Swahili and Portuguese, French and Welsh.



Inspirational messages

Themes appear – things that young people around the Commonwealth are concerned about, sometimes with interesting – and unexpected – links. For example, the education of girls is not only a focus for the writers in Bangladesh and Pakistan, but also in New Zealand.

Education and opportunities for disabled children is a plea from countries as distant as Belize and Malawi, from where Monica summarised concerns from many parts of the world: "Our population comprises a lot of young people facing a number of challenges – unemployment, gender, child labour, early marriage and poverty."

The writer in Cameroon wanted to see "a corruption-free generation". In Papua New Guinea the key concern was against violent communities.

But it is the entry from Godfrey Mwishu in Zambia that perhaps best sums up the messages and sentiments that appear throughout the book: "To the Commonwealth... May we in diligent service remember our duty to this planet and its inhabitants. Let's work towards curbing global warming, protect our women and children and ensure adequate and universal healthcare is available to all."

We must all hope that the Commonwealth leaders of the future heed his words.

One of the most thought-provoking of the entries is from two young people from Kiribati called Mareiti and Baurina. They write:

"We would like the Commonwealth to support Kiribati because we are a small, low, island nation. We need you to help us with climate change to save our country and our culture. We are two students from the disabled school in Kiribati. One is blind and one deaf."

Kiribati is one of the world's poorest and least developed nations. Its population of just over 100,000 is spread across 21 small islands dotted over 3.5 million km² of the Pacific Ocean (India covers 3.2 million km²). It stretches for around 4,000km from east to west and 2,000km from north to south. And because it straddles the equator and the International Date Line, it is the only country that is situated within all four hemispheres.

Crucially, however, it is nowhere more than two metres above sea level. And as climate change causes sea levels to rise, Kiribati is in serious danger of disappearing altogether. Earlier this year, the country's president told *The New York Times* that "according to the projections, within this century, the water will be higher than the highest point in our lands".

The Glasgow Games, however, did deliver some good news when weightlifter David Katoatau won Kiribati's first medal of any type in any Games. And it was gold – which meant that the organisers had to make sure they had a Kiribati flag to raise and a national anthem to play!

De La Rue has a long-standing relationship with the Commonwealth, supplying secure products including passports and currency to 80 per cent of Commonwealth countries. Three-quarters of the company's workforce – more than 3,000 people – live and work in the Commonwealth, which is also home to nine of our 11 manufacturing sites.

Commonwealth membership is voluntary. It's an organisation with no overt political power and no armed forces. Yet it includes one third of the people on Earth, and is held together by common values and a shared heritage.

Looked at A-Z, the Commonwealth stretches from Anguilla to Zambia. It ranges from the north of Canada to the southern tip of New Zealand, and covers all continents and oceans. It is astonishingly diverse. Its largest member – India – has a population of 1.2 billion, and a new Indian citizen is born every 1.25 seconds. One of its most remote participants – the Pitcairn Islands – has a population of 56, and just two babies have been born this century.

World view



Africa – SBV

Replacing a long-standing incumbent supplier, De La Rue is pleased to announce that it will be providing SBV in Africa with market-leading vault management and cash processing solutions. SBV is a South African-based pioneer in the cash industry, providing services that extend across the entire cash supply value chain including the processing, movement and management of cash assets. De La Rue will support SBV operations through the introduction of our ECM™ software solution, which will be deployed across 33 SBV sites in the region. In addition, over 40 of De La Rue's Cobra desktop sorters will be installed. The ECM suite of software includes full integration into banking systems, billing systems and MI packages, integrating seamlessly with the accurate and reliable Cobra sorters as well as legacy hardware solutions. Working closely with SBV, ECM has already been successfully deployed at its first cash processing site within an accelerated timeframe. Further ECM implementation and installation of the Cobra units will take place throughout 2015.



Royal Mail

The 2014 Christmas Stamp series was designed by Royal Mail plc's appointed external agency and proofed by De La Rue at its Gateshead facility in mid-2014. The proofing process on the gravure press involved on-line colour modification in a live printing environment to ensure that the final output was as true as possible to the initial designs. The mini-sheet printing run was the proofing guide for the bulk production of all the Christmas stamp booklets and sheets that were placed on sale on 4 November.



Central Bank of Kuwait

In June 2014, the Central Bank of Kuwait put into circulation a new series of banknotes produced by De La Rue, the latest in a relationship that has lasted over 34 years.

The six-denomination series, different in style from its predecessor, has bold and modern designs based on a range of national themes symbolising the country's culture and heritage. There are two themes per note, with iconic and culturally-significant buildings on the front, and images denoting the country's attributes and accomplishments on the reverse. Moreover, the themes on the reverse of each note are reflected in their dominant colour.

These notes contain the latest in security features. StarBright™ wide windowed colour-change thread features on the reverse of all six notes, while the optically variable SPARK® Orbital™ appears on the front of the three highest denominations. All six denominations also include Spectrum™, a feature generated from a combination of intaglio and offset print to create changing colours or shapes when the note is tilted.

Particular attention has been paid to make the new series 'user-friendly' for the blind and visually impaired – an increasingly important topic in banknote design – and the new Kuwaiti banknotes feature strongly tactile embossed intaglio engravings, both in the raised denomination number on the front and the symbol on either side.



20 million UK passports issued

On 6 August 2014 at precisely 13.22hrs, De La Rue issued its 20 millionth UK Passport since the contract with Her Majesty's Passport Office (HMPO) began in October 2010.

This is an incredible milestone for all concerned as we continue to work in partnership with the customer to deliver one of the largest and most prestigious identity systems in the world.



Introducing ECM-ISA 7 – an evolution in cash processing

De La Rue is pleased to announce the introduction of ECM-ISA 7, using an all new web-technology platform and building on the software heritage of our existing ECM™ vault management solution.

Following a significant R&D investment, ECM-ISA 7 utilises the latest software technologies to help our cash processing customers maximise productivity, improve flexibility and achieve unparalleled levels of control and visibility within and beyond the cash vault.

Over 85 organisations worldwide currently use ECM-ISA to support their cash processing operations and we strongly value the longevity of these relationships, always providing a viable upgrade path to support the evolving requirements of our customers.

Continued on page 24



Bank of England

In October 2014, following a competitive tender process, De La Rue signed a new 10-year contract with the Bank of England to print its sterling banknotes at the Bank's facility in Debden, Essex commencing in April 2015. This is an extension of the relationship between the Bank of England and De La Rue which dates back many years. Most recently De La Rue has been printing banknotes at the Bank's facility in Debden, under a contract awarded in 2003.

Philip Rogerson, De La Rue Chairman, commented: "We are delighted with the Bank of England's decision to award this prestigious and important contract to De La Rue, following a rigorous selection procedure. We are looking forward to continuing our successful working relationship with the Bank over the next 10 years."



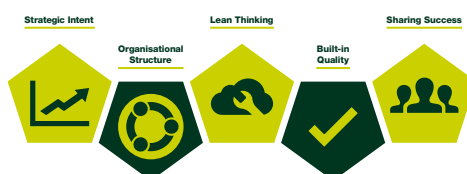
Operational excellence

De La Rue has tailored proven methods drawn from other manufacturing industries to develop an Operational Excellence programme designed to deliver operational efficiencies, improved quality and lower waste.

Our simple, structured manufacturing methodology is industry-leading and includes a dedicated quality planning process to ensure that consistent quality is achieved throughout production, addressing every key point of customers' specifications. Our holistic approach to quality includes working with suppliers across our integrated supply chain from design to delivery.

During the last few years our factories have been modernised and reorganised and management streamlined as we embed a continuous improvement culture into our organisation. Over 370 of our people have received Operational Excellence training as part of this programme, equating to approximately 5,000 training days. The programme comprises modules dedicated to leadership, creating and developing high-performing teams, optimising the use of systems and tools and generating improvements.

We are on the journey to drive change, focus on what matters and set the standard across De La Rue to deliver consistent, high-quality products and services to our customers around the globe.



Banknote ethics initiative

The Banknote Ethics Initiative (BnEI) was launched at Currency Conference in May 2013. The initiative was established to promote ethical business practice, with a focus on the prevention of corruption and on compliance with anti-trust law within the banknote industry.

De La Rue played a leading role in establishing the initiative and was one of the first three companies to be accredited to this new industry standard in February 2014. In November 2014, BnEI announced that another five companies had become accredited members.

The independent nature of the BnEI accreditation will provide governments and central banks with assurance with respect to ethical standards that they are looking for from their banknote suppliers. De La Rue expects BnEI accreditation to become the default standard that all suppliers across the industry will be expected to reach. For further information, visit www.bnei.com



New website

In August 2014 we launched our new-look corporate website which provides a much improved user experience. The new site is market-focused and includes images and animations to showcase our products and solutions. It has been built to be fully responsive, automatically adjusting to best fit the type of device which the viewer is using, whether a desktop computer, laptop, tablet or smartphone.

Visit the site at www.delarue.com

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